INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

UMI®

Downloaded from SHAREOK. Persistent Handle URL: https://hdl.handle.net/11244/266

NOTE TO USERS

This reproduction is the best copy available.

UMI

UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

THE UTILITY OF SELECT PSYCHOLOGICAL, BEHAVIORAL, AND AFFECTIVE DIMENSIONS IN DIFFERENTIATING AMONG CATEGORIES OF EATING DISTURBANCES

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

Lisa Nicole Petersen
Norman, Oklahoma
2001

UMI Number: 3001313

UMI®

UMI Microform 3001313
Copyright 2001 by Bell & Howell Information and Learning Company.
All rights reserved. This microform edition is protected against
unauthorized copying under Title 17, United States Code.

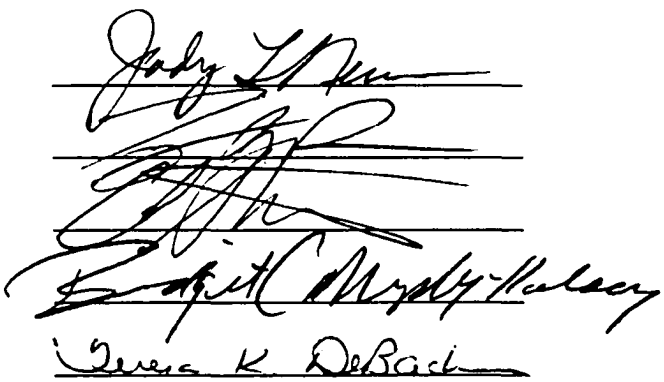
Bell & Howell Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

© Copyright by LISA NICOLE PETERSEN
All Rights Reserved

THE UTILITY OF SELECT PSYCHOLOGICAL, BEHAVIORAL, AND AFFECTIVE DIMENSIONS IN DIFFERENTIATING AMONG CATEGORIES OF EATING DISTURBANCES

A Dissertation APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

BY



Acknowledgments

This dissertation could not have been completed without the support and encouragement of my family, friends, and committee members. First and foremost, I would like to thank my committed husband, Aaron, whose continuous encouragement and gentle reminders gave me motivation throughout the process. Additionally, I would like to express my sincere gratitude to Aaron for the sacrifices he has made while I labored at this project and throughout my graduate studies. His presence in my life and ongoing belief in me have been and continue to be a source of strength. Thank you Aaron for supporting me, acknowledging my frustrations, putting things into perspective, and patiently helping me with various tasks and mishaps. Second, I would like to thank my family for their never-ending love and support. Without their unconditional love and support this accomplishment would not be possible. Additionally, I would like to express my sincere appreciation to Dale Fuqua and my committee members Teresa K. DeBacker, Bridget C. Murphy-Kelsey, Terry M. Pace, and Cal D. Stoltenberg for their valuable time and input. Finally, I would like to thank my committee chairperson and mentor, Jody L. Newman for her devotion, guidance, mindfulness, and encouragement throughout my graduate school studies, but especially during the process of developing and completing this dissertation. This accomplishment was made possible with the presence of all of you in my life.

Table of Contents

List of Tables vii
List of Illustrations viii
Abstract ix
Introduction 1
Research Questions 14
Method 16
Participants 16
Instruments 16
Procedures 23
Results 23
Discussion 35
Limitations of Study 41
Conclusions 42
References 46
APPENDIX A: Prospectus 69
APPENDIX B: Consent Form 137
APPENDIX C: Questionnaire of Eating Disorders Diagnosis 139
APPENDIX D: Eating Disorder Inventory – Second Edition Item Booklet 143
APPENDIX E: Beck Depression Inventory – Second Edition 148
APPENDIX F: State-Trait Anger Expression Inventory – Second Edition Item Booklet 151
APPENDIX G: Social Desirability Scale 155
APPENDIX H: Permission to use the Q-EDD 157
APPENDIX I: Institutional Review Board Approval 160

List of Tables

Table 1: Structure Coefficients and Standardized Discriminant Function Coefficients for the Eight Original EDI-2 Scales 51

Table 2: Pearson Product Moment Correlation Coefficients for the Eight Original EDI-2 Scales 52

Table 3: Means, Standard Deviations, and F Ratios for Asymptomatic and Symptomatic Groups on the 11 EDI-2 and Seven Affective Scales 53

Table 4: Discriminant Analysis Classification Results 54

Table 5: Structure Coefficients and Standardized Discriminant Function Coefficients for the 11 EDI-2 Scales 55

Table 6: Pearson Product Moment Correlation Coefficients for the11 EDI-2 Scales 56

Table 7: Discriminant Analysis Classification Results 57

Table 8: Structure Coefficients and Standardized Discriminant Function Coefficients for the Seven Affective Scales 58

Table 9: Pearson Product Moment Correlation Coefficients for the Seven Affective Scales 59

Table 10: Discriminant Analysis Classification Results 60

Table 11: Structure Coefficients and Standardized Discriminant Function Coefficients for the Eight Original EDI-2 Scales and Seven Affective Scales 61

Table 12: Pearson Product Moment Correlation Coefficients for the Eight Original EDI-2 Scales and Seven Affective Scales 62

Table 13: Discriminant Analysis Classification Results 63

Table 14: Multiple Regression Summary Table for Symptomatic Group Using EDI-2 Scales to Predict Social Desirability 64

Table 15: Multiple Regression Summary Table for Asymptomatic Group Using EDI-2 Scales to Predict Social Desirability 65

Table 16: Means and Standard Deviations for Asymptomatic, Symptomatic, and Eating Disordered Groups on 11 EDI-2 Scales and Seven Affective Scales 66

List of Illustrations

Figure 1: Standardized Scores on EDI-2 Scales 67

Figure 2: Standardized Scores on Affective Scales 68

Abstract

Three hundred twenty-six female undergraduate women participated in this investigation of the relationship of psychological, behavioral, and affective dimensions to categories of eating disturbances as delineated by the Questionnaire of Eating Disorders Diagnoses (Q-EDD). In addition to the Q-EDD, participants completed the Eating Disorder Inventory – second edition (EDI-2), Beck Depression Inventory – second edition (BDI-II), State - Trait Anger Expression Inventory – second edition (STAXI-2), and items from the Marlowe-Crowne Social Desirability Scale. Discriminant analyses revealed that the select psychological, behavioral, and affective dimensions measured by these instruments were highly effective in differentiating between asymptomatic and symptomatic groups. Exploratory graphical analyses revealed that mean differences between the asymptomatic, symptomatic, and eating disordered groups were in the predicted direction for 10 of the 11 EDI-2 scales. On the affective scales, the pattern of differences among groups was more variable, although the same clear predicted pattern was observed for depression, trait anger, and suppressed anger. These results provide support for the validity of the Q-EDD categories. These results further suggest that differences between groups may be better characterized as a matter of the degree of severity of symptomatology, rather than substantive differences in the nature of symptoms themselves.

THE UTILITY OF SELECT PSYCHOLOGICAL, BEHAVIORAL, AND AFFECTIVE DIMENSIONS IN DIFFERENTIATING AMONG CATEGORIES OF EATING DISTURBANCES

Introduction

Throughout history, the concept of female beauty has varied from the Rubenesque women of the 17th century to contemporary symbols of a slender physique (Garner, Garfinkel, Schwartz, & Thompson, 1980; McCarthy, 1990). Over the last several decades, the cultural definition of the ideal female body shape has shifted from a voluptuous, curved figure to the angular, slender figure of today (Garner et al., 1980; McCarthy, 1990). The impact of this cultural definition of attractiveness is believed to be represented in not only the pervasive preoccupation with dieting and weight loss among a large number of women, but in the dramatically increased incidence of eating disturbances over the last several decades (Garner, 1991; Garner et al., 1980; McCarthy, 1990; Polivy & Herman, 1987; Rodin, Silberstein & Streigel-Moore, 1985). In striving to attain this ideal standard of beauty, many women have starved themselves and/or developed strategies, such as self-induced vomiting or laxative abuse, that would allow them to eat without gaining weight (Scarano & Kalodner-Martin, 1994; Silverstein, Peterson, & Perdue, 1986).

Eating disturbances are reported to be more prevalent in developed societies where female beauty is linked to thinness (American Psychiatric Association, 1994). Anorexia nervosa and bulimia nervosa are reported to affect at least 1 to 3 percent of the population, respectively (Casper, 1998; Clarke & Palmer, 1983; Fairburn & Beglin, 1990; Shisslak, Crago, & Estes, 1995). The increased prevalence and the concept of an eating

disorder continuum have been the subject of widespread attention in both the empirical and conceptual literature over the past several decades. However, the complex multidimensional nature of eating disturbances has posed significant challenges in efforts to identify and delineate essential features of this widespread health problem. The current preference in our society for a slender build has created a corresponding societal preoccupation with dieting and weight loss (Garner, 1991; Garner & Garfinkel, 1980; Kalodner & Scarano, 1992; Polivy & Herman, 1987; Rodin, Silberstein, & Streigel-Moore, 1985; Shisslak et al., 1994). The magnitude of this societal preoccupation has led to normalizing the expression of concern over body weight and attempts to lose weight (Kalodner & Scarano, 1992; Piran, 1997; Polivy & Herman, 1987). Although not all dieters have or are at risk for developing an eating disorder of diagnostic significance, much speculation has linked the increased incidence of eating disturbances to the intense quest for a slender build and the dieting required to achieve this goal (Garner, Olmsted, & Garfinkel 1983a; Polivy & Herman, 1985). However, eating disturbances pose a problem given the nature and severity of the physical and psychological consequences related to them (Casper, 1998; Drewnowski, Hopkins, & Kessler, 1988; Herzog & Copeland, 1985; Kalodner & Scarano, 1992; Schotte & Stunkard, 1987; Shisslak et al., 1995). Further, evidence suggests that an additional group of women, who fail to meet full diagnostic criteria, also exhibit some of the same problematic cognitive and behavioral patterns associated with women diagnosed with eating disorders (Button & Whitehouse, 1981; Garner et al., 1983a; Garner, Olmsted, Polivy, & Garfinkel, 1984; Hesse-Biber, 1992; Kalodner & Scarano, 1992; Polivy & Herman, 1987; Scarano & Kalodner-Martin, 1994; Shisslak et al., 1995). Because of their "subclinical" status, these women are at risk of

falling through the cracks with respect to both treatment and research. We need to be concerned about the potential long-term effects of dysfunctional cognitive and behavioral patterns on physical, psychological, and social well-being. Further, this is a serious matter given the concern that current patterns of disturbed eating may progress into more serious forms of eating disturbances if not treated (Patton, 1988; Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990). Clearly, the physical and psychological welfare of these women warrants concern and further research.

Even though a link has been made in the research between the increased prevalence of eating disturbances and societal pressures to maintain a slim physique, dieting itself is not necessarily an eating disorder. However, the link in the literature is supported by accumulating evidence of similarities between normal dieters (i.e., weight control efforts did not markedly interfere with social or psychological functioning) and eating disordered individuals (Hesse-Biber, 1992; Polivy & Herman, 1987; Shisslak et al., 1995). Eating disordered individuals exhibit a strong preoccupation with weight, dissatisfaction with their body or body image, and a strong need or desire for perfectionism (Garner et al., 1983a; Garner et al., 1984). Similarly, normal-weight college women and normal dieters have often been shown in the literature to be equally preoccupied with their weight, equally dissatisfied with their body or body image, and to have an equal need or desire for perfectionism (Garner et al., 1983a; Garner et al., 1984). Additionally, extreme dieters have been found to exhibit some apparent symptoms of anorexia nervosa and bulimia nervosa (e.g., binge eating and self-induced vomiting) (Button & Whitehouse, 1981; Polivy & Herman, 1987; Pyle, Halvorson, Neuman, & Mitchell, 1986).

Given the apparent similarities between normal dieters and individuals struggling with a clinical eating disorder, the question as to whether dieting and eating disorders represent various points along a continuum of eating pathology has continued to elude mental health professionals and remain the subject of controversy in the research (Button & Whitehouse, 1981; Garfinkel, Kennedy, & Kaplan, 1995; Garner et al., 1983a; Garner et al., 1984; Hesse-Biber, 1992; Mintz, O'Halloran, Mulholland, & Schneider, 1997; Nylander, 1971; Rodin et al., 1985; Scarano & Kalodner-Martin, 1994; Shisslak et al., 1995). The concept of an eating disorder continuum has been proposed to facilitate an understanding of the different issues that exist for women in relation to body satisfaction, weight, and eating habits (Nylander, 1971; Rodin et al., 1985). At one end of the continuum falls normal eating and at the opposite end falls clinically diagnosed eating disorders, with milder subclinical forms of eating disorders (e.g., chronic and intermittent dieters) at various points along the continuum (Kalodner & Scarano, 1992).

Nylander (1971) was the first to propose the "continuum hypothesis" of eating disturbances when he surveyed a group of female high school students in Sweden and found that a majority of these young women perceived themselves as overweight or fat, and a large proportion (nearly 10%) reported three or more symptoms related to anorexia nervosa in connection to their weight-loss attempts. The most common symptoms he found in this sample were fatigue, increased interest in food, depression, chilliness, poor school performance, constipation, anxiety, and amenorrhea. Nylander (1971) argued that intense dieting over extended periods of time could produce symptoms of starvation that may ultimately lead to the expression of a severe or milder variant of anorexia nervosa.

Garner and Garfinkel (1980) and Fries (1977) observed body image distortions

and anorexic attitudes in both patients with anorexia nervosa and rigid dieters who failed to meet the diagnostic criteria for an eating disorder. Garner and Garfinkel (1980) not only found an overrepresentation of anorexia nervosa in professional groups like ballet dancers who experience intense pressure to diet, but they also identified individuals who displayed many of the symptoms of anorexics but who again fell short of meeting the strict diagnostic standard. Fries (1977) found that body-size misperceptions and attitudes that were exhibited in clinical cases of anorexia nervosa were also apparent in women who had a history of both weight loss and secondary amenorrhea but who again failed to meet the strict diagnostic standard.

Button and Whitehouse (1981) suggested the term "subclinical anorexia nervosa" to describe those women who are "abnormally preoccupied with weight" and who show many of the psychological and behavioral symptoms of anorexia nervosa. Lowenkopf (1982) proposed that these "minor disorders" should fall into a diagnostic category of "pursuit of thinness" in conjunction with the classical syndromes of anorexia nervosa and bulimia nervosa. Additionally, studies have shown that college students tend to have elevated scores on various questionnaires examining symptoms of eating disorders (Button & Whitehouse, 1981; Garner et al., 1984; Garner et al., 1983a). When people with full-syndrome bulimia nervosa are compared with a community sample that lacked only the frequency criterion necessary for the syndrome, they were surprisingly similar on measures of comorbid disorders, psychosocial impairments, associated symptoms and risk of earlier sexual abuse (Garfinkel et al., 1995).

The idea that eating disturbances fall on a continuum assumes that there are fundamental similarities between clinically diagnosed eating disorders at one end of the

continuum and the milder subclinical forms of the disorder that fall along the continuum (Polivy & Herman, 1987). The differences between the clinical and subclinical forms along this continuum are thought to be a matter of degree, with "normalcy" at the other end of the continuum representing the absence of pathological characteristics (Polivy & Herman, 1987). Some clinical theorists argue that there are crucial differences between true clinical eating disorders and milder subclinical forms of the disorder (Bruch, 1973; Crisp, 1965; Selvini-Palazzoli, 1978). The current research indicates that there are two components to the eating disorders continuum. One component consists of an intense concern with weight, appearance, body shape, and eating, and may well be shared by normal dieters (Laessle, Tuschl, Waadt, & Pirke, 1989; Polivy & Herman, 1987). A second component includes a sense of ineffectiveness, distorted self-awareness, and interpersonal distrust, and appears to be limited to a more restricted section of the population with clinical eating disorders (Laessle et al., 1989; Polivy & Herman, 1987).

Several 1- to 4-year longitudinal studies have shown strong evidence that a subset of individuals at risk (exhibiting subclinical or partial eating disorders and/or pathological dieting) during the initial evaluation period progressed to more severe eating disturbances by the end of the follow-up period (approximately 30-45% across studies) (Drewnowski, Yee, & Krahn, 1988; Garner, Garfinkel, Rockert, & Olmsted, 1987; Herzog, Hopkins, & Burns, 1993; Hesse-Biber, 1992; Patton, 1988; Patton et al., 1990; Striegel-Moore, Silberstein, Frensch, & Rodin, 1989; Yager, Landsverk, & Edelstein, 1987). Overall, there are serious clinical and research implications for individuals not meeting full diagnostic criteria for an eating disorder (Herzog et al., 1993). For example, individuals seeking treatment for an eating disorder will find it virtually impossible to get their third

party insurance payer to cover treatment if they do not meet full criteria for an eating disorder. Thus, these subclinical individuals are at risk for receiving inadequate treatment. Additionally, subclinical individuals are virtually excluded in research studies conducted on eating disorders. The question of whether or not eating disturbances fall along a continuum has yet to be answered but the study of symptomatic individuals who do not meet full diagnostic criteria can possibly provide valuable insight into the cause of eating disorders. These individuals can be a useful source of data because of the higher frequencies with which subclinical eating disturbances occur in comparison to clinical eating disorders, and the apparent cognitive and behavioral similarities between subclinical and diagnostic eating disturbances (Button & Whitehouse, 1981; Garner et al., 1983a; Garner et al., 1984; Polivy & Herman, 1987).

Multidimensional Nature of Eating Disturbances

The specific causes of anorexia nervosa and/or bulimia nervosa are still unknown. Most scientific evidence suggests that these disorders are the product of a complex interaction between physiological, psychosocial, and psychological factors and that they show considerable comorbidity with other psychiatric disorders (Casper, 1998; Worthington-Roberts, 1995). Whatever the cause may be, the chronic behaviors that maintain these disorders appear to trigger a vicious cycle that becomes self-perpetuating. Eating disturbances encompass a heterogeneous group of psychiatric disorders that mainly affect female adolescents and young adults (Casper, 1998).

The current research stresses the importance of a multidimensional evaluation of psychopathology in those individuals suspected of having clinical eating disorders (Garner et al., 1984). In addition to a multidimensional evaluation, Button and

Whitehouse (1981) reported that early intervention appears to be related to successful outcomes. This observation suggests that further investigation of mild or subclinical cases of eating disorders may have important therapeutic implications. Further investigation may also lead to knowledge about the processes underlying the onset of, and recovery from, eating disorders (Button & Whitehouse, 1981). Refining the identification of these milder or subclinical cases would be facilitated by the use of psychometrically sound assessment instruments and screening procedures.

Although much has been written about eating disturbances falling along a continuum, there is a lack of research that systematically examines this continuum, largely due to the lack of an instrument that effectively operationalizes the continuum (Scarano & Kalodner-Martin, 1994). The Questionnaire for Eating Disorder Diagnoses (Q-EDD; Mintz et al., 1997) is a new instrument in the literature that is based upon the "continuum hypothesis" and is guided by the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994). On the basis of decision rules, the Q-EDD places respondents into diagnostic categories which include eating disordered and non-eating disordered categories at the most basic level, and the non-eating disordered category can be further broken down into asymptomatic (exhibits no eating disorder symptoms) and symptomatic (exhibits eating disorder symptoms but fails to meet criteria for a DSM-IV diagnosis) categories (Mintz et al., 1997).

To further explore the notion that there are two components (i.e., an intense concern with weight, appearance, body shape, and eating, and a sense of ineffectiveness, distorted self-awareness, and interpersonal distrust) necessary for understanding and

treating individuals with clinical eating disorders or subclinical forms of the disorder, the Eating Disorder Inventory (EDI; Garner, Olmsted, & Polivy, 1983b) was developed to assess the cognitive and behavioral dimensions that could differentiate not only between subgroups of individuals with eating disturbances, but also between those individuals with significant psychopathology related to eating disorders and those who are simply strict dieters (Cooper, Cooper, & Fairburn, 1985). The second edition of the EDI, the Eating Disorder Inventory - Second Edition (EDI-2; Garner, 1991) evaluates the multidimensional nature of eating disorders by generating scores for eight original scales (Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears) (Garner et al., 1983b), and three provisional scales (Impulse Regulation, Social Insecurity, and Asceticism) (Garner et al., 1983b).

As noted earlier, individuals with subclinical or partial eating disturbances engage in many of the same disturbed patterns of eating and distorted perceptions of their bodies as those who have been diagnosed with a clinical or full syndrome eating disorder (Polivy & Herman, 1987; Shisslak et al., 1995). Additionally, these individuals with subclinical or partial eating disturbances frequently exhibit substantial companion psychological disturbances that may include depression, suicide attempts, and a past history of a clinically diagnosed eating disorder (Shisslak et al., 1995).

The rate of depression and the incidence of eating disturbances have been increasing especially in young adult women and adolescent females over the last several decades (McCarthy, 1990). Substantial evidence exists in the research literature that links affective disorders with eating disorders (Swift, Andrews, & Barklage, 1986). Although

eating disturbances and depression have been found to be common comorbid conditions, the precise nature of this relationship is unclear (Devlin & Walsh, 1989; Edelstein & Yager, 1992). Clinically, it may be difficult to disentangle and distinguish between eating disorders and depression because of the many shared signs and symptoms (Garfinkel et al., 1995). In sum, the increasingly thin standard of beauty over the last several decades may partially explain the present rise in both eating disturbances and depression among females (McCarthy, 1990).

In a related view, anger has been identified as a potential contributing factor to depression (Newman, Gray, & Fuqua, 1999; Riley, Treiber, & Woods, 1989). It has long been believed that there are significant differences between males and females in both the experience and expression of anger (Sharkin, 1993). It has been suggested that the experience and expression of anger may be more burdensome for females due to its incongruence with the feminine gender role (Newman et al., 1999; Sharkin, 1996). On the other hand, anger appears to be a primary male emotion and very compatible with the masculine gender role (Newman et al., 1999). Females' hypothesized difficulty expressing anger may in turn make it more likely for them to suppress anger (Kopper & Epperson, 1996), potentially contributing to a variety of negative affective consequences such as depression (Kopper, 1993; Kopper & Epperson, 1996; Newman et al., 1999). Based on the relationship between anger and depression it may be reasonable for clinicians to simultaneously evaluate dimensions of anger when assessing eating disturbances.

Newman et al. (1999) conducted a study to examine potential gender differences in the relationship of anger and depression. Results indicated a significant difference in

depression between females and males, with females scoring higher. The mean comparisons of the six anger scales indicated that females and males experience anger in similar ways and at similar levels. However, the results suggested that even though females and males may experience similar levels of internalized anger, it is probably the case that females convert this internalized anger to depressed symptomatology more than males. Correlations of internalized anger with depression were significantly higher for women than for men. Overall, the results from this study indicate that there is a significant relationship between anger and depression.

