

**THE RELATIONSHIP BETWEEN SELF-CONCEPT
AND EATING DISORDER SYMPTOMATOLOGY
IN ADOLESCENT SCHOOLGIRLS**

by

Lana Lee Munro Hawkins

B.A., University of Alberta, 1992

THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS
in the Department
of
PSYCHOLOGY

© Lana L. M. Hawkins

SIMON FRASER UNIVERSITY

November, 1996

All rights reserved. This work may not be
reproduced in whole or in part, by photocopy
or other means, without permission of the author.



National Library
of Canada

Bibliothèque nationale
du Canada

Acquisitions and
Bibliographic Services Branch

Direction des acquisitions et
des services bibliographiques

395 Wellington Street
Ottawa, Ontario
K1A 0N4

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file *Votre référence*

Our file *Notre référence*

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-612-16916-2

Canada

PARTIAL COPYRIGHT LICENSE

I hereby grant to Simon Fraser University the right to lend my thesis, project or extended essay (the title of which is shown below) to users of the Simon Fraser University Library, and to make partial or single copies only for such users or in response to a request from the library of any other university, or other educational institution, on its own behalf or for one of its users. I further agree that permission for multiple copying of this work for scholarly purposes may be granted by me or the Dean of Graduate Studies. It is understood that copying or publication of this work for financial gain shall not be allowed without my written permission.

Title of Thesis/Project/Extended Essay

The Relationship Between Self-Concept and Eating

Disorder Symptomatology in Adolescent Schoolgirls

Author: _____

(signature)

(name)

Dec 12/96
(date)

APPROVAL

Name: Lana Lee Munro Hawkins
Degree: Master of Arts
Title of Thesis: The Relationship Between Self-Concept and Eating Disorder
Symptomatology in Adolescent Schoolgirls

Examining Committee:
Chair: Bruce Alexander

Robert Ley
~~Senior Supervisor~~

David Cox
Associate Profess

Raymond Koopman
Associate Professor
Statistician

Josie Geller
Clinical Psychologist
St. Paul's Hospital Eating Disorders Unit
External Examiner

Date Approved: November 26, 1996

Abstract

The present study sought to determine whether the self-concept deficits that have been demonstrated in eating disorder patients are related to eating disturbances in a non-clinical, "normal" sample. The Offer Self-Image Questionnaire (OSIQ) and the Eating Disorder Inventory-2 (EDI-2) were administered to 273 senior high-school females. Poor functioning in several aspects of self-concept was found to be related to the attitudes, thoughts, and behaviors associated with anorexia and bulimia nervosa. A multiple regression of the EDI-2 subscales "Drive For Thinness" and "Bulimia" on the OSIQ scales identified the self-concept areas of Body Image and Psychopathology as strong predictors for both subscales. "Drive For Thinness" was also strongly predicted by Social Relationships self-concept, while Impulse Control and Emotional Tone contributed greatly to the explained variance in "Bulimia" scores. Results demonstrate that the OSIQ and the EDI-2 data are held together on at least three separate dimensions, and three factors, labelled "eating disorder," "maturity crisis," and "general life adjustment," were identified. Results suggest that the self-concept pattern identified by past research as characteristic of eating disorder patients coincides with eating disturbances in general. The practical implications of the findings and suggestions for further research are discussed.

Acknowledgements

I wish to express my sincere gratitude to Dr. Robert Ley, my senior supervisor, whose guidance, support, and insight were invaluable, and to Dr. David Cox, whose infectious optimism is truly motivating. I am grateful also to Dr. Raymond Koopman for his expert (and frequent) consultation in statistical matters, and to Joan Foster for her assistance throughout my project.

This study would not have been possible without the assistance of the principals and teachers of Richmond, Westview, and Burnett Secondary schools and the cooperation and honesty of the students who participated in the study. Many thanks to them all.

I could never fully express my gratitude to my husband, Gregory, for his unending, inspiring strength and support; nor could I do justice with an expression of my love. Thanks also to our darling daughter Ava (my greatest accomplishment and joy), who provided much-needed relief with her smile, her laughter, and her perfect love. Finally, a heartfelt thank you to my mother, Patricia, my father, Bengiman, my sister, Lori, and my Grandmother, Mary Kraychy, as well as to all of my family and friends, whose encouragement and love have given me the tenacity to pursue my dreams.

Table of Contents

Approval.....	ii
Abstract.....	iii
Acknowledgements.....	iv
List of Tables.....	vii
List of Appendices.....	viii
Introduction.....	01
Anorexia Nervosa.....	02
Bulimia.....	04
Eating Disorder Symptomatology	
in the Non-Clinical Population.....	08
Self-Esteem.....	13
Self-Concept.....	15
Self-Evaluation and Eating Pathology.....	18
Self-Esteem and Eating Disorders.....	22
Self-Concept and Eating Disorders.....	23
Self-Concept in Eating Disorder Patients.....	23
Self-Concept in Non-Clinical Samples.....	28
Conclusion.....	30
Statement of the Research Hypotheses	33

Method.....	36
Subjects.....	36
Instruments.....	37
A. Unpublished Instruments.....	37
Subject Information Sheet.....	37
Health Information Questionnaire.....	37
Shape and Weight Based Self-Esteem Inventory.....	37
B. Published Instruments.....	38
Offer Self-Image Questionnaire.....	38
Eating Disorder Inventory-2.....	42
Procedure.....	44
Results.....	47
Correlational Analysis.....	47
Multiple Regression Analyses.....	48
Canonical Correlation Analysis.....	49
Principal Component Analysis.....	50
Discussion.....	53
Prevention and Treatment Implications.....	61
Cautionary Considerations.....	62
Directions for Further Research.....	63
References.....	66
Tables.....	76
Appendices.....	82

List of Tables

Table 1: Correlations Between Offer Self-Image Questionnaire Subscales and Eating Disorder Inventory-2 Subscales.....	75
Legend for Tables 2 and 3.....	76
Table 2: Prediction of Eating Disorder Inventory-2 "Drive For Thinness" Scores Using Offer Self-Image Questionnaire Subscale Scores.....	77
Table 3: Prediction of Eating Disorder Inventory-2 "Bulimia" Scores Using Offer Self-Image Questionnaire Subscale Scores.....	78
Table 4: Results of the Canonical Correlation Analysis of Offer Self-Image Questionnaire and Eating Disorder Inventory-2 Subscales.....	79
Table 5: Varimax Rotated Principal Components of Self-Image and Eating Disorder Data.....	80

List of Appendices

Appendix A: Parental Consent Form.....	81
Appendix B: Informed Consent Form.....	82
Appendix C: Subject Information Sheet.....	83

Introduction

Eating disorders, including anorexia nervosa and bulimia, have become an important health care concern, as they appear to have increased dramatically over the past few decades (e.g., Bushnell, Wells, Hornblow, Oakley-Browne & Joyce, 1990; Garfinkel & Garner, 1982; Pyle, Halvorson, Neuman, & Mitchell, 1986) and are now commonly encountered in clinical settings. Although greater detection may be partly responsible, most experts believe that the incidence of both anorexia and bulimia have actually increased. After considering the results of several studies, Szmukler (1985) estimated the prevalence of anorexia to be just under 1% and the prevalence of bulimia to be between 4 and 16%. Many authorities emphasize the role of media, advertising, and other cultural factors in promoting thinness for women, and the subsequent fear of fatness and engagement in strict dieting practices as primary contributing factors in the development of anorexia and bulimia. The intense pressure on women to diet in order to meet unrealistic cultural standards for female beauty has been proposed as one factor responsible for the recent increase in anorexia and bulimia (Boskind-Lodahl & White, 1978; Garner & Garfinkel, 1980; Garner, Garfinkel, & Olmstead, 1983, as cited in Garner, Rockert, Olmstead, Johnson, & Coscina, 1985). However, both anorexia and bulimia are believed to be multiply determined, with biological, psychological, familial, and sociocultural factors contributing to their development, although the relative contributions of each of these factors may vary across those afflicted (Garfinkel & Garner, 1982; Garner, 1991). The focus of the present investigation is to explore the relationship between one of the psychological factors thought to be important in the clinical syndromes of anorexia nervosa and bulimia, namely self-concept, and eating

problems among adolescent girls. First, however, it is necessary to explore the constructs of self-esteem and self-concept, as well as the theories and the evidence related to the centrality of self-evaluation in clinical cases of anorexia and bulimia nervosa.

Anorexia Nervosa

The origin of our knowledge of anorexia nervosa began with the near simultaneous publications of Sir William Gull's 1874 "Anorexia Nervosa (Apepsia Hysterica, Anorexia Hysterica)," and Dr. Lasegue's 1873 "On Hysterical Anorexia" (cited in Anderson, 1985). The condition of self-inflicted starvation described by each of these papers is remarkably similar to contemporary descriptions of this disorder. The American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) defines the essential features of anorexia nervosa as follows: "the individual refuses to maintain a minimally normal body weight, is intensely afraid of gaining weight, and exhibits a significant disturbance in the perception of the shape or size of his or her body...in addition, postmenarcheal females with this disorder are amenorrheic" (1994, p. 539) Typically, anorexics are presented for treatment when body weight has plummeted to 85% or less than expected normal body weight. The weight loss is the result of a marked, willful reduction in food intake, often accompanied by feelings of hyperactivity and intense, frequent bouts of exercise. The fear of weight gain is not ameliorated by weight loss, and in fact the fear may increase while weight decreases.

The term "anorexia nervosa," coined by Sir William Gull, was perhaps an unfortunate choice. Translated from the Greek, it means "loss of appetite from nervous origins," yet few of those suffering from anorexia actually experience a loss of appetite

(APA, 1994). Most experience hunger, and their refusal to eat results from an attempt to overcontrol their impulse to eat (Bruch, 1985). Gull's term also illustrates the early belief that anorexia is a form of hysteria, and essentially amounts to a loss of the functions relating to hunger due to an underlying nervous pathology. This historical conceptualization is imprecise, and the current diagnostic classifications view anorexia as distinct from conversion disorders, typically categorized with bulimia and in some diagnostic nomenclatures, with compulsive overeating. Other characteristic behaviors of anorexia are an obsessional preoccupation with food, including its preparation and handling, as well as with serving food to others. One of the core features of anorexia, first noted by Lasegue in 1873, then later incorporated as one of a triumvirate of essential symptoms (along with cognitive and perceptual disturbances and pervasive feelings of ineffectiveness) in 1962 by Bruch is a "distorted body image," such that the anorexic overestimates the size of her/his body. This body image distortion is resistant to change and is theorized to be paramount to the maintenance of the disorder, as the anorexic *feels* fat, and never views herself as having reached her "thin" ideal, where a cessation of dieting might be justified.

The prevalence of anorexia nervosa in the general population appears to be just less than 1% (for a review, see Szmukler, 1985; Williamson, Barker, & Norris, 1993), but may be higher in specialized subgroups where weight maintenance is an issue, such as ballet dancers and models (Garner & Garfinkel, 1980; Hamilton, Brooks-Gunn, & Warren, 1985; Szmukler, Eilser, Gillies, & Hayward, 1985). In general, 85% to 90% of anorexics are female (Anderson, 1985), and the clinical profile for those males affected is remarkably similar to the female profile (Scott, 1988). Anorexia has been found to be

more prevalent among persons from families in the middle to upper socioeconomic range (Crisp, Palmer, and Kalucy, 1976), however, there is growing evidence to suggest that anorexia nervosa is becoming more equally distributed throughout the social classes (Garner & Garfinkel, 1982; Gowers & McMahon, 1989; Leighton & Millar, 1985; Pope, Champoux, & Hudson, 1987). The syndrome usually begins in adolescence, and appears to have a bimodal distribution with respect to age of onset, with peaks occurring at 14 1/2 and 18 years of age (Halmi, Casper, Eckert, Goldberg, & Davis, 1979).

The DSM-IV makes the distinction between two subtypes of anorexia nervosa: the restricting type and the binge-eating/purging type. The "restrictor anorexic" accomplishes weight loss solely through food restriction, fasting, or excessive exercise, and does not regularly engage in binge eating or purging. The "binge-eating/purging anorexic" meets the DSM-IV criteria for anorexia nervosa, but also regularly engages in binge eating (the consumption of an abnormally large amount of food in a given time period), purging (through the use of self-induced vomiting, diuretics, laxatives, or enemas), or both during the anorexic episode. It appears that most of the individuals of this latter subtype engage in bingeing and/or purging behavior at least weekly, but no minimum frequency has yet been specified for inclusion in this category (APA, 1994).

Bulimia

Bingeing and purging behaviors were originally conceptualized only in terms of being a frequent component of anorexia nervosa, and the syndrome was differentially labelled as *bulimarexia*, *dysorexia*, or *dietary chaos syndrome* (Williamson, Barker, & Norris, 1993). Bulimia was not recognized as a separate diagnostic entity until normal-weight bulimics were identified. Translated as "ox hunger," bulimia was first officially

recognized by the American Psychiatric Association in 1980, in its third edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-III, 1980)*. The more current *DSM-IV (1994)* defines the essential characteristics of bulimia as: recurrent episodes of binge eating; a feeling of lack of control over eating behavior during the eating binges; and recurrent compensatory behavior in the form of self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise in order to prevent weight gain. In order to qualify for the diagnosis, the person must have had, on average, a minimum of two binge eating episodes and inappropriate compensatory behavior a week for at least three months (APA, 1994).

Unlike anorexics, individuals with bulimia tend to be within the normal weight range, although underweight and overweight categories have also been identified. The *DSM-IV* makes a distinction between purging and nonpurging bulimic subtypes. The term "nonpurging" is somewhat misleading, however, for although the nonpurging bulimic does not regularly engage in the purgative method of vomiting, nor the use of laxatives, diuretics, or enemas, they must have engaged in either fasting or excessive exercise for the same purgative purpose. The distinction between different subtypes of bulimia is important, as they may differ in terms of their etiology, their course, the degree and type of associated pathology, and their recommended mode of treatment (Rosen & Leitenberg, 1985).

Eating binges may be either spontaneous or planned. Typically the bulimic binges on large amounts of carbohydrate-rich, high calorie foods (e.g., chocolate, ice cream, etc.) that require little chewing, though the foods may also be no different from those ordinarily consumed at mealtimes. The food is eaten inconspicuously or in secret, and is

usually eaten rapidly, with little appreciation for taste and texture, and consequentially, little satisfaction. The binge is usually terminated by physical discomfort or social interruption. Over time, the bingeing becomes a reaction not only to hunger, but to a variety of sources of stress and anxiety.

To alleviate the anxiety and guilt that follows the binge, and to avoid the possibility of weight gain, some bulimics turn to purgative methods. Purging has the effect of reducing abdominal discomfort and anxiety, and becomes a powerful negatively-reinforcing behavior. However, because feelings of anxiety and guilt typically follow the purgative behavior, and because purgative behaviors result in the elimination of nutrients in the body (Slade, 1982), the person is predisposed to binge again, and may quickly become locked into a vicious circle of bingeing and purging (Rosen & Leitenberg, 1982). As the disorder progresses, the individual comes to feel that she/he has no control over the eating behavior, and the resulting sense of hopelessness and failure again feeds into the binge/purge cycle. Like the anorexic, the purging bulimic demonstrates an intense fear of fatness, and takes extreme measures to reach what they subjectively define as an "ideal" body weight. In terms of differential diagnosis, it is important when dealing with an underweight individual to distinguish between bulimia nervosa, purging subtype and anorexia nervosa, binge-eating/purging subtype. To ensure a proper diagnosis, the clinician must ascertain whether the individual also meets the DSM-IV criteria for anorexia nervosa.

Studies of bulimic patients have determined that the onset of bulimic symptoms steadily increases between the ages of 14 and 25 (Bushnell et al., 1990; Woodside & Garfinkel, 1992), with a peak age of onset occurring at 18 years of age (Mitchell et al.,

1987). Females are at far greater risk, as it appears that only 10% of bulimics are male (Striegel-Moore, Silberstein, French, & Rodin, 1989). The prevalence of bulimia is difficult to accurately assess, largely because the bingeing and purging is carried out in a secretive manner, and bulimics may be reluctant to report their behavior. Bushnell et al. (1990) reported a lifetime prevalence of the DSM-III syndrome in females aged 18 to 44 to be 2.6% with 1.0% currently exhibiting the disorder. The overall lifetime prevalence for males was much lower, at 0.2%. The authors also noted a strong cohort effect such that the lifetime prevalence was much higher for females aged 18 to 24 (4.5%) than from females aged 25 to 44 (2.0%) or 45 to 64 years (0.4%), which provides strongly suggestive evidence that the disorder has grown in incidence over recent years.

Researchers using modified DSM-III criteria (for self-report testing) for bulimia have reported that between 4 and 19% of college or university females fulfil the diagnostic criteria (see Szmukler, 1985 for review). Using the more stringent DSM-III-R criteria, however, Schotte and Stunkard (1987) found prevalence rates for bulimia to be 1.3% for female and .1% for male North American students. These authors conclude that although bingeing and purging behavior has been reported at much higher prevalence rates in this population, those who actually meet the diagnostic criteria in terms of frequency and severity of the binge/purge behavior are much lower. Prevalence rates obtained through the use of DSM-III criteria in a sample of adolescent high school students reported a prevalence of 9.6% in females (2.2% purging, 7.4% non-purging) and 1.2% in males (0.1% purging, 1.1% non-purging) (Gross and Rosen, 1988).

As with anorexia, bulimia has been thought to occur more predominantly in white, middle to upper socioeconomic households, especially where there is a family

history of depression, family weight problems, or eating disorders, and particularly in industrialized countries. However, there is some evidence to suggest that bulimia is becoming more prevalent in non-whites (Gross & Rosen, 1988; Rand & Kuldau, 1992; VanThorre & Vogel, 1985), in adult females (Rand & Kuldau, 1992), and among the lower socioeconomic classes (Gross & Rosen, 1988; Pope, Champoux, & Hudson, 1987).

Eating Disorder Symptomatology in the Non-Clinical Population

Women who evidence some of the features of eating disorders (such as intensive dieting, binging, and purging) but who do not meet the full diagnostic criteria (according to various classification schemes) required for a diagnosis of anorexia nervosa or bulimia, have been variously classified as having a "partial syndrome" (Fairburn & Beglin, 1990), a subthreshold, or a "subclinical" eating disorder (Button & Whitehouse, 1981), or an "eating disorder not otherwise specified" (APA, 1994). Button and Whitehouse, in 1981, were the first to note that "many young women experience the preoccupation with weight and the forms of behavior associated with anorexia nervosa without being extremely emaciated" (1981, p. 514). They therefore suggested the usefulness of the term "subclinical anorexia" in the classification of such individuals with an attenuated form of eating pathology. Over time, a debate has developed between those who view eating disorders as representing an extreme endpoint on a continuum of weight-related concerns and behaviors on which all individuals lie, and those who insist that there are some distinguishing features of those with eating disorders, features which do not exist on this same continuum, which render some individuals vulnerable to the development of eating disorders while other individuals not in possession of these features remain "normal dieters."

Several authors (e.g., Garner, Olmstead, & Garfinkel, 1983; Garner, Olmstead, Polivy, & Garfinkel, 1984) have argued that the similarities between such "subclinical" individuals and those diagnosed with a formal eating disorder may be only superficial in nature. Two studies comparing "weight-preoccupied" women and eating disorder patients, (Garner et al, 1983; Garner et al., 1984) concluded that amongst women who could be considered "subclinical," namely those who scored high on the Eating Disorder Inventory scale "Drive For Thinness," only a portion displayed the psychopathology characteristic of the clinical sample, evidenced by elevations on all of the scales on the Eating Disorder Inventory. These scales, considered by "clinical theorists as fundamental aspects of disturbed functioning in anorexia nervosa," (Garner et al. 1983, p. 18) are measures of psychological functioning in the areas of ineffectiveness, lack of interoceptive awareness, and interpersonal distrust. The authors note that the danger inherent in the "uniformity myth" (Kiesler, as cited in Garner et al., 1984) which underlies the continuum hypothesis of eating disorders. This approach may result in the overidentification of eating disorders, as the Garner et al. studies demonstrate the heterogeneity of so-called "subclinical cases," which includes both "normal dieters" whose pursuit of thinness is not pathological and those who more closely resemble clinical cases of anorexia. As such, these authors propose a "two-component" model of anorexia nervosa, wherein the pursuit of thinness and dieting behavior represent the stressors in a diathesis-stress approach to the etiology of the anorexic syndrome, with the key motivating psychological factors of ineffectiveness and perceptual and cognitive disturbances surrounding internal body sensations representing a predisposing vulnerability. It is possible that the use of the term "subclinical" anorexia in the absence of the concomitant psychological features

central to anorexia may result in an overidentification of many cases (Garner et al., 1983; Garner et al., 1984), and should be restricted to those with the accompanying psychopathology.

Similar results to the studies described above have been obtained in a sample of college-age male athletes. Thiel, Gottfried, & Hesse (1993) divided their "weight-preoccupied" subgroup of male low-weight wrestlers and rowers into two subgroups using cluster analysis. Cluster 1 exhibited significantly greater pathology on six of the eight Eating Disorder Inventory subscales (Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Interoceptive Awareness, and Maturity Fears) than the male normal-weight control group. However, Cluster 2 differed from the male control group only on the Bulimia subscale, and is otherwise unremarkable. The two subgroups also differed from each other in terms of the frequency of bingeing, with 56% of the Cluster 1 individuals reporting a binge-eating frequency greater than once a week. It therefore appears that in male athletes who compete in sports with low weight requirements, two subgroups of individuals with problematic eating emerge. One is characterized by elevated scores only on scales which tap primarily the behavioral characteristics typical of eating disorders, namely those that relate to binge eating, dieting, and purging behaviors, while the second cluster demonstrates a more extensive pattern of psychological pathology, and thus more closely resembles clinical cases of eating disorders. Correspondingly, the authors suggest that only those individuals demonstrating the more global pathology associated with the Cluster 1 typology be considered cases of "subclinical eating disorders" (p. 263).

Results such as those described above provide some clarity to the long-standing issue concerning the continuous or the discontinuous nature of eating disorders. Whereas the continuity hypothesis assumes that the frequency or intensity of the characteristics found in eating disordered individuals are merely extreme points on a continuum on which all people lie, the discontinuity hypothesis proposes that there are qualitative differences between those with eating disorders and those who do not meet the diagnostic criteria. The research reviewed above suggests that although the weight preoccupation and the behaviors characteristic of anorexia and bulimia (e.g., bingeing, dieting) may be continuous variables, the psychological characteristics central to eating disorders (e.g., ineffectiveness, interoceptive awareness) may be discontinuous and thus distinctive to those who are or who closely resemble eating disordered individuals. If this is the case, it seems likely that it is only those persons who possess these distinctive psychological characteristics who are truly at risk for the development of a clinically significant eating disorder. However, the validity of such a claim can only be established with longitudinal research with high risk groups.

The two-component model of anorexia nervosa has been extended to bulimia by Laessle et al. (1989), who found that although "restrained eaters" could not be distinguished from bulimic patients by the EDI scales concerned with weight, shape, and eating, "restrained eaters" did not demonstrate any tendency to pathology on the scales of ineffectiveness, interoceptive awareness, and interpersonal distrust. In addition, researchers have attempted to determine whether some of the other psychological characteristics related to anorexia and bulimia represent continuous or discontinuous variables in the two-component model. Katzman and Wolchik (1984) compared DSM-III

diagnosed bulimics, self-reported "binge-eaters," and controls on several dimensions. In contrast to the bulimic group, the "binge eaters" constituted a subclinical group who met the DSM-III criteria for binge eating eight or more times per month, but failed to meet one of other criteria necessary for diagnosis. The bulimics scored higher than the control group on measures of restraint, binge eating, high self-expectations, demand for approval, and depression, and scored lower than controls on measures of self-esteem and body attitudes. The binge eating (or "subclinical") group, however, differed from controls only in terms of scoring higher on measures of restraint and binge-eating. These results underscore the qualitative distinctions between the subclinical and bulimic subjects in terms of psychopathology, and suggest that psychological characteristics apart from ineffectiveness and interoceptive awareness may constitute discontinuous variables in the two-component model.

As Drewnowski, Yee, Kurth, & Krahn (1994) have commented, few epidemiological studies have addressed the issue of these subclinical eating disorders, and as such, the course and outcome of these conditions is unclear. In an attempt to determine the persistence and progression of eating disorder symptoms over time, these authors conducted a longitudinal survey which assessed the eating patterns of 557 college women using a self-report measure which included items that "approximated the DSM-III-R criteria for bulimia nervosa," (1994, p. 1217) and which allowed for subjects' classification into the following categories: nondieters, casual dieters, intensive dieters, dieters at risk, and bulimic. Changes in category status were assessed over a six month period. The authors found that 4% of intensive dieters and 15% of dieters at risk moved to the bulimic category, which suggests that "subclinical" eating disordered behavior does

indeed predispose some individuals to the development of a clinically diagnosable eating disorder, and provides support for the continuum hypothesis of eating disorders. In all cases of bulimia, it was found that fasting, binge eating, and purging preceded the onset of diagnosable bulimia by six months, and in no cases did subjects from the casual dieters or nondieters categories move to the bulimic category. Although in all categories, a large percentage of subjects retained the same classification as they had at baseline, shifts tended to occur between adjacent categories in both directions for all of the subject groupings, which the authors interpret as providing support for the continuum hypothesis of eating disorders. For example, by the end of the six-month period, 30% of the nondieters had moved to the casual dieter category, 11% of the casual dieters had moved into the intensive dieter category, 9% of the intensive dieters had moved to the dieters at risk category, and 15% of the dieters at risk had progressed to the bulimia nervosa category. The authors note that the finding that only 15% of the dieters-at-risk became bulimic necessitates further research into the social and psychological factors that are important in the development or prevention of eating disorders.

Self Esteem

Although a complete understanding of eating disorders requires that we consider the contributions of many biological, familial, and sociocultural factors, it is widely believed that these factors interact with personal characteristics to produce and maintain these disorders (Garfinkel & Garner, 1982). In recent years, an attempt has been made to identify important self-perception factors which may figure prominently in eating disorders. Two such factors are self-esteem and self-concept. A review of the literature on self-esteem and self-concept reveals a surprising lack of consensus in terms of

definitions. At times these two terms are used interchangeably, and seemingly synonymously with other terms such as self-regard, self-evaluation, self-acceptance, self-image, and self-picture, whereas at other times, clear distinctions are made between these different terms. Indeed, the "self" that is referred to in the above terms has itself been a source of confusion, and the term "self" has been used interchangeably with terms such as the ego, the proprium, and identity (Rosenberg, 1979). Rosenberg resolves this confusion by defining the "self" in self-concept and self-esteem as pertaining to the self as an *object* of the person's knowledge and evaluation as opposed to the self as a subject or agent. He also proposes a distinction between self-concept and self-esteem, such that self-esteem exists as a subset of the larger self-concept construct. Whereas the self-concept refers to "the totality of the individual's thoughts and feelings having reference to himself as an object," (p. 7) self-esteem "signifies a positive or negative orientation toward an object," (p.54) namely, the self. This conceptualization of self-esteem as primarily evaluative as opposed to cognitive is reflected in the writings of several authorities. For example, after considering the theory and research relating to self-esteem, Battle (1993) proposed the following definition of self-esteem:

Self-esteem refers to the perception the individual possesses of his/her own worth. An individual's perception of self develops gradually and becomes more differentiated as he/she matures and interacts with significant others. Perception of self-worth, once established, tends to be fairly stable and resistant to change (p.18).

Most authorities agree that self-esteem, as described above, is a self-evaluative phenomenon, which is multifaceted, stable, and gradual in development. Interest in the construct of self-esteem among clinicians and researchers gained momentum during the 1950s and 1960s, and the relationship between self-esteem and other phenomena,

including psychological disorders, has been extensively explored. Most of the research conducted on self-esteem is done with instruments that provide a global measure of self-esteem, such as Rosenberg's "Self-Esteem Scale" and Coopersmith's "Self-Esteem Inventory." These instruments are useful in that they provide an overall measure of self-acceptance, but they lack the ability to make fine discriminations regarding which aspects of self-evaluation appear to be most importantly related to the other variable(s) in question.

Self-esteem is widely believed to be positively correlated with mental health. That is, most mental health experts agree that individuals who have positive self-evaluations are more psychologically healthy than those with negative self-evaluations. Significant relationships have been found between self-esteem and several clinical indices, including depression (Battle, 1978, 1980), anxiety (Battle, as cited in Battle, 1991), and general psychopathology (Coopersmith, 1967). Due to the established relation between self-esteem and mental health, researchers have explored the connection between self-esteem and eating disorders, and demonstrated the importance of self-esteem to both anorexia and bulimia.

Self-Concept

A second self-perception factor which has recently been investigated with regards to its relationship to eating disorders is self-concept. In his thoughtful analysis, Rosenberg (1979) referred to the self-concept as that portion of the personality of which the individual is cognizant and has feelings toward. Consistent with many experts in the field, he suggests that when considering self-concept, it may be more accurate to refer to the self-concept as "the realm of self ideas," as the individual's *Selbstanschauung* - his

general guiding self-views, which are composed of the individual's thoughts and feelings with regard to himself" (p. 8). In the same manner, Offer, Ostrov, & Howard (1981) noted in their analysis of the adolescent self-concept that one "may feel differently about himself in different contexts: as a student, as a friend, as a son or daughter" (p. 16). In this way, we see how each individual can be thought of as possessing many different selves or self-dimensions, each of which may vary in terms of subjective evaluation. Self-concept, then, can be conceptualized as both a more complete and differentiated picture of self-evaluation, which includes, but is not limited to self-esteem. Self-concept instruments attempt to provide measures of an individual's self-acceptance in several facets of the self. For example, academic, social, and family self-concept are components of many self-concept instruments. As Abramowitz, Petersen, and Schulenberg (1984) have noted, in order to arrive at a unidimensional self-concept score, one would need to assess the personal salience of each of the self-concept components to each specific individual. The difficulty in assessing the unique self-concept weightings has prohibited the development of a measure of overall self-concept.

There are two major reasons why research has attempted to explore the link between self-concept and eating disorders. The first relates to the limitations of demonstrating the role of self-esteem in anorexia and bulimia using measures which provide only a single, global index of self-acceptance. In contrast, Offer (Offer, Ostrov, & Howard, 1981, 1984) defined self-image as a composite of five distinct aspects of self-concept, and constructed a measure which taps these five aspects: the psychological self, the social self, the sexual self, the familial self, and the coping self. In looking at each of these five self-concept areas, one may gain an accurate sense of an individual's overall

self-acceptance. Research conducted using measures which permit this form of differentiation allows for a more precise determination of which aspects of self-image are importantly related to eating disorders and eating disorder symptomatology. Second, the fact that the onset of both anorexia nervosa and bulimia typically occurs during adolescence has led researchers to look for a connection between eating disorders and disturbances in self-concept. Adolescence is believed to be a time when individuals undergo great changes in their images of themselves due to the changes that are occurring in their bodies, their relationships with the opposite sex, and their relationships with their parents. The idea that adolescence involves a focus on one's identity is reflected in many psychological theories, most notably in the psychosocial development theory of Erikson (1968, 1980). This centrality of identity and identity-related issues during adolescence seems logically related to changes that might occur in self-concept at that time.

Generally, it is agreed that an individual develops his self-concept through observing the reactions of others towards him or herself (Hansen & Maynard, 1973, cited in Rosenberg, 1979). As adolescence is a time of increasing societal pressures to meet certain goals and standards, as well as a period of increasing peer and romantic relations, it has traditionally been viewed by experts and non-experts alike as a time of great stress and turmoil (Offer, Ostrov, & Howard, 1984). However, studies investigating the role of self-concept in adolescence have suggested that rather than being a time of widespread turmoil and confusion, the majority of adolescents have remarkably well-adjusted self-concepts. In analyzing data collected on over 30,000 adolescents worldwide over three decades, Offer, Ostrov, and Howard (1984, p. 12) noted:

the vast majority of these teenagers function well, enjoy good relationships with their families and friends, and accept the values of the larger society. In addition, most report having adapted without undue conflict to the bodily changes and emerging sexuality brought on by puberty.

While the self-concepts of most adolescents appear to indicate good overall adjustment, there exists sex differences which become important when viewed in light of the far greater propensity for females to develop eating problems than males. In their study following sixth grade children through eighth grade, Abramowitz, Petersen, & Schulenberg (1984), using the Offer Self-Image Questionnaire, found that in general, self-concept scores tended to increase with age. However, at every age, girls demonstrated a trend towards lower scores in self-concept in several areas compared to boys, and were significantly lower than their male peers in Body Image self-concept. Moreover, girls but not boys demonstrated a decrease in scores over time on the two scales most associated with social comparison: Body Image and Social Relations.