It is important to keep in mind that the current pressures to maintain society's thin standard of beauty cause some women to internalize this thin ideal along with the psychological disturbances that come along with these unrealistic/distorted standards (McCarthy, 1990). Females with subclinical/partial eating disturbances and clinical eating disorders have been found to suffer from substantial psychological disturbances that may include affective disturbances such as depression (Shisslak et al., 1995). To date, the potential role of anger in eating disorders has not been examined. Given the demonstrated relationship of anger and depression among women in the Newman et al. (1999) study, exploration of the possible role of anger in eating disorder categories seems warranted.

The identification of individuals at risk for developing clinical eating disorders and/or disordered eating, and the enhanced effectiveness of early referral and/or intervention have become increasingly important tasks with this widespread health problem. College women are a high-risk group for developing eating disturbances, which are not only difficult to treat but have severe consequences both physically and

psychologically (Drewnowski et al., 1988; Herzog & Copeland, 1985; Schotte & Stunkard, 1987). Because of this noted risk, both primary prevention (trying to prevent new cases from arising) and secondary prevention (encouraging students who already have symptoms to seek early treatment) of eating disturbances are needed on college campuses (Mann, Nolen-Hoeksema, Huang, Burgard, Wright, & Hanson, 1997). There is an overwhelming need for more effective methods of early prevention, detection, and intervention based on knowledge of the underlying factors that facilitate or contribute to the development of eating disturbances (Piran, 1997; Vervaet, van Heeringen, & Jannes, 1998).

Further isolating the psychological and behavioral dimensions that are unique to individuals clinically diagnosed with an eating disorder and those individuals at risk for developing an eating disorder (i.e., symptomatic subtypes that resemble eating disordered subtypes over asymptomatic subtypes) is an increasingly important task. There is growing recognition of the significance of preventing eating disturbances (Piran, 1997). Both the high incidences of eating disturbances among adolescents and young adults and the related mortality and morbidity make prevention an important focal issue (Piran, 1997). There is an overwhelming need for more effective prevention measures that should be based on knowing the underlying factors that facilitate or predict the development of eating disorders (Vervaet, van Heeringen, & Jannes, 1998).

Further research is needed to provide a more thorough understanding of disordered eating and to foster development of appropriate strategies in the areas of early intervention and treatment (Kalodner & Scarno, 1992). The frequency with which subclinical or partial eating disturbances have been found to occur, along with the

possibility that these conditions will progress to diagnosable eating disorders, provide compelling reasons for research directed toward promoting effectiveness in early detection and intervention (Kalodner & Scarno, 1992).

As noted earlier, the prevalence of eating disorders and related eating disturbances, especially among women, has been rising at a rather alarming rate. In the United States, conservative estimates indicate that 5-10% of adolescent girls and young women (i.e., approximately 5-10 million girls and women) are struggling with eating disorders including anorexia nervosa, bulimia nervosa, binge eating disorder, or subclinical/partial eating disorders (Crowther, Wolf, & Sherwood, 1992; Fairburn, Hay, Welch, 1993; Gordon, 1990; Shisslak et al., 1995). Given the potentially serious physical and psychological consequences involved in these disorders, early detection and intervention are imperative. As noted earlier, empirical evidence has shown that a subset of individuals who fail to meet formal diagnostic criteria for an eating disorder may nevertheless exhibit similar psychological and behavioral patterns to those individuals formally diagnosed with an eating disorder (Button & Whitehouse, 1981; Garner et al., 1983a; Garner et al., 1984; Polivy & Herman, 1987). Again, evidence suggests that disordered eating patterns and other related symptoms in these subclinical groups may eventually lead to the development of a diagnosable eating disorder (Patton, 1988; Patton et al., 1990). Earlier it was stated that efforts are needed to better delineate the clinically relevant dimensions that define and distinguish these various categories of eating disturbances. Such efforts seem to hold the greatest promise for enhancing prevention, detection, and intervention effectiveness.

Consequently the current study was designed to examine the utility of select

psychological, behavioral, and affective dimensions in differentiating among groups of women representing different categories along a continuum of eating disturbance. Categories of eating disturbance were determined using the Questionnaire of Eating Disorders Diagnoses. Specific psychological, behavioral, and affective dimensions examined were derived from the Eating Disorder Inventory – 2, the Beck Depression Inventory – II, and the State – Trait Anger Expression Inventory – 2.

In a series of discriminant analyses, asymptomatic (exhibits no eating disorder symptoms) and symptomatic (exhibits eating disorder symptoms but fails to meet criteria for a DSM-IV diagnosis) groups were examined to explore the relationship between group membership and dimensions of the EDI-2, BDI-II, and STAXI-2. The specific research questions that were addressed in these analyses were as follows: (1) Is there a significant relationship between the eight original scales contained on the EDI-2 and the asymptomatic and symptomatic groups as defined by the Q-EDD, and what is the nature of the relationship? (2) Do the three provisional scales of the EDI-2 improve classification into the asymptomatic and symptomatic Q-EDD categories when used with the eight original EDI-2 scales? (3) Is there a significant relationship between depression and anger dimensions and the asymptomatic and symptomatic Q-EDD categories, and what is the nature of the relationship? (4) Do the depression and anger dimensions improve classification into the asymptomatic and symptomatic Q-EDD categories when used with the eight original EDI-2 scales?

Initially, this study was designed to include a third group comprised of women with eating disorders meeting DSM-IV criteria. Unfortunately, this group was too small ($n = 15$) to be included in the statistical analyses. However, in an effort to explore

potentially meaningful trends for future research, graphical analyses of scores for the asymptomatic, symptomatic, and eating disordered groups were included.

Method

Participants

The research participants consisted of 326 female undergraduate students from a large Southwestern university. The students ranged in age from 17 to 56 years, with a mean age of 19.84 years and a median age of 19 years. Participants were distributed across class levels as follows: 189 freshmen (58%), 88 sophomores (27%), 28 juniors (8.6%), and 21 seniors (6.4%). The ethnic composition of the college sample was 72.1% Caucasian/White, 10.1% African American/Black, 5.2% American Indian, 4.6% Asian-American/Pacific Islander, 4.3% Other, and 3.7% Hispanic/Latino/Mexican-American. The students were enrolled in introductory psychology classes or career and life planning classes. Participation in the study was strictly voluntary, and participants received class credit for their participation in the research.

Instruments

Questionnaire for Eating Disorders Diagnoses. The personal data sheet as part of the Questionnaire of Eating Disorders Diagnoses (Q-EDD; Mintz et al., 1997) was utilized to collect demographic information including gender, age, race, classification in college, present height, present weight, body frame, and ideal weight. Questions regarding whether the participant was currently in counseling for an eating disorder or had ever been diagnosed with an eating disorder were added to the personal data sheet.

The Q-EDD (Mintz et al., 1997) consists of 50 items that assess both frequency of individual behaviors (e.g., self-induced vomiting) and categorical typology (e.g., eating disordered and non-eating disordered). Based on decision rules, the Q-EDD places respondents into diagnostic categories which include eating disordered and non-eating

disordered categories at the most basic level. The non-eating disordered category can be further broken down into asymptomatic (exhibits no eating disorder symptoms) and symptomatic categories (exhibits eating disorder symptoms but fails to meet criteria for a DSM-IV diagnosis). The eating disorder category is composed of six different diagnostic subcategories which include two reflecting the DSM-IV diagnosis for bulimia and anorexia (which can be further broken down into DSM-IV subtypes) and four reflecting the DSM-IV Eating Disorder Not Otherwise Specified (EDNOS) descriptions of subthreshold bulimia nervosa, menstruating anorexia nervosa, nonbinging bulimia nervosa, and binge-eating disorder. For the purpose of this study, respondents were placed into three diagnostic categories: asymptomatic (n = 193), symptomatic (n = 118), and eating disordered (n = 15).

Specific decision rules of the Q-EDD require that full diagnostic criteria be met for diagnosis of any of the six eating disorders. Respondents are classified as asymptomatic if they answer negative to all behaviors making up the DSM-IV criteria for eating disorders and to the use of strict dieting and appetite control pills as a way to control their body weight. However, asymptomatics who are grossly obese or severely underweight are looked at as "red flag" asymptomatics to indicate that they may not really be asymptomatic. Respondents are classified as symptomatic if the individual does not meet full DSM-IV criteria for an eating disorder, but on the other hand is not asymptomatic. These respondents should be further examined to see if they are at risk for developing an eating disorder.

The psychometric properties of the Q-EDD have been demonstrated in a variety of ways. Criterion validity for the Q-EDD has been demonstrated through a high level of

agreement between Q-EDD categories and categories determined by a structured interview and in how well the Q-EDD categorized respondents into correct diagnostic categories. Convergent validity was demonstrated by significant agreement between the diagnoses on the Q-EDD and the scores on the revised Bulimia Test (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991) and the EAT (Garner & Garfinkel, 1979). Incremental validity was defined as the extent to which it improved diagnostic accuracy above that of the BULIT-R (Mintz et al., 1997). The Q-EDD was correct at predicting bulimia 78% of the time, whereas the BULIT-R was correct 54% of the time (Mintz et al., 1997). Two-week test-retest reliabilities were calculated as the change from the first administration to the second administration. Test-retest reliabilities were found to be very stable over a 2-week period of time. Kappa values and specifics regarding changes were as follows: (a) eating-disordered and non-eating-disordered groups $\underline{k}$ = .94 (one change between the eating disordered and non-eating disordered categories), and (b) eating-disordered, symptomatic, and asymptomatic groups $\underline{k}$ = .85 (one change between the symptomatic and eating-disordered categories and eight changes between symptomatic and asymptomatic categories) (Mintz et al., 1997). The Q-EDD was found to be less stable over a 1- to 3-month period of time. Kappa values and specifics regarding changes were as follows: (a) eating-disordered and non-eating-disordered groups $\underline{k}$ = .64 (19 changes between the eating-disordered and non-eating-disordered groups), and (b) eating-disordered, symptomatic, and asymptomatic groups $\underline{k}$ = .54 (14 changes between the asymptomatic and symptomatic categories, 13 changes between symptomatic and eating-disordered categories, and 6 changes between the asymptomatic and eating-disordered categories). The 100% interscorer agreement across two studies indicates that the scoring

of the Q-EDD can be easily mastered (Mintz et al., 1997).

Eating Disorder Inventory-2. The Eating Disorder Inventory-2 (EDI-2; Garner, 1991) was used to assess psychological and behavioral dimensions common in anorexia nervosa and bulimia nervosa. The EDI-2 is a 91-item, self-report measure generating scores for eight original scales briefly described as follows: (a) "Drive for Thinness – 'indicates excessive concern with dieting, weight preoccupation, and extreme pursuit for thinness,' (b) Bulimia – 'indicates the tendency toward uncontrollable episodes of overeating (binging) which may be followed by self-induced vomiting,' (c) Body Dissatisfaction – 'indicates a perception that specific body parts are too large (e.g., hips, thighs, buttocks),' (d) Ineffectiveness – 'reflects feelings of overall inadequacy, insecurity, worthlessness and an out of control feeling over one's life,' (e) Perfectionism – 'assesses extreme personal expectations of superior achievement,' (f) Interpersonal Distrust – 'indicates a feeling of alienation and an overall hesitancy to form close relationships,' (g) Interoceptive Awareness – 'assesses a lack of confidence in not only recognizing but accurately relating emotions and sensations of hunger or satiety,' and (h) Maturity Fears – 'reflects the wish to retreat to the security of the preadolescence years because of the overwhelming demands of adulthood'" (Garner et al., 1983b) and three provisional scales briefly described as: (a)"Impulse Regulation – 'assesses the tendency toward impulsivity, substance abuse, recklessness, hostility, destructiveness in interpersonal relationships, and self-destructiveness,' (b) Social Insecurity – 'measures the belief that social relationships are tense, insecure, disappointing, unrewarding, and generally of poor quality,' and (c) Asceticism – 'measures the tendency to seek virtue through the pursuit of spiritual ideals such as self-discipline, self-denial, self-restraint,

self-sacrifice, and control of bodily urges"' (Garner, 1991; Garner et al., 1983b). The EDI-2 requires respondents to rate on a 6-point continuum the extent to which each item describes them.

Internal consistency reliabilities for the original eight EDI scales reportedly ranged from .83 to .93 (Garner et al., 1984). Internal consistency reliabilities for the three provisional scales of the EDI-2 were as follows: Asceticism (.70), Impulse Regulation (.77), and Social Insecurity (.80) for the eating disorder sample, and Asceticism (.44), Impulse Regulation (.79), and Social Insecurity (.80) for the non-patient college female comparison sample (Garner, 1991). Internal consistency reliabilities computed for the current sample were as follows: Drive for Thinness (.88), Bulimia (.78), Body Dissatisfaction (.93), Ineffectiveness (.88), Perfectionism (.69), Interpersonal Distrust (.82), Interoceptive Awareness (.82), and Maturity Fears (.77), Impulse Regulation (.45), Social Insecurity (.77), and Asceticism (.79).

Evidence for criterion-related validity was indicated through a strong agreement between patients' self-report profiles and the clinical judgments of experienced clinicians familiar with characteristics of eating disorders. Due to the fact that several scales of the EDI-2 overlap conceptually with preexisting psychological tests, convergent and discriminant validity were determined for subsamples of patients (e.g., anorexic attitudes on the EAT; restraint; overall body dissatisfaction; dissatisfaction with bodily regions such as the breasts, buttocks, hips, and abdomen that are associated with changes at maturation, locus of control, self-control, feelings of inadequacy, depression as measured by the BDI, physical anhedonia, and symptoms on the Hopkins Symptoms Check List). Construct validity was indicated by the congruence between clinicians' ratings and

patients' scale scores, ability of scales to differentiate between the criterion and comparison groups, and through the demonstration of convergent and discriminant validity

Beck Depression Inventory-II. The revised Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996) consists of 21 items assessing the presence and severity of depression in adults and adolescents aged 13 years and older. The BDI-II was developed for the assessment of symptoms corresponding to the criteria for diagnosing depressive disorders listed in the DSM-IV (American Psychiatric Association, 1994). The BDI-II requires respondents to rate themselves along a 4-point continuum of severity for a variety of depressive symptoms. Scores may be classified as *minimal* (0-13); *mild* (14-19); *moderate* (20-28); or *severe* (29-63).

Concurrent validity of the BDI has been demonstrated in studies in which BDI scores were found to correlate significantly with clinical ratings of depression for psychiatric patients (Beck, Steer, & Garbin, 1988; Bumberry, Oliver, & McClure, 1978). The BDI-II builds on 35 years of accumulated psychometric data and clinical experience with the BDI and BDI-IA (Beck et al., 1988). The different versions of the BDI have been used in literally hundreds of published research studies as global measures of depression (Ponterotto, Pace, & Kavan, 1989), so evidence of its construct validity is extensive. Internal consistency reliability for the BDI-II was reported to be .92 for an outpatient sample and .93 for a college sample (Beck et al., 1996). A test-retest reliability of .93 was also reported (Beck et al., 1996). Internal consistency reliability of the BDI-II for the current sample was .90.

State-Trait Anger Expression Inventory-2. The State-Trait Anger Expression

Inventory-2 (STAXI-2; Spielberger, 1999) consists of 57 items assessing the experience, expression, and control of anger. The STAXI-2 requires respondents to make self-ratings along a 4-point scale. The six scales from the STAXI-2 that will be used in this study are briefly described from the manual as follows: (a) "State Anger - 'the intensity of angry feelings and the extent to which a person feels like expressing anger at a particular time,' (b) Trait Anger - 'how often angry feelings are experienced over time and how often they feel that they are treated unfairly by others,' (c) Anger Expression-Out - 'how often angry feelings are expressed in verbally or physically aggressive behavior toward other persons or objects in the environment,' (d) Anger Expression-In - 'how often angry feelings are experienced but not expressed (suppressed),' (e) Anger Control-Out - 'how often a person controls or expends a great deal of energy in monitoring and preventing the outward experience and expression of anger (i.e., the control over external manifestations of anger),' and (f) Anger Control-In - 'how often a person attempts to control feelings or expends a great deal of energy in calming down and reducing their anger as soon as possible (i.e., the development of internal controls)'" (Spielberger, 1988).

The manual reports coefficient alphas for these scales ranging from .73 to .93. Internal consistency reliabilities for the current sample were as follows: State Anger (.91), Trait Anger (.85), Anger Expression-Out (.75), Anger Expression-In (.79), Anger Control-Out (.86), and Anger Control-In (.89). The empirical structure of the STAXI items seems to match the scale structure extremely well (Fuqua, Leonard, Masters, Smith, Campbell, & Fischer, 1991). Additional validity evidence can be found in positive correlations of anger scales with other measures of anger or hostility (Spielberger, 1988), the ability of anger scales to discriminate high and low anger groups (Spielberger, 1988),

and the relationship of anger scores to hypertension and Type A behavior (Van der Ploeg, van Buuren, & van Brummelen, 1988).

Social Desirability Scale. Given the nature of this study, there was some concern that participants' responses, especially to the EDI-2, might be influenced by social desirability. Consequently, the decision was made to include such a measure to explore that possibility. Social desirability was assessed with 25 true/false items from the Marlowe-Crowne Social Desirability Scale (M-C SDS; Crowne & Marlowe, 1964). The M-C SDS has an internal consistency coefficient of .88 and a test-retest correlation of .89 (Crowne & Marlowe, 1960). Internal consistency reliability for the current sample was .79.

Procedures

Participants were solicited on a voluntary basis. Following a brief description of the study and an explanation of informed consent, participants were given the five instruments in random order in a large manila envelope. For the purpose of confidentiality, participants were asked to turn in the five instruments after sealing their envelopes. All participants were treated in accordance with the ethical standards of the American Psychological Association (American Psychological Association, 1992).

Results

A very small subgroup (n = 15) of eating disordered individuals was identified within the sample using the Q-EDD criteria. This subgroup size was inadequate to fully apply the statistical procedures originally proposed. So, two procedural changes were made. First, it was decided to apply the discriminant analysis to revised research questions using only the asymptomatic and symptomatic groups. Second, it was further

decided that the results for the very small group of eating disordered participants would be displayed through graphical analyses in order to explore trends that might be pursued in future research. The following discussion delineates the four research questions addressed in this study and describes the results of the statistical analyses used to answer these questions. In addition, the results of separate multiple regression analyses for the asymptomatic and symptomatic groups examining the relationships of EDI-2 scores with social desirability are reported. Finally, the graphical analyses comparing asymptomatic, symptomatic, and eating disordered groups are described.

1. Is there a significant relationship between the eight original scales contained on the EDI-2 and the asymptomatic and symptomatic categories as defined by the Q-EDD, and what is the nature of the relationship?

In response to the first research question, a discriminant analysis was performed using the original eight EDI-2 scale scores as discriminating variables and the two Q-EDD categories as the group variable. The single discriminant function was found to be statistically significant, $\underline{X}^2$ (8) = 125.19, $\underline{p} < .001$. The canonical correlation of .58 indicates that the discriminant function shares 34% variance with group membership.

Table 1 presents the structure coefficients and standardized discriminant function coefficients for the eight scale scores on the discriminant function. As can be seen in the table, Drive for Thinness shares 89% common variance with the discriminant function. Examining the standardized discriminant function coefficients, one can see that Body Dissatisfaction, Bulimia, Ineffectiveness, and Interoceptive Awareness all have considerable redundancy.

Table 2 presents the Pearson product-moment correlation coefficients among the

eight discriminant variables included in this analysis. This table reflects the substantial intercorrelation among these eight scales. The correlations reported in this table reveal the basis for the redundancy reflected in Table 1.

Table 3 presents the means, standard deviations, and F ratios for the asymptomatic and symptomatic groups on the eight original EDI-2 scales. As can be seen in the table, each of the eight univariate F ratios is statistically significant, indicating that the symptomatic group scored significantly higher than the asymptomatic group on each of the eight EDI-2 scales. Relatedly, the centroid for the symptomatic group (.91) was higher than for the asymptomatic group (-.56).

Table 4 was prepared as a summary of the first discriminant analysis. The overall correct classification based on this relationship was found to be 78.1%, or an improvement of 28.1% over the random expectation. The correct classification for the symptomatic group (66.1%) was found to be slightly lower than the correct classification for the asymptomatic group (85.5%).

In summary, several points might be made in response to the first research question. Clearly there is a statistically significant relationship between the eight original EDI-2 scales and group membership. The finding that the discriminant function shares one-third of the variance with group membership suggests that the relationship is a substantially significant result. The nature of the discriminant function that optimizes separation between these two groups appears to be highly related to the construct of Drive for Thinness. Further, the classification results would suggest some real clinical utility in the separation of these groups.

2. Do the three provisional scales of the EDI-2 improve classification into the

asymptomatic and symptomatic Q-EDD categories when used with the eight original EDI-2 scales?

To address the second research question, a second discriminant analysis was performed, this time using all eleven EDI-2 scale scores as discriminating variables and the two Q-EDD categories as the group variable. The single discriminant function was found to be statistically significant, $\underline{X}^2$ (11) = 127.06, $\underline{p} < .001$. The canonical correlation of .59 indicates that the discriminant function shares 34% variance with group membership.

Table 5 presents the structure coefficients and standardized discriminant function coefficients for the 11 scale scores on the discriminant function. Drive for Thinness shares 87% common variance with the discriminant function. It is evident from the table that Body Dissatisfaction, Bulimia, Interoceptive Awareness, Ineffectiveness, and Impulse Regulation all have considerable redundancy.

Table 6 presents the Pearson product-moment correlation coefficients among the 11 discriminant variables for this analysis. As with the eight original EDI-2 scales, there is substantial intercorrelation among the 11 EDI-2 scales, which accounts for the redundancy reflected in Table 5.

The means, standard deviations, and F ratios for the asymptomatic and symptomatic groups on the three provisional EDI-2 scales are presented in Table 3. Each of the three univariate F ratios is statistically significant, indicating that the symptomatic group scored significantly higher than the asymptomatic group on each of the three provisional scales of the EDI-2. Relatedly, the centroid for the symptomatic group (.92) was higher than the centroid for the asymptomatic group (-.56).

Table 7 provides a summary of the second discriminant analysis. The overall correct classification based on this relationship was found to be 79.4%, or an improvement of 29.4% over the random expectation. The correct classification for the symptomatic group (67.8%) was somewhat lower than the correct classification for the asymptomatic group (86.5%).

The results of this second discriminant analysis reveal that there is a statistically significant relationship between the 11 EDI-2 scales and group membership. The fact that the discriminant function shares 34% of the variance with group membership suggests that the relationship is substantively significant as well. Again, Drive for Thinness appears to largely define the function that optimizes separation between these two groups.