Self-Evaluation and Eating Pathology

Self-concept is believed to be relevant to the study of eating disorders, particularly because weight preoccupation, dieting, and pathological eating habits typically begin in adolescence, a time where issues of identity and self-concept are particularly salient. As Offer et al. (1981) have noted, the ability to create a valid self-portrait does not appear until adolescence, with its increasingly sophisticated cognitive skills and psychological sensitivity. In addition, the adolescent's self-conceptions can often have a greater impact on their attitudes, affects, cognitions, and behaviors than the reality which surrounds them (Swift et al., 1986).

Clinicians have long proposed that there exists an important connection between eating disorders and negative self-evaluation. In writing about her extensive experience working with anorexics, Bruch (1978), remarked:

their whole life is based on certain faulty assumptions that need to be exposed and corrected. Deep down every anorexic is convinced that her basic personality is defective, gross, not good enough, "the scum of the earth," and all her efforts are directed toward hiding the fatal flaw of her basic inadequacy. (p. 136-137)

Indeed, Bruch proposed that a main goal of therapy is to "help the patient uncover the error of these convictions, to let her recognize that she has substance and a worth of her own" (p.137). Bruch emphasizes the role of psychogenic factors in the etiology of eating disorders, stating that "though the consequences of severe malnutrition dominate the manifest clinical picture, the deeper psychological disorder is related to underlying disturbances in the development of the personality, with deficits in the sense of *self*, *identity*, and *autonomy* (italics added)" (1973, p. 10).

At the root of these deficits is a developmental failure. This failure, namely a failure to develop a sense of "self" which is experienced as distinct from others, results in a diffuse ego boundary such that the experiences arising from internal and from external sources are not perceived as being distinct. Bruch theorizes that the cause of this failure to develop a firm ego boundary lies in early infant-mother relations, particularly those relating to feeding. A childrearing background characterized by unsatisfying, inconsistent, or neglectful responses by the mother to the infants' various needs results in the child's inability to develop accurate self-awareness and feelings of effectiveness. Due to this lack of self development, and the resulting inability to be self-directed, the child fashions a self based on the expectations of others, and lives in a state of feeling helpless

and at the mercy of external forces. Bruch emphasizes that it is within this psychological context that anorexia occurs.

Bruch viewed the main function of anorexia as "a struggle for control, for a sense of identity, competence, and effectiveness" (1973, p. 251), and as such, it is not surprising that it typically has an onset during the adolescent years. Adolescence represents an acute crisis for the pre-anorexic individual, as it requires of her the task of developing a new, more mature identity, one requiring further differentiation and separation from her parents. The demands of impending adulthood, with the plethora of choices available, may be experienced as frightening and overwhelming. A greater degree of autonomy is expected and indeed required of the soon-to-be-adult, yet she is ill-prepared for this task. Anorexia represents a desperate attempt at autonomy, at inner-directedness using the one tool completely at the anorexics control; her own body.

Bruch (1973) described three essential underlying disturbances in anorexia which are related to the failure to develop an adequate self. First is a distorted body image, such that the body is perceived as being larger or heavier than it is in reality. Second is a "disturbance in the accuracy of the perception or cognitive interpretation (sic) of stimuli arising in the body," (p.252) which is most pronounced with respect to an inability to accurately recognize the bodily sensations pertaining to hunger and satiety. This deficit in accurate self-perception also extends to confusion and inaccuracy surrounding other inner sensations, including skin temperature and emotions. The third essential disturbance identified by Bruch is a debilitating feeling of ineffectiveness, which pervades all aspects of the anorexic's experience. This is closely related to the degree of other-directedness with which the anorexic lives, as they experience themselves as acting only

in response to the demands of others, rather than from their own volition. Bruch hypothesizes that the feelings of helplessness associated with this situation is often defensively covered up by the anorexic with a negative orientations towards and a rejection of others.

It is clear that deficits in the self structure and the resultant negative self-evaluations are viewed as important features of anorexia nervosa in Bruch's model. The importance of the three essential features of anorexia have been supported both by clinicians and by empirical research (e.g., Garner, Olmstead, & Garfinkel, 1983; Garner, Olmstead, Polivy & Garfinkel, 1984). Several theorists, particularly feminist theorists drawing on object-relations theory, have expanded upon Bruch's central premises of early need deprivation and self-alienation as pathognomic for eating disorders. In addition to viewing the need deprivation as originating from unsatisfactory mothering, these theories (Chernin, 1986; Orbach, 1986) emphasize the influence of the social forces stemming from a sexually unequal culture which result in keeping women alienated from their own experiences and needs.

Deficits in the formation of the self related to failures in early mothering are have also been theorized as being important to the later genesis of bulimia. Jones (1985) has described bulimia as being related to a pathological identity based on the False Self described by Winnicott. Humphrey and Stern (1988) have integrated ideas from several object relations theories to describe both an individual and a family identity which is characteristic of persons with bulimia. It is primarily on the basis on psychodynamic theories of eating disorders, with their emphasis on issues related to identity, that researchers sought to investigate the role of negative self-evaluation in eating disorders.

Self-Esteem and Eating Disorders

The empirical literature has supported the claims of clinicians that self-esteem is importantly related to eating disorders. Several studies have demonstrated that differences in self-esteem exist between groups of eating disordered persons and normals, as well as within different classes of eating disordered persons. Williams et al. (1993) demonstrated that in addition to scoring poorer on measures of perceived control, assertiveness, self-directed hostility, and psychiatric disturbance as measured by the General Health Questionnaire-28 (GHQ-28), both anorexics and bulimics scored significantly lower on Rosenberg's Self-Esteem Scale than did obese dieters, nonobese dieters, and normal controls. Katzman and Wolchik (1984) reported that in addition to evidencing greater depression and poorer body image, bulimics have a lower self-esteem than their non-afflicted peers. Shisslak, Pazda, and Crago (1990) showed that bulimic women from underweight, normal weight, and overweight categories had lower self-esteem than restrictor anorexics, normal controls, and obese subjects. This study also found differences in self-esteem among different groupings of bulimics, such that underweight bulimic women exhibited the lowest self-esteem, followed by overweight, then normal weight bulimics.

In contrast to these findings, Grubb, Sellers, & Waligroski (1993) failed to find any correlation between scores on a self-esteem measure and scores on the Eating Disorder Inventory (EDI) (Garner et al., 1983) in a sample of college undergraduate women. However, using a similar sample, Mayhew and Edelmann (1989) found that higher EDI scores were related to lower self-esteem, as well as to increased irrational

beliefs, less frequent use of cognitive and behavioral coping strategies, and more frequent use of avoidance-based forms of coping.

Self-esteem is believed to be important not only to the maintenance but to the etiology of eating disorders. Grant and Fodor (1986) reported self-esteem to be a major factor in the prediction of anorexic behavior in adolescents, and Abraham and Beaumont (1982) demonstrated that negative self-evaluation in general, and dissatisfaction with body size in particular, are primary factors in the development of eating disorders. Finally, in a planned prospective study of vulnerability to eating disorders, Button (1990) found that self-esteem is associated with increased concern for fatness and problems in general for girls aged 11 to 12 years old.

Self-Concept and Eating Disorders

Self-concept in eating disorder patients.

Casper, Offer, and Ostrov (1981) assessed the self-image of 30 acutely ill anorexic adolescent patients using the Offer Self-Image Questionnaire. In addition to demonstrating that anorexic adolescents differ from normal adolescents by displaying disturbances in Emotional Tone, Social Relationships, and Sexual Attitudes, the authors found that late onset anorexics (16 - 19 years) demonstrated maladjustments in Impulse Control, Body and Self-Image, and general Psychopathology whereas early onset (12 - 15 years) anorexics did not. This finding supports clinical reports of a more favourable prognosis for patients who develop anorexia at an earlier age. The self-image of the anorexics was not globally disturbed, however, as both groups of anorexic patients were well adjusted in the areas of Morals, Family Relationships, and Vocational and Educational goals. Scores on the subscales of Master of the External World and Superior

Adjustment did not differ significantly from the control group, although late-onset anorexics showed a mild level of maladjustment in the former scale.

Swift, Bushnell, Hanson, and Logemann (1986) sought to replicate and further the findings of Casper et al. (1981) by administering two related measures of self-concept, the Offer Self-Image Questionnaire and the Structural Analysis of Social Behavior (SASB)- Introject to 30 female adolescents aged 13 to 19 years admitted to a University hospital for treatment for anorexia nervosa. The pattern that emerged in the Offer Self-Image Questionnaire was quite similar to that reported by Casper et al., with the anorexics scoring very low on the three subscales which comprise the psychological self: Impulse Control, Emotional Tone, and Body and Self-Image, as well as on the Psychopathology subscale. The most disturbed scores were found in the areas of Social Relationships and Sexual Attitudes. The patients' scored within the normal range on the Superior Adjustment self-image component, and although scores on the Mastery of the External World subscale indicated adjustment in the younger anorexics, they were significantly depressed in the group of older anorexics. Although Casper et al. (1981) found no significant differences between Mastery of the External World between either of the two anorexic groups and the control group, the average scale score for the late-onset group indicated mild maladjustment. Once again, the self-image of anorexics was not globally disturbed, as they demonstrated adjustment in the areas of Morals, Family Relationships, and Vocational and Educational Goals. In comparing the self-image of older anorexics versus younger anorexics, the authors found statistically significant differences on the scales of Emotional Tone, Body and Self-Image, and Superior Adjustment such that older anorexics scored poorer than younger anorexics. However,

these differences cannot be confidently attributed to different ages of onset, as they are more likely attributable to a longer duration of illness in the older age group. As the authors note, their overall success in replicating the results of Casper et al.'s (1981) study provides further evidence in support of a distinctive anorexic self-image profile as well as strengthening the construct validity of the OSIQ.

Koenig, Howard, Offer, & Cremerius (1984) administered the Offer Self-Image Questionnaire to adolescent patients diagnosed with depression, conduct disorder, eating disorders, and psychosis, and compared their scores to the norms provided for the OSIQ age and sex-appropriate reference group. All groups evidenced disturbances in self-image, but the eating disorder patients showed the most disturbed profile of all the patient groups. The authors noted a mild disturbance in Impulse Control, a moderate disturbance in Body and Self-Image, and marked disturbances in the self-concept areas of Mastery of the External World, Social Relationships, Psychopathology, Emotional Tone, and Sexual Attitudes. Unlike the other three diagnostic groups, eating disorder patients were well-adjusted in the areas of Family Relationships, Vocational and Educational Goals, Morals, and Superior Adjustment. This pattern of self-concept adjustment and maladjustment as measured by the OSIQ closely resembles those reported by Casper et al. (1981) and Swift et al. (1986). It appears that the sample in this study more closely resembles the late adolescent sample of Swift et al., as both reported statistically significant disturbances in the Mastery of the External World subscale whereas Casper et al.'s late adolescent anorexics did not. Koenig et al. did not report the average age and duration of illness in their sample, thus either of these two variables may have contributed to this result. However, the authors state that the fact that older adolescents tended to score lower than

younger girls suggests that "these disturbances increase as the adolescent approaches young adulthood and the tasks of separating from their family and assuming adult responsibilities" (p. 67).

Finally, in 1992, Steinhausen and Vollrath tested the cultural generalizability of the "anorexic self-concept" by attempting to determine whether the self-image profile of anorexics that had been obtained by Casper et al. (1981) and by Swift et al. (1986) would be reproduced in a sample of German anorexic patients. The Offer Self-Image Questionnaire was administered to a sample of forty German adolescents who fulfilled both the DSM-III-R (American Psychiatric Association, 1987) and the ICD-10 criteria for either anorexia nervosa (N=31) or bulimia nervosa (N=9). Compared to the reference group of "healthy" German subjects, eating disorder females scored poorer on the following OSIQ scales: Impulse Control, Emotional Tone, Body Image, Social Relationships, Sexual Attitudes, and Psychopathology. However, compared to the reference group, eating disorder patients scored higher on the Vocational and Educational Goals scale, and did not differ from the reference group in the areas of Family Relationships, Mastery of the External World, and Superior Adjustment. In comparing the profile of scores obtained with the profiles obtained by Casper et al. (1981) and Swift et al. (1986), the authors note striking similarities. In fact, when the German anorexic patients' OSIQ scale scores were compared to the scores obtained by Casper et al., the authors report finding no significant differences on any OSIQ scale at either age level. When compared to the subjects in the Swift et al. (1986) study, the only significant differences occurred in the older age group, where the German sample of Steinhausen and Vollrath's demonstrated lower scores on the scales of Social Relationships ($p=.05$)

and Sexual Attitudes ($=.01$) than the Swift et al. sample. However, the authors caution that the validity of these differences is questionable due to the adjustment made on critical p values ($p=.005$) to allow for multiple comparisons. A particularly noteworthy aspect of this study is that it demonstrates the generalizability of the results of previous studies, and strengthens the transcultural validity of the OSIQ eating disorder pattern.

Steinhausen and Vollrath (1992) extended their analysis to determine whether or not inpatient treatment affects the self-image of eating disorder patients. When the subjects of the present study were measured at discharge, improvement was noted in the following OSIQ components: Emotional Tone, Body Image, Social Relationships, Sexual Attitudes, Mastery of the External World, and Psychopathology. However, with the exception of Mastery of the External World (which prior to treatment was not significantly lower than the comparison sample), these scores were still significantly lower than those of the reference group. The patients' scores on the OSIQ scale of Impulse Control did not improve with treatment, and remained significantly lower than those of the reference group. The authors put forth three possible explanations as to why the self-image components characteristic of eating disorders failed to normalize following treatment. First, it may be that the inpatient treatment length may have been of too short a duration to affect self-concept dramatically. Second, it is possible that the treatment provided had a weaker effect on self-concept than on the eating attitudes and behaviors associated with eating disorders. Lastly, an extended follow-up on this sample currently underway is exploring the possibility that the self-image of eating disorder patients normalizes as they approach adulthood.

In summary, the research to date on the self-concept patterns of eating disorder patients illustrates that adolescents in the acute stage of their illness are characterized by deficits in the OSIQ self-concept areas of Emotional Tone, Social Relationships, Sexual Attitudes, and Psychopathology, with older and late-onset patients also exhibiting disturbances in the areas of Impulse Control, Body and Self Image, and Mastery of the External World. All eating disorder patients, however, appear to remain well-adjusted in the areas of Morals, Family Relationships, Vocational and Educational Goals, and Superior Adjustment. This pattern, which has been quite successfully replicated across all studies, appears to be both unique to eating disorder patients, and a relatively stable configuration.

Self-concept in non-clinical samples.

Self-concept patterns have also been explored in terms of their relation to eating attitudes, feelings, and behaviors in non-clinical samples of young adolescent girls. Nassar, Hodges, and Ollendick (1992) administered the Piers-Harris Children's Self-Concept Scale, the Eating Disorder Inventory (EDI), and a dietary behavior questionnaire to 159 female students aged 12 to 14 years. Significant negative correlations were found between the EDI and the Piers-Harris Scale on 26 of the 48 comparisons. Particularly high correlations were found between several Piers-Harris scales and the EDI scales of Bulimia, Perfectionism, and Interoceptive Awareness. The authors also report that a specific self-concept profile emerged for girls who scored high on the above mentioned EDI scales, such that they were more likely to report behavioral problems (P-H scale 1, Behavior), little satisfaction with intellectual and academic achievements (P-H scale 2, Intellectual and School Status), and a dissatisfaction with physical appearance (P-H scale

3, Physical Appearance and Attributes). Interestingly, the Maturity Fears subscale of the EDI (thought to be associated with bulimia but particularly with anorexia) was not significantly related to any of the Piers-Harris self-concept scales.

Robinson (1992) also examined the relationship between self-concept as measured by the Piers-Harris Childrens' Self-Concept Scale and eating disordered behaviors, feelings, and attitudes as measured by the Eating Disorder Inventory in a sample of seventh and eighth grade female students. Significant negative correlations were found for 48 of 56 correlations, the strongest correlation (-.74) being between the P-H "Happy" scale and the EDI "Ineffectiveness" scale. Due to their centrality in defining clinical cases of eating disorders, the EDI scales of "Drive For Thinness" and "Bulimia" were regressed on the P-H subscales to determine which self-concept components best predicted scores on these two important EDI subscales. Results of a stepwise multiple regression of the EDI "Drive For Thinness" subscale on the P-H subscales revealed that only "Anxiety" contributed significantly, and accounted for 22.48% of the variance on the "Drive For Thinness" scale. The P-H "Happy" subscale was found to account for 30.7% of the variance in the EDI "Bulimia" subscale, and when the P-H "Anxiety" scale was added in to the analysis, the variance accounted for increased to 33.08%. A comparison of EDI scores on the "Drive For Thinness" and the "Bulimia" subscales between individuals of differing demographic status revealed that only the demographic variable of "honor roll inclusion," thought to represent perfectionism, revealed significant intergroup differences. These differences, however, were not in the direction predicted by the author. "Drive For Thinness" scores were higher for those who reported honor roll

inclusion, whereas "Bulimia" scores were higher for those who did not report making the honor roll. Finally, no significant differences in mean scores on the "Drive For Thinness" or "Bulimia" scales were found between those students who reported participating in after-school athletics or activities and those who did not.

Conclusion

The literature to date supports the hypothesis that deficits in self-esteem and several aspects of self-concept are related to both anorexia and bulimia, and to disordered eating patterns in general. Although the relationship between self-concept and eating disorders has been investigated, research in this area has either focused on establishing differences in self-concept between clinical groups of eating disorder patients and non-eating disordered controls or in exploring the relationship between self-concept and eating disturbances in very young adolescent schoolgirls. To date, no study has explored the relationship between self-concept and disturbed eating patterns in a non-clinical sample of older adolescents, despite the fact that eating disturbances occur at a much higher rate in the mid to late teens (Woodside & Garfinkel, 1992).

Although anorexia nervosa often appears early in adolescence, it has a much lower incidence than bulimia, which has a peak age of onset at 18 years of age (Mitchell et al., 1987). Moreover, when the onset of anorexia is operationally defined as the time at which lowest weight is attained, most anorexic patients report an onset in the later teens and in adulthood (Woodside & Garfinkel, 1992). The present study represents an attempt to fill the aforementioned gap in the empirical literature, as it aims to determine the relationship between various aspects of self-concept and disturbances in eating attitudes, feelings, and behaviors in a non-clinical sample of mid- to late-adolescent

females. It is expected that utilizing this age group will result in a greater amount of variance in the subjects' scores on the measure of eating disorder symptomatology (EDI-2) than was obtained in similar studies on a younger adolescent population, thus allowing for more accurate and meaningful results and interpretations.

In addition, although the studies of self-concept in eating disorder patients have demonstrated that a pattern unique to these cases emerges on the Offer Self-Image Questionnaire, no studies have been undertaken to determine whether this same pattern occurs in non-clinical cases where eating patterns are disturbed. Hess-Biber (1989) has noted that the use of clinical categories of anorexia and bulimia nervosa ignores the range of disordered eating patterns that occurs in non-clinical settings. However, as we have noted, several authors have cautioned that we must distinguish between disturbances in eating in non-clinical populations and clinical eating disorder syndromes. In particular, it has been suggested that the food and weight related symptoms associated with eating disorders which appear to be increased in non-clinical samples, such as college females, may not coincide with the psychological disturbances characteristic of anorexia and bulimia nervosa. The two-component model proposed by Garner, Olmstead, and Garfinkel (1983, 1984) states that while the food and weight related issues associated with anorexia nervosa may occur on a continuum and are shared with groups of non-clinical, weight preoccupied individuals, the psychological features thought to be central to the actual clinical syndromes may not. As such, this model represents a diathesis-stress approach to the conceptualization of anorexia nervosa, where dieting triggers the progression of eating disturbances to the clinical pathological level only in those possessing these predisposing psychological vulnerabilities. While not a direct test of the

nature of self-concept (continuous or discontinuous) with respect to the two-component model, the present study represents an attempt to discern whether self-concept, a psychological variable shown to exist in a reliable pattern of strengths and weaknesses in those with anorexia nervosa, is reproduced in a non-clinical sample of similarly-aged females who may be evidencing eating disturbances.

Finally, although it is expected, based on prior research, that a relationship exists between self-concept and eating disorder symptomatology, the exact nature of this relationship has not been specified. If certain self-concept components covary with eating disordered attitudes, feelings, and behaviors, then some dimensions must exist which explain these relationships. Research to date has only demonstrated that self-concept differences exist between groups of eating disorder patients and non-eating disordered controls, and that there are some moderate to strong correlations between self-concept components and eating disorder symptomatology. As yet, no analyses have been undertaken to identify what dimensions underlie the relationship between self-concept and eating disorder symptoms.

Statement of the Research Hypotheses

Research Hypothesis I

The OFFER SELF-IMAGE QUESTIONNAIRE scale scores for a sample of late adolescent girls will be correlated to their scale scores on the EATING DISORDER INVENTORY - 2.

Examination of this hypothesis will be pursued by a correlational analysis resulting in Pearson correlation coefficients for each pairing of OSIQ scales and EDI-2 scales, as well through as a canonical correlation procedure to transform the scale scores so that the correlation between the sets of predictor (OSIQ) and criterion (EDI-2) variables is maximal. The OSIQ scales include (1) Impulse Control, (2) Emotional Tone, (3) Body and Self-Image, (4) Social Relationships, (5) Morals, (6) Sexual Attitudes (7) Family Relationships, (8) Mastery of the External World, (9) Vocational and Educational Goals, (10) Psychopathology, and (11) Superior Adjustment. The eight main EDI-2 scales consist of (1) Drive for Thinness, (2) Bulimia, (3) Body Dissatisfaction, (4) Ineffectiveness, (5) Perfectionism, (6) Interpersonal Awareness, (7) Interoceptive Awareness, and (8) Maturity Fears.

Based upon research findings obtained with eating disorder patients, it is expected that significant correlations will be obtained between several OSIQ and EDI-2 subscales. Specifically, it is hypothesized that when subjecting the raw subscale scores of the OSIQ and the EDI-2 (where in both cases, higher raw scores are reflective of poorer adjustment) to the analyses, positive correlations will be found between the EDI-2 subscales and the OSIQ "Psychological Self" variables of Emotional Tone, Impulse Control, and Body Image, as well as the OSIQ subscales of Social Relationships, Sexual

Attitudes, Mastery of the External World, and Psychopathology. However, not all OSIQ subscales are expected to correlate negatively with the EDI-2 subscales. As eating disorder patients evidence good to superior adjustment in the self-concept areas of Morals, Family Relationships, Vocational and Educational Goals, and Superior Adjustment, it is hypothesized that these areas of self-concept will not be highly positively correlated, and may in fact be negatively correlated with the EDI-2 subscales.

Research Hypothesis II

The variance in scores on the Eating Disorder Inventory can be accounted for by specific subscales of the Offer Self-Image Questionnaire.

To test this hypothesis, the OSIQ and the EDI-2 subscales of Drive for Thinness and Bulimia will be subjected to an all subsets multiple regression procedure. This analysis will indicate which of the 11 OSIQ scales are important in predicting the EDI-2 scores on these two scales.

The rationale for choosing the two EDI-2 subscales relates to their centrality in defining the behavioral features associated with eating disorders. The Drive for Thinness subscale measures the "relentless pursuit of thinness" (Bruch, 1973, 1982, cited in Garner, 1991) and the "morbid fear of fatness" (Russell, 1970, cited in Garner, 1991) that are cardinal features of both anorexia and bulimia nervosa (Garner, 1991). The items on this subscale measure "excessive concern with dieting, preoccupation with weight, and fear of weight gain" (Garner, 1991, p. 5). A cutoff raw score of 14 on this scale identifies 10% of college females, 10% to 40% who may be evidencing "clinically significant eating disorders" (p. 11). The Bulimia subscale assesses "the tendencies to think about and to

engage in bouts of uncontrollable overeating (binging)" (Garner, 1991, p. 5), which is a key feature in bulimia nervosa as well as the bulimic subtype of anorexia nervosa.

Regressing the OSIQ subscales to an all subsets multiple regression on these two EDI-2 subscales will provide useful information concerning which self-concept components appear to be important in explaining the variance in these two key defining features of clinically significant eating disorders.

Research Hypothesis III

The relationships between the scales of the OFFER SELF-IMAGE QUESTIONNAIRE and the scales of the EATING DISORDER INVENTORY - 2 can be parcelled into separate, meaningful dimensions.

This hypothesis will be examined by performing a principal component analysis on the combined scales of the OSIQ and the EDI-2. Provided that the two measures do indeed covary, a principal components analysis will reduce the OSIQ and EDI-2 variability data to a smaller, more manageable set of factors which account for as much of their variance as possible. The results of this analysis will allow for a better interpretation of the precise nature of the relationship between self-concept and eating disorder symptomatology.

Method

Subjects

Participants for the study were secondary school students from the following Lower Mainland Secondary Schools: Burnett, Richmond, and Westview. The sample consisted of 387 females and 403 males aged 13 to 18 years. Due to student absences at the second testing period, as well as to the decision made by some teachers not to provide a second class period for the students to complete the entire testing package, the data for several of the subjects was incomplete and could not be utilized for the purposes of this study. Of the females tested, 273 (mean age = 15.8 yrs.) provided complete data packages, and these students constitute the sample upon which the ensuing analyses were based.

Following approval from the Richmond and Maple Ridge School Boards, the principals of each of the aforementioned schools provided their permission for their students to participate in the study. Prior to participating, each potential subject was given a consent form (see Appendix A) to take home to her parents or legal guardians. This parental consent outlined the nature and purpose of the study, provided the names of persons to contact should they have any questions or concerns, and informed them they may contact the principal researcher to obtain a copy of the results of the study upon its completion. At the request of the participating schools, the parental consent form required only passive consent such that only those parents who did not wish their child to participate in the study were required to return the completed form.

Instruments

Unpublished Instruments:

A. Subject Information Sheet

The subject information sheet (Appendix C) was prepared by the author for the purposes of this study. This sheet contains questions concerning basic demographic variables, such as age, sex, height, current weight, ethnicity, and parental education and occupation. In addition, information was gathered concerning ideal weight, current exercise habits, and the students' understanding of the terms "anorexia nervosa" and "bulimia."

B. Health Information Questionnaire

The Health Information Questionnaire (HIQ) is self-report instrument designed by Geller, Johnston, and Madsen (unpublished manuscript) to assess the presence and severity of disturbed eating. Based on DSM-IV (APA, 1994) criteria for "anorexia nervosa," "bulimia," and "eating disorder not otherwise specified," the measure provides a total "disturbed eating score," which may range from 0 to 69, as well as a DSM-IV diagnosis of an eating disorder. The HIQ was included in the study package for the purposes of a planned future study which will assess the changes in eating disorder symptoms and diagnoses over time. It will not be studied in the present analysis.

C. Shape and Weight Based Self-Esteem Inventory

The Shape and Weight Based Self-Esteem Inventory (SAWSB) (Geller, Johnston, & Madsen, in press) was designed to provide a measure of the importance of different self-concept factors to an individual's overall feelings about him or herself over the past two weeks. Individuals are required to first rank-order those items from a list of

attributes (intimate or romantic relationships, body shape and weight, competence at school/work, personality, friendships, face, personal development, competence at activities other than school/work, and other [subject-provided attributes]) those items which they feel have played a significant role in determining their self-evaluation. Once this task is completed, they are required to indicate, by dividing up a circle into pie-shaped pieces, what proportion of their total self-opinion is based on each of the ranked attributes. The SAWSB score is calculated by taking a measure of the angle of the "shape and weight" piece of the circle. Again, as was the case with the Health Information Questionnaire, the inclusion of the SAWSB in the questionnaire package was to obtain a measurement of interest in the prediction of future eating behavior, and will not be analyzed for the purposes of this study.

Published Instruments:

A. Offer Self-Image Questionnaire

The Offer Self-Image Questionnaire (OSIQ) (Offer, Ostrov, Howard, & Dorlan, 1982) is a self-report form of personality test that assesses the adjustment of adolescent males and females between the ages of thirteen and nineteen. It measures self-concept in five areas, including: the Psychological Self, which consists of Impulse Control, Emotional Tone (mood), and Body and Self-Image; the Social Self, including Social Relationships, Morals, and Vocational and Educational Goals; the Sexual Self; the Familial Self; and the Coping Self, consisting of Mastery of the External World, Psychopathology, and Superior Adjustment. These five selves (comprising eleven distinct content areas) constitute the overall self-image of the adolescent, his or her perception of "me" or "who I am." The OSIQ rests on two major assumptions: first, that it is

necessary to consider the individual's functioning in several areas, since "the teenager can master one aspect of his world while failing to adjust in another," and second, that the "psychological sensitivity of the adolescent is sufficiently acute to provide valid self-description" (Offer, Ostrov, & Howard, 1981, p. 31). The authors report that empirical validation of the questionnaire has supported both of these assumptions.

The OSIQ contains 124 items which cover the 11 content areas that comprise the five aspects of self-concept which constitute overall self-image, and six additional questions which comprise a provisional subscale of "Idealism." Only the 11 main subscales will be utilized in the present study. Items were chosen on the basis of "theoretical propositions, clinical experience, and a review of empirical findings, to be important to the psychological life of the adolescent." (Offer, Ostrov, & Howard, 1981, p. 135). To protect against response bias, or the tendency to respond to all items in the same direction, half the items are worded positively (e.g., "I enjoy most parties I go to") while the other half are worded negatively (e.g., "I do not like to put things in order and make sense of them"). Negatively worded items are reversed for the purposes of scoring. Whereas higher raw scores are reflective of poorer adjustment, once the conversion to standard scores has been made, larger standard scores are reflective of a more positive self-image. The subject is required to rate on a 6-point scale how descriptive each item is of him or her. The scale is anchored at "1," representing "describes me very well," and "6," representing "does not describe me at all."

Descriptions of the eleven self-concept areas are provided for further illustration:

1. Impulse Control- provides a measure of the extent to which the adolescent's ego is organized and able to appropriately deal with pressures arising from both his

internal and external environment. Many of the questions relate to the ability to control aggressive impulses.

2. Emotional Tone- measures the valence and stability of the adolescent's emotions.

3. Body and Self-Image- measures the individual's comfort with and acceptance of his or her body.

4. Social Relationships- assesses object-relations development and patterns of friendship among peers.

5. Morals- indicates the degree of superego functioning, or the level to which a conscience has developed. Many of the items relate to judgements concerning "fair play."

6. Sexual Attitude- indicates the degree of openness to sexuality and sexual experiences, and their emotional, cognitive, and behavioral reactions to the opposite sex.

7. Family Relationships- measures the quality of the adolescent's relationship to his parents, and the emotional climate of the home.

8. Mastery of the External World- indicates how successfully the adolescent is able to deal with his or her immediate environment and its demands. Many of the questions relate to self-confidence.

9. Vocational and Educational Goals- measures the adolescent's ability and willingness to work productively, and their involvement in planning for the future.

10. Psychopathology- taps overt psychological symptoms, such as unusual sensory or perceptual experiences.

11. Superior Adjustment- a measure of ego strength and self-reliance.

Demonstrates how well the adolescent feels he can cope with difficult situations.

The OSIQ raw scores for each subscale are converted into standard scores, and compared to a control reference group which has a standard score of 50 and a standard deviation of 15 on each scale. Norms are provided for "normal" males and females in younger (13-15) and older (16-18) adolescent age groups. Standard scores above 50 indicate superior adjustment and standard scores below 50 indicate maladjustment in self-image on each particular aspect of self-concept, relative to the appropriate "normal" reference group. As the EDI-2, the other main measure of interest in the present study, does not provide for the conversion of raw scores into scaled scores (raw scores are converted into percentiles), the analyses undertaken on the participants' scores are also based on OSIQ raw scores, and as such, high scores on both measures are reflective of poorer adjustment. The OSIQ has been demonstrated to differentiate between "normal" and psychologically disturbed adolescents (Koenig et al., 1984), has been translated into 22 languages, and has been administered to well over 30,000 teenagers worldwide (Offer, Ostrov, & Howard, 1982).

The OSIQ has demonstrated acceptable reliability and validity. Stability data gathered in 1979 obtained on two occasions six months apart (Offer, Ostrov, & Howard, 1981) indicated stability coefficients ranging from .48 to .84 for the individual scales, and was .73 for the overall self-image score. Construct validity of the OSIQ has been demonstrated by its moderate to high correlation with other self-concept measures, such as the Bell Inventory and the Tennessee Self-Image Test. Of note is the fact that the Body and Self-Image scale and the Family Relations scale of the OSIQ have higher

correlations with analogous scales on the Tennessee Self-Image Test than they do with non-analogous scales on that test (Hjorth, as cited in Offer et al., 1981).