In order to directly compare the variance accounted for by the eight original EDI-2 scales to the variance accounted for by the 11 scales combined, an incremental F test was performed. The difference in the two equations was not statistically significant, F (3, 299) = .88, $p > .05$. Thus, the answer to the second research question is that the three provisional scales do not significantly improve classification accuracy beyond that achieved by the eight original EDI-2 scales.

3. Is there a significant relationship between depression and anger dimensions and the asymptomatic and symptomatic Q-EDD categories, and what is the nature of the relationship?

In response to the third research question, a discriminant analysis was performed using the BDI-II scale score and the six STAXI-2 scale scores as discriminating variables and the two Q-EDD categories as the group variable. The single discriminant function

was found to be statistically significant, $\underline{X}^2$ (7) = 39.90, $\underline{p} < .001$. The canonical correlation of .35 indicates that the discriminant function shares 12% variance with group membership.

Table 8 presents the structure coefficients and standardized discriminant function coefficients for the BDI-II scale score and the six STAXI-2 scale scores on the discriminant function. As reflected in the table. the BDI-II scale score shares 69% common variance with the discriminant function. Additionally. the Trait Anger scale score shares 55% and the Anger Expression-In scale score shares 49% common variance with the discriminant function. Examining the standardized discriminant function coefficients. it appears that that the remaining four STAXI-2 scale scores all have considerable redundancy.

Table 9 presents the Pearson product-moment correlation coefficients among the seven discriminant variables for this analysis. These correlations suggest there is substantial relationship among these scales that accounts for the redundancy reflected in Table 8.

The means, standard deviations, and F ratios for the asymptomatic and symptomatic groups on the seven affective scales are presented in Table 3. As can be seen in the table, all seven univariate F ratios were statistically significant, with the symptomatic group scoring significantly different than the asymptomatic group on each of the six STAXI-2 scales and the BDI-II. The centroid for the symptomatic group (.48) was higher than the centroid for the asymptomatic group (-.29).

Table 10 is a summary of this third discriminant analysis. The overall correct classification based on this relationship was found to be 65.3%, an improvement of

15.3% over the random expectation. The correct classification for the symptomatic group (59.3%) was found to be slightly lower than the correct classification for the asymptomatic group (68.9%).

The results of this third discriminant analysis indicate there is a statistically significant relationship between the seven affective scales and group membership. The nature of the discriminant function that optimizes separation between these two groups appears to be highly related to depression, trait anger, and the tendency to suppress anger.

4. Do the depression and anger dimensions improve classification into the asymptomatic and symptomatic Q-EDD categories when used with the eight original EDI-2 scales?

To address the fourth research question, a final discriminant analysis was performed using the eight original EDI-2 scale scores, the six STAXI-2 scale scores, and the BDI-II scale score as discriminating variables and the two Q-EDD categories as the group variable. The single discriminant function was found to be statistically significant, $\underline{X}^2$ (15) = 134.76, $\underline{p} < .001$. The canonical correlation of .60 indicates that the discriminant function shares 36% variance with group membership.

Table 11 presents the structure coefficients and standardized discriminant function coefficients for the 15 scale scores on the discriminant function. As can be seen in the table, Drive for Thinness shares 80% common variance with the discriminant function. Examining the standardized discriminant function coefficients, one can see that Body Dissatisfaction, Bulimia, Interoceptive Awareness, depression as measured by the BDI-II, Trait Anger, Anger Expression-In, and Ineffectiveness all have considerable redundancy.

Table 12 contains the Pearson product-moment correlation coefficients among the 15 discriminant variables for this analysis. An examination of these correlations suggests there is considerable overlap among several of these scales. This overlap would explain the redundancy of scales delineated above.

The means, standard deviations, and F ratios for the asymptomatic and symptomatic groups on the eight original EDI-2 scales and the seven affective scales are presented in Table 3. Each of the 15 univariate F ratios is statistically significant. The symptomatic group scored significantly different than the asymptomatic group on each of the 15 scales. Relatedly, the centroid for the symptomatic group (.96) was higher than for the asymptomatic group (-.59).

Table 13 was prepared as a summary of the discriminant analysis. The overall correct classification based on this relationship was found to be 78.5%, or an improvement of 28.5% over the random expectation. The correct classification for the symptomatic group (67.8%) was found to be somewhat lower than the correct classification for the asymptomatic group (85.0%).

Clearly, there is a statistically significant relationship between the 15 scales included in this analysis and group membership. The finding that the discriminant function shares 36% of the variance with group membership suggests that the relationship is substantively significant as well. The nature of the discriminant function that optimizes separation between these two groups again appears to be highly related to Drive for Thinness.

In order to directly compare the variance accounted for by the eight original EDI-2 scales, the BDI-II scale, and the six STAXI-2 scales to the variance accounted for by

the eight original EDI-2 scales alone, an incremental F test was performed. The difference in the two equations was not found to be statistically significant, F (7, 295) = 1.79, $p > .05$. Consequently, in answer to the fourth research question, we would conclude that the depression and anger scales do not significantly improve classification when added to the eight original EDI-2 scales.

Social Desirability

As noted earlier, in the design of this study, there was some concern that participants' responses to items on the EDI-2 might be influenced by concerns regarding social desirability, and that this effect might be more pronounced among those with eating disturbances. Consequently, 25 true/false items from the Marlowe-Crowne Social Desirability Scale were administered along with the other instruments. Separate multiple regression analyses were conducted for the asymptomatic and symptomatic groups using a linear combination of the 11 EDI-2 scale scores to predict social desirability. In both cases, forward selection was used, with relaxed entry criteria to ensure that all predictors entered the analysis.

Interestingly, the means are very similar between the asymptomatic and symptomatic groups, with the asymptomatic group scoring slightly higher (M = 38, SD = 4.5) than the symptomatic group (M = 36.6, SD = 4.5). This difference is statistically significant t (309) = -2.78, $p < .01$. This statistically significant difference is associated with an effect size of .31, which would be considered modest. Based upon the multiple regression analyses, social desirability appears to be considerably more related to EDI-2 scores for the symptomatic group than for the asymptomatic group.

Table 14 presents the results of the multiple regression analysis for the

symptomatic group. An examination of the table reveals that the equation with all 11 predictors included is statistically significant at the .001 level. A linear combination of the 11 predictors shares 35% variance with social desirability. Further examination of the table reveals that after the Bulimia scale is entered at the fifth step, none of the remaining six predictors add significantly to the equation at the .05 level. The zero order correlations at each step reveal the effects of multicollinearity in the predictors.

Table 15 presents the results of the multiple regression analysis for the asymptomatic group. As reflected in the table, the equation with all 11 predictors included is statistically significant at the .05 level. A linear combination of the 11 predictors shares 10% variance with social desirability. After the Impulse Regulation scale is entered in the first step, none of the remaining 10 predictors add significantly to the equation at the .05 level. It is worth noting that zero order correlations of EDI-2 scales with social desirability for the asymptomatic group are generally lower than for the symptomatic group.

Graphical Analyses of Asymptomatic, Symptomatic, and Eating Disordered Groups

As noted earlier, a very small subgroup (n = 15) of eating disordered individuals was identified within the sample using the Q-EDD. Although too small to include in the statistical analyses, this subgroup (4.6%) was twice as large as the relative proportion of individuals with diagnosable eating disorders typically reported in the general population (1-3%). There is clearly merit in exploratory analysis with this subgroup of eating disordered college women to examine trends and generate potential hypotheses for future research including this group.

Table 16 presents the means and standard deviations for the asymptomatic,

symptomatic, and eating disordered groups on the 11 EDI-2 scales. As can be seen in the table, the eating disordered group scored higher than both the symptomatic and asymptomatic groups on 10 of the 11 EDI-2 scales. Scores for all three groups, and especially the symptomatic and eating disordered groups, are very similar on the Perfectionism scale. Similarly, the symptomatic group scored consistently higher than the asymptomatic group on each of the eleven EDI-2 scales as expected. Figure 1 provides a graphical representation of the mean T-scores for the asymptomatic, symptomatic, and eating disordered groups on the 11 EDI-2 scales. As reflected in Figure 1, there appears to be a consistent pattern of relationship between progressively higher EDI-2 scores and group membership (asymptomatic, symptomatic, and eating disordered, respectively). This pattern suggests there may be some real clinical utility in the use of these scales to distinguish among these groups.

Table 16 also presents the means and standard deviations for the asymptomatic, symptomatic, and eating disordered groups on the seven affective scales. Mean T-scores for the three groups on the seven affective scales are graphically presented in Figure 2. Mean differences among the three groups on the BDI-II are in the predicted direction, with the eating disordered group scoring highest, followed by the symptomatic and asymptomatic groups, respectively. Using the classification system provided in the BDI-II manual, the means for both the symptomatic and eating disordered groups would be labeled as "mild" depression, while the mean for the asymptomatic group would be labeled as "minimal" depression. As in the case of the EDI-2 scales, there appears to be a general corresponding increase in severity of depression as severity of eating disturbance increases. This relationship between eating disturbance and depression is consistent with

observations reported in the literature.

Scores for the asymptomatic, symptomatic, and eating disordered groups are somewhat more similar on the six STAXI-2 scales. Examining scores on the anger scales, there is not the same clear, consistent pattern of relationship as observed for the three groups on the EDI-2 scales and the BDI-II, although such a pattern would not necessarily be expected. It is noteworthy that the eating disordered group scored lower than the asymptomatic and symptomatic groups on expressed anger (Anger Expression-Out), but higher than both groups on suppressed anger (Anger Expression-In). Given the clinical and theoretical literature relating depression and suppressed anger, this finding may prove useful from both diagnostic and treatment perspectives.

Discussion

At the most general level, the results of this study lend support to the complex, multidimensional conceptualization of eating disturbances represented by the "continuum hypothesis." As noted earlier, according to the continuum hypothesis, the range of potential eating disturbances can be represented on a single continuum, with normal eating patterns and clinically diagnosable eating disorders at the polar extremes, and milder, subclinical forms of eating disturbances falling at various points in between (Kalodner & Scarno, 1992; Polivy & Herman, 1987).

The Q-EDD (Mintz et al., 1997) was used in this study because it attempts to operationalize the continuum hypothesis. It also appears to overcome several of the shortcomings of previous inventories in assessing eating disturbances. The Q-EDD is based on current DSM-IV criteria and more closely captures the spectrum of eating disturbances that has been shown in the literature to exist (Williamson, 1990; Williamson et al., 1995). The results of this study would seem to support the validity of the asymptomatic and symptomatic categories of the Q-EDD.

The results of the discriminant analyses using the EDI-2 scales suggest that the psychological and behavioral dimensions represented on this instrument are highly useful in differentiating between asymptomatic and symptomatic groups. Drive for Thinness, a scale reflecting excessive concern with dieting, weight preoccupation, and extreme pursuit of thinness correlated extremely highly with the discriminant function (r = .94). Two additional scales correlated moderately with the discriminant function. These scales included Body Dissatisfaction (perception that body parts are too large), and Bulimia (tendency toward uncontrollable episodes of binging and purging). Not surprisingly, all

three of these scales seem to relate to a preoccupation with food and/or unhappiness with one's body. This feature has been represented in the literature to be the core psychopathology of clinical eating disturbances (Garfinkel et al., 1995).

In the development of the original and current versions of the EDI, the Drive for Thinness, Body Dissatisfaction, and Bulimia scales were comprised to assess attitudes and behaviors related to eating, weight, and shape, and the other eight scales to assess the more general organizing constructs or psychological and behavioral traits found in the literature to be clinically relevant to eating disturbances (e.g., perfectionism, general impulse control problems, interpersonal sensitivity, poor self-esteem, social maladjustment, hostility, substance abuse) (Garner, 1991). There is a substantial amount of literature indicating that the original eight EDI scales measure clinically relevant dimensions related to eating disturbances (Garner, 1991). While there is less information regarding the three provisional scales, the potential clinical utility of these scales is easily appreciated given the conceptual domains they tap (Garner, 1991). However, in the development of this instrument, there was an awareness that eating disturbances are both multifaceted and multidetermined, and that the general organizing constructs of eating disturbances may represent common, overlapping symptoms resulting from a variety of distinctly different biological, psychological, familial, and sociocultural factors (Garfinkel & Garner, 1982; Garner, 1991; Garner & Garfinkel, 1980). The findings in this study substantiate the clinically relevant, but overlapping nature of the psychological and behavioral dimensions measured by the EDI-2. Overall, this study provides further evidence that the EDI-2 scales discriminate effectively between subgroups of individuals along a continuum of eating disturbances (Cooper et al., 1985; Garner, 1991; Garner et

al., 1983b).

The results of the discriminant analysis using the seven affective scales suggest that these dimensions are also useful in differentiating between asymptomatic and symptomatic groups. The highest correlations of scales with the discriminant function were obtained for the BDI-II (depression), Trait Anger (persistent, generalized anger), and Anger Expression-In (suppressed anger). Both trait anger and suppressed anger were moderately correlated with depression. Much attention has been paid in the literature to the relationship between eating disturbances and depression (Devlin & Walsh, 1989; Garfinkel et al., 1995; McCarthy, 1990; Swift et al., 1986). It seems quite clear that depression frequently accompanies an eating disturbance and thus, warrants careful attention in diagnosis and treatment. As mentioned earlier, depression has been described in the literature as a common theme or comorbid condition with eating disturbances, with the precise role or nature of this relationship still unclear (Devlin & Walsh, 1989; Herzog, 1984; Edelstein & Yager, 1992). Clinically, it may be difficult to disentangle and distinguish between depression and eating disturbances because of their many shared signs and symptoms (Garfinkel et al., 1995). However, because the relationship is so clearly evident in the literature, it should be assumed to be clinically relevant in assessing eating disturbances.

This is the first study to examine the relationship of anger dimensions to eating disturbances. These results suggest that anger dimensions may prove to be useful in further understanding the affective nature of eating disturbances. The pattern of differences observed between the two groups in this study suggests that the relationship between anger and eating disturbances may be rather complex. The clear, predictable

patterns of relationship that occurred for the EDI-2 scales and depression did not occur for the anger scales. Further research designed to clarify the relationship between anger and eating disturbances is needed. Based on the findings of this study alone, the usefulness of the affective scales in and of themselves is not clear. While the affective scales did not add significantly to the improvement of group classification, the scales did differentiate between groups. The fact that suppressed anger was related to depression is an interesting finding. It has long been hypothesized in the theoretical and clinical literature that depression in women is a manifestation of repressed anger (Devlin & Walsh, 1989; Edelstein & Yager, 1992; Garfinkel et al., 1995; Kopper, 1993; Kopper & Epperson, 1996; McCarthy, 1990; Newman et al., 1999; Shisslak et al., 1995; Swift et al., 1986). As noted earlier, gender role socialization is hypothesized to impact an individual's ability to express anger (Kopper & Epperson, 1996). It has been indicated in the literature that the experience and expression of anger may be more troublesome for females because it is incongruent with the feminine gender role (Newman et al., 1999; Sharkin, 1996). This inability to express anger may in turn make it more likely for females to suppress anger (Kopper & Epperson, 1996). These findings clearly warrant future research incorporating gender identity as a mediating variable in the experience and expression of anger. Additionally, examining suppressed anger as a potential contributing factor to eating disturbances may provide clinicians (and clients) with valuable insight into the complexity of eating disturbances. Evaluating the relationship between suppressed anger and eating disturbances may shed further light on processes underlying the development and recovery from eating disturbances.

The results of the multiple regression analyses indicate that concerns regarding

social desirability influencing participants' responses to the EDI-2 were warranted for the symptomatic group. A linear combination of the 11 EDI-2 scales shared only 10% variance with social desirability in the asymptomatic group, but shared 35% in the symptomatic group. Interestingly, Impulse Regulation (impulsivity, substance abuse, recklessness, hostility, and destructiveness in interpersonal relationships and to self) entered the equation first in both multiple regression analyses. It makes sense that those given to impulsivity would be less concerned or less mindful of social desirability issues. As reflected in the zero order correlations, this relationship between Impulse Regulation and social desirability was much stronger for the symptomatic group. These findings are intuitively logical given the secretive and perfectionistic tendencies inherent in individuals with eating disturbances. Given the relationship between social desirability and EDI-2 scores observed here, it seems possible that the scores of the symptomatic group on the EDI-2 scales may have been suppressed given this group's heightened need to portray themselves in an acceptable/socially desirable manner. If this is the case, differences between symptomatic and asymptomatic groups would be even more pronounced. It may be wise to routinely incorporate a measure of social desirability in future studies of eating disturbances. From a clinical perspective, awareness of the heightened tendency women with eating disturbances have to portray themselves in a socially desirable manner may prove quite useful. An alternative, but seemingly less probable explanation for these findings may be that concerns regarding food, body, and weight are a "social norm" for these women, and that endorsement of symptomatic items is a reflection of conformity to this social norm.

The increased proportion of individuals diagnosed with eating disorders in this

study (4.6%) compared to the proportion indicated in the general population (1-3%) supports previous findings that college women are a high-risk group for developing eating disturbances (Drewnowski et al., 1988; Herzog & Copeland, 1985; Schotte & Stunkard, 1987). In looking at the graphical analyses of the EDI-2 scores, it is clear that the asymptomatic, symptomatic, and eating disordered groups differed from one another in the predicted direction, that is, EDI-2 scale scores progressively increased from the asymptomatic to the symptomatic to the eating disordered groups, respectively. However, given the nature of the small sample (n = 15), the observations and conclusions of this study are limited to speculations. On the other hand, the findings of this study support previous research and warrant future research with a larger clinical sample.

An examination of the mean T-scores for the asymptomatic, symptomatic, and eating disordered groups on the EDI-2 scales suggests that differences between subclinical (symptomatic) and diagnosable eating disorders (eating disordered) are likely more a matter of degree than of substance. Both groups scored higher than the asymptomaic group on all scales, but the degree of elevation was notably higher for the eating disordered group on all but one EDI-2 scale.

This notion that symptomatic and eating disordered women differ primarily as a matter of degree of symptom severity is also reflected in the patterns of their scores on the BDI-II. Even though the symptomatic and eating disordered groups both scored in the range of "mild depression (14 – 19)" based on the classification system in the BDI-II manual, the symptomatic group scored at the low end of the mild range with a mean of 14 (13.89) and the eating disordered group scored at the high end of the mild range with the mean of 19 (18.67). As in the case of the EDI-2 scales, it appears there is a corresponding

increase in severity of depression as severity of eating disturbance increases.

The same pattern emerged for suppressed anger (Anger Expression-In), that is, mean T-Scores were highest for the eating disordered group, followed by the symptomatic and asymptomatic groups, respectively. The patterns between symptoms and group membership indicate that clinicians should not necessarily rely on the absence or presence of symptoms for diagnosis, but should instead assess degree of symptom severity. Further, careful attention must be directed toward those who fail to meet cut-offs for diagnostic criteria, but who may be suffering difficulties nonetheless.

Interestingly, the eating disordered group scored the lowest of the three groups in their ability to express anger outwardly either verbally or physically (Anger Expression-Out). This finding, coupled with the fact they scored highest on suppressed anger, suggests that anger is a very real part of their experience, but not one they can share or express easily. As a matter of fact, we know very little regarding the extent to which these women are even conscious of their anger. Based on the findings obtained here, as well as the clinical and theoretical literature linking depression and suppressed anger, it is reasonable to suggest that clinicians make targeted efforts to assess anger when diagnosing and treating eating disturbances. Because this is the first study to examine dimensions of anger related to eating disturbances, additional research is needed to clarify this relationship.

Limitations of the Study

It should be noted that there are important limitations to this study. First, the sample consisted of predominantly Caucasian/White, freshmen and sophomore college women, with the mean age of 19.84 years. Findings reported here are clearly limited by

characteristics of the existing sample. A broader range of ages and associated developmental levels, as well as participants representing more diverse ethnic backgrounds, socioeconomic circumstances (rural vs. urban dwellers), and occupations would improve the robustness and generalizability of these findings.

Further, the subgroup of women within this sample identified as eating disordered was too small to be included in the statistical analyses. Consequently, any observations or conclusions pertaining to them are largely speculative. Clearly, inclusion of a larger clinical sample would lend itself to more powerful analyses.

Conclusions and Implications

The findings in this study provide support for a complex multidimensional conceptualization of eating disturbances, such as that reflected in the continuum hypothesis. Consistent with findings from previous studies (Button & Whitehouse, 1981; Fries, 1977; Garner & Garfinkel, 1980; Garner et al., 1984; Garner et al., 1983a; Lowenkopf, 1982; Nylander, 1971; Polivy & Herman, 1987), the differences between subclinical and clinical forms of eating disturbances along this continuum appear to be largely a matter of degree of symptom severity, rather than simply the absence or presence of symptoms. Using the Q-EDD made it possible to operationalize the continuum hypothesis. Although the *specific* cause(s) of eating disturbances are still relatively unknown, studies such as this provide further insight into the complex interactions between psychological and behavioral factors, as well as the considerable comorbidity they share with other psychiatric disorders (e.g., depression, obsessive-compulsive tendencies, borderline characteristics).

Findings in this study are consistent with previous research pointing to the

existence of a group of women who, though they fail to meet full diagnostic criteria for any specific eating disorder, nevertheless exhibit many of the same problematic cognitive and behavioral patterns. Once again, it is important to note that because of their "subclinical" status, these women are at risk for falling through the cracks with respect to both treatment and research. This is a serious matter given the potential physical, social, and psychological risks associated with such self-destructive patterns. Further, the very real possibility exists that subclinical eating disturbances may progress into more serious clinical forms if left unattended (Patton, 1988; Patton et al., 1990). Additionally, this study adds credence to the useful source of data that symptomatic (subclinical) individuals can provide because of the higher frequencies with which subclinical eating disturbances occur in comparison to diagnostic eating disturbances, and the apparent psychological and behavioral similarities between subclinical and clinical eating disturbances (Button & Whitehouse, 1981; Garner et al., 1983a; Garner et al., 1984; Kalodner & Scarno, 1992; Polivy & Herman, 1987). Efforts such as this study seem to hold the greatest promise for enhancing the effectiveness of prevention, detection, and intervention. Notably, the high incidences of eating disturbances among adolescents and young adults, and the related mortality and morbidity, make the areas of prevention, detection, and intervention important issues of concern (Piran, 1997).

This study supports the importance of conducting a comprehensive assessment with those individuals suspected of having a subclinical or clinical eating disturbance. The multifaceted and multidetermined nature of eating disturbances can complicate the assessment process (Garfinkel & Garner, 1982; Garner, 1991; Garner & Garfinkel, 1980). There are several predisposing or vulnerability factors that influence risk for developing

an eating disorder. These areas of concern include psychological (e.g., personality, attitudes, concerns, maladaptive response to stress, and learning processes such as imitation), cultural and familial (e.g., high exposure to dieting, body dissatisfaction, and cultural pressures, family environment, and peer group), developmental (e.g., pubertal development), and biological (e.g., genetic predispositions, and hormonal dysregulation) domains (Davis, 1986; Leon, Keel, Klump, & Fulkerson, 1997). Due to the multidimensional nature of predisposing/vulnerability factors, a comprehensive assessment should include a thorough evaluation of all of these areas.

Although the conundrum of eating disturbances is far from being solved, the present findings add meaningful information regarding the complex, multifaceted nature of eating disturbances as they exist along a single continuum. The findings obtained in this study provide some useful guidance for clinicians who work with individuals suffering from various forms of eating disturbances. The extent to which symptomatic individuals become eating disordered and the factors that might predispose these individuals to progress to full-blown eating disorders need to be further examined in research. Additionally, more attention needs to be directed to the symptomatic group in an effort to explore within group differences. For example, it seems likely that women whose symptoms are more consistent with anorexia might differ in some fundamental ways from women whose symptoms are more consistent with a bulimic profile. Based on the findings in this study, impulsiveness might be a meaningful dimension for further exploration. Intuitively, it would seem that impulsiveness might be more consistent with a bulimic profile than with an anorexic profile. Further studies looking at psychological, behavioral, and affective dimensions need to be examined across different ages,

developmental levels, races, and environmental contexts. With respect to environmental context, what if any impact does the college or university environment play in facilitating the development and maintenance of eating disturbances? Are women in the same age group who are not in a college or university environment at less risk for developing an eating disturbance? Finally, additional research exploring the impact of developmental stage on women's responses to eating disorder scales is needed, i.e., it is possible that in some cases symptoms of eating disturbance are a developmental phenomenon that girls or young women will outgrow? Hopefully, these findings will also stimulate further research focused on clarifying clinical and subclinical categories of eating disturbances and the nature of the differences that differentiate them.

References

American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

American Psychological Association (1992). Ethical principles of psychologists and code of conduct. American Psychologist, 47, 1597-1611.

Beck, A.T., Steer, R.A., & Brown, G.K. (1996). Beck Depression Inventory-II professional manual. San Antonio, TX: The Psychological Corporation.

Beck, A.T., Steer, R.A., & Garbin, M.G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. Clinical Psychology Review, 8, 77-100.

Bruch, H. (1973). Eating disorders. New York: Basic Books.

Bumberry, W., Oliver, J.M., & McClure, J.N. (1978). Validation of the Beck Depression Inventory in a university population using psychiatric estimates as the criterion. Journal of Consulting and Clinical Psychology, 46, 150-155.

Button, E.J., & Whitehouse, A. (1981). Subclinical anorexia nervosa. Psychological Medicine, 11, 509-516.

Casper, R.C. (1998). Recognizing eating disorders in women. Psychopharmacology Bulletin, 34(3), 267-269.

Clarke, M.G., & Palmer, R.L. (1983). Eating attitudes and neurotic symptoms in university students. British Journal of Psychiatry, 142, 299-304.

Cooper, Z., Cooper, P.J., & Fairburn, C.G. (1985). The specificity of the Eating Disorder Inventory. British Journal of Clinical Psychology, 24, 129-130.

Crisp, A.H. (1965). Some aspects of the evolution, presentation and follow-up of anorexia nervosa. Proceedings of the Royal Society of Medicine, 58, 814-820.

Crowne, D.P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. Journal of Consulting Psychology, 24(4), 349-354.

Crowne, D.P., & Marlowe, D. (1964). The approval motive: Studies in evaluative dependence. New York: Wiley.

Crowther, J.H., Wolf, E.M., & Sherwood, N. (1992). Epidemiology of bulimia nervosa. In M. Crowther, D.L. Tennenbaum, S.E. Hobfoll, & M.A.P. Stephens (Eds.), The etiology of bulimia nervosa: The individual and familial context (pp. 1-26). Washington D.C.: Taylor & Francis.

Davis, R. (1986). Assessing the eating disorders. The Clinical Psychologist, Spring, 33-36.

Devlin, M.J., & Walsh, B.T. (1989). Eating disorders and depression. Psychiatric Annals, 19(9), 473-476.

Drewnowski, A., Hopkins, S., & Kessler, R. (1988). The prevalence of bulimia nervosa in the US college student population. American Journal of Public Health, 78, 1322-1325.

Drewnowski, A., Yee, D.K., & Krahn, D.D. (1988). Bulimia in college women: Incidence and recovery rates. American Journal of Psychiatry, 145, 753-755.

Edelstein, C.K., & Yager, J. (1992). Eating disorders and affective problems. In J. Yager, H.E. Gwirtsman, & C.K. Edelstein (Eds.), Special problems in managing eating disorders (pp. 15-50), Washington, DC: American Psychiatric Press, Inc.

Fairburn, C.G., & Beglin, S.J. (1990). Studies of the epidemiology of bulimia nervosa. American Journal of Psychiatry, 147(4), 401-408.

Fairburn, C.G., & Hay, P.J., & Welch, S.L. (1993). Binge eating and bulimia nervosa: Distribution and determinants. In C.G. Fairburn & G.T. Wilson (Eds.), Binge eating: Nature, assessment, and treatment (pp. 123-143). New York: Guilford.

Fries, H. (1977). Studies on secondary amenorrhea, anorectic behavior and body image perception: Importance for the early recognition of anorexia nervosa. In R. Vigersky (Ed.), Anorexia nervosa (pp163-176). New York: Raven.

Fuqua, D.R., Leonard, E., Masters, M.A., Smith, R.J., Campbell, J.L., & Fischer, P.C. (1991). A structural analysis of the State-Trait Anger Expression Inventory. Educational and Psychological Measurement, 51, 439-446.

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

Garfinkel, P.E., Kennedy, S.H., Kaplan, A.S. (1995). Views on classification and diagnosis of eating disorders. Canadian Journal of Psychiatry, 40, 445-456.

Garner, D.M. (1991). Eating Disorder Inventory-2 professional manual. Odessa, FL: Psychological Assessment Resources, Inc.

Garner, D.M., & Garfinkel, P.E. (1979). The Eating Attitudes Test: An index of the symptoms of anorexia nervosa. Psychological Medicine, 9, 273-279.

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

Garner, D.M., Garfinkel, P.E., Rockert, W., & Olmsted, M.P. (1987). A prospective study of eating disturbances in the ballet. Psychotherapy and Psychosomatics, 48, 170-175.

Garner, D.M., Garfinkel, P.E., Schwartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. Psychological Reports, 47, 483-491.

Garner, D.M, Olmsted, M.P., & Garfinkel, P.E. (1983a). Does anorexia nervosa exist 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., Olmsted, M.P., & Polivy, J. (1983b). Development and validation of a multi-dimensional Eating Disorder Inventory for anorexia nervosa and bulimia. International Journal of Eating Disorders, 2, 15-34.

Garner, D.M., Olmsted, M.P., Polivy, J., & Garfinkel, P.E. (1984). Comparison between weight-preoccupied women and anorexia nervosa. Psychosomatic Medicine, 46, 255-266.

Gordon, R.A. (1990). Anorexia and bulimia: Anatomy of a social epidemic. New York: Blackwell.

Herzog, D.B. (1984). Are anorexic and bulimic patients depressed? American Journal of Psychiatry, 141, 1594-1597.

Herzog, D.B., & Copeland, P. (1985). Eating disorders. New England Journal of Medicine, 313, 295-303.

Herzog, D.B., Hopkins, J.D., & Burns, C.D. (1993). A follow-up study of 33 subdiagnostic eating disordered women. International Journal of Eating Disorders, 14, 355-361.

Hesse-Biber, S. (1992). Report on a panel longitudinal study of college women's eating patterns and eating disorders: Noncontinuum versus continuum measures. Health

Care for Women International, 13, 375-391.

Kalodner, C.R., & Scarano, G.M. (1992). A continuum of nonclinical eating disorders: A review of behavioral and psychological correlates and suggestions for intervention. Journal of Mental Health Counseling, 14(1), 30-41.

Kopper, B.A. (1993). Role of gender, sex role identity, and Type A behavior in anger expression and mental health functioning. Journal of Counseling Psychology, 40(2), 232-237.

Kopper, B.A., & Epperson, D.L. (1996). The experience and expression of anger: Relationships with gender, gender role socialization, depression, and mental health functioning. Journal of Counseling Psychology, 43, 158-165.

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.

Leon, G.R., Keel, P.K., Klump, K.L., & Fulkerson, J.A. (1997). The future of risk factor research in understanding the etiology of eating disorders. Psychopharmacology Bulletin, 33(3), 405-411.

Lowenkopf, E.L. (1982). Anorexia nervosa: Some nosological considerations. Comprehensive Psychiatry, 23(3), 233-240.

Mann, T., Nolen-Hoeksema, S., Huang, K., Burgard, D., Wright, A., & Hanson, K. (1997). Are two interventions worse than none? Joint primary and secondary prevention of eating disorders in college females. Health Psychology, 16(3), 215-225.

McCarthy, M. (1990). The thin ideal, depression and eating disorders in women. Behaviour Research and Therapy, 28(3), 205-215.

Mintz, L.B., O'Halloran, M.S., Mulholland, A.M., & Schneider, P.A. (1997). Questionnaire for eating disorder diagnoses: Reliability and validity of operationalizing DSM-IV criteria into a self-report format. Journal of Counseling Psychology, 44(1), 63-79.

Newman, J.L., Gray, E.A., & Fuqua, D.R. (1999). Sex differences in the relationship of anger and depression: An empirical study. Journal of Counseling and Development, 77, 198-203.

Nylander, J. (1971). The feeling of being fat and dieting in a school population: Epidemiologic interview investigation. Acta Sociomedica Scandinavica, 3, 17-26.

Patton, G.C. (1988). The spectrum of eating disorders in adolescence. Journal of Psychosomatic Research, 32, 579-584.

Patton, G.C., Johnson-Sabine, E., Wood, K., Mann, A.H., & Wakeling, A. (1990). Abnormal eating attitudes in London schoolgirls: A prospective epidemiological study, outcome at twelve month follow-up. Psychological Medicine, 20, 383-394.

Piran, N. (1997). Prevention of eating disorders: Directions for future research. Psychopharmacology Bulletin, 33(3), 419-423.

Polivy, J., & Herman, C.P. (1985). Dieting and binging. American Psychologist, 40, 193-210.

Polivy, J., & Herman, C.P. (1987). Diagnosis and treatment of normal eating. Journal of Consulting and Clinical Psychology, 55(5), 635-644.

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(4), 631-647.

Riley, W.T., Treiber, F.A., & Woods, M.G. (1989). Anger and hostility in depression. The Journal of Nervous and Mental Disease, 177(11), 668-674.

Rodin, J., Silberstein, L.R., & Streigel-Moore, R.H. (1985). Women and weight: A normative discontent. In T.B. Sonderegger (Ed.), Nebraska symposium on motivation: Vol. 32. psychology and gender (pp. 267-307). Lincoln: University of Nebraska Press.

Scarano, G.M., & Kalodner-Martin, C.R. (1994). A description of the continuum of eating disorders: Implications for intervention and research. Journal of Counseling and Development, 72, 356-361.

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

Selvini-Palazzoli, M. (1978). Self-starvation: From individuation to family therapy in the treatment of anorexia nervosa. New York: Aronson.

Sharkin, B.S. (1993). Anger and gender: Theory, research, and implications. Journal of Counseling and Development, 71, 386-389.

Sharkin, B.S. (1996). Understanding anger: Comment on Deffenbacher, Oetting, et al., (1996), Deffenbacher, Lynch, et al., (1996), and Kopper and Epperson (1996). Journal of Counseling Psychology, 43, 166-169.

Shisslak, C.M., Crago, M., & Estes, L.S. (1995). The spectrum of eating disturbances. International Journal of Eating Disorders, 18(3), 209-219.

Silverstein, B., Peterson, B., & Perdue, L. (1986). Some correlates of the thin standard of bodily attractiveness for women. International Journal of Eating Disorders, 5(5), 895-905.

Spielberger, C.D. (1988). State-Trait Anger Expression Inventory. Orlando, FL: Psychological Assessment Resources.

Spielberger, C.D. (1999). State-Trait Anger Expression Inventory-2. Orlando, FL: Psychological Assessment Resources.

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(5), 499-509.

Swift, W.J., Andrews, D., Barklage, N.E. (1986). The relationship between affective disorders and eating disorders: A review of the literature. American Journal of Psychiatry, 143, 290-299.

Thelen, M.H., Farmer, J., Wonderlich, S., & Smith, M. (1991). A revision of the Bulimia Test: The BULIT-R. Psychological Assessment: A Journal of Consulting and Clinical Psychology, 8, 119-124.

Van Der Ploeg, H.M., van Buuren, E.T., & van Brummelen, P. (1988). The role of anger in hypertension. Psychotherapy and Psychomatics, 43, 186-193.

Vervaet, M., van Heeringen, C., & Jannes, C. (1998). Weight concerns and eating patterns in schoolboys and girls. Eating Disorders, 6, 41-50.

Williamson, D.A. (1990). Assessment of eating disorders: Obesity, anorexia, and bulimia- nervosa. New York: Pergamon Press.

Williamson, D.A., Anderson, D., Jackman, L.P., & Jackson, S.R. (1995). Assessment of eating disordered thoughts, feelings, and behaviors. In D. Allison (Ed.), Handbook of assessment methods for eating behaviors and weight-related problems (pp. 303-346). Thousand Oaks, CA: Sage Publication, Inc.

Worthington-Roberts, B. (1995). Mental health. In C.I. Fogel & N.R. Woods

(Eds.) Women's health care: A comprehensive handbook (pp. 221-260). Thousand Oaks, CA: Sage Publications, Inc.

Yager, J., Landsverk, J., & Edelstein, C.K. (1987). A twenty-month follow-up study of 628 women with eating disorders. I. Course and severity. American Journal of Psychiatry, 144, 1172-1177.

Table 1

Structure Coefficients and Standardized Discriminant Function Coefficients for the Eight Original EDI-2 Scales

Eight Original EDI-2 Scales	Structure Coefficients	Standardized Discriminant Function Coefficients
Drive for Thinness	.94	.85
Body Dissatisfaction	.60	.13
Bulimia	.57	.22
Ineffectiveness	.35	-.18
Perfectionism	.17	.09
Interpersonal Distrust	.28	.26
Interoceptive Awareness	.44	-.04
Maturity Fears	.17	-.05

Table 2

Pearson Product Moment Correlation Coefficients for the Eight Original EDI-2 Scales

	EDIDT	EDIB	EDIBD	EDII	EDIP	EDIID	EDIIA	EDIMF
Drive for Thinness	1.00	.56	.64	.44	.12	.21	.52	.27
Bulimia		1.00	.44	.55	.16	.34	.60	.27
Body Dissatisfaction			1.00	.41	.04 *	.21	.37	.20
Ineffectiveness				1.00	.13	.54	.66	.52
Perfection					1.00	.25	.23	.23
Interpersonal Distrust						1.00	.45	.37
Interoceptive Awareness							1.00	.34
Maturity Fears								1.00

* r is not statistically significant. All other correlations are statistically significant at the .05 level

Table 3

Means, Standard Deviations, and F Ratios for Asymptomatic and Symptomatic Groups on the 11 EDI-2 Scales and Seven Affective Scales

	Asymptomatic		Symptomatic			
Original EDI-2 Scales	Mean	SD	Mean	SD	F	p
Drive for Thinness	2.15	3.32	8.14	5.62	139.32	.000
Bulimia	.55	1.33	2.55	3.50	50.93	.000
Body Dissatisfaction	8.27	7.68	15.17	8.27	55.70	.000
Ineffectiveness	1.72	3.00	3.66	4.85	19.05	.000
Perfectionism	6.94	4.01	7.94	4.10	4.51	.035
Interpersonal Distrust	1.95	2.72	3.29	4.06	12.14	.001
Interoceptive Awareness	1.97	3.27	4.58	5.11	30.34	.000
Maturity Fears	2.90	3.04	3.71	3.60	4.53	.034
Provisional EDI-2 Scales	Mean	SD	Mean	SD	F	p
Impulse Regulation	1.53	2.96	3.33	4.34	18.89	.000
Asceticism	3.35	2.16	4.40	3.10	12.37	.001
Social Insecurity	2.53	3.07	3.76	3.88	9.56	.002
Affective Scales	Mean	SD	Mean	SD	F	p
Trait Anger	16.61	4.39	19.37	5.54	23.63	.000
Anger Expression-Out	14.99	3.65	16.48	4.36	10.57	.001
Anger Expression-In	15.94	4.13	18.31	5.31	19.36	.000
Anger Control-Out	24.12	5.14	22.81	5.25	4.71	.031
Anger Control-In	22.82	5.39	20.88	5.15	9.83	.002
State Anger	16.18	2.81	17.82	5.20	13.04	.000
BDI-II	8.95	6.76	13.89	9.13	29.84	.000

Table 4

Discriminant Analysis Classification Results

Actual Group Membership		Predicted Group Membership: Asymptomatic	Predicted Group Membership: Symptomatic	Total
Asymptomatic	count	165	28	193
Symptomatic		40	78	118
Asymptomatic	%	85.5	14.5	100
Symptomatic		33.9	66.1	100

Note. 78.1% of original grouped cases correctly classified

Table 5

Structure Coefficients and Standardized Discriminant Function Coefficients for the 11 EDI-2 Scales

11 EDI-2 Scales	Structure Coefficients	Standardized Discriminant Function Coefficients
Drive for Thinness	.93	.85
Body Dissatisfaction	.59	.14
Bulimia	.56	.26
Interoceptive Awareness	.44	-.04
Ineffectiveness	.34	-.14
Impulse Regulation	.34	.09
Asceticism	.28	-.15
Interpersonal Distrust	.28	.30
Social Insecurity	.24	-.10
Maturity Fears	.17	-.06
Perfectionism	.17	.09

Table 6

Pearson Product Moment Correlation Coefficients for the 11 EDI-2 Scales

	EDIDT	EDIB	EDIBD	EDII	EDIP	EDIID	EDIIA	EDIMF	EDIA	EDIIR	EDISI
EDIDT	1.00	.56	.64	.44	.12	.21	.52	.27	.42	.38	.28
EDIB		1.00	.44	.55	.16	.34	.60	.27	.54	.45	.45
EDIBD			1.00	.41	.04 *	.21	.37	.20	.32	.33	.30
EDII				1.00	.13	.54	.66	.52	.50	.63	.70
EDIP					1.00	.25	.23	.23	.17	.22	.21
EDIID						1.00	.45	.37	.31	.35	.67
EDIIA							1.00	.34	.49	.62	.56
EDIMF								1.00	.21	.34	.41
EDIA									1.00	.42	.45
EDIIR										1.00	.57
EDISI											1.00

* r is not statistically significant. All other correlations are statistically significant at the .05 level

Table 7

Discriminant Analysis Classification Results

Actual Group Membership		Predicted Group Membership: Asymptomatic	Predicted Group Membership: Symptomatic	Total
Asymptomatic	count	167	26	193
Symptomatic		38	80	118
Asymptomatic	%	86.5	13.5	100
Symptomatic		32.2	67.8	100

Note. 79.4% of original grouped cases correctly classified

Table 8

Structure Coefficients and Standardized Discriminant Function Coefficients for the Seven Affective Scales

Affective Scales	Structure Coefficients	Standardized Discriminant Function Coefficients
BDI-II	.83	.46
Trait Anger	.74	.36
Anger Expression-In	.67	.28
State Anger	.55	.17
Anger Expression-Out	.50	.09
Anger Control-In	-.48	-.23
Anger Control-Out	-.33	.25

Table 9

Pearson Product Moment Correlation Coefficients for the Seven Affective Scales

	ANGCIN	ANCOUT	ANGIN	ANGOUT	TRANG	STANG	BDI-II
Anger Control-In	1.00	.74	-.17	-.46	-.49	-.27	-.36
Anger Control-Out		1.00	-.01 *	-.55	-.56	-.30	-.32
Anger Expression-In			1.00	.17	.35	.22	.48
Anger Expression-Out				1.00	.63	.37	.24
Trait Anger					1.00	.41	.50
State Anger						1.00	.40
BDI-II							1.00

* r is not statistically significant. All other correlations are statistically significant at the .05 level

Table 10

Discriminant Analysis Classification Results

Actual Group Membership		Predicted Group Membership: Asymptomatic	Predicted Group Membership: Symptomatic	Total
Asymptomatic	count	133	60	193
Symptomatic		48	70	118
Asymptomatic	%	68.9	31.1	100
Symptomatic		40.7	59.3	100

Note. 65.3% of original grouped cases correctly classified

Table 11

Structure Coefficients and Standardized Discriminant Function Coefficients for the Eight Original EDI-2 Scales and Seven Affective Scales

Eight Original EDI-2 Scales and Seven Affective Scales	Structure Coefficients	Standardized Discriminant Function Coefficients
Drive for Thinness	.89	.85
Body Dissatisfaction	.57	.06
Bulimia	.54	.22
Ineffectiveness	.33	-.34
Perfectionism	.16	.02
Interpersonal Distrust	.26	.29
Interoceptive Awareness	.42	-.10
Maturity Fears	.16	-.10
BDI-II	.41	.25
Trait Anger	.37	.15
Anger Expression-In	.33	-.06
State Anger	.27	.12
Anger Expression-Out	.25	.09
Anger Control-In	-.24	-.10
Anger Control-Out	-.16	.21

Table 12

Pearson Product Moment Correlation Coefficients for the Eight Original EDI-2 Scales and Seven Affective Scales

Correlation	EDIDT	EDIB	EDIBD	EDII	EDIP	EDIID	EDIIA	EDIMF	ANGCIN	ANCOUT	ANGIN	ANGOUT	TRANG	STANG	BDI-II
EDIDT	1.00	.56	.64	.44	.12	.21	.52	.27	-.19	-.16	.30	.12	.26	.16	.38
EDIB		1.00	.44	.55	.16	.34	.60	.27	-.16	-.14	.42	.12	.28	.18	.45
EDIBD			1.00	.41	.04 *	.21	.37	.20	-.24	-.18	.27	.14	.28	.23	.40
EDII				1.00	.13	.54	.66	.52	-.32	-.24	.41	.13	.37	.28	.68
EDIP					1.00	.25	.23	.23	-.04 *	-.05	.19	.19	.28	.05 *	.21
EDIID						1.00	.45	.37	-.19	-.13	.48	.03 *	.23	.16	.39
EDIIA							1.00	.34	-.23	-.20	.38	.21	.32	.19	.56
EDIMF								1.00	-.24	-.21	.25	.16	.29	.25	.39
ANGCIN									1.00	.74	-.17	-.46	-.49	-.27	-.36
ANCOUT										1.00	-.01 *	-.55	-.56	-.30	-.32
ANGIN											1.00	.17	.35	.22	.48
ANGOUT												1.00	.63	.37	.24
TRANG													1.00	.41	.50
STANG														1.00	.40
BDI-II															1.00

* r is not statistically significant. All other correlations are statistically significant at the .05 level.