B. Eating Disorder Inventory - 2

The Eating Disorder Inventory - 2 (EDI-2) of Garner (1991) is a self-report inventory which assesses the cognitive and behavioral features of both anorexia and bulimia nervosa. It consists of eight subscales, including: (a) drive for thinness, (b) bulimia, (c) body dissatisfaction, (d) ineffectiveness, (e) perfectionism, (f) interpersonal distrust, (g) interoceptive awareness, and (h) maturity fears. There are also provisional subscales of asceticism, impulse regulation, and social insecurity. However due to the relative paucity of reliability and validity data on these provisional subscales, they will not be utilized in this study. The test consists of 91 statement items (64 of which comprise the 8 main subscales) which the individual is required to respond to by indicating the frequency at which the statement is true for them, either "always," "usually," "often," "sometimes," "rarely," or "never." Descriptions of each of the eight main subscales are provided for further illustration:

1. Drive for Thinness- this subscale measures the need to strive for a thin body build, or the fear of fatness which is central to both anorexia and bulimia nervosa.
2. Bulimia- assesses the tendency to think about or to engage in bingeing, or episodes in which eating is experienced as being out of control.
3. Body Dissatisfaction- measures dissatisfaction with the body, particularly those body parts which are of greatest concern to eating disorder patients.
4. Ineffectiveness- assesses feelings of inadequacy and worthlessness, as well as feelings of being empty and alone.

5. Perfectionism - measures the degree to which the individual strives towards high levels of achievement.
6. Interpersonal Distrust- this subscale taps the extent to which one feels alienated from others and avoids close personal relationships or emotional openness with others.
7. Interoceptive Awareness- measures uncertainty and confusion in identifying affective and bodily states.
8. Maturity Fears- assesses the desire to return to the safety of childhood and the fears associated with becoming an adult.

Once raw scores are tabulated for each subscale, the person's individual profile can then be compared against norms for eating disordered patients and for comparison samples, thus arriving at a percentile ranking for each subscale. The test items were chosen empirically, based upon their ability to differentiate between criterion groups of eating disorder patients and non-clinical samples. Garner and Olmstead (1984) reported an internal consistency above .80 for each of the subscales in an eating disorder sample, and internal consistency reliability estimates ranging from .72 to .92 in a non-patient comparison group. Criterion validity for each item subscale was established by retaining only those items which significantly differentiated between eating disorder and comparison groups. The test-retest reliability over a three week period was found to be in the range of .65 - .99 (Wear & Pratz, 1987). The EDI may be useful in clinical settings to assess current status, prognosis, and response to treatments, as well as being utilized to identify those individuals who have subclinical eating problems or those at particular risk for developing an eating disorder.

Procedure

The involvement of teachers and students in this study was facilitated by the counsellor in charge of coordinating the Career and Personal Planning classes at each of the schools. Each teacher who agreed to have their class participate in the project was assigned the task of administering the test materials to the students in their charge. Most of the testing took place in the context of a Career and Personal Planning class, although some of the students from Richmond secondary school were tested during their English classes. Only those students whose parents did not return a signed negative consent form were eligible to participate. In order to ensure informed consent on the part of the students whose parents had allowed their participation, students were explicitly told prior to the study's commencement that their participation in the project was completely voluntary, and that they were free to withdraw their participation at any time, should they so choose.

Prior to the administration of the instruments of interest, the students were required to read and sign a consent form (see Appendix B) which informed them of the nature of the study and its procedure. In addition, the consent form advised them of their rights as participants, including the right to withdraw from the study at any time. The testing instructions given to the students were standardized, as each teacher involved in the administration of the study materials was provided with a detailed and precise script to follow. As an extension of the present study is tentatively planned which will involve the collection of follow-up data on the same measures one year following the initial testing, students were asked to create a seven-digit code to enter onto their research packages so that the data obtained at these two collections may be matched. In order to

secure the student's confidence that their responses to the questionnaires would be completely voluntary, this code was designed so that identification of the student from their code would not be possible.

Once the students' written consent was obtained, they were asked to complete the participant information sheet, followed by the two main instruments of interest, the Offer Self-Image Questionnaire and the Eating Disorder Inventory-2. In order to prevent students from completing the front page of the Eating Disorder Inventory-2 (EDI-2), which requires them to provide personal and identifying information, a piece of blank paper was affixed to the front of the item booklet which instructed the students to proceed directly to Question 1. This preventative measure was taken primarily so that students would not mistakenly write their name on the testing material, thereby invalidating the anonymous method of self-report for this study.

Other measures relevant to the planned follow-up study were also included: the Health Information Questionnaire (HIQ) and the Shape and Weight Based Self-Esteem Index (SAWBS). The entire testing procedure typically required between 50 and 90 minutes to complete, although some students, particularly those for whom English was a second language, required more time. As such, testing was typically done over two consecutive class periods. Following the completion of the measures by all participants, they were thanked for their participation, given further information on the nature of the study, and provided with a copy of their signed consent form. In addition to outlining the procedure and rationale of the study, as well as their rights as research participants, the consent form provided the students with the names of individuals to contact should they desire further information or wish to voice concerns about the study. Finally, the

consent form also contained information concerning resources available to those who felt they may have problems with their eating. Specifically, telephone numbers were provided for the local community mental health centre (Richmond Mental Health; Maple Ridge Mental Health), the British Columbia chapter of Anorexia Nervosa and Associated Disorders (ANAD), the British Columbia Dietitians' and Nutritionists' Association, and the Eating Disorder Resource Centre of British Columbia.

Results

Correlational Analysis

Correlations were calculated for the Offer Self-Image Questionnaire and the Eating Disorder Inventory-2 subscales in order to determine whether the data obtained on these two measures are related. For both measures, higher raw scores are indicative of poorer adjustment or greater pathology, and all of the statistical analyses computed in the study are based on raw scores. Due to the loss of power involved in adjusting for familywise error rate when making such a high number of comparisons (88 in total), "meaningful" correlations were determined according to the standard of interpreting correlations near .30 as being moderate and those near or above .50 as being high. As hypothesized, the correlations between self-concept (as measured by the OSIQ) and eating disorder thoughts, feelings, and behaviors (as measured by the EDI-2) tended to be positive, indicating that lower levels of self-concept are related to higher levels of eating disorder symptomatology (See Table 1). In addition, the majority of the correlations are of a moderate to high magnitude, as only 29 of the 88 correlations fall below $r=.200$.

The pattern of self-concept scores which was predicted to occur was in fact obtained, demonstrating that the pattern of self-concept strengths and deficits which characterize anorexic and bulimic patients is also related to eating pathology in a non-clinical sample of similarly aged females. The OSIQ subscales which are highly correlated with several EDI-2 subscales are those of the "Psychological Self," namely "Impulse Control," "Body Image," and "Emotional Tone," as well as the "Mastery of the External World," and the "Psychopathology" OSIQ subscales. Both the OSIQ "Social Relationships" and "Sexual Attitudes" subscales were moderately correlated with the EDI-

2 subscales. The only correlations which were negative in valence were those between the EDI-2 subscale of "Perfectionism" and the OSIQ subscales of "Vocational and Educational Goals" (-.188), "Morals" (-.000), and "Superior Adjustment" (-.115). In accordance with the research hypothesis, the former two are characterized by weak correlations with the EDI-2 subscales, while "Superior Adjustment" shares only weak to moderate correlations with the same subscales. The only correlational finding discrepant from the research hypothesis concerns the OSIQ "Family Relationships" subscale. Although studies on eating disorder patients have found their eating disorder sample to demonstrate no significant deviations from either the reference group or from controls, this study found the "Family Relationships" subscale to share mild to moderate positive correlations with the EDI-2 subscales.

Multiple Regression Analyses

An "all-subsets" multiple regression analysis was performed on the EDI-2 subscales Drive For Thinness and Bulimia, the two subscales thought to be central to the eating disorders anorexia nervosa and bulimia, using the eleven OSIQ self-concept subscale scores. For each subset size, ranging from a subset consisting of a single OSIQ predictor variable to a subset which includes all 11 OSIQ variables, the procedure identified the ten "best" subsets. "Best subsets" are defined as those having the highest R^2 . Rather than looking for a single "best" predictor subset for each of the two EDI-2 criterion variables, a logical approach was employed which identified what appear to be stable "good" predictors, which are defined as those OSIQ subscales that occur frequently and consistently in the ten best subsets at each subset size.

When considering the strength of each single OSIQ subscale in predicting students' scores on the EDI-2 subscale Drive For Thinness, the subscale Body Image was the best individual predictor, accounting for 23.9% of the variance (see Table 2). The next best individual predictor, the OSIQ subscale "Psychopathology," was a much weaker predictor, accounting for merely 15% of the Drive For Thinness variance. Of the eleven OSIQ subscales, those that appeared most consistently in the subsets of "good" predictors for predicting scores on the EDI "Drive For Thinness" subscale were "Body Image," "Social Relationships," and to a lesser extent, "Psychopathology." The OSIQ subscales which rarely appeared in the best subsets were "Emotional Tone" and "Morals."

As was the case with the "Drive for Thinness" subscale, the regression analysis of the EDI-2 "Bulimia" subscale revealed that of the single variable subsets, the OSIQ subscale "Body Image" accounted for the greatest amount of variance (20.5%), followed by the "Psychopathology" subscale (16.9%) (see Table 3). The OSIQ subscales which appeared most consistently in the sets of "good" predictors were "Body Image," and "Impulse Control," with "Psychopathology" and "Emotional Tone" appearing to a lesser extent. OSIQ subscales which appeared to be the least important with respect to predicting EDI-2 Bulimia scores were those of "Family Relationships," "Sexual Attitudes," and "Superior Adjustment."

Canonical Correlation Analysis

Correlations were calculated for the eight EDI-2 and the eleven OSIQ subscales as a form of hypothesis testing, with the primary goal of testing the null hypothesis of the independence of the two data sets. As can be seen in Table 4, there are at least three dimensions which account for the between-set covariability of the OSIQ and the EDI-2

subscales. An omnibus Chi-Square test of the independence of the two sets of data indicates a significant relationship between the OSIQ and the EDI-2 subscales, $X^2(88, N = 273) = 410.88, p < .0001$. Three canonical variates were identified (see Table 4). As such, there appear to be three unrelated dimensions which hold together the OSIQ and the EDI-2 data.

Principal Component Analysis

The eleven Offer Self-Image Questionnaire subscales and the eight main Eating Disorder Inventory-2 subscales were subjected to a principal components analysis procedure in order to reduce the data to a more interpretable set of underlying factors and thus to determine whether the relationships that exist between the OSIQ and the EDI-2 subscales could be parcelled into meaningful dimensions. The resulting data are presented in Tables 5 and 6.

As can be seen, in Table 5, four factors with eigenvalues greater than 1.0 were extracted. Based on the convention of determining the number of factors to retain according to the most natural or noticeable break in eigenvalues as they fall on a scree plot, only three factors, with eigenvalues of 7.5, 2.0, and 1.4 were retained for the purposes of analysis. This three factor solution, which accounted for 57.19% of the total variance in the data set, was then rotated to yield a varimax solution, and it is presented in Table 6.

On the first factor, the EDI-2 subscales of Drive for Thinness and Body Dissatisfaction had loadings above +0.80. Two EDI-2 subscales (Bulimia and Ineffectiveness) and one OSIQ subscale (Body Image) had loadings in excess of +0.60. Loading above +0.40 were the EDI-2 Interoceptive Awareness subscale and the OSIQ

subscales of Emotional Tone and Psychopathology. Apart from the OSIQ Impulse Control subscale, which had a loading of .248, the remaining self-concept variables had extremely low loadings on this factor, as did the Maturity Fears subscale of the EDI-2. This factor seems to represent a composite of the defining characteristics of anorexia nervosa and bulimia, namely a dissatisfaction with the body, a desire to pursue thinness, bulimic symptomatology, a sense of alienation from one's bodily sensations and one's emotions, as well as the feeling of a lack of control over one's actions and their outcomes. Given these attributes, the factor was labelled a "Eating Disorder" one.

The second factor appeared to be a measure of social and emotional maladjustment in response to the issues and stresses associated with sexual maturation and impending adulthood. The EDI-2 subscale Maturity Fears and the OSIQ subscale Sexual Attitudes both loaded above +0.70 on this factor. The OSIQ Social Relationships and Emotional Tone subscales, and the EDI-2 Interpersonal Distrust subscale had loadings over +0.50. Several other factors, all loading in excess of +0.40, were also identified, and with the exception of the OSIQ Body Image subscale, all were measures of ego strength, particularly poor emotional adjustment and a lack of coping skills (OSIQ subscales of Mastery of the External World, Psychopathology, and Superior Adjustment; EDI-2 subscales of Ineffectiveness and Interoceptive Awareness). The EDI-2 subscales involving the defining characteristics of eating disorders (Drive For Thinness, Bulimia, and Body Dissatisfaction) did not appear to load on this factor, nor did the OSIQ self-concept areas of Morals, Family Relationships, or Vocational and Educational Goals. As this factor seemed to represent a generally negative and apprehensive response to the

demands and implications of maturity, coupled with poor social and emotional adjustment, it was termed "Maturity Avoidance."

The third factor appeared to represent a dimension which reflects the individual's general adaptive functioning. This factor is a pure self-concept dimension, as none of the EDI-2 subscales loaded significantly on this factor. Self-concept areas which do not load highly on this factor include Sexual Attitudes and Superior Adjustment. The OSIQ Morals subscale loaded above +0.70 and the subscales of Family Relationships, Impulse Control, and Vocational and Educational Goals all had loadings above +0.60. In addition to the Social Relationship self-concept, three other OSIQ subscales (all indicative of emotional adjustment: Emotional Tone, Mastery of the External World, and Psychopathology) had loadings above +0.40. As this factor appears to emphasize family and interpersonal connectedness, empathy and concern for others, frustration tolerance, and vocational productivity, it was labelled a "General Life Adjustment" factor.

Discussion

The results of the current study confirm that the self-concept deficits which have been consistently found in eating disorder patients are also related to an increased prevalence and intensity of the thoughts, attitudes, and behaviors characteristic of anorexia and bulimia in a non-clinical, "normal" sample of similarly-aged adolescent females.

Correlations computed between self-concept (as measured by the Offer Self-Image Questionnaire) and eating disorder thoughts, feelings, and behaviors (as measured by the Eating Disorder Inventory-2) indicated that lower self-concept is, in general, related to higher levels of eating disorder symptomatology. In addition, with only one minor exception, the pattern of self-concept and eating disorder correlations which was expected (based on previous research on eating disorder patients) was obtained in this non-clinical sample of adolescent females. It appears that self-concept in the area of Family Relationships, which was not found to be disturbed in patients with anorexia or bulimia nervosa, is related to eating disorder symptomatology in non-clinical female adolescents to a moderate degree. In all other respects, the pattern of self-concept scores related to increased eating pathology which was obtained in this sample closely matches the profiles found in anorexic and bulimic patients. This similarly indicates that the distinct and stable configuration of self-concept scores thought to be exclusive to eating disorder patients also characterizes non-clinical females who may be evidencing eating disturbance.

According to the two-component model of Garner et al. (1983, 1984), and later Ruderman & Besbeas (1992), the psychological disturbances initially identified by Bruch

(1973) as central to eating disorders represent fundamental variables which distinguish between those with true eating disorder syndromes and those who merely have relatively innocuous eating disturbances uncharacterized by psychopathology. These psychological features are believed to constitute predispositional vulnerabilities to the development of eating disorders, and have been implicated by clinicians and researchers alike in initiating and maintaining the eating pathology, thereby contributing to the difficulty in effectively treating these disorders once firmly established. Each of these key defining features is believed to stem from deficits in the "self," deficits which contribute to an acute crisis arising at adolescence due to the identity-related tasks required at this time (Bruch, 1973).

It appears to intuitively follow that a self-concept characterized by a more negative self-portrait should follow from this state of a poorly developed "self." Yet, precisely what proportion of this negative self-concept is captured by Bruch's conceptualization of "ineffectiveness" is less clear. What is clear, however, is that a good deal of theory and research has demonstrated that poor self-evaluation and a negative identity is strongly related to anorexia nervosa and bulimia, and may play a role in its etiology (Slade, 1984). As such, this study sought to investigate whether self-concept is related to eating disturbances in a non-clinical group of female adolescents.

The hypothesis motivating the present study, namely that the pattern of self-concept strengths and weaknesses which distinguished anorexic patients both from other psychiatric groups and from "normals," would be reproduced in a non-clinical sample of females evidencing eating disturbances, was supported. Although the design of the present study does not constitute a direct test of this question, the results are suggestive of the fact that self-concept may be a continuous variable with respect to eating

pathology. Adolescent females who exhibit poor self-concepts, particularly in the areas of Body Dissatisfaction, Social Relationships, Psychopathology, and Impulse Control (as measured by the OSIQ), are more likely to report higher levels of eating disorder thoughts, attitudes, and behaviors than their peers who are characterized by higher self-concepts.

The strongest predictor of eating disorder symptoms was body image self-concept, which appeared most consistently in those sets of predictors which accounted for the greatest amount of variance in dieting concerns and bulimic symptoms. Body image preoccupation or dissatisfaction has consistently been identified as important in the clinical manifestation of eating disorders (see Cash & Brown, 1987; Slade, 1985 for review), and several studies demonstrate that dissatisfaction with one's weight or body shape is a strong predictor of the future symptom manifestation of eating pathology (Attie & Brooks-Gunn, 1989; Killen et al. 1994; Leon et al., 1993), as well as powerful predictor of relapse following treatment (Freeman, Beach, Davis, Solyom, 1985). As Bruch first noted in her work with anorexics, while patients may gain weight during their treatment, "without a corresponding change in their body concept, improvement is apt to be only temporary" (1973, p. 252.) Although body image dissatisfaction is included among those psychological variables identified as central to eating disorders, it is not a variable thought to be exclusive to those with anorexia or bulimia. Several theorists have commented on the pervasiveness and strength of the relatively recent thin female ideal in Westernized cultures (Boskind-White, 1985; Bruch, 1957; Garfinkel & Garner, 1982; Schwarz, Thompson, & Johnson, 1985), and research has demonstrated that those subjected to greater sociocultural pressure to be thin have a higher incidence of eating

disorders (e.g., Davis & Cowles, 1989; Garner & Garfinkel, 1980), attesting to the power of these social pressures.

The role of a disturbed body image in eating disorders has been largely believed to represent a stress in a diathesis-stress model of the etiology of clinical levels of eating disturbance. A great number of theorists have emphasized the role of the culture in promoting often unattainable ideals of thinness for women and fostering a disdainful and even a fearful attitude towards fatness (e.g., Brown & Jasper, 1993; Bruch, 1973; Chernin, 1986; Garfinkel & Garner, 1982; Orbach, 1986; Schwartz, Thompson & Johnson, 1985). The experience of living in such a culture is believed to promote body dissatisfaction among women, and this dissatisfaction often provides an impetus to begin dieting. It has been proposed that dieting contributes to the development of eating disorders in those who are psychologically vulnerable (e.g., Ruderman & Besbeas, 1992). Garner et al. (1984) make a crucial distinction between those whose dieting is primarily motivated by a desire for social approval and those in whom dieting is motivated by an effort to "gain a sense of psychological organization" (p. 264). In particular, it is thought that for these latter individuals, dieting occurs in the context of the basic ego deficits described by Bruch (1973, 1978), and the dieting behavior represents an attempt to gain a sense of autonomy, effectiveness, and identity. The resulting sense of control provided by the attempts to manage one's weight or shape in those whose lives are characterized by a sense of psychological deficits and ineffectiveness becomes, in a sense, addictive (Bruch, 1973; Slade, 1982).

Psychopathology appeared as one of the better predictors of both thinness strivings and bulimic tendencies, indicating that viewing one's experiences as being confused and

troubled is related to eating disturbances in female adolescents. This finding is consistent with studies investigating the relationship between disturbed eating attitudes and above-normal levels of reported psychopathology in high-school students (Chandarana, Helmes, & Benson, 1988) in terms of greater neurotic tendencies and higher levels of deviant thoughts and behaviors. These results may be interpreted as being reflective of the relationship which has been proposed to exist between ego deficits, including disturbances in awareness, and eating pathology.

While not predictive of thinness strivings, impulse control appeared as a good predictor of bulimic symptomatology. Although this area has not been the subject of much empirical investigation, impulse control has long been a crucial component in theoretical conceptualizations of binge eating and bulimia. Disinhibition of impulse control has been identified in patients with bulimia, which distinguishes them from restricting anorexic patients who were more likely to be characterized by impulse hyperregulation (Sohlberg, 1991). In addition, Fahy and Eisler (1993) found that non-fasting, highly impulsive college females were more prone to binge than their non-impulsive peers. The results of the present study provide further evidence to support the contention that the psychological variable of impulsivity is importantly related to binge eating, and that this relationship is not exclusive to those with a clinically diagnosable case of bulimia nervosa.

Finally, social relationship self-concept proved to be a good predictor of thinness strivings in this sample. Adolescents endorsing greater attitudes and efforts toward thinness described feelings of loneliness and a lack of connection with others. This social maladjustment may be viewed as either a primary motivator or a secondary result

of the efforts toward dieting. It all likelihood, it is both. In her analysis of the development of anorexia, Bruch (1973) speculates that as the individual becomes more and more preoccupied with dieting, she begins a process of social withdrawal which ultimately results in isolation and loneliness. This isolation stems, in part, from the efforts made by both bulimics and anorexics to keep their disturbed eating practices hidden from others. However, it is also clear from the psychodynamic literature relating to eating disorders that the ego deficits characteristic of the eating disordered individual preclude the establishment of satisfying interpersonal relationships. It may also be argued, that even for those whose dieting is less pathological in nature, it is the sense of being isolated and lonely that motivates the efforts towards weight loss in an effort to gain social approval. In any case, it is not surprising that the results of the present study support the role of interpersonal difficulties in eating disturbances.

The self-concept and eating disorder data was held together by at least three dimensions. Principle components analysis identified three factors which constitute the self-concept and eating disorder data. Loading moderately on each of the three factors were variables related to poor emotional coping and low self-efficacy. The presence of these variables on each of the factors illustrates the importance of the sense of hopelessness and ineffectiveness related to eating disturbances.

The first factor represents a pure eating disorder factor, one in which body image, thinness strivings, and bulimic tendencies predominate. However, it is important to note that the variables of ineffectiveness and interoceptive awareness also load moderately high on this factor. This result provides further validation for Bruch's conception of eating disorders as being fundamentally related to ego deficits in the areas of body

dissatisfaction, ineffectiveness, and perceptual and conceptual inaccuracies with relation to internal sensations. However, the inclusion of these variables on the eating disorder factor (based on data from non-clinical females) suggests that these fundamental aspects of anorexia may be related to eating disturbances in general, rather than solely to anorexia nervosa. This finding also runs counter to what would be expected by the two-factor model, suggesting that further research into the role of these presumed discontinuous factors is necessary to resolve this issue.

The second largest factor, labelled "Maturity Avoidance," provides support to the belief proposed by Bruch (1973, 1978), that anorexia represents a difficulty in resolving the issues associated with maturation at puberty. For Crisp (1970), anorexia represents a functional avoidance response to sexual and psychological maturity, as personified by the mature female body. This Maturity Avoidance factor relates to what has been noted (Garner, 1985) as a common theme reflected in very diverse theoretical approaches: the importance placed on anorexia occurring in the context of a struggle for autonomy and individuality, with fears of the responsibilities and stresses associated with adulthood. In this context, we see how for those with fundamental ego deficits, dieting becomes pathological when employed as a means of achieving a sense of autonomy and individuation during adolescence. The lack of ego development and the resulting self-concept disturbance "predisposes adolescents to use thinness in a misguided strife for individuation" (Casper et al., 1981, p. 388).

The final factor, one of "General Life Adjustment," seems to reflect the overall adaptive functioning of the adolescent in her world. This factor seems largely comprised of interpersonal adjustment and satisfaction in family and social relationships, and the

sense of empathy that is involved in concern for the fair treatment of others. The predominant sense of disconnectedness from others, and corresponding feelings of emptiness and of being alone in the world correspond to the sentiments expressed by the anorexic patients described by Bruch (1973). One of Bruch's patients describes this experiences as follows: "I am completely isolated, I sit like in a glass sphere. I see other people through a glass wall, their voices penetrate to me. I long for being in real contact with them. I try but they don't hear me" (1973, p. 222). In addition, a concern for the fair and ethical treatment of others seems logically related to the sense of other-directedness that Bruch felt characterized her patients, and their often overwhelming concern over being positively evaluated by others, despite their protests to the contrary. It may be the case that it is the developmental failure to achieve a strong ego with intact boundaries which leaves the individual ill-equipped to function in an adaptive manner in her world. Herzog, Keller, Lavori, and Ott (1987) have speculated that the high levels of social impairment found in bulimic patients indicates that they do not possess the "psychosocial tools" necessary to complete the developmental transition into adulthood. This in turn may have a detrimental effect on factors ranging from adjustment in school, social, and family relationships, to disturbances in mood. Presumably, the ability to make use of appropriate and effective psychosocial tools relies on both an accurate and healthy distinction between self and other in relationships, as well as a sense of worthiness to be in a relationship: both of these are impaired in those with eating disorders. It is cautioned that psychosocial impairment may also be a consequence of the eating disorder.

Prevention and Treatment Implications

The fact that both thinness strivings and bulimic tendencies were well-predicted by body dissatisfaction provides further support for the importance of body image to eating disturbances, and suggests that preventative approaches must aim to improve the body images of adolescent, or perhaps even pre-adolescent girls. If it is true that body dissatisfaction and dieting represent "stress" factors which mobilize the development of eating disorders in those possessing a predisposing diathesis (Slade, 1982), then reducing the incidence of weight and shape concerns, and thereby dieting practices, should have the effect of reducing incidence of cases of anorexia nervosa and bulimia.

Second, while the directionality in the relationship between poor self-concept and eating disorder thoughts, feelings, and behaviors is unclear, it is likely that even if the self-concept disturbances occur as a result of the disordered eating, these disturbances in how one views and feels about oneself likely serve to further exacerbate the eating pathology. In either case, programs aimed at improving the overall self-concepts of young females, particularly those thought to be at high-risk for the development of eating disorders, might prevent or halt the progression of eating disturbances.

Treatment approaches aimed at those individuals evidencing eating disturbances or disorders would benefit from the inclusion of techniques aimed specifically at strengthening those aspects of self-concept found to be importantly related to eating disturbances. Improving the individual's body image is a central component to many existing treatment plans, and a further rationale for the inclusion of this treatment component is provided by the importance of body image to both thinness strivings and bulimic tendencies as demonstrated in this study. Second, as the self-concept relating to

psychopathology was also predictive of these two eating disorder symptoms, this supports the importance of psychotherapy in the treatment of eating disturbances. Both social relationships self-concept, which is predictive of thinness motivations, and impulse control, which is predictive of bulimic tendencies, could be improved through training in social skills and/or psychotherapy. If it is indeed the case, as Herzog et al., 1987 have proposed, that a paucity in psychosocial tools contributes to the widespread maladaptation in eating disordered individuals, then assisting the individual to acquire these skills should have the effect of increasing their overall level of adaptive functioning. Finally, psychotherapeutic treatment should target the issues related to sexual and psychosocial maturity, as well as the sense of hopelessness, alienation, and ineffectiveness which appears to be associated with eating disturbances.

Cautionary Considerations

First, the limitations related to the self-report method employed in this study must be noted. In addition, although the results of the present study demonstrate that the self-concept deficits that have been identified in eating disorder patients are also related to eating problems in a non-clinical sample, they do not imply causality in either direction. While it seems intuitively more plausible that the eating disorder symptoms are secondary to the self-concept deficits, it is equally plausible that some, if not all, of the self-concept disturbances develop in response to the eating disorder symptomatology. It may also be the case that the eating disorder and the self-concept data are related due to the influence of a third, as yet unknown variable. Finally, some caution is necessary in drawing implications from the present study and extending them to adolescents who do not match the demographic characteristics of this sample. First, as the results of this study were

based solely on the responses of female students, we cannot presume that they will extend to male students. Second, these results may or may not be reproduced in adolescent females from different ethnic or socioeconomic backgrounds than the girls included in this sample, which was largely middle-class. Important next steps in this line of research would involve investigating whether this relationship between self-concept and eating disorder symptoms is reproduced in a sample of schoolgirls from higher or lower socioeconomic backgrounds, as well as in females older than those included in this sample.

Directions For Further Research

At present, the role of self-concept has only been explored in non-clinical samples of schoolgirls and in clinical samples of predominantly anorexic patients. A fruitful area for further investigation lies in extending the analysis of self-concept to other clinical and non-clinical populations. It may be the case, for example, that a comparison-based study would identify important self-concept differences between bulimic and anorexic patients. It may further be the case that different self-concept patterns characterize different subgroups of patients diagnosed with anorexia nervosa (restrictor and binge-eating/purging), and bulimia (purging and non-purging). In addition, research aimed at identifying the relationship between self-concept and eating disorder symptomatology in non-clinical, demographically diverse subgroups (e.g., age, sex, socioeconomic status) would allow for a better determination of the role of this psychological variable in eating disturbances. Finally, it would be useful to investigate the relationship between self-concept and the frequency and/or intensity of actual eating disorder symptoms, such as bingeing and purging, in both clinical and non-clinical samples of individuals rather than

simply looking at its relation to scores on a standardized measure of eating disorder thoughts, attitudes, and behaviors, such as the Eating Disorder Inventory-2. A prospective study is planned which will attempt to determine the relationship between self-concept and the presence, frequency, and intensity of eating disorder symptoms in adolescent schoolgirls, and which will explore the generalizability of the results of the present study to a sample of private schoolgirls from higher socioeconomic backgrounds.

The fact that the pattern of self-concept scores characteristic of patients diagnosed with eating disorders was found to be related to eating disturbances in a non-clinical sample of females suggests that self-concept may be a continuous variable: however this needs to be specifically addressed in future research. Further, while the results of the present study should not be interpreted as providing either support or disconfirmation of the two-factor model of eating disorders, the inclusion of the psychological variables of interoceptive awareness and ineffectiveness in the eating disorder factor underlying the data suggests that these variables may in fact be continuous variables with respect to eating disorders, at least within the population represented by the sample of schoolgirls tested. As none of the studies aimed at testing the two-component model were based on a non-clinical sample of schoolgirls, it is possible that the results do not generalize to this population. Further research on the two-component model of eating disorders must also seek to demonstrate to test its generalizability to adult females from the general population.

Finally, proponents of the two-component model of eating disorders have demonstrated that only a segment of "weight-preoccupied" individuals evidence the global pathology on the psychological features so well documented in those diagnosed

with anorexia or bulimia nervosa. Only those in possession of these fundamental features are believed to be at risk for the future development of true eating disorder syndromes. However, the absence of longitudinal data investigating the progression of actual eating disorder symptoms in these groups of "at-risk" and "benign" dieters leaves several important questions unanswered. First, is it in fact the case that those defined as "high-risk" more frequently contract anorexia nervosa and bulimia than those believed to be "normal dieters?" Second, what differences can be identified to account for those whose future eating disorder status does not conform to the predicted hypothesis? In other words, for those possessing the "at-risk" profile, what protective factors can be found to explain their success in avoiding a future eating disorder syndrome. Correspondingly, can *other* pathognomic factors, besides those identified in the two-component model, be identified which may account for the development of eating disorders in those initially classified as "normal dieters?"

Finally, the presence of the fundamental psychological features believed to represent distinguishing characteristics of eating disorder patients (i.e., ineffectiveness and perceptual/cognitive disturbances) on the eating disorder factor underlying the data based on this non-clinical sample suggests that further research into the role of these variables in eating disturbances and disorders is necessary. A longitudinal approach designed to determine whether these psychological factors are pre-existing, predisposing factors to the development of eating disorder syndromes, or whether they are secondary to the prolonged operation of weight-concern, dieting, and bulimic behaviors is necessary to provide a solid test of the two-component model.

References

Abraham, S. F., & Beaumont, P. J. (1982). How patients describe bulimia or binge eating. Psychological Medicine, *12*, 625-635.

Abramowitz, R. H., Petersen, A. C., & Schulenberg, J. E. (1984). Changes in self-image during early adolescence. In D. Offer, E. Ostrov, & K.I. Howard, (Eds.). Patterns of Adolescent Self-Image. Washington: Jossey-Bass Inc.