Table 13

Discriminant Analysis Classification Results

		Predicted Group Membership		
Actual Group Membership		Asymptomatic	Symptomatic	Total
Asymptomatic	count	164	29	193
Symptomatic		38	80	118
Asymptomatic	%	85	15	100
Symptomatic		32.2	67.8	100

Note. 78.5% of original grouped cases correctly classified

Table 14

Multiple Regression Summary Table for Symptomatic Group Using EDI-2 Scales to Predict Social Desirability

Step	EDI-2 Scale Entered	Multiple R	F Equation	Significance of F for Equation	R^2 Increment	F Increment	Significance of F Increment	Zero Order r
1	Impulse Regulation	.47	33.22	.000	.22	33.22	.00	-.47
2	Body Dissatisfaction	.51	19.87	.000	.03	5.29	.02	-.30
3	Drive for Thinness	.55	16.41	.000	.05	7.31	.01	-.06
4	Asceticism	.56	12.96	.000	.01	2.12	.15	-.16
5	Bulimia	.58	11.48	.000	.02	4.13	.04	-.30
6	Ineffectiveness	.59	9.71	.000	.01	.91	.34	-.26
7	Social Insecurity	.59	8.36	.000	.00	.50	.48	-.32
8	Maturity Fears	.59	7.32	.000	.00	.41	.53	-.05
9	Perfectionism	.59	6.46	.000	.00	.07	.80	-.10
10	Interpersonal Distrust	.59	5.78	.000	.00	.09	.77	-.14
11	Interoceptive Awareness	.59	5.20	.000	.00	.01	.92	-.27

Table 15

Multiple Regression Summary Table for Asymptomatic Group Using EDI-2 Scales to Predict Social Desirability

Step	EDI-2 Scaled Entered	Multiple R	F Equation	Significance of F for Equation	R^2 Increment	F Increment	Significance of F Increment	Zero Order r
1	Impulse Regulation	.21	8.41	.004	.04	8.41	.00	-.21
2	Body Dissatisfaction	.24	5.73	.004	.02	2.97	.09	-.16
3	Interpersonal Distrust	.26	4.60	.004	.01	2.25	.14	-.17
4	Interoceptive Awareness	.29	4.36	.002	.02	3.47	.06	-.05
5	Ineffectiveness	.30	3.75	.003	.01	1.28	.26	-.20
6	Perfectionism	.31	3.22	.005	.00	.62	.43	-.09
7	Asceticism	.31	2.84	.008	.00	.58	.45	-.02
8	Drive for Thinness	.32	2.57	.011	.00	.72	.40	-.13
9	Social Insecurity	.32	2.32	.017	.00	.35	.55	-.20
10	Maturity Fears	.32	2.09	.027	.00	.14	.71	-.11
11	Bulimia	.32	1.90	.042	.00	.09	.76	-.04

Table 16

Means and Standard Deviations for Asymptomatic, Symptomatic, and Eating Disordered Groups on 11 EDI-2 Scales and Seven Affective Scales

	Asymptomatic		Symtomatic		Eating Disordered	
Original EDI-2 Scales	Mean	SD	Mean	SD	Mean	SD
Drive for Thinness	2.15	3.32	8.14	5.62	12.80	5.89
Body Dissatisfaction	8.27	7.68	15.17	8.27	18.20	8.59
Bulimia	.55	1.33	2.55	3.50	4.73	4.08
Interoceptive Awareness	1.97	3.27	4.58	5.11	8.87	6.82
Ineffectiveness	1.72	3.00	3.66	4.85	7.40	8.68
Maturity Fears	2.90	3.04	3.71	3.60	6.87	6.99
Perfectionism	6.94	4.01	7.94	4.10	7.93	3.39
Interpersonal Distrust	1.95	2.72	3.29	4.06	5.47	6.10
Provisional EDI-2 Scales	Mean	SD	Mean	SD	Mean	SD
Social Insecurity	2.53	3.07	3.76	3.88	5.73	5.31
Impulse Regulation	1.53	2.96	3.33	4.34	4.80	4.89
Asceticism	3.35	2.16	4.40	3.10	6.20	3.47
Affective Scales	Mean	SD	Mean	SD	Mean	SD
Trait Anger	16.61	4.39	19.37	5.54	18.33	5.84
Anger Expression-Out	14.99	3.65	16.48	4.36	13.67	3.74
Anger Expression-In	15.94	4.13	18.31	5.31	19.60	4.52
Anger Control-Out	24.12	5.14	22.81	5.25	23.27	6.55
Anger Control-In	22.82	5.39	20.88	5.15	22.73	6.53
State Anger	16.18	2.81	17.82	5.20	16.40	1.55
BDI-II	8.95	6.76	13.89	9.13	18.67	9.78

Figure 1

Standardized Scores on EDI-2 Scales

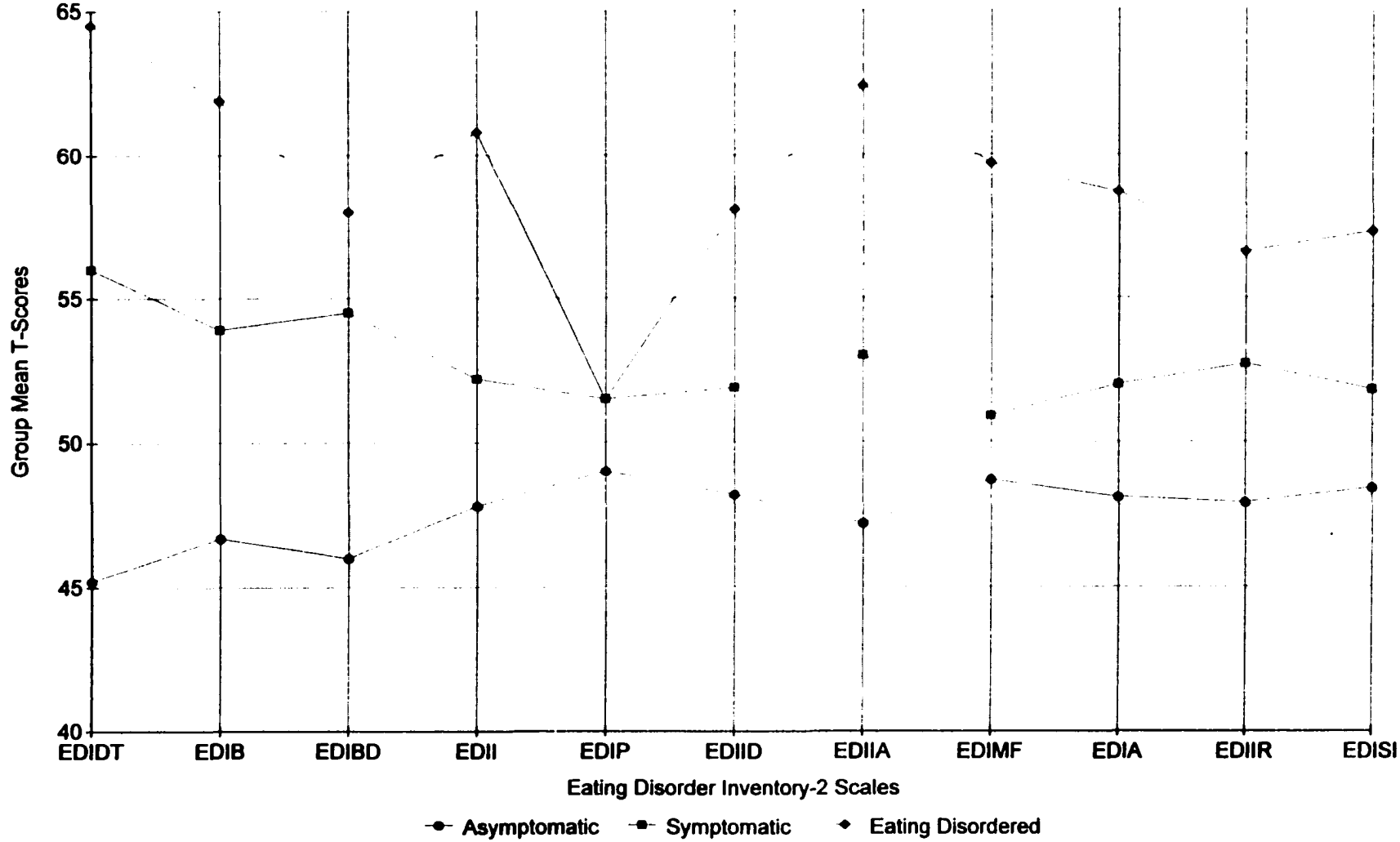
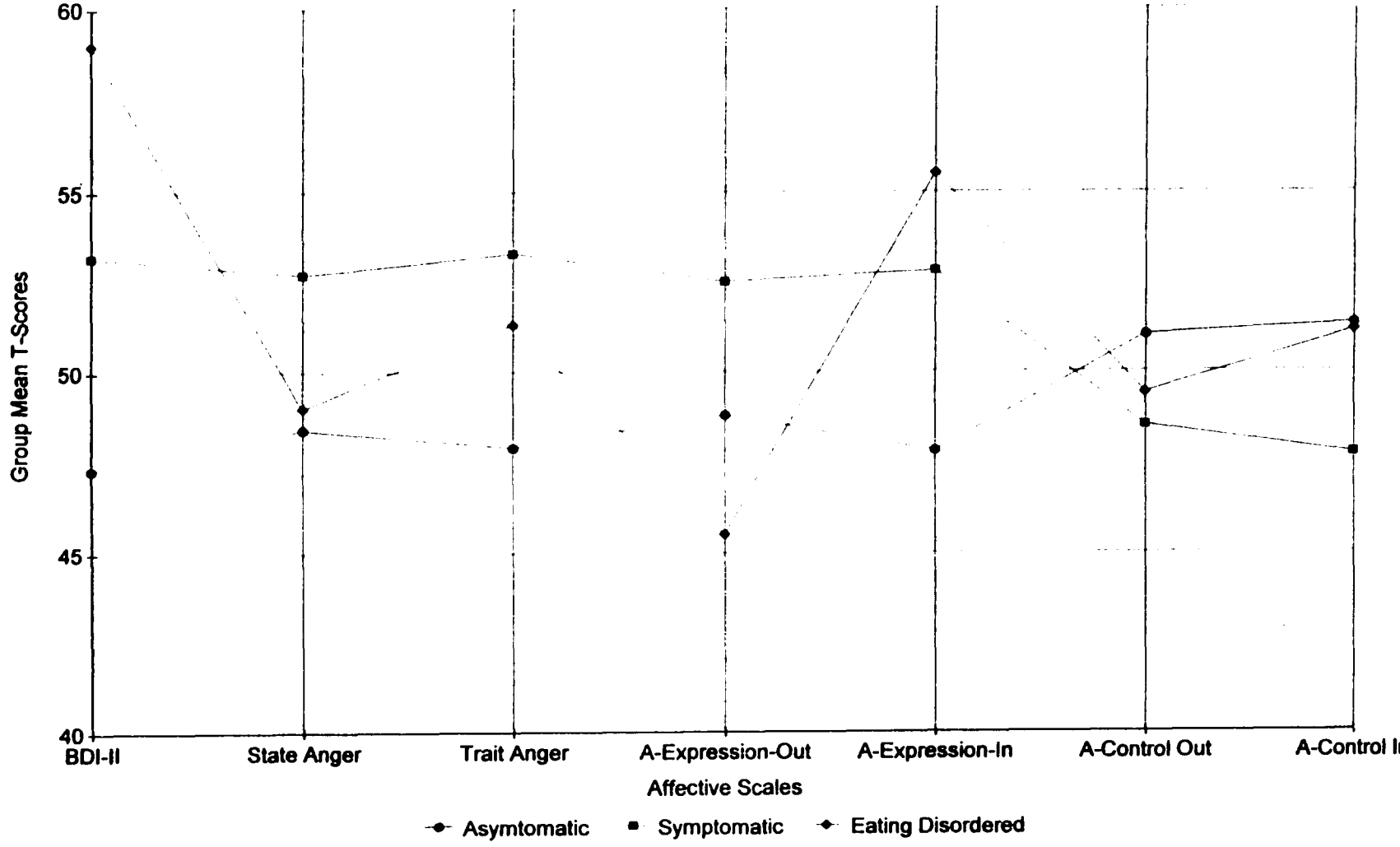


Figure 2

Standardized Scores on Affective Scales



APPENDIX A

PROSPECTUS

UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

PSYCHOLOGICAL AND BEHAVIORAL DIMENSIONS RELATED TO CATEGORIES OF SYMPTOMATIC, ASYMPTOMATIC, AND EATING DISORDERED COLLEGE WOMEN

Dissertation Prospectus

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirement for the

degree of

Doctor of Philosophy

By

Lisa Nicole Petersen
Norman, Oklahoma
February 2000

CHAPTER ONE

Introduction

The incidence of eating disturbances has increased dramatically over the past several decades. This increased prevalence and the concept of an eating disorder continuum have been the subject of widespread attention in both the empirical and conceptual literature. However, the multidimensional nature of eating disorders has posed various difficulties in identifying the underlying dimensions influencing the risk factors, treatment, and prevention of this widespread problem. The current preference in our society for a slender build has created a corresponding societal preoccupation with dieting and weight loss (Polivy & Herman, 1987; Garner & Garfinkel, 1980; Rodin, Silberstein, & Streigel-Moore, 1985). The magnitude of this societal preoccupation has normalized expressing concern over weight and attempts to lose weight (Polivy & Herman, 1987). Although not all dieters have or are at risk for developing an eating disorder of diagnostic significance, much speculation has linked the increased incidence of eating disturbances to the intense quest for a slender build and the dieting required to achieve this goal (Garner, Garfinkel, & Olmsted, 1983a; Polivy & Herman, 1985).

Evidence suggests that diagnosable eating disorders are reported to affect at least 1 to 2 percent of the population, depending on how they are defined (Fairburn & Beglin, 1990). While this group is not large numerically, they pose a problem given the nature and severity of the physical and psychological consequences related to eating disturbances (Drewnowski, Hopkins, & Kessler, 1988; Herzog & Copeland, 1985; Schotte & Stunkard, 1987). Further evidence suggests that an additional group of women, who fail to meet full diagnostic criteria, also exhibit some of the same problematic

cognitive and behavioral patterns associated with women diagnosed with eating disorders (Button & Whitehouse, 1981; Garner et al., 1983a; Garner, Olmsted, Polivy, & Garfinkel, 1984; Polivy & Herman, 1987).

Background of the Problem

Even though a link has been made in the research between the increased prevalence of eating disturbances and societal pressures to maintain a slim physique, dieting itself is not necessarily an eating disorder. However, the link in the literature is supported by accumulating evidence of similarities between normal dieters and eating disordered individuals (Polivy & Herman, 1987). Eating disordered individuals exhibit a strong preoccupation with weight, dissatisfaction with their body or body image, and a strong need or desire for perfectionism (Garner et al., 1983a; Garner et al., 1984). Similarly, normal-weight college women and normal dieters have often been shown in the literature to be equally preoccupied with their weight, equally dissatisfied with their body or body image, and have an equal need or desire for perfectionism (Garner et al., 1983a; Garner et al., 1984). Additionally, extreme dieters have been found to exhibit some apparent symptoms of anorexia nervosa and bulimia nervosa (e.g., binge eating and self-induced vomiting) (Button & Whitehouse, 1981; Polivy & Herman, 1987; Pyle, Halvorson, Neuman, & Mitchell, 1986).

Given the apparent similarities between normal dieters and individuals struggling with a clinical eating disorder, the question as to whether dieting and eating disorders represent various points along a continuum of eating pathology has continued to elude mental health professionals and remain the subject of controversy in the research (Button & Whitehouse, 1981; Garner et al., 1983a; Garner et al., 1984; Mintz, O'Halloran,

Mulholland, & Schneider, 1997; Nylander, 1971; Rodin et al., 1985). The concept of an eating disorder continuum has been proposed to facilitate an understanding of the different issues that exist for women in relation to body satisfaction, weight, and eating habits (Nylander, 1971; Rodin et al., 1985). At one end of the continuum falls normal eating and at the opposite end falls clinically diagnosed eating disorders, with milder subclinical forms of eating disorders (e.g., chronic and intermittent dieters) at various points along the continuum (Kalodner & Scarano, 1992).

Nylander (1971) was the first to propose the "continuum hypothesis" of eating disorders when he surveyed a group of female high school students in Sweden and found that a majority of these young women perceived themselves as overweight or fat, and a large proportion (nearly 10%) reported three or more symptoms related to anorexia nervosa in connection to their weight- loss attempts. Garner and Garfinkel (1980) and Fries (1977) observed body image distortions and anorexic attitudes in both patients with anorexia nervosa and rigid dieters who failed to meet the diagnostic criteria for an eating disorder. Additionally, studies have shown normal college students have elevated scores on various questionnaires examining symptoms of eating disorders (Button & Whitehouse, 1981; Garner et al., 1984; Garner et al., 1983).

The idea that eating disorders fall on a continuum assumes that there are fundamental similarities between clinically diagnosed eating disorders at one end of the continuum and the milder subclinical forms of the disorder that fall along the continuum (Polivy & Herman, 1987). The differences between the clinical and subclinical forms along this continuum are thought to be a matter of degree, with "normalcy" at the other end of the continuum representing the absence of pathological characteristics (Polivy &

Herman, 1987). Some clinical theorists argue that there are crucial differences between true clinical eating disorders and milder subclinical forms of the disorder (Bruch, 1973; Crisp, 1965; Selvini-Palazzoli, 1978). The current research indicates that there are two components to the eating disorders continuum. One component that may be shared by normal dieters includes an intense concern with weight, appearance, body shape, and eating (Laessle, Tuschl, Waadt, & Pirke, 1989; Polivy & Herman, 1987). A second component that appears to be limited to a more restricted section of the population includes a sense of ineffectiveness, distorted self-awareness, and interpersonal distrust (Laessle et al., 1989; Polivy & Herman, 1987).

Although much has been written about eating disorders falling along a continuum, there is a lack of research that systematically examines this continuum, largely due to the lack of an instrument that effectively operationalizes the continuum (Scarano & Kalodner-Martin, 1994). The Questionnaire for Eating Disorder Diagnoses (Q-EDD; Mintz et al., 1997) is a new instrument in the literature that is based upon the "continuum hypothesis" and is guided by the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994). On the basis of decision rules, the Q-EDD places respondents into diagnostic categories which include eating disordered and non-eating disordered categories at the most basic level, and the non-eating disordered category can be further broken down into asymptomatic and symptomatic categories (Mintz et al., 1997).

From a somewhat different perspective, it has been hypothesized that there are two components for understanding individuals with clinical eating disorders or subclinical forms of the disorder that can be identified on the basis of various cognitive

and behavioral patterns. These cognitive and behavioral dimensions have been operationalized in the Eating Disorder Inventory (EDI; Garner, Olmsted, & Polivy, 1983b). The EDI was developed to assess the cognitive and behavioral dimensions that could differentiate between not only subgroups of individuals with eating disorders, but those individuals with significant psychopathology and those who are simply strict dieters (Cooper, Cooper, & Fairburn, 1985). The EDI and Eating Disorder Inventory - Second Edition (EDI-2; Garner, 1991) evaluate the multidimensional nature of eating disorders by generating scores for eight subscales: Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears (Garner et al., 1983b). The EDI-2 generates scores for the original eight subscales and adds three provisional subscales: Impulse Regulation, Social Insecurity, and Asceticism (Garner et al., 1983b).

Individuals with subclinical or partial eating disorders engage in many of the same disturbed patterns of eating and distorted perceptions of their bodies as those who have been diagnosed with a clinical or full syndrome eating disorder (Polivy & Herman, 1987; Shisslak, Crago, & Estes, 1995). Additionally, these individuals with subclinical or partial eating disorders are normally accompanied by substantial psychological disturbances that may include depression, suicide attempts, and a past history of a clinically diagnosed eating disorder (Shisslak et al., 1995).

The rate of depression as well as the incidence of eating disturbances has been increasing especially in young adult women and adolescent females over the last several decades (McCarthy, 1990). Substantial evidence exists in the research literature that links affective disorders with eating disorders (Swift, Andrews, & Barklage, 1986). Although

eating disturbances and depression have been found to be common comorbid conditions, the precise nature of this relationship is unclear (Devlin & Walsh, 1989; Edelstein & Yager, 1992). Clinically, it may be difficult to disentangle and distinguish between eating disorders and depression because of the many shared signs and symptoms (Garfinkel, Kennedy, & Kaplan, 1995). In sum, the increasingly thin standard of beauty over the last several decades may partially explain the present rise in both eating disturbances and depression among females (McCarthy, 1990).

In a related view, anger has been thought of as a contributing factor to depression (Newman, Gray, & Fuqua, 1999; Riley, Treiber, & Woods, 1989). It has long been believed that there are significant differences between males and females in both the experience and expression of anger (Sharkin, 1993). It has been suggested that the experience and expression of anger may be more burdensome for females due to its incongruence with the feminine gender role (Newman et al., 1999; Sharkin, 1996). On the other hand, anger appears to be a primary male emotion and very compatible with the masculine gender role (Newman et al., 1999). Females' hypothesized difficulty expressing anger may in turn make it more likely for them to suppress anger (Kopper & Epperson, 1996), potentially contributing to a variety of negative affective consequences such as depression (Kopper, 1993; Kopper & Epperson, 1996; Newman et al., 1999). Based on the relationship between anger and depression it may be reasonable for clinicians to simultaneously evaluate dimensions of anger when assessing eating disturbances.

Statement of Problem

It has been demonstrated that there is a substantial number of young women who

fail to meet full DSM-IV criteria for eating disorders, but who nevertheless exhibit some of the same problematic cognitive and behavioral patterns as women actually diagnosed with eating disorders. Because of their "subclinical" status, these women are at risk of falling through the cracks with respect to both treatment and research. This is a serious matter given the concern that current patterns of disturbed eating may progress into more serious forms of eating disorders if not treated (Patton, 1988; Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990). Clearly, this is not the case with all symptomatic women, but the physical and psychological welfare of these women warrants concern and further research. The purpose of the current study is to examine the utility of several behavioral and psychological dimensions in distinguishing between individuals diagnosed with eating disorders, symptomatic individuals (exhibit some symptoms but fail to meet DSM-IV criteria), and asymptomatic individuals (exhibit no symptoms of eating disorders). Participants will be classified into these three categories based upon their scores on the Q-EDD. Specific behavioral and psychological dimensions used to differentiate the groups will include the eight original scales and three provisional scales of the EDI-2 (Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, Maturity Fears, Impulse Regulation, Social Insecurity, and Asceticism) (Garner, 1991), depression as measured by the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996), and six anger dimensions of the State-Trait Anger Expression Inventory-2 (STAXI-2; Spielberger, 1999). Specific questions to be addressed in this study are as follows:

1. Is there a significant relationship between the eight original scales contained on the EDI-2 three Q-EDD categories, and what is the nature of the relationship?

2. Do the three provisional scales of the EDI-2 improve classification into Q-EDD categories?
3. Is there a significant relationship between depression and anger dimensions and the three Q-EDD categories, and what is the nature of the relationship?
4. Do the depression and anger dimensions improve classification into the three Q-EDD categories when used with the eleven EDI-2 scales?

Significance of the Study

A significant number of college-aged women are at risk to develop anorexia nervosa or bulimia nervosa sometime during their college years (Franko, 1998). This study is hypothesized to assist in the identification of college women at risk for developing clinical eating disorders and increase the effectiveness of early referral and/or intervention. College women are a high-risk group for developing eating disorders, which are not only difficult to treat but have severe consequences both physically and psychologically (Drewnowski et al., 1988; Herzog & Copeland, 1985; Schotte & Stunkard, 1987). Because of this noted risk, both primary prevention (trying to prevent new cases from arising) and secondary prevention (encourage students who already have symptoms to seek early treatment) of eating disorders are needed on college campuses (Mann, Nolen-Hoeksema, Huang, Burgard, Wright, & Hanson, 1997). It is hoped that this study will aid in isolating the behavioral and psychological dimensions that are unique to college women clinically diagnosed with an eating disorder, as well as that may be shared by those college women at risk for developing an eating disorder (i.e., symptomatic subtypes that resemble eating disordered subtypes over asymptomatic subtypes). There is an overwhelming need for more effective methods of early diagnoses

and intervention based on knowledge of the underlying factors that facilitate or contribute to the development of eating disturbances (Vervaet, van Heeringen, & Jannes, 1998).

There is an increasing recognition of the importance of early detection and prevention of eating disturbances (Piran, 1997). Both the high incidence of eating disturbances among adolescents and young adult women and the related mortality and morbidity associated with the problem contribute to this recognition (Piran, 1997). Further research is needed to provide a more thorough understanding of the nature of disordered eating and the appropriate strategies for prevention, early intervention, and treatment (Kalodner & Scarno, 1992). The greatest need for attention may be in the study of subclinical or partial eating disorders, due to the higher frequencies with which they occur in comparison to clinically diagnosed eating disorders (Kalodner & Scarno, 1992). Further, with early detection and intervention, the prognosis for these individuals is likely to be much more favorable.

CHAPTER TWO

Throughout history, the concept of female beauty has varied from the Rubenesque women of the 17th century to contemporary symbols of a slender physique (Garner, Garfinkel, Schwartz, & Thompson, 1980). Over the last several decades, the cultural definition of the ideal female body shape has shifted from a voluptuous, curved figure to the angular, slender figure of today (Garner et al., 1980). The impact of this cultural definition of attractiveness is believed to be represented in not only the pervasive preoccupation with dieting and weight loss among women, but in the dramatically increased incidence of eating disorders over the last several decades (Garner et al., 1980; Polivy & Herman, 1987; Rodin, Silberstein & Streigel-Moore, 1985). In striving to attain this ideal standard of beauty, women have starved themselves and/or developed strategies, such as purging or laxative abuse, that would allow them to eat without gaining weight (Silverstein, Peterson, & Perdue, 1986).

Eating disturbances are more prevalent in developed societies where female beauty is linked to thinness (American Psychiatric Association, 1994). Eating disorders are reported to affect at least 1 to 3 percent of the population, depending on how they are defined (Fairburn & Beglin, 1990). The increased prevalence and the concept of an eating disorder continuum have been the subject of widespread attention in both the empirical and conceptual literature over the past several decades. However, the multidimensional nature of eating disorders has posed various difficulties in identifying the underlying dimensions influencing the risk factors, treatment, and prevention of this widespread health problem. The current preference in our society for a slender build has created a corresponding societal preoccupation with dieting and weight loss (Garner & Garfinkel,

1980; Polivy & Herman, 1987; Rodin, Silberstein, & Streigel-Moore, 1985). The magnitude of this societal preoccupation has led to normalizing the expression of concern over body weight and attempts to lose weight (Polivy & Herman, 1987). Although not all dieters have or are at risk for developing an eating disorder of diagnostic significance, much speculation has linked the increased incidence of eating disturbances to the intense quest for a slender build and the dieting required to achieve this goal (Garner, Olmsted, & Garfinkel 1983a; Polivy & Herman, 1985). While the eating disordered group is not large numerically (approximately 1-3%), they pose a problem given the nature and severity of the physical and psychological consequences related to eating disturbances (Drewnowski, Hopkins, & Kessler, 1988; Herzog & Copeland, 1985; Schotte & Stunkard, 1987). Further evidence suggests that an additional group of women, who fail to meet full diagnostic criteria, also exhibit some of the same problematic cognitive and behavioral patterns associated with women diagnosed with eating disorders (Button & Whitehouse, 1981; Garner et al., 1983a; Garner et al., 1984; Polivy & Herman, 1987).

Normal Eating

Unfortunately both weight concerns and negative body images have become so widespread in our culture over the last several decades that they are considered the norm. Rodin et al. (1985) were among the first to discuss the "normative discontent" related to weight and body image. Along with this observed shift in the ideal body image is the corresponding shift in views on the standard eating pattern attributed to achieving a slim physique (Polivy & Herman, 1987). Normal eating patterns in our society currently means eating enough to maintain an acceptable body size and no more. It is important to keep in mind that terms such as normal, acceptable, and overweight are defined in terms

of the realities and ideals of a given society. In a society such as ours where the majority of women regard themselves as overweight, the idea of 'normal eating' is associated with weight control that may actually be quite abnormal and/or unhealthy (Kalodner & Scarano, 1992). The exception to the rule in our culture today is not attempting and/or wanting to modify your body weight (Hill, 1993). In a weight conscious society such as ours, it has been suggested that 'normal eaters' may even require some kind of special intervention (Kalodner & Scarano, 1992).

The 'normal eating' behaviors and attitudes toward food in our society have been greatly impacted by the current preference for a slender physique. A growing body of research has associated the increasingly thin standard of beauty portrayed in the media to the growing rates of dieting, weight preoccupation, and clinical eating disorders (Levine & Smolak, 1996). As this preference has evolved and become more the norm for society, the media promoting information on how to achieve a slender physique has increasingly grown (Polivy & Herman, 1987). Between 1960 and 1980, there was a dramatic increase in the number of diet articles in women's magazines (Garner et al., 1980). During this period, there was a dramatic increase in the number of young women concerned with their body weight and attempting to control their weight, and being on a diet was more prevalent than not being on a diet and therefore considered normal (normative) behavior (Polivy, Garner, & Garfinkel, 1986; Rodin et al., 1985). In 1977, three quarters of all female college students surveyed had reportedly dieted in an effort to control their weight (Jacobovits, Halstead, Kelley, Roe, & Young, 1977).

Klesges, Mizes, and Klesges (1987) conducted a study to determine the incidence of dieting and/or weight loss strategies in a college sample. They further wanted to

determine the underlying reasons that these college students were dieting and using various weight loss strategies. Participants consisted of 204 (102 females, 102 males) college students, ranging in age from 17 to 40, attending a midwestern university. Exclusionary criteria included if the participants were either diabetic or had to follow a medically prescribed diet. In groups of 10-40, participants completed a questionnaire exploring areas related to actual height and weight, perceived ideal weight, importance of that ideal weight, benefits that would be achieved by reaching that ideal weight, specific food intake and physical activity, and strategies used within the last 6 months for weight reduction. Results indicated that females were much more likely than males to be actively dieting (e.g., using dietary restriction and physical activity strategies). Additionally, females were more likely to report a discrepancy between their ideal and actual weight, more likely to rate the achievement of this ideal weight as important, and more likely to believe that there are appearance benefits in achieving their ideal weight. Overall, females indicated more appropriate (e.g., eating smaller portions, avoid keeping certain foods in the home, avoid places that prompt eating) and inappropriate (e.g., laxative use, vomiting, fasting, appetite suppressants, diuretic use) means to achieving weight loss than males. Results indicated that women were much more weight and appearance conscious than males.

The issues presented this far raise two questions: (a) What are the implications for dieting and/or unhappiness with body image becoming normative behavior? and (b) Do dieters and nondieters behave differently? All evidence indicates that dieters do behave differently than nondieters (Polivy & Herman, 1987). Under several conditions, dieters react to factors influencing eating behavior in a manner that is opposite to nondieters. For

example, dieters' reactions to caloric manipulations appear to be through almost exclusively cognitive control (Herman & Polivy, 1984). For dieters, the control of eating is equivalent to inhibition of eating (Polivy & Herman, 1987). Additionally, dieters appear to have different boundaries and/or limits in the regulation of their food intake than nondieters (Herman & Polivy, 1984). Dieters are normally motivated to eat (either by internal cues such as hunger or external cues related to mealtime), but many times they eat relatively small amounts, and they stop when they reach their idiosyncratic limit which determines what amount is permissible to eat and what is not (Polivy & Herman, 1987). On the other hand, nondieters appear to be controlled by physiological or sensory inhibition (Polivy & Herman, 1987). Under normal circumstances, dieters often eat less than nondieters, but eat considerably more than nondieters following a variety of everyday events (e.g., stress in the form of depression or anxiety) (Polivy & Herman, 1987). In sum, our understanding of what is normal eating is dependent on whether we refer to biological norms or societal norms (Polivy & Herman, 1987). Under the current norms of society, normal eating refers to a dieting standard that is physiologically contrary to biological norms (Polivy & Herman, 1987).

Intervention with women who have normalized dieting as their eating pattern must include teaching them to return their eating to a physiologically normal state and to modify their dysfunctional attitudes toward weight and body image to a more realistic and healthy state (Polivy & Herman, 1987). Attention must be given to physiologically normal eating which consists of eating in response to hunger cues and stopping eating in response to satiety cues (Polivy & Herman, 1987). Individuals who have neglected to use hunger and satiety cues may possibly need to relearn the ability to identify these different

cues (Kalodner & Scarano, 1992). Additionally, women need to learn more clearly to identify their concerns about food and their individual responses to these concerns (e.g., a woman learns that she eats in response to anxiety) (Kalodner & Scarano, 1992). Once again, when chronic dieting that entails behaviors and attitudes that are self-destructive and pathological are the norm of a given society, health care workers need to learn how to diagnose and treat these culturally sanctioned behaviors (Polivy & Herman, 1987).

Diagnosis

Eating disorders are a major public health concern for adolescent girls and young women. Anorexia nervosa (obsession with food, starvation dieting, and severe weight loss) and bulimia nervosa (compulsive binge-eating, often followed by self-induced vomiting) are clinical disorders that were rarely seen outside clinical settings approximately a decade ago (Hesse-Biber, 1992). Both anorexia nervosa and bulimia nervosa are more common in females than males and typically occur during adolescence (American Psychiatric Association, 1994; Hesse-Biber, 1992). Over the years, considerable changes have occurred in understanding the psychopathology of eating disorders. These changes have had a significant impact on the diagnosis, classification, and treatment of eating disorders.

Throughout the history of Western civilization, accounts of women who have refused to eat have appeared, and it is very likely that some of these women suffered from anorexia nervosa even though a formal name for the disorder had not yet come about (Worthington-Roberts, 1995). In 1689, Dr. Morton, a British physician, reported that two patients suffered from "nervous consumption" (Worthington-Roberts, 1995). In 1874, a physician named the disorder anorexia nervosa, describing it as extreme

emaciation associated with increased activity, episodes of binge eating, amenorrhea, and low body temperature (Worthington-Roberts, 1995). Epidemiological studies in the United States and Europe have shown a dramatic increase in the incidence of anorexia nervosa in young women over the past 20 years (Worthington-Roberts, 1995).

The conceptualization of anorexia nervosa has passed through several phases. During this century, these phases moved from the view that the disorder was a pituitary disease, to an umbrella diagnosis reflecting nonspecific weight loss from any number of psychiatric disorders, to a continuum concept with anorexia nervosa at the extreme of normal dieting, to the current view of a specific disorder with central clinical features that make it unique (Garfinkel, Kennedy, & Kaplan, 1995). Since 1969, a variety of operational criteria have been developed emphasizing signs and symptoms, and usually characteristics of psychopathology and behavior, as well as endocrine function (Garfinkel et al., 1995). However, among these various operational criteria there has been agreement that a drive for thinness and the need for weight loss is necessary for diagnosis (Garfinkel et al., 1995).

The essential psychopathology of anorexia nervosa involves the intense fear of becoming fat, a refusal to maintain a minimally normal body weight, shape and weight concerns related to the person's attitudes and feelings about his/her body as a whole or certain body parts, and amenorrhea in postmenarcheal females (American Psychiatric Association, 1994; Garfinkel et al., 1995). Based on the *Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition* (DSM-IV; American Psychiatric Association, 1994), the intense fear of becoming fat or gaining weight is usually not alleviated by weight loss and often increases as weight continues to decrease (American

Psychiatric Association, 1994). The DSM-IV suggests that the person weighs less than 85% of the weight considered to be normal for that individual's age and height (normally computed by using one of several published versions of the Metropolitan Life Insurance tables or pediatric growth charts) (American Psychiatric Association, 1994). The distorted weight and shape concerns vary from the individual feeling generally overweight to realizing that they are thin but concerned that particular parts of their bodies (e.g., abdomen, buttocks, and thighs) are fat (American Psychiatric Association, 1994). Another feature is amenorrhea in postmenarcheal females that is due to an abnormally low level of estrogen secretion and is an indicator of physiological dysfunction as a result of weight loss (American Psychiatric Association, 1994).

Bulimia Nervosa was first recognized as a distinct disorder in 1979 (Worthington-Roberts, 1995). This recognition gave rise to the awareness of the frequency of bulimia nervosa within anorexia nervosa and within a large group of people who had many of the features of anorexia without low body weight (Garfinkel et al., 1995). The diagnostic criteria for bulimia nervosa have also undergone various modifications like anorexia nervosa.

The core psychopathology of bulimia nervosa involves binge eating, inappropriate compensatory methods to prevent weight gain, the occurrence of these two behaviors at least twice a week for 3 months, and self-evaluation that is excessively influenced by weight and body shape (American Psychiatric Association, 1994). According to the DSM-IV, a binge is eating a larger amount of food than most people would eat under similar circumstances in a limited period of time (i.e., usually less than 2 hours) (American Psychiatric Association, 1994). Binge eating is characterized by the

abnormally large amounts of food consumed and a sense of lack of control (American Psychiatric Association, 1994). The recurrent inappropriate compensatory methods to prevent weight gain vary in nature but include methods such as purging/vomiting after a binge episode, fasting for a day or more, excessive exercising, and using diuretics and laxatives (American Psychiatric Association, 1994). Individuals with bulimia nervosa typically resemble individuals with anorexia nervosa in their excessive body weight and shape concerns (American Psychiatric Association, 1994).

There is substantial evidence that eating disorders are no longer rare among females and that these disorders may be increasing in prevalence (Button & Whitehouse, 1981). A number of studies to date have noted that 'subclinical cases' that do not completely fulfill the stringent diagnostic criteria to be considered of clinical importance appear to be occurring at an increasing rate (Fries 1977; Nylander, 1971). The DSM-IV delineates a large and heterogeneous diagnostic category, Eating Disorder Not Otherwise Specified (EDNOS; American Psychiatric Association, 1994). These partial and/or subclinical cases present serious problems of eating and weight concerns and need to be further explored (Button & Whitehouse, 1981). The prevalence of clinically diagnosed bulimia nervosa has been estimated to range from 1% to 3% (Clarke & Palmer, 1983; Fairburn & Beglin, 1990; Patton, 1992) in young adult women, and the prevalence of anorexia nervosa is estimated at approximately 0.5% to 1% (Patton, 1992) in young adult women. Partial and/or subclinical eating disorders are estimated at approximately 3% to 5% (Button & Whitehouse, 1981; Patton, 1992) in young adult women. In studies of women who sought out an evaluation or treatment for eating disorders, the percentage of diagnosed cases of partial syndrome or an atypical eating disorder based on the DSM-III,

DSM-III-R, and DSM-IV was reported at 13% in a New Zealand facility (Hall & Hay, 1991), 20% in a Swedish eating disorder unit (Clinton & Glant, 1992), 47% at a German eating disorder treatment facility (Fichter, Quadflieg, & Brandl, 1993), and 40-46% at two different eating disorder facilities in the United States (Herzog, Hopkins, & Burns, 1993; Williamson, Gleaves, & Savin, 1992). The physiological and psychological clinical consequences of eating disorders make prevention and detection efforts of central importance.

Continuum Hypothesis

Dieting produces what may be thought of as a disrupted eating pattern, but how can this difficult pattern be related to clinical eating disorders? Even though a link has been made in the research between the increased prevalence of eating disorders and societal pressures to maintain a slim physique, dieting itself is not necessarily indicative of an eating disorder. However, the link in the literature is supported by accumulating evidence of similarities between normal dieters and eating disordered individuals (Polivy & Herman, 1987). Eating disordered individuals exhibit a strong preoccupation with weight, dissatisfaction with their body or negative body image, and a strong need or desire for perfectionism (Garner et al., 1983a; Garner, Olmsted, Polivy, & Garfinkel, 1984). Similarly, normal-weight college women and normal dieters have often been shown in the research literature to be equally preoccupied with their weight, equally dissatisfied with their body or body image, and have an equal need or desire for perfectionism (Garner et al., 1983a; Garner et al., 1984). Additionally, extreme dieters have been found to exhibit some apparent symptoms of anorexia nervosa and bulimia nervosa (e.g., binge eating and self-induced vomiting) (Button & Whitehouse, 1981;

Polivy & Herman, 1987; Pyle, Halvorson, Neuman, & Mitchell, 1986).

Given the apparent similarities between normal dieters and individuals struggling with a clinical eating disorder, the question as to whether dieting and eating disorders represent various points along a continuum of eating pathology has continued to elude mental health professionals and to remain the subject of controversy in the research (Button & Whitehouse, 1981; Garner et al., 1983a; Garner et al., 1984; Mintz, O'Halloran, Mulholland, & Schneider, 1997; Nylander, 1971; Rodin et al., 1985). The concept of an eating disorder continuum has been proposed to facilitate an understanding of the different issues that exist for women in relation to body satisfaction, weight, and eating habits (Nylander, 1971; Rodin et al., 1985). At one end of the continuum falls normal eating and at the opposite end falls clinically diagnosed eating disorders, with milder subclinical forms of eating disorders (e.g., chronic and intermittent dieters) at various points along the continuum (Kalodner & Scarano, 1992).

Nylander (1971) was the first to propose the "continuum hypothesis" of eating disorders when he surveyed a group of female high school students in Sweden and found that a majority of these young women perceived themselves as overweight or fat, and a large proportion (nearly 10% of the 1,241) reported three or more symptoms related to anorexia nervosa in connection to their weight- loss attempts. The most common symptoms he found in this sample were fatigue, increased interest in food, depression, chilliness, poor school performance, constipation, anxiety, and amenorrhea. Nylander (1971) argued that intense dieting over extended periods of time can produce symptoms of starvation that may ultimately lead to the expression of a severe or milder variant of the disorder.

Patton (1988) examined the elements of the hypothesized eating disorder spectrum (i.e., continuum from the normal occasional feeling fat to dieting to clinical eating disorders) in a group of 1,010 adolescent females from comprehensive schools in London on two different occasions 12 months apart. The mean age of the girls at the outset of the study was 15-years-old. The girls were initially screened using the Eating Attitudes Test (EAT; Garner & Garfinkel, 1979) and the General Health Questionnaire (GHQ; Goldberg & Hillier, 1979). Control groups were selected based on their cutoff scores on these two instruments. Semi-structured interviews were conducted in two parts, an assessment of the clinical status and an assessment of risk factors (derived from the research literature). Results indicated that dieting was very common, but that dieters did not usually progress to more severe eating disorders over the course of 12 months (i.e., dieting in adolescence appears to be transient). However, 21% of the girls that were identified as dieters, met the diagnostic criteria for an eating disorder at follow-up. These results give some support for the notion that dieting itself can be an etiological factor in eating disorders.

Fries (1977) and Garner and Garfinkel (1980) observed body image distortions and anorexic attitudes in both patients with anorexia nervosa and rigid dieters who failed to meet the diagnostic criteria for an eating disorder. Garner and Garfinkel (1980) not only found an overrepresentation of anorexia nervosa in professional groups like ballet dancers who experience intense pressure to diet, but they also identified individuals who displayed many of the symptoms of anorexics but who again fell short of meeting the strict diagnostic standard. Fries (1977) found that body-size misperceptions and attitudes that are exhibited in clinical cases of anorexia nervosa were also apparent in women who

had a history of both weight loss and secondary amenorrhea but failed to meet the strict diagnostic standard.

Button and Whitehouse (1981) suggested the term "subclinical anorexia nervosa" to describe those women who are "abnormally preoccupied with weight" and who show many of the behavioral symptoms of anorexia nervosa. Lowenkopf (1982) proposed that these "minor disorders" should fall into a diagnostic category of "pursuit of thinness" in conjunction to the classical syndromes of anorexia nervosa and bulimia nervosa. Additionally, studies have shown college students have elevated scores on various questionnaires examining symptoms of eating disorders (Button & Whitehouse, 1981; Garner et al., 1984; Garner et al., 1983). When people with full-syndrome bulimia nervosa are compared with a community sample that lacked only the frequency necessary for the syndrome, they were surprisingly similar on measures of comorbid disorders, psychosocial impairments, associated symptoms and risk of earlier sexual abuse (Garfinkel et al., 1995).

The idea that eating disorders fall on a continuum assumes that there are fundamental similarities between clinically diagnosed eating disorders at one end of the continuum and the milder subclinical forms of the disorder that fall along the continuum (Polivy & Herman, 1987). What is the relationship between widespread excessive concerns overweight and clinical disorders and do excessive concerns reflect pathology (Garner et al., 1983a)? The differences between the clinical and subclinical forms along this continuum are thought to be a matter of degree, with 'normalcy' at the other end of the continuum representing the absence of pathological characteristics (Polivy & Herman, 1987).