American Psychiatric Association. (1980). Diagnostic and Statistical Manual of Mental Disorders. (3th ed.). Washington, DC: Author.

American Psychiatric Association. (1994). Diagnostic and Statistical Manual of Mental Disorders. (4th ed.). Washington, DC: Author.

Anderson, A. E. (1985). Practical comprehensive treatment of anorexia nervosa and bulimia. Baltimore, Maryland: The Johns Hopkins University Press.

Attie, I. & Brooks-Gunn, J. (1989). Development of eating problems in adolescent girls: A longitudinal study. Developmental Psychology, *25*, 70-79.

Battle, J. (1978), The relationship between self-esteem and depression. Psychological Reports, *42*, 745-746.

Battle, J. (1980). The relationship between self-esteem and depression among high school students. Perceptual and Motor Skills, *51*, 157-158.

Battle, J. (1991). Self-esteem research: A summary of relevant findings. Edmonton, Alberta: James Battle and Associates.

Battle, J. (1993). Misconceptions Regarding Self-Esteem. Edmonton, Alberta: James Battle and Associates.

Boskind-Lodahl, M., & White, N. C. (1978). The definition and treatment of bulimarexia in college women - a pilot study. Journal of the American College Health Association, 27, 84-97.

Boskind-White, M. (1985). Bulimarexia: A sociocultural perspective. In S.W. Emmett (Ed.). Theory and Treatment of Anorexia Nervosa and Bulimia: Biomedical, sociocultural, and psychological perspectives. New York: Brunner/Mazel.

Brown, C., & Jasper, K. (1993). Why weight? Why women? Why now? In C. Brown and K. Jasper (Eds.), Consuming Passions: Feminist approaches to weight preoccupation and eating disorders. Toronto: Second Story Press.

Bruch, H. (1962). Perceptual and conceptual disturbances in anorexia nervosa. Psychosomatic Medicine, 14, 187-194.

Bruch, H. (1973). Eating Disorders: Obesity, anorexia nervosa, and the person within. New York: Basic Books, Inc.

Bruch, H. (1978). The Golden Cage: The enigma of Anorexia Nervosa. Massachusetts: Harvard University Press.

Bruch, H. (1985). Four decades of eating disorders. In D.M. Garner and P.E. Garfinkel (Eds.). Handbook of Psychotherapy for Anorexia Nervosa and Bulimia. New York: The Guilford Press.

Bushnell, J. A., Wells, E., Hornblow, A. R., Oakley-Browne, M. A., & Joyce, P. (1990). Psychological Medicine, 20, 671-680.

Button, E. (1990). Self-esteem on girls aged 11-12: Baseline findings from a planned prospective study of vulnerability to eating disorders. Journal of Adolescence, 1990, 13, 407-413.

- Button, E. J., & Whitehouse, A. (1981). Subclinical anorexia nervosa. Psychological Medicine, 11, 509-516.
- Cash, T. F., & Brown, T. A. (1987). Body image in anorexia nervosa and bulimia nervosa. Behavior Modification, 11, 487-521.
- Casper, R. C., Offer, D., & Ostrov, E. (1981). The self-image of adolescents with acute anorexia nervosa. The Journal of Pediatrics, 98(4), 656-661.
- Chandarana, P., Helmes, E. & Benson, N. (1988). Eating attitudes as related to demographic and personality characteristics: A high school survey. Canadian Journal of Psychiatry, 33, 834-837.
- Chernin, K. (1986). The Hungry Self. New York: Basic Books.
- Coopersmith, S. (1967). The Antecedents of Self-Esteem. San Francisco: Freeman.
- Crisp, A. H. (1970). Premorbid factors in adult disorders of weight, with particular reference to primary anorexia nervosa (weight phobia): A literature review. Journal of Psychosomatic Research, 14, 1-22.
- Crisp, A. H., Palmer, R. L., & Kalucy, R. (1976). How common is anorexia nervosa? A prevalence study. British Journal of Psychiatry, 128, 549-554.
- Davis, C., & Cowles, M. (1989). A comparison of weight and diet concerns and personality factors among female athletes and non-athletes. Journal of Psychosomatic Research, 33, 527-536.
- Drewnowski, A., Yee, D. K., Kurth, C. L., & Krahn, D. D. (1994). Eating pathology and DSM-III-R Bulimia Nervosa: A continuum of behavior. American Journal of Psychiatry, 151, 1217 - 1219.

Erikson, E. H. (1968). Identity: Youth and crises. New York, Norton.

Erikson, E. H. (1980). Identity and the Life Cycle. Toronto: George J. McLeod Limited.

Fahy, T. A., & Eisler, I. (1993). Impulsivity and eating disorders. British Journal of Psychiatry, 162, 193-197.

Fairburn, C. G., & Beglin, S. J. (1990). Studies of the epidemiology of bulimia nervosa. American Journal of Psychiatry, 147, 401-408.

Freeman, R. J., Beach, B., Davis, R., & Solyom, L. (1985). The prediction of relapse in bulimia nervosa. Journal of Psychiatric Research, 19, 349-353.

Garfinkel, P. E., & Garner, D. M. (1982). Anorexia Nervosa: A multidimensional perspective. New York: Bruner/Mazel.

Garner, D. M. (1985). Individual psychotherapy for anorexia nervosa. Journal of Psychiatric Research, 19, 423-433.

Garner, D. M. (1991). The Eating Disorder Inventory-2, Professional Manual. Odessa, Florida: Psychological Assessment Resources, Inc.

Garner, D. M., & Garfinkel, P. E. (1980). Socio-cultural factors in the development of anorexia nervosa. Psychological Medicine, 10, 647-656.

Garner, D. M., & Olmstead, M. P. (1984). Eating Disorder Inventory Manual. Odessa, Florida: Assessment Resources Inc.

Garner, D. M., Olmstead, M. P., & Garfinkel, P. E. (1983). Does anorexia nervosa occur on a continuum? Subgroups of weight-preoccupied women and their relationship to anorexia nervosa. International Journal of Eating Disorders, 2, 11-20.

Garner, D. M., Rockert, W., Olmstead, M. P., Johnson, C., & Coscina, D. V. (1985). Psychoeducational principles in the treatment of bulimia and anorexia nervosa. In D. M. Garner and P. E. Garfinkel (Eds.), Handbook of Psychotherapy for Anorexia Nervosa and Bulimia. New York: The Guilford Press.

Geller, J., Johnston, C., & Madsen, K. (in press). The role of shape and weight in self-concept: The shape and weight based self-esteem inventory. Cognitive Therapy and Research.

Gowers, S., & McMahon, J. B. (1989). Social class and prognosis in anorexia nervosa. International Journal of Eating Disorders, 8, 105-109.

Grant, C. L., & Fodor, I. G. (1986). Adolescent attitudes toward body image and anorexic behavior. Adolescence, 21, 269-281.

Gross, J., & Rosen, J. C. (1988). Bulimia in adolescents: Prevalence and psychosocial correlates. International Journal of Eating Disorders, 7, 51-61.

Grubb, H. J., Sellers, M. J., & Waligroski, K. (1993). Factors related to depression and eating disorders: self-esteem, body image, and attractiveness. Psychological Reports, 72, 1003-1010.

Halmi, K., Casper, R., Eckert, E., Goldberg, S. & Davis, J. (1979). Unique features associated with age of onset of anorexia nervosa. Psychiatry Research, 9, 209-215.

Hansen, J. C., & Maynard, P. E. (1973). Youth: Self-concept and behavior. Ohio: Charles E. Merrill Publishing Company.

Herzog, D. B., Keller, M. B., Lavori, P. W., & Ott, I. L. (1987). Social impairment in bulimia. International Journal of Eating Disorders, 6, 741-747.

Hesse-Biber, S. (1989) Eating patterns and disorders in a college population: Are college women's eating problems a new phenomenon? Sex Role, 20, 71-89.

Humphrey, L. L., & Stern, S. (1988). Object relations and the family system in bulimia: A theoretical integration. Journal of Marital and Family Therapy, 14, 337-350.

Jones, D. M. (1985). Bulimia: A false self identity. Clinical Social Work Journal, 13, 305-316.

Katzman, M. A., & Wolchik, S. A. (1984). Bulimia and binge eating in college women: A comparison of personality and behavioral characteristics. Journal of Consulting and Clinical Psychology, 52, 423-428.

Killen, J. D., Barr Taylor, C., Hayward, C., Wilson, D. M., Haydel, K. F., Hammer, L. D., Simmonds, B., Robinson, T. N., Litt, I., Varady, A., & Kraemer, H. (1994). Pursuit of thinness and onset of eating disorder symptoms in a community sample of adolescent girls: A three-year prospective analysis. International Journal of Eating Disorders, 16, 227-238.

Koenig, L., Howard, K. I., Offer, D., & Cremerius, M. (1984). Psychopathology and adolescent self-image. In D. Offer & K.I. Howard (Eds.) Pattern of Adolescent Self-Image. San Francisco: New Directions For Mental Health Services, Jossey-Bass Inc.

Laessle, R. G., Tuschl, R. J., Waadt, S., & Pirke, K. M. (1989). The specific psychopathology of bulimia nervosa: A comparison with restrained and unrestrained (normal) eaters. Journal of Consulting and Clinical Psychology, 57, 772-775.

Leighton, K. M., & Millar, H. R. (1985). Anorexia nervosa in Glasgow. Journal of Psychiatric Research, 19, 167-170.

Leon, G. R., Fulkerson, J. A., Perry, C. L., & Cudeck, R. (1993). Personality and behavioral vulnerabilities associated with risk status for eating disorders in adolescent girls. Journal of Abnormal Psychology, 102, 438-444.

Mayhew, R., & Edelman, R. (1989). Self-esteem, irrational beliefs and coping strategies in relation to eating problems in a non-clinical population. Personality and Individual Differences, 10(5), 581-584.

Mitchell, J. E., & Hatsukami, D. (1987). Late onset bulimia. Comprehensive Psychiatry, 28, 323-328.

Nassar, C. M., Hodges, P., & Ollendick, T. (1991). Self-concept, eating attitudes, and dietary patterns in young adolescent girls. The School Counsellor, 39, 338-343.

Offer, D., Ostrov, E., & Howard, K. I. (1981). The Adolescent: A psychological self-portrait. New York: Basic Books, Inc.

Offer, D., Ostrov, E., & Howard, K. I. (1984). The self-image of normal adolescents. In D. Offer, E. Ostrov, & K.I. Howard, (Eds.). Patterns of Adolescent Self-Image. Washington: Jossey-Bass Inc.

Offer, D., Ostrov, E., Howard, K., & Dorlan, S. (1982). A Manual for the Offer Self-Image Questionnaire for Adolescents. (3rd Ed.). Chicago: Michael Reese Hospital and Medical Centre.

Orbach, S. (1986). Hunger Strike. London: Faber & Faber.

Pope, H. G., Champoux, B. S., & Hudson, J. I. (1987). Eating disorder and socioeconomic class. The Journal of Nervous and Mental Disease, 175, 620-623.

Pyle, R. L., Halvorson, P. A., Neuman, P. A., & Mitchell, J. E. (1986). The increasing prevalence of bulimia in freshman college students. International Journal of Eating Disorders, 5, 631-647.

Rand, C. S. W., & Kulda, J. M. (1992). Epidemiology of bulimia and symptoms in a general population: Sex, age, race, and socioeconomic status. International Journal of Eating Disorders, 11, 37-44.

Robinson, D. W. (1992). Eating disorder attitudes and self-concept in seventh and eighth-grade females. Unpublished doctoral dissertation, Boston College.

Rosen, J. C., & Leitenberg, H. (1982). Bulimia nervosa: Treatment with exposure and response prevention. Behavior Therapy, 133, 117-124.

Rosen, J. C., & Leitenberg, H. (1985). Cognitive therapy for anorexia nervosa. In D.M. Garner and P.E. Garfinkel (Eds.), Handbook of Psychotherapy for Anorexia Nervosa and Bulimia. New York: The Guilford Press.

Rosenberg, M. (1979). Conceiving the Self. New York: Basic Books, Inc.

Ruderman, A. J., & Besbeas, M. (1992). Psychological characteristics of dieters and bulimics. Journal of Abnormal Psychology, 101, 383-390.

Schotte, D. E., & Stunkard, A. J. (1987). Bulimia vs. bulimic behaviors on a college campus. Journal of the American Medical Association, 258, 1213-1215.

Schwartz, D. M., Thompson, M. G., & Johnson, C. L. (1985). Anorexia Nervosa and Bulimia: The sociocultural context. In S. W. Emmett (Ed.), Theory and Treatment of Anorexia Nervosa and Bulimia: Biomedical, sociocultural, and psychological perspectives. New York: Brunner/Mazel.

- Scott, D. (1988). Sex differences within anorexia nervosa. In D. Scott (Ed.) Anorexia and Bulimia Nervosa. Washington Square, New York: New York University Press.
- Shisslak, C. M., Pazda, S. L., & Crago, M. (1990). Body weight and bulimia as discriminators of psychological characteristics among anorexic, bulimic, and obese women. Journal of Abnormal Psychology, 99, 380-384.
- Slade, P. D. (1982). Towards a functional analysis of anorexia nervosa and bulimia nervosa. British Journal of Clinical Psychology, 21, 167-179.
- Slade, P. (1985). A review of body-image studies in anorexia nervosa and bulimia nervosa. Journal of Psychiatric Research, 19, 255-265.
- Sohlberg, S. (1991). Impulse regulation in anorexia nervosa and bulimia: Some formulations. Behavioral Neurology, 4, 189-202.
- Steinhausen, H. C., & Vollrath, M. (1993). The self-image of adolescent patients with eating disorders. International Journal of Eating Disorders, 13, 221-227.
- Striegel-Moore, R. H., Silberstein, L. R., Frensch, P. & Rodin, J. (1989). A prospective study of disordered eating among college students. International Journal of Eating Disorders, 8, 499-509.
- Swift, W. J., Bushnell, N. J., Hanson, P., & Logemann, T. (1986). Self-concept in adolescent anorexics. Journal of the American Academy of Child Psychiatry, 25, 826-835.
- Szmukler, G. I. (1985). The epidemiology of anorexia nervosa and bulimia. Journal of Psychiatric Research, 19, 143-153.

- Thompson, K. J. (1990). Body Image Disturbance: Assessment and treatment. New York: Pergamon Press.
- Thiel, A., Gottfried, H., & Hesse, F. W. (1993). Subclinical eating disorders in male athletes. Acta Psychiatrica Scandinavica, 88, 259-265.
- VanThorre, M. D., & Vogel, F. X. (1985). The presence of bulimia in high school females. Adolescence, 77, 45-51.
- Wear, R. W., & Pratz, D. (1987). Test-retest reliability for the Eating Disorder Inventory. International Journal of Eating Disorders, 6(6), 767-769.
- Williams, G. J., Power, K. G., Millar, H. R., Freeman, C. P., Yellowlees, A., Dowds, T., Walker, M., Campsie, L., MacPherson, F., & Jackson, M. A. (1993). Comparison of eating disorders and other dietary/weight groups on measures of perceived control, assertiveness, self-esteem, and self-directed hostility. International Journal of Eating Disorders, 14, 27-32.
- Williamson, D. A., Barker, S. E., & Norris, L. E. (1993). Etiology and management of eating disorders. In P.B. Sutker & H.E. Adams (Eds.) Comprehensive Handbook of Psychopathology. (2nd ed.). New York: Plenum Press.
- Woodside, D. B., & Garfinkel, P. E. (1992). Age of onset in eating disorders. International Journal of Eating Disorders, 12, 31-36.