Some clinical theorists argue that there are crucial differences between true clinical eating disorders and milder subclinical forms of the disorder (Bruch, 1973; Crisp, 1965; Selvini- Palazzoli, 1978). Bruch (1973) reported there are distinct interrelated psychological characteristics that distinguish mild forms of anorexia nervosa from full-blown disorders (i.e., distortion of body image, misperception of internal sensations, and underlying sense of ineffectiveness). Selvini-Palazzoli (1978) stated that the true clinical disorder is characterized not only by the perceptual and conceptual disturbances identified by Bruch, but a pervasive form of interpersonal distrust as well.

The question of the continuum hypothesis has been explicitly addressed in a couple different studies (Garner et al., 1983a; Garner et al., 1984) examining the psychological dimensions identified by Crisp, Bruch, and Selvini-Palazzoli as characteristic of clinical eating disorders. The Eating Disorder Inventory (EDI; Garner et al., 1983b) was developed to assess the cognitive and behavioral dimensions which could differentiate between not only subgroups of individuals with eating disorders, but distinguish those individuals with significant emotional disturbances from normal dieters (Cooper, Cooper, & Fairburn, 1985). The EDI evaluates the multidimensional nature of eating disorders by generating scores for eight scales: Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears (Garner et al., 1983b). This questionnaire was validated on several groups of patients with anorexia nervosa and bulimia nervosa, as well as obese, formally obese, and normal college women and men.

Garner et al. (1983a) and Garner et al. (1984) used the EDI to compare normal college dieters, nondieters, ballet students, and patients with anorexia nervosa. The

college and ballet students were divided into two groups on the basis of their EDI Drive for Thinness scale scores. The weight-preoccupied (WP) group in this study was defined more strictly than mere chronic dieters. The WP group had a level of concern about weight and dieting comparable to the clinical group, and the not weight-preoccupied (NWP) group consisted of students scoring below the mean for their respective samples. To confirm that high Drive for Thinness scores reflected weight preoccupation, 12 WP and 12 NWP college women were interviewed by a clinical psychologist who was blind to their EDI scores but was experienced in diagnosing and treating eating disorders. Of the 12 WP women interviewed, three were classified as either having a current or prior eating disorder. Therefore, after further screening took place, those college and ballet students who were thought to have currently or previously had a clinically diagnosed eating disorder were eliminated from further consideration. Next, college and ballet samples were combined because no significant differences were found between them once the individuals with clinically diagnosed eating disorders were eliminated. In the end three groups remained: NWP women, WP women, and anorexic individuals (AN). These three groups were compared on the EDI scales to determine whether weight preoccupation predicted psychopathology.

Results indicated that particular traits that were frequently found in the AN group were relatively uncommon in the WP group (e.g., Ineffectiveness and Interoceptive Awareness subscales), while other traits were representative of both groups (e.g., Body Dissatisfaction, Bulimia, Perfectionism, and Maturity Fears subscales). Group differences were identified by the percentage of WP women scoring above the anorexic womens' median on the EDI scales. Although the WP group showed greater psychopathology than

the NWP group on most EDI scales, the findings comparing the AN group and WP group who displayed comparable levels of weight preoccupation (as measured by the EDI Drive for Thinness subscale) suggest important distinctions between the two groups. These distinctions were made on several EDI scales that reflect traits described as fundamental aspects of anorexia nervosa. On the Ineffectiveness, Interoceptive Awareness, and Interpersonal Distrust scales, few WP women scored above the AN median. These results are consistent with clinical theorists that state that the essential features of anorexia nervosa are a pervasive sense of ineffectiveness (ego deficit) and interoceptive disturbances.

A cluster analysis was conducted based on the EDI scales of the WP group to determine if they could be subdivided into significant psychological typologies and a two-cluster solution was suggested. The first cluster consisted of women who scored high on all scales (as high or higher than the anorexic group). The second cluster consisted of women (two thirds of the WP group) who had elevated scores on Drive for Thinness, Body Dissatisfaction, and Perfectionism scales and low scores (within the normal college student range) on all other scales. These results indicated that there is a subset of women in the population who have associated psychological disturbances that are similar to those with anorexia nervosa, but there are other weight preoccupied women who only superficially resemble individuals with clinical eating disorders.

Overall, the current research indicates that there are two components to the eating disorders continuum. One component that may be shared by normal dieters includes an intense concern with weight, appearance, body shape, and eating/dieting, along with perfectionism (Garner et al., 1984; Laessle, Tuschl, Waadt, & Pirke, 1989; Polivy &

Herman, 1987). A second component that appears to be limited to a more restricted section of the population includes a sense of ineffectiveness, distorted self-awareness or a lack of interoceptive awareness, and interpersonal distrust (Garner et al., 1984; Laessle et al., 1989; Polivy & Herman, 1987). The current research supports the idea that certain features of eating disorders fall along a continuum and are shared with weight preoccupied groups, while there are other features that tend to differentiate these individuals from individuals with eating disorders. In sum, when investigations of subclinical eating disorders are based solely on measures of appearance, weight, and attitudes toward food, they are likely to lead to the conclusion that weight-preoccupied women and women with eating disorders are in fact quite similar to each other. However, when investigations go beyond these characteristics and assess other psychological and cognitive dimensions of individuals with eating disorders, there appears to be noticeable (perhaps fundamental) differences between these groups (Garner et al., 1984).

Several 1- to 2-year longitudinal studies (Patton, 1988; Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990) have shown that 20-30% of pathological dieters progressed to subclinical or clinically diagnosed eating disorders by the end of the follow-up period, 35% of the normal dieters had progressed to pathological dieting, and approximately 15% of those with subclinical eating disorders progressed to clinically diagnosed eating disorders. Several 1- to 4-year longitudinal studies (Herzog, Hopkins, & Burns, 1993; Striegel-Moore, Silberstein, Frensch, & Rodin, 1989; Yager, Landsverk, & Edelstein, 1987) have shown that 30-45% of those with subclinical or partial eating disorders progressed to clinically diagnosed eating disorders by the end of the study. Other 1- to 4-year longitudinal studies have shown that individuals at risk during the

initial evaluation period progressed to more severe eating disturbances by the end of the follow-up period (Drewnowski, Yee, & Krahn, 1988; Garner, Garfinkel, Rockert, & Olmsted, 1987; Hesse-Biber, 1992). The longitudinal studies to date present convincing evidence that normal dieters might become pathological dieters, and pathological dieters might develop subclinical or clinically diagnosed eating disorders, and subclinical disorders might progress to clinically diagnosed eating disorders (Shisslak Crago, & Estes, 1995).

There are serious clinical and research implications for individuals not meeting full diagnostic criteria for an eating disorder (Herzog et al., 1993). Individuals seeking treatment for an eating disorder will find it virtually impossible to get their third party insurance payer to cover treatment if they do not meet full criteria for an eating disorder (Herzog et al., 1993). Thus, these subdiagnostic individuals receive inadequate treatment (Herzog et al., 1993). Additionally, subdiagnostic individuals are virtually excluded in research studies done on eating disorders (Herzog et al., 1993). The question of whether or not eating disorders fall along a continuum has yet to be answered but the study of symptomatic individuals who do not meet full diagnostic criteria can provide insight into the cause of eating disorders.

Multidimensional Nature and Etiology

The specific causes of anorexia nervosa and/or bulimia nervosa are still unknown. Most scientific evidence suggests that these disorders are the product of a complex interaction between physiological, psychosocial, and psychological factors and that they show considerable comorbidity with other psychiatric disorders (Casper, 1998; Worthington-Roberts, 1995). Whatever the cause may be, the chronic behaviors that

maintain these disorders appear to trigger a vicious cycle that becomes self-perpetuating. Eating disturbances encompass a heterogeneous group of psychiatric disorders that mainly affect female adolescents and young adults (Casper, 1998).

The current research stresses the importance of a multidimensional evaluation of psychopathology in those individuals suspected of having clinical eating disorders (Garner et al., 1984). As stated earlier, normal dieters tend to display both weight and body-shape concerns that are indistinguishable from those individuals with clinical eating disorders (Polivy & Herman, 1987). Therefore, the characteristics that distinguish individuals with eating disorders must lie somewhere else. Psychological qualities such as feelings of ineffectiveness, interpersonal distrust, maturity fears, and a lack of interoceptive awareness have been shown in several studies to be unrelated to general eating, weight, and body-shape concerns and unique to eating- disordered individuals (Polivy & Herman, 1987). Due to the fact that anorexia nervosa, bulimia nervosa, and eating disorders not otherwise specified are called eating disorders, it would be assumed that there is something related to disordered eating (Polivy & Herman, 1987). Anorexics eat insufficient amounts, and their rigid diets control them (Bruch, 1973) while bulimics eat too much or too little at one time (Polivy & Herman, 1987). Palmer (1979) offered the term "dietary chaos" to describe eating disordered individuals' chaotically rigid and/or out-of-control eating patterns.

Polivy and Herman (1987) proposed that individuals with eating disorders experience eating patterns that are "reordered" rather than "disordered" (i.e., the eating patterns of these individuals possibly reflect a different way of regulating/controlling rather than the absence of regulation/ control). The boundary model of eating behavior

suggests that the states of hunger and satiety are triggered and terminated by interoceptively detected signals (Herman & Polivy, 1984). However, this model proposes that there is an intermediate state that lies between hunger and satiety that leaves an organism indifferent (i.e., eating is neither negatively or positively reinforced). At this intermediate state of indifference, eating behavior may in fact be under the primary control of social, environmental, and cognitive factors. Dieters differ from nondieters in that they have a proposed third boundary ("the diet boundary") that is deliberately placed between hunger and satiety boundaries. This diet boundary is the dieter's attempt to inhibit eating before the activation of normal satiety processes. In turn, the goal of the dieter is that this inhibition will produce and/or maintain weight loss. In the long run this diet boundary can cause unfortunate consequences on the regulatory system. The boundary model posed by Herman and Polivy (1984) suggests that the eating patterns of individuals with eating disorders may not be chaotic, but controlled by regulatory boundaries that have no application to normal eaters and/or non-dieters. In sum, individuals with eating disorders display an eating pattern that is physically and psychologically pathological, but may not necessarily be considered disordered (Polivy & Herman, 1987).

The observed pathological eating observed in eating disordered individuals is to a large extent visible in normal dieters (Polivy & Herman, 1987). A central feature of the normal dieter is the diet boundary that simply promotes the restriction of calories. Therefore, it is not pathological eating or a disorder of eating that distinguishes eating disordered individuals and normal dieters (Polivy & Herman, 1987).

In a multidimensional evaluation, both psychological and behavioral aspects must

be examined in subclinical or "mild" cases of eating disorders and clinical cases of eating disorders (Garner et al., 1984). At this time, there appears to be a difference in the meaning or motivation behind chronic dieting and eating disordered dieting. The dietary restriction that takes place with eating disordered individuals appears to happen in relationship to a pervasive sense of inadequacy and poor self-awareness. The motivation of eating disordered individuals may in turn be to gain a "sense of psychological organization" (Bruch, 1973; Garner, Garfinkel, & Bemis, 1982; Garner et al., 1984; Selvini-Palazzoli, 1978). On the other hand, chronic dieters may be thought to get their motivation more from the desire for physical attractiveness and social approval (Garfinkel et al., 1984). Despite Garner et al.'s (1984) findings that the Cluster Two weight-preoccupied (WP) group experienced relatively little psychopathology, their extreme sense of body dissatisfaction and desire to be thinner should not be underemphasized. The current unrealistic standards of body shape and feminine beauty create social and individual dangers. Furthermore, the knowledge of risks for future psychological impairment in women experiencing profound shape dissatisfaction depends on future empirical investigation (Garner et al., 1984; Garner et al., 1980). It has been hypothesized that cultures that exert extreme pressure to diet and aspire to a slender physique may promote an increased expression of clinical eating disorders in vulnerable adolescents and young women (Garner et al., 1980).

Button and Whitehouse (1981) reported that early intervention appears to be related to successful outcomes. This observation suggests that further investigation of mild or subclinical cases of eating disorders may have important therapeutic implications. Further investigation may also lead to knowledge about the processes underlying the

onset of, and recovery from, eating disorders (Button & Whitehouse, 1981). Refining the identification of these mild or subclinical cases would be facilitated by the use of psychometrically sound assessment instruments and screening procedures.

Assessment

The psychopathology of eating disorders is made up of both nonspecific and specific features (Heffernan, 1995). Nonspecific features include anxiety or depression symptoms which are found in other psychological disorders, and specific features include disturbances in behaviors related to eating and weight control, and characteristic attitudes regarding food, eating, body shape, and weight (Fairburn & Belgin, 1994; Heffernan, 1995). There is little if any difficulty in the measurement of the nonspecific features inclusive in the psychopathology of eating disorders due to the number of well-established interview and self-report measures that are available (Fairburn & Belgin, 1994). However, the measurement of specific features inclusive in the psychopathology of eating disorders is much more problematic for researchers and clinicians (Fairburn & Belgin, 1994).

There are two prominent shortcomings in previous inventories used to assess eating disorders. First, they are based on outdated DSM criteria (i.e., the third edition or the revised third edition). Second, they do not capture the spectrum of eating disorders that has been shown in the literature to exist (Williamson, 1990; Williamson, Anderson, Jackman, & Jackson, 1995). In order to more fully understand eating disorders and the etiological factors that become hidden among the psychological and physical changes that accompany clinical eating disorders, the whole spectrum of eating disturbances that exists needs to be studied (Fairburn & Belgin, 1990; Patton, 1988).

Although much has been written about the spectrum of eating disorders falling along a continuum, there is a lack of research that systematically examines this continuum, largely due to the lack of an instrument that effectively operationalizes the continuum (Scarano & Kalodner-Martin, 1994). The Questionnaire for Eating Disorder Diagnoses (Q-EDD; Mintz et al., 1997) is a new instrument in the literature that is based upon the "continuum hypothesis" and is guided by the fourth edition of the DSM (American Psychiatric Association, 1994).

Due to the fact that there are several preexisting self-report questionnaires based on operationalized DSM criteria, Mintz et al. (1997) chose to modify a preexisting instrument rather than create their own in the development of the Q-EDD. The instrument they chose to modify was the Weight Management Questionnaire (WMQ; Mintz & Betz, 1988) because it is one of the few operationalized instruments to be used by multiple researchers, and it is one of the few operationalized DSM instruments that simultaneously defines various eating behavior groups (e.g., bulimia, bingers, purgers, and normals). The WMQ was revised to be an operationalized DSM-IV questionnaire that was renamed the Q-EDD.

The Q-EDD is a self-report instrument that consists of 50 questions and takes approximately 5 to 10 minutes to finish. The Q-EDD not only produces frequency data for individual behaviors that occur (e.g., self-induced vomiting), but also categorical labels (e.g., eating disordered and non-eating disordered). On the basis of decision rules, the Q-EDD places respondents into diagnostic categories which include eating disordered and non-eating disordered categories at the most basic level. The non-eating disordered category can be further broken down into asymptomatic (i.e., no eating disorder

symptoms) and symptomatic categories (i.e., eating disorder symptoms but not enough for a DSM-IV diagnosis). The eating disorder category is composed of six different diagnostic categories. The first two categories indicate the DSM-IV diagnoses of Bulimia and Anorexia. The additional four categories are examples of the DSM-IV diagnoses of Eating Disorder Not Otherwise Specified (EDNOS) (e.g., subthreshold bulimia nervosa, menstruating anorexia nervosa, nonbinging bulimia nervosa, and binge-eating disorder).

In regards to the specific decision rules of the Q-EDD, full diagnostic criteria must be met for any of the six eating disorders if an individual is to be placed in the category of eating- disordered. Respondents are classified as asymptomatic if they answer negatively to all behaviors making up the DSM-IV criteria for eating disorders and to the use of strict dieting and appetite control pills as a way to control their body weight. However, asymptomatics who are grossly obese or severely underweight are looked at as "red flag" asymptomatics to indicate that they may not really be asymptomatic. Respondents are classified as symptomatic if the individual does not meet full DSM-IV criteria for an eating disorder, but on the other hand is not asymptomatic. These respondents would warrant further examination to see if they are at risk for developing an eating disorder.

Three different studies were conducted to examine the reliability and validity of Q-EDD scores. In the first study, the researchers were interested in the ability of the Q-EDD to distinguish between (a) DSM-IV eating-disordered and non-eating-disordered respondents, (b) between eating- disordered, symptomatic, and asymptomatic respondents, and (c) between individuals with bulimia nervosa and anorexia nervosa. Additionally, researchers in this first study wanted to explore the Q-EDD's ability to

distinguish between the six eating disorder categories in a reliable and valid manner, and further describe and study symptomatic individuals. Due to the fact that eating disorders and eating disordered behaviors have been found to be common on college campuses, the Q-EDD was administered to a nonclinical sample of approximately 1,400 college women from a large midwestern public university. The second study explored the convergent validity, test-retest reliability, and interscorer agreement for the Q-EDD administered to a different sample of college women. Participants consisted of 167 females from a medium-sized western public university. The third study was conducted to explore the criterion validity of Q-EDD scores using a clinical sample of females with eating disorders.

Overall results of the three studies provided strong support for the reliability and validity of Q-EDD scores. For example, convergent validity was shown by significant agreement between the diagnoses on the Q-EDD and the scores on the revised Bulimia Test (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991) and the EAT (Garner & Garfinkel, 1979). Test-retest reliabilities were found to be very stable over a 2-week period of time (i.e., .94 for eating- disordered and non-eating-disordered groups; and .85 for eating-disordered, symptomatic, and asymptomatic groups) and less stable over a 1- to 3-month period of time (i.e., .64 for eating-disordered and non-eating-disordered groups; and .54 for eating-disordered, symptomatic, and asymptomatic groups). Interscorer agreement was at 100% indicating that scoring the Q-EDD can be easily mastered by those administering or scoring the inventory. Strong support was found for the criterion validity of the Q-EDD across both the clinical interview and clinician judgment studies. Results related to the Q-EDD's effectiveness in differentiating between

eating-disordered, symptomatic, and asymptomatic respondents are promising and warrant future research. It appears that at times it may be difficult to distinguish between asymptomatic and symptomatic individuals or between symptomatic and eating-disordered individuals, indicating that symptomatic subtypes may actually lie on a continuum. The Q-EDD holds promise for use in both clinical and outreach work (e.g., identifying both at-risk and eating disordered individuals to get them into outreach programs and counseling or track progress in therapy).

Many previous instruments used cutoff scores (i.e., scores above or below a certain number) to arrive at a diagnosis (Mintz et al., 1997). Additionally, most instruments use nominal data and dichotomous scores to arrive at diagnoses and neglect the use of continuous data and numerical scores (Mintz et al., 1997). Many of these instruments measure eating-disordered thoughts, feelings, and behaviors aimed at specifically diagnosing eating disorders such as anorexia nervosa and bulimia nervosa (Heffernan, 1995; Williamson et al., 1995). In sum, there is a major gap in the ability to screen for subclinical eating disorders in nonclinical samples.

One of the most widely studied and used instruments today is the Eating Disorder Inventory (EDI; Garner et al., 1983b). To further explore the notion that there are two components necessary for understanding and treating individuals with clinical eating disorders or subclinical forms of the disorder, the EDI (Garner et al., 1983b) was developed to assess the cognitive and behavioral dimensions which could differentiate between not only subgroups of individuals with eating disorders, but those individuals with significant psychopathology and those who are simply strict dieters (Cooper et al., 1985). The EDI is a 64-item, self-report instrument that evaluates the multidimensional

nature (i.e., psychological and behavioral traits) of anorexia nervosa and bulimia nervosa by generating scores for eight subscales: Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears (Garner et al., 1983b).

The development of the EDI and EDI-2 included the development of a large pool of items by clinicians who were familiar with the research literature on eating disorders and who also had experience treating eating disordered individuals (Garner, 1991; Garner et al., 1983b). Initially the EDI items were intended to measure eleven constructs, but only eight of these constructs were retained based on reliability and validity requirements (Garner et al., 1983b). The item content of the eight retained scales is described as follows: (a) the Drive for Thinness scale taps into excessive concern with dieting, weight preoccupation, and extreme pursuit for thinness, (b) the Bulimia scale shows the tendency toward uncontrollable episodes of overeating (binging) which may be followed by self-induced vomiting, (c) the Body Dissatisfaction scale indicates a perception that specific body parts are too large (e.g., hips, thighs, buttocks), (d) the Ineffectiveness scale reflects feelings of overall inadequacy, insecurity, worthlessness and an out of control feeling over one's life, (e) the Perfectionism scale assesses extreme personal expectations of superior achievement, (f) the Interpersonal Distrust scale indicates a feeling of alienation and an overall hesitancy to form close relationships, (g) the Interoceptive Awareness scale assesses a lack of confidence in not only recognizing but accurately relating emotions and sensations of hunger or satiety, and (h) the Maturity Fears scale reflects the wish to retreat to the security of the preadolescence years because of the overwhelming demands of adulthood (Garner et al., 1983b). The EDI-2 generates scores for the original

eight scales from the EDI and adds three provisional scales described as follows: (a) Impulse Regulation assesses the tendency toward impulsivity, substance abuse, recklessness, hostility, destructiveness in interpersonal relationships, and self-destructiveness, (b) Social Insecurity measures the belief that social relationships are tense, insecure, disappointing, unrewarding, and generally of poor quality, and (c) Asceticism measures the tendency to seek virtue through the pursuit of spiritual ideals such as self-discipline, self-denial, self-restraint, self-sacrifice, and control of bodily urges (Garner, 1991; Garner, Olmsted, & Polivy, 1983b)

The EDI and/or EDI-2 and their scales are widely used in research on anorexia nervosa, bulimia nervosa, eating behaviors and attitudes in normal populations, and personality traits often related to disordered eating (Joiner & Heatherton, 1998). Considerable support exists for the reliability and validity of the EDI scores (Cooper et al., 1985; Crowther, Lilly, Crawford, & Shephard, 1992; Garner et al., 1983b; Joiner & Heatherton, 1998; Wear & Pratz, 1987). Crowther et al. (1992) conducted a study examining the stability of the EDI over a 1-year period in a non-clinical, female population. The results indicated that the total EDI score along with the Drive for Thinness, Body Dissatisfaction, Ineffectiveness, and Interpersonal Distrust subscales were useful in prospective research on eating disorders with clinical and non-clinical populations.

Reliability coefficients for the initial scale validation criterion group (AN) and comparison group (FC) for the EDI were respectively as follows: Drive for Thinness (AN = .85, FC = .85), Bulimia (AN = .90, FC = .83), Body Dissatisfaction (AN = .90, FC = .91), Ineffectiveness (AN = .90, FC = .86), Perfectionism (AN = .82, FC = .73),

Interpersonal Distrust (AN = .85, FC = .76), Interoceptive Awareness (AN = .85, FC = .66), and Maturity Fears (AN = .88, FC = .76) (Garner et al., 1983b). Cronbach's alphas for the three provisional scales on the EDI-2 were respectively as follows: Impulse Regulation (.77), Social Insecurity (.80), and Asceticism (.70) (Garner, 1991).

Evidence for criterion-related validity was indicated through a strong agreement between patients' self-report profiles and the clinical judgments of experienced clinicians familiar with characteristics of eating disorders (Garner et al., 1983b). Due to the fact that several subscales of the EDI-2 overlap conceptually with preexisting psychological tests, convergent and discriminant validity were able to be determined for subsamples of patients (e.g., anorexic attitudes on the EAT; restraint; overall body dissatisfaction; dissatisfaction with bodily regions such as the breasts, buttocks, hips, and abdomen that are associated with changes at maturation, locus of control, self-control, feelings of inadequacy, depression as measured by the Beck Depression Inventory (BDI), physical anhedonia, and symptoms on the Hopkins Symptoms Check List). Construct validity was indicated by the congruence between clinicians' ratings and patients' subscale scores, ability of scales to differentiate between the criterion and comparison groups, and through the demonstration of convergent and discriminant validity (Garner et al., 1983b).

As stated previously, the multidimensional nature of eating disorders is made up of both nonspecific features including symptoms such as anxiety and/or depression, and specific features including body shape, weight related, and eating disturbances (Fairburn & Belgin, 1994; Heffernan, 1995). It has become apparent in the research literature that the multidimensional nature of eating disorders encompasses a significant psychological component (Grubb, Sellers & Waligroski, 1993).

Depression and Eating Disorders

According to the research literature, depression occurs twice as often in females than males (American Psychiatric Association, 1994; Nolen-Hoeksema, 1987), and at least 90% of the cases of anorexia nervosa and bulimia nervosa occur in females (American Psychiatric Association, 1994; Bruch, 1978). The rate of depression as well as the incidence of eating disorders has been increasing especially in young adult women and adolescent females over the last several decades (McCarthy, 1990). Substantial evidence exists in the research literature that links affective disorders with eating disorders (Swift, Andrews, & Barklage, 1986). Even though depression and eating disorders have been found to be common comorbid conditions, the specific nature of this relationship is unclear (Devlin & Walsh, 1989; Edelstein & Yager, 1992). Clinically, it may be difficult to disentangle and distinguish between eating disorders and depression because of the many shared signs and symptoms (Garfinkel et al., 1995).

Herzog (1984) reported a high percentage of depressive disorders in eating disordered individuals. Many individuals diagnosed with anorexia nervosa and bulimia nervosa express depressive symptoms such as depressed mood, social withdrawal, irritability, insomnia, diminished interest in sex, and eating abnormalities (American Psychiatric Association, 1994; Devlin & Walsh, 1989). Edelstein and Yager (1992) reported that depression is common among individuals with eating disorders because the aspects of dysphoria and demoralization are abundant in these individuals. They reported that the four sources of dysphoria inherent in eating-disordered individuals include interpersonal problems (i.e., social isolation and withdrawing), abnormal eating (i.e., binging, restraining, and overeating), underlying affective disorders (i.e., dysthymia,

anger, anxiety, and depression), and a lack of impulse control (i.e., substance abuse problems and acting-out character pathology). This large degree of symptom overlap has led some researchers to think that eating disorders represent a deviant expression of a mood disorder to which females are especially vulnerable (Hudson, Laffer, & Pope, 1982; Killen, Hayward, Wilson, Taylor, Hammer, Litt, Simmonds, & Haydel, 1994). However, the depressive symptoms expressed by eating disordered individuals have been reported in physical and psychological studies on semi-starvation (Keys, Brozek, Henschel, Mickelson, & Taylor, 1950). To date, the debate continues as to whether or not eating disorders represent a deviant expression of an underlying mood disorder.

Females are very aware of the current standard that a slender body represents female beauty, and they quickly internalize this thin ideal (McCarthy, 1990). In a society where the standard of female beauty is an ideal below the weight of the average woman (Garner et al., 1985), it comes as no surprise that women often believe that they are heavier/larger than the current standard and what is found attractive to men (Fallon & Rozin, 1985). This thin standard of beauty has become more and more emaciated over the past several decades (Garner & Garfinkel, 1980). In an attempt to document this shift in the standards of beauty, Garner and Garfinkel (1980) examined Playboy centerfolds from 1959 to 1979. These centerfolds were compared to the nationwide average weight matched for age and height for females. Results indicated that the centerfolds in 1959 weighed 91% of the average woman, and by 1979 they weighed 84%. These results were additionally substantiated by their examination of the Miss America Pageant Contestants over the same period of time. There was a 0.13 kg decline in weight per year for the contestants and a 0.17 kg decline for the winners. Their results were particularly

important when you take into account that the average woman under 30 has become heavier while the ideal weight has become thinner. It is not surprising that there has also been a dramatic increase in the number of dieting articles in popular womens' magazines (Garner & Garfinkel, 1980).

The increasing discrepancy between society's standard of beauty and the weight of the average woman across time may continue to produce more and more body dissatisfaction in females in this generation than in the last (McCarthy, 1990). Dissatisfaction with physical appearance and a pervasive preoccupation with dieting and weight loss have become particularly common among women (Garner et al., 1980; Polivy & Herman, 1987; Rodin, Silberstein, & Streigel-Moore, 1985). Women are striving to achieve an almost unattainable body image that is idealized by our society, and in the process of using whatever means possible to achieve this ideal, are developing eating disorders (McCaulay, Mintz, & Glenn, 1988). An extreme degree of body dissatisfaction and/or negative body image is associated with depression, social introversion and anxiety, and negative self-esteem in nonclinical samples of women (McCarthy, 1990; Noles, Cash, & Winstead, 1985).

The concept of body image includes a self-perceptual dimension and an attitudinal and affective component (Garfinkel et al., 1995). The attitudinal and affective dimension toward one's body has received much less attention in the literature on eating disorders, however, this trend appears to be changing (Garfinkel et al., 1995). In a large sample of women diagnosed with bulimia nervosa, the individuals with the highest degree of self-loathing also displayed the greatest feelings of fatness, dietary restraint, feelings of ineffectiveness, and psychopathology on general measures (Garfinkel et al.,

1995).

The research literature identifies low self-esteem, negative body image, and psychopathology normally to be precursors to weight-loss attempts in females, which in turn may lead to eating disorders or other harmful dietary patterns (Grubb et al., 1993; McCarthy, 1990; Moore-Striegel, Silberstein, & Rodin, 1986; Rozin & Fallon, 1988). McCaulay et al. (1988) found a significant relationship between low self-esteem and eating disorders and that two-thirds of her 682 participants resorted to unhealthy eating behaviors. Low self-esteem has also been found in the research literature to be not only central to many psychological theories of depression but significant to the development and course of depression (Abramson, Seligman, & Teasdale, 1978; Grubb et al., 1993). Dissatisfaction with body size and negative evaluation are prominent factors in many women, but have been indicated in the maintenance of eating disorders (Williamson, Kelley, Davis, Ruggiero, & Blouin, 1985).

Grubb et al. (1993) studied the relationships among several measures of self-perception (e.g., body size, attractiveness, and self-esteem) and scales of eating disorders and depression in normal undergraduate females. They hypothesized that females afflicted with an eating disorder would experience lower self-esteem and greater depression than females not affected with an eating disorder. It was additionally hypothesized that females with lower self-esteem and higher depression would have distorted perceptions about their body size and attractiveness. Results indicated that depression positively correlated with scores on the EDI, but self-esteem did not negatively correlate with eating disordered scores (i.e., the eight EDI scales). The results suggest an overall relationship between scores on eating disorder inventories and

depression, but not scores on self-esteem. Findings are consistent with Herzog (1984) who reported a high percentage of depressive disorders among eating disordered women. However, findings are inconsistent with McCaulay et al. (1988) who reported a correlation between all variables considered in the Grubb et al. (1993) study. Perhaps these inconsistent results are due to the fact that the Grubb et al. (1993) study consisted of normal undergraduate females and not a clinical sample whose symptoms would be of greater severity and duration. Additionally, there may have been less variance on measures.

Fava, Abraham, Clancy-Colecchi, Pava, Matthews, and Rosenbaum (1997) studied the relationship between symptoms of eating disorders and severity of depression in depressed outpatients before and after antidepressant treatment (i.e., fluoxetine) and the effect of this treatment on symptoms of eating disorders. Results indicated that several characteristic symptoms of eating disordered individuals (i.e., interoceptive awareness, ineffectiveness, interpersonal distrust, and maturity fears) were linked to severity of depressive symptoms. A decrease in eating disorder symptomatology was reported following antidepressant treatment, which may be related to changes in depressive symptoms which were in turn linked to eating disorders.

It is apparent from previously reported research studies that individuals with subclinical or partial eating disorders engage in many of the same disturbed patterns of eating and distorted perceptions of their bodies as those who have been diagnosed with a clinical or full syndrome eating disorder (Polivy & Herman, 1987; Shisslak et al., 1995). Additionally, these individuals with subclinical or partial eating disorders are normally accompanied by substantial psychological disturbances that may include depression,

suicide attempts, and a past history of a clinically diagnosed eating disorder (Shisslak et al., 1995). In sum, the increasingly thin standard of beauty over the last several decades may partially explain the present rise in eating disorders and depression among females (McCarthy, 1990).

Relationship of Anger and Depression

As previously stated, depression occurs more frequently among females than among males (American Psychiatric Association, 1994; Nolen-Hoeksema, 1987). For an extended period of time, anger has been thought of as a potential contributing factor to depression (Newman, Gray, & Fuqua, 1999; Riley, Treiber, & Woods, 1989). In the theoretical literature in counseling and psychology, the view that there are significant differences between males and females in both the experience and expression of anger has been extensively advanced (Sharkin, 1993). The experience and expression of anger has been suggested to be more burdensome for females due to the discrepancy with their feminine gender role and the perceived unacceptability of anger (Newman et al., 1999; Sharkin, 1996). On the other hand, anger appears to be a primary male emotion and very compatible with the masculine gender role (Newman et al., 1999). Females' hypothesized difficulty expressing anger may in turn make it more likely for them to suppress anger (Kopper & Epperson, 1996), and believed to be linked to various negative affective consequences such as depression (Kopper, 1993; Kopper & Epperson, 1996; Newman et al., 1999).

Newman et al. (1999) conducted a study to examine potential gender differences in the relationship of anger and depression. Results indicated a significant difference in depression between females and males, with females scoring higher. The mean

comparisons of the six anger scales indicated that females and males experience anger in similar ways and at similar levels. However, the results suggested that even though females and males may experience similar levels of internalized anger, it is probably the case that females convert this internalized anger to depressed symptomatology more than males. Correlations of internalized anger with depression were significantly higher for women than for men. Overall, the results from this study indicate that there is a significant relationship between anger and depression.

It is important to keep in mind that the current pressures to maintain society's thin standard of beauty causes women to internalize this thin ideal along with the psychological disturbances that come along with these unrealistic/distorted standards (McCarthy, 1990). Females with subclinical/partial eating disorders and clinical eating disorders have been found to suffer from substantial psychological disturbances that may include affective disturbances such as depression (Shisslak et al., 1995). To date, the potential role of anger in eating disorders has not been examined. Given the demonstrated relationship of anger and depression among women in the Newman et al. (1999) study, exploration of the possible role of anger in eating disorder categories seems warranted.

Etiology and At Risk Populations

In order to make both prevention and early intervention feasible, we must be able to first identify those individuals who are at risk for developing eating disorders (Leung, Geller, & Katzman, 1996). Studying both non-clinical and subclinical samples will hopefully facilitate identification of individuals at risk for developing future eating disorders and delineation of personality precursors to eating disorders. Although eating disorders have long been recognized as relatively common among women in developed

countries, there has been increasing attention devoted to these problems during the last several decades. With anorexia nervosa and bulimia nervosa, early diagnosis and prompt, aggressive interventions are necessary to minimize morbidity (Worthington-Roberts, 1995).

Leung et al. (1996) worked to identify premorbid qualities that distinguish those high risk individuals that later develop eating disorders, from high risk individuals who do not later develop eating disorders, from low risk individuals. Environmental pressures toward having and/or maintaining a slim physique have been shown to be related to the development of eating disorders (Garfinkel & Garner, 1982). Those individuals that internalize society's pressure to be thin and weight preoccupied values and beliefs tend to equate thinness with attractiveness and success (Striegel-Moore, McAvay, & Rodin, 1986). These individuals may not only exhibit greater weight preoccupation and body dissatisfaction, but may also be more likely to develop an eating disorder (Striegel-Moore et al., 1986).

Higher incidences of eating disorders have been reported among individuals in occupations or athletic pursuits that emphasize personal appearance and weight standards (Crago, Yates, Beutler, & Arizmendi, 1985; Garner & Garfinkel, 1980; Garner, Garfinkel, Rockert, & Olmsted, 1987). Garner and Garfinkel (1980) compared dancers and models (who must maintain a slender physique in order to meet the expectations of their profession) to patients with anorexia nervosa and to two groups of normal weight women. They found that milder or subclinical cases and clinical cases of anorexia nervosa were overrepresented in dance and modeling students. These results support the hypothesis that individuals who must focus increased attention on a slender physique are

at increased risk for developing and/or expressing a clinical disorder. Additionally, environmental pressures to maintain an extremely thin physique may contribute to eating pathology that is sustained over time (Garner et al., 1987).

It has already been suggested that an individual's preoccupation with their body weight and shape is strongly influenced by common sociocultural pressures toward achieving and maintaining a thin physique as the current standard of beauty (Garner, Rockert, Olmsted, Johnson, & Coscina, 1985; Rodin et al., 1985). It would be predicted that an individual's dissatisfaction with their body weight would be further exacerbated by perceived pressures toward thinness in their social environment (Striegel-Moore et al., 1986). Additionally, it would be predicted that psychological variables such as perfectionism, low self-esteem, impaired autonomy, and a sense of ineffectiveness would intensify an individual's response to these social pressures (Rolls, Fedoroff, & Guthrie, 1991; Striegel-Moore et al., 1986).

Even though a small number of college-age women actually meet the formal diagnostic criteria for eating disorders, a significant number of them are at risk to develop anorexia nervosa or bulimia nervosa sometime during their college years (Franko, 1998). Eating disorders are reportedly increasing overall in our society, but the most dramatic increases are appearing in college-age women (Button & Whitehouse, 1981; Pyle et al., 1986; Schottee & Stunkard, 1987). The reports of noticeably increasing rates of eating disorders on college campuses have led to the widespread belief that the risk for developing an eating disorder may be increased by the college experience itself (Striegel-Moore et al., 1989). Several plausible hypotheses have been presented for this increasing phenomenon including that the intense academic and social pressures of the college

experience may increase vulnerability to developing eating disorders; the competitive college environment may increase academic competition and competition to be thin; and females who are in pursuit of academic excellence may be conflicted with their traditional female sex role (Striegel-Moore et al., 1989). Striegel-Moore et al. (1989) found that high perceived stress, an increased sense of ineffectiveness, and an increase in negative feelings about weight were all related to increased eating disordered symptomatology during the freshman year of college.

Drewnowski, Yee, Kurth, and Krahn (1994) found that while only 3% of college freshmen women at the University of Michigan met the formal diagnostic criteria for bulimia nervosa, 10% were classified as "dieters at risk," and 31% were classified as "intensive dieters." These results indicate that of the 557 college women surveyed, 44% of them reported significantly disturbed eating behaviors. Additionally, 4% of the "intensive dieters" and 15% of the "dieters at risk" met full criteria for bulimia nervosa by the following semester. A study at the University of Southern California found that approximately two-thirds of all female college students have some form of problematic eating behavior (Eberlein, 1993 as cited in Matto, 1997). These studies show that characteristics of eating disorders are widespread among college women today.

The identification of individuals at risk for developing clinical eating disorders and improving the effectiveness of early referral and/or intervention have become increasingly important tasks with this widespread health problem. College women are a high-risk group for developing eating disorders, which are not only difficult to treat but have severe consequences both physically and psychologically (Drewnowski et al., 1988; Herzog & Copeland, 1985; Schotte & Stunkard, 1987). Because of this noted risk, both

primary prevention (trying to prevent new cases from arising) and secondary prevention (encouraging students who already have symptoms to seek early treatment) of eating disorders are needed on college campuses (Mann, Nolen-Hoeksema, Huang, Burgard, Wright, & Hanson, 1997).

Further isolating the psychological and behavioral dimensions that are unique to individuals clinically diagnosed with an eating disorder and those individuals at risk for developing an eating disorder (i.e., symptomatic subtypes that resemble eating disordered subtypes over asymptomatic subtypes) is an increasingly important task. There is growing recognition of the significance of preventing eating disorders (Piran, 1997). Both the high incidences of eating disorders among adolescents and young adults and the related mortality and morbidity make prevention an important focal issue (Piran, 1997). There is an overwhelming need for more effective prevention measures that should be based on knowing the underlying factors that facilitate or predict the development of eating disorders (Vervaet, van Heeringen, & Jannes, 1998).

Further research is needed to provide a more thorough understanding of disordered eating and the development of appropriate strategies in the areas of prevention, early intervention, and treatment (Kalodner & Scarno, 1992). The frequency with which subclinical or partial eating disorders have been found to occur, along with the possibility that these conditions will progress to diagnosable eating disorders, provide compelling reasons for research directed toward promoting effectiveness in early detection and intervention (Kalodner & Scarno, 1992).

Summary

As noted earlier, the prevalence of eating disorders and related eating

disturbances, especially among women, has been rising at a rather alarming rate. Given the potentially serious physical and psychological consequences involved in these disorders, early detection and intervention are imperative. Empirical evidence has demonstrated that a number of individuals who fail to meet required DSM-IV diagnostic criteria for eating disorders may nevertheless exhibit psychological and behavioral patterns similar to individuals formally diagnosed with eating disorders. Further, evidence suggests that disordered eating patterns and other related symptoms in these subclinical groups might lead to eventual development of full-blown, diagnosable eating disorders. Consequently, efforts are needed to better delineate the clinically relevant dimensions that define and distinguish these various categories of eating disturbances. Such efforts seem to hold the greatest promise for enhancing detection and intervention effectiveness. Specific questions to be addressed in this study are as follows:

1. Is there a significant relationship between the eight original scales contained on the EDI-2 and three Q-EDD categories, and what is the nature of the relationship?
2. Do the three provisional scales of the EDI-2 improve classification into the three Q-EDD categories?
3. Is there a significant relationship between depression and anger dimensions and the three Q-EDD categories, and what is the nature of the relationship?
4. Do the depression and anger dimensions improve classification into the three Q-EDD categories when used with the eleven EDI-2 scales?

With respect to question one, it is believed that there will be a significant relationship between the eight original scales contained on the EDI-2 and the three Q-EDD categories. The nature of this relationship is predicted to vary based on the various

behavioral and psychological dimensions that distinguish between individuals diagnosed with eating disorders, symptomatic individuals, and asymptomatic individuals. With respect to question two, it is thought that the three provisional scales of the EDI-2 will at least slightly improve classification into the three Q-EDD categories. Once again, the nature of this improvement is predicted to vary based on the dimensions that differentiate between individuals diagnosed with eating disorders, symptomatic individuals, and asymptomatic individuals. With respect to question three, it is believed that based on the relationship between anger as a contributing factor to depression and the link in the literature between eating disorders and depression that there will be a significant relationship between depression and anger dimensions and the three Q-EDD categories. With respect to question four, it is thought that depression and anger dimensions will improve classification into the three Q-EDD categories when used with the eleven EDI-2 scales.

CHAPTER THREE

Method

Participants

The research participants will consist of 400 female undergraduate students from a large southwestern university. The students will range from 18 to 35 years, and will be enrolled in introductory psychology classes or career and life planning classes. Informed consent will be obtained and participation in the study will be strictly voluntary, resulting in class credit for their participation in research.

Instruments

Demographic Data. The personal data sheet as part of the Questionnaire of Eating Disorders Diagnoses (Q-EDD; Mintz, O'Halloran, Mulholland, & Schneider, 1997) will be utilized to collect demographic information including gender, age, race, classification in college, present height, present weight, body frame, and ideal weight. Questions regarding whether the individual is currently in counseling for an eating disorder or ever been diagnosed with an eating disorder were added to the personal data sheet.

Questionnaire for Eating Disorders Diagnoses. The Questionnaire for Eating Disorders Diagnoses (Q-EDD; Mintz et al., 1997) consists of 50 items that assesses both frequency of individual behaviors (e.g., self-induced vomiting) and categorical typology (e.g., eating disordered and non-eating disordered). Based on decision rules, the Q-EDD places respondents into diagnostic categories which include eating disordered and non-eating disordered categories at the most basic level. The non-eating disordered category can be further broken down into asymptomatic (i.e., no eating disorder symptoms) and symptomatic categories (i.e., eating disorder symptoms but not enough for a DSM-IV

diagnosis). The eating disorder category is composed of six different diagnostic categories which include two indicating the DSM-IV diagnosis for bulimia and anorexia (which can be further broken down into DSM-IV subtypes) and four indicating the DSM-IV Eating Disorder Not Otherwise Specified (EDNOS) descriptions (i.e., subthreshold bulimia nervosa, menstruating anorexia nervosa, nonbinging bulimia nervosa, and binge-eating disorder). For the purpose of this study, respondents will be placed into three diagnostic categories: eating disordered, symptomatic, and asymptomatic.

Specific decision rules of the Q-EDD require that full diagnostic criteria be met for diagnosis of any of the six eating disorders. Respondents are classified as asymptomatic if they answer negative to all behaviors making up the DSM-IV criteria for eating disorders and to the use of strict dieting and appetite control pills as a way to control their body weight. However, asymptomatics who are grossly obese or severely underweight are looked at as "red flag" asymptomatics to indicate that they may not really be asymptomatic. Respondents are classified as symptomatic if the individual does not meet full DSM-IV criteria for an eating disorder, but on the other hand is not asymptomatic. These respondents would want to further be examined to see if they are at risk for developing an eating disorder.

The psychometric properties of the Q-EDD have been demonstrated in a variety of ways. Criterion validity for the Q-EDD has been demonstrated through a high level of agreement between Q-EDD categories and categories determined by a structured interview and in how well the Q-EDD categorized respondents into correct diagnostic criteria. Convergent validity was shown by significant agreement between the diagnoses on the Q-EDD and the scores on the revised Bulimia Test (BULIT-R; Thelen, Farmer,

Wonderlich, & Smith, 1991) and the EAT (Garner & Garfinkel, 1979). Incremental validity was examined by comparing the degree of agreement between Q-EDD diagnoses and clinical interview diagnoses, with the degree of agreement