Table 1**Correlations Between Offer Self-Image Questionnaire Subscales and Eating Disorder Inventory-2 Subscales**

	Drive For Thinness	Bulimia	Body Diss.	<u>EDI-2 Subscales</u>				
				Ineffect.	Perfection	Interpers. Distrust	Intercept. Aware	Maturity Fears
Impulse Control	.225	.366	.200	.408	.117	.400	.270	.305
Emotional Tone	.354	.338	.340	.625	.250	.534	.343	.515
Body Image	.492	.456	.506	.641	.153	.523	.285	.463
Social Relationships	.193	.249	.162	.431	.179	.342	.337	.449
Morals	.107	.158	.091	.127	-.000	.141	.056	.231
Sexual Attitudes	.115	.124	.069	.209	.117	.214	.334	.310
Family Relationships	.220	.236	.190	.413	.038	.299	.068	.292
Mastery of External World	.320	.285	.294	.532	.010	.413	.322	.379
Voc/Educ Goals	.149	.163	.125	.279	-.188	.198	.208	.253
Psycho- pathology	.391	.415	.330	.599	.215	.538	.330	.440
Superior Adjustment	.165	.201	.160	.358	-.115	.317	.274	.249

Legend For Tables 2 and 3

<u>OSIQ Subscale Number</u>	<u>Subscale Name</u>
1	Impulse Control
2	Emotional Tone
3	Body Image
4	Social Relationships
5	Morals
6	Sexual Attitudes
7	Family Relationships
8	Mastery of the External World
9	Vocational/Educational Goals
10	Psychopathology
11	Superior Adjustment

Table 2

Prediction of Eating Disorder Inventory-2 "Drive For Thinness" Scores Using Offer Self-Image Questionnaire Subscale Scores

78

Adjusted R2	1	2	3	4	5	6	7	8	9	10	11
5 predictors											
.248509	X	.....	X	X	.....	.....	.....	.....	X	X	.....
.248239	X	.....	X	X	.....	X	.....	.....	.....	X	.....
.247912	.....	.....	X	X	.....	X	.....	.....	X	X	.....
.247525	X	.....	X	X	.....	.....	.....	.....	.....	X	X
.247520	.....	.....	X	X	X	.....	.....	.....	X	X	.....
.247393	X	.....	X	X	.....	.....	.....	.....	.....	X	.....
.247258	.....	.....	X	X	.....	.....	X	.....	.....	X	.....
.247238	X	.....	X	X	X	.....	.....	.....	.....	.....	.....
.247151	X	.....	X	X	.....	.....	.....	X	.....	X	X
.247119	.....	.....	X	X	.....	.....	.....	.....	X	X	.....
4 predictors											
.243836	X	.....	X	X	.....	.....	.....	.....	.....	X	.....
.249656	.....	.....	X	X	.....	.....	.....	.....	X	X	.....
.248298	.....	.....	X	X	.....	X	.....	.....	.....	X	.....
.248291	.....	.....	X	X	.....	.....	.....	.....	.....	X	X
.247482	.....	.....	X	X	.....	.....	X	.....	.....	X	.....
.247480	.....	.....	X	X	X	.....	.....	.....	.....	X	.....
.247449	.....	X	X	X	.....	.....	.....	.....	.....	X	.....
.247447	.....	.....	X	X	.....	.....	.....	X	.....	X	.....
.243832	.....	.....	X	X	.....	.....	.....	X	X	.....	.....
.242906	.....	.....	X	X	X	.....	.....	.....	X	.....	.....
3 predictors											
.250234	.....	.....	X	X	.....	.....	.....	.....	.....	X	.....
.244419	.....	.....	X	X	.....	.....	.....	.....	X	.....	.....
.243974	.....	X	X	X	.....	.....	.....	.....	.....	.....	.....
.243713	.....	.....	X	X	.....	X	.....	.....	.....	.....	.....
.243691	.....	.....	X	X	.....	.....	.....	X	.....	.....	.....
.243617	.....	.....	X	X	.....	.....	.....	.....	.....	.....	X
.243257	.....	.....	X	X	.....	.....	X	.....	.....	.....	.....
.243084	.....	.....	X	X	X	.....	.....	.....	.....	.....	.....
.242981	X	.....	X	X	.....	.....	.....	.....	.....	.....	.....
.241176	.....	.....	X	.....	.....	.....	.....	.....	X	X	.....
2 predictors											
.240064	.....	.....	X	.....	.....	.....	.....	.....	.....	.....	X
.239243	.....	.....	X	.....	.....	X	.....	.....	.....	.....	.....
.239095	.....	.....	X	.....	.....	.....	.....	.....	.....	X	.....
.237821	X	.....	X	.....	.....	.....	.....	.....	.....	.....	.....
.236820	.....	X	X	.....	.....	.....	.....	.....	.....	.....	.....
.236618	.....	.....	X	.....	.....	.....	X	.....	.....	.....	.....
.236596	.....	.....	X	.....	.....	.....	.....	X	.....	.....	.....
.236590	.....	.....	X	.....	X	.....	.....	.....	.....	.....	.....
1 predictor											
.239405	.....	.....	X	.....	.....	.....	.....	.....	.....	.....	.....
.149690	.....	.....	.....	.....	.....	.....	.....	.....	.....	X	.....
.122079	.....	X	.....	.....	.....	.....	.....	.....	.....	.....	.....
.099255	.....	.....	.....	.....	.....	.....	.....	X	.....	.....	.....
.047306	X	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.044746	.....	.....	.....	.....	.....	.....	X	.....	.....	.....	.....
.033486	.....	.....	.....	X	.....	.....	.....	.....	.....	.....	.....
.023564	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	X
.018509	.....	.....	.....	.....	.....	.....	.....	.....	X	.....	.....
.009640	.....	.....	.....	.....	.....	X	.....	.....	.....	.....	.....

Table 3
Prediction of Eating Disorder Inventory-2 'Bulimia' Scores Using Offer Self-Image Questionnaire Subscale Scores

<u>Adjusted R2</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
5 predictors											
.236087	X	X	X	.....	.....	.....	.....	.....	X	X	.....
.235247	X	X	X	.....	.....	.....	.....	X	.....	X	.....
.231341	X	X	X	.....	.....	.....	.....	.....	.....	X	X
.230854	X	X	X	X	.....	.....	.....	.....	.....	X	.....
.230603	X	X	X	.....	.....	X	.....	.....	.....	X	.....
.230497	X	X	X	.....	X	.....	.....	.....	.....	X	.....
.230367	X	X	X	.....	.....	.....	X	.....	.....	X	.....
.230182	X	.....	X	.....	.....	.....	.....	X	X	X	.....
.229962	X	.....	X	X	.....	.....	.....	X	.....	X	.....
.228391	X	.....	X	.....	X	.....	.....	.....	X	X	.....
4 predictors											
.233195	X	X	X	.....	.....	.....	.....	.....	.....	X	.....
.230839	X	.....	X	.....	.....	.....	.....	X	.....	X	.....
.229003	X	.....	X	.....	.....	.....	.....	.....	X	X	.....
.227078	X	.....	X	X	.....	.....	.....	.....	.....	X	.....
.227027	X	X	X	.....	.....	.....	.....	.....	X	.....	.....
.226756	X	.....	X	.....	X	.....	.....	.....	X	.....	.....
.225314	X	.....	X	.....	.....	.....	.....	X	X	.....	.....
.224845	X	.....	X	.....	.....	.....	.....	.....	.....	X	X
.224512	X	.....	X	.....	.....	X	.....	.....	.....	X	.....
.224401	X	X	X	.....	.....	.....	.....	X	.....	.....	.....
3 predictors											
.226666	X	.....	X	.....	.....	.....	.....	.....	X	.....	.....
.226626	X	.....	X	.....	.....	.....	.....	.....	.....	X	.....
.225515	X	.....	X	.....	.....	.....	.....	X	.....	.....	.....
.225120	X	X	X	.....	.....	.....	.....	.....	.....	.....	.....
.223286	X	.....	X	X	.....	.....	.....	.....	.....	.....	.....
.222893	X	.....	X	.....	.....	.....	.....	.....	.....	.....	X
.222566	X	.....	X	.....	X	.....	.....	.....	.....	.....	.....
.222410	X	.....	X	.....	.....	X	.....	.....	.....	.....	.....
.221977	X	.....	X	.....	.....	.....	X	.....	.....	.....	.....
.219598	.....	X	X	.....	.....	.....	.....	.....	.....	X	.....
2 predictors											
.224817	X	.....	X	.....	.....	.....	.....	.....	.....	.....	.....
.216995	.....	.....	X	.....	.....	.....	.....	.....	.....	X	.....
.205318	.....	.....	X	.....	X	.....	.....	.....	.....	.....	.....
.203518	.....	.....	X	.....	.....	.....	X	.....	.....	.....	.....
.202693	.....	.....	X	.....	.....	X	.....	.....	.....	.....	.....
.202687	.....	.....	X	.....	.....	.....	.....	.....	X	.....	.....
.201969	.....	.....	X	.....	.....	.....	.....	X	.....	.....	.....
.201830	.....	.....	X	X	.....	.....	.....	.....	.....	.....	.....
.201823	.....	X	X	.....	.....	.....	.....	.....	.....	.....	.....
.201822	.....	.....	X	.....	.....	.....	.....	.....	.....	.....	X
1 predictor											
.204767	.....	.....	X	.....	.....	.....	.....	.....	.....	.....	.....
.168962	.....	.....	.....	.....	.....	.....	.....	.....	.....	X	.....
.130465	X	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.111069	.....	X	.....	.....	.....	.....	.....	.....	.....	.....	.....
.078031	.....	.....	.....	.....	.....	.....	.....	X	.....	.....	.....
.058382	.....	.....	.....	X	.....	.....	.....	.....	.....	.....	.....
.052100	.....	.....	.....	.....	.....	.....	X	.....	.....	.....	.....
.036873	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	X
.023005	.....	.....	.....	.....	.....	.....	.....	.....	X	.....	.....
.021340	.....	.....	.....	.....	X	.....	.....	.....	.....	.....	.....

Table 4

Results of the Canonical Correlation Analysis of Offer Self-Image Questionnaire and Eating Disorder Inventory-2 Subscales

Canonical Variate	Eigenvalue	Canonical Correlation	X ²	p
			410.88	.0000
1	.57820	.76039	184.72	.0000
2	.22091	.47001	119.32	.0000
3	.18490	.43000	65.75	.0063
4	.09181	.30301	40.52	.0594
5	.06596	.25683	22.64	.2046
6	.05317	.23059	8.33	.5967
7	.02211	.14871	2.47	.6500
	.00938	.09687		

Table 5

Varimax Rotated Principal Components of Self-Image and Eating Disorder Data

Variable	Factor 1	Factor 2	Factor 3	h2
<u>OSIQ Subscales</u>				
Impulse Control	.248	.294	.647	.501
Emotional Tone	.416	.574	.475	.767
Body Image	.620	.445	.379	.719
Social Relationships	.128	.623	.470	.585
Morals	-.040	-.075	.776	.310
Sexual Attitude	.012	.712	-.085	.241
Family Relationships	.231	.076	.694	.373
Mastery of the External World	.375	.478	.445	.623
Vocational/Educational Goals	.089	.190	.618	.487
Psychopathology	.445	.484	.528	.713
Superior Adjustment	.183	.449	.310	.430
<u>EDI-2 Subscales</u>				
Drive for Thinness	.816	.061	.063	.527
Bulimia	.614	.193	.207	.467
Body Dissatisfaction	.846	-.057	.018	.473
Ineffectiveness	.662	.402	.266	.625
Perfectionism	.263	.221	.033	.342
Interoceptive Awareness	.532	.438	.234	.516
Maturity Fears	.075	.702	.024	.324
Interpersonal Distrust	.259	.564	.272	.416
Eigenvalue	7.482	1.988	1.396	
Variance explained	3.693	3.480	3.303	
Cumulative proportion of total variance	.394	.498	.572	

Appendix A

Parental Consent Form

Your child's school has agreed to participate in a study designed to help us learn more about how adolescents view themselves, their worlds, and their eating patterns. Your child will be given the opportunity to participate in this study, provided you consent to their participation. Simon Fraser University and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This form and the information it contains are given to you for your child's protection and for your full understanding of the procedures involved.

Participation in this study involves your child completing a brief information sheet and four separate questionnaires which are designed to assess the various thoughts, feelings, and attitudes adolescents have about themselves, their lives, and their eating patterns. There are no foreseeable risks to those taking part in this study, and all information collected during the study will remain confidential as your child's responses will be completely anonymous. In addition, your child's participation is completely voluntary, and they will be informed that they can withdraw their participation at any time should they so desire. *We are confident that your child's experience of participating in this research project will be a positive one!* The study is scheduled to take place during two regularly-scheduled class times, and will occur in late November or early December, 1995.

To help us ensure parental or guardian feedback, we are asking that you complete the bottom portion of this form **ONLY IF** you **DO NOT** wish to permit your child's participation in this project. Should this be the case, and you do not want your child to participate in the study, please return or have your child return the completed bottom section of this form to their school as soon as possible. Your assistance is greatly appreciated. Should we fail to receive your completed form, we will conclude that you are providing your consent for your child to participate in the study. Once again, your child's participation, even once *your* consent is obtained, is completely voluntary. In order to ensure that this is the case, immediately prior to the study your child will be asked to sign a consent form indicating that they themselves wish to participate in the study.

Any questions or concerns about the study may be brought to the chief researcher, Lana Hawkins, or to Dr. Christopher Webster, the Chair of Simon Fraser University's Psychology Department, both of whom may be reached at 291-3354. You and your child may obtain a copy of the results of this study, upon its completion, by contacting Lana Hawkins at the above telephone number.

IF YOU DO NOT AGREE TO YOUR CHILD'S PARTICIPATION IN THE STUDY, please fill out the following section, along with your signature.

I, as parent or legal guardian of _____
(your child's full name)

DO NOT CONSENT (do not agree) to their participation in the research study to take place at Richmond Secondary School during regularly-scheduled class time

Your Name _____

Address _____

Signature _____

Date _____

Reminder: Those parents who wish to allow their children to participate should not complete this form.

Appendix B

Informed Consent Form

Simon Fraser University and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of subjects. This form and the information it contains are given to you for your own protection and full understanding of the procedures involved. Your signature on this form will signify that you have been informed of the procedures and benefits of this research project, that you have received an adequate opportunity to consider the information in the document, and that you voluntarily agree to participate in the project.

Having been asked by Lana Hawkins of the Department of Psychology of Simon Fraser University to participate in a research project experiment, I have read the procedures specified in this document.

I understand the procedure to be used in this experiment involves completing a brief information sheet and four separate questionnaires. I agree to participate by completing the information sheet and the questionnaires which are designed to assess the thoughts, feelings, and attitudes I have towards eating and towards myself and my life. I understand that there are no foreseeable personal risks to me in taking part. There are no direct benefits to my participating in the study, other than my knowledge that I am helping the researcher learn more about the perceptions young people have about themselves, their eating, and their lives.

I also understand that I may register any complaint I might have about the experiment with either Lana Hawkins or with Dr. Christopher Webster, Chair of Psychology at Simon Fraser University, both of whom may be reached through the Department of Psychology at 291-3354. I may obtain copies of the results of this study, upon its completion, by contacting Lana Hawkins at the above telephone number.

I have been informed that all information collected during the study will remain confidential. My name will not be written on any of the research material, therefore my responses will be completely anonymous. I understand that my participation is voluntary, and that I am free to withdraw from the study at any time.

Name (please print) _____

Address _____

School _____

Signature _____ **Witness** _____

At the end of the study, a copy of the information provided in this consent form, along with some additional information about the study, will be provided to you.

Appendix C

SUBJECT INFORMATION SHEET

1) Date of birth: _____ Age: _____ Height: _____ feet _____ inches
 month day year Sex: _____ (M or F)

Current weight: _____ lbs. Ideally, how much would you like to weigh? _____ lbs

2) Race or ethnicity (please specify): _____
 Country of your birth: _____
 Country of your parents' birth: _____

3) Current Family Situation:
 _____ two-parent family _____ step-family
 _____ one-parent family _____ other

4) Mother's highest level of education completed:
 _____ Grade (please circle)
 1 2 3 4 5 6 7 8 9 10 11 12
 _____ Trade or technical school
 _____ Community college
 _____ University

5) Mother's occupation: _____

6) Father's highest level of education completed:
 _____ Grade (please circle)
 1 2 3 4 5 6 7 8 9 10 11 12
 _____ Trade or technical school
 _____ Community college
 _____ University

7) Father's occupation: _____

8) How often do you typically engage in the following activities for longer than a 20 minute period ?
 (please mark with an "X" for each activity)

	Never or rarely	1-3 times a month	At least once a week	Nearly every day
jogging	_____	_____	_____	_____
walking	_____	_____	_____	_____
running	_____	_____	_____	_____
sit-ups	_____	_____	_____	_____
stretching	_____	_____	_____	_____
weight-lifting	_____	_____	_____	_____
baseball	_____	_____	_____	_____
biking	_____	_____	_____	_____
canoeing	_____	_____	_____	_____
golf	_____	_____	_____	_____
hockey	_____	_____	_____	_____

PLEASE TURN OVER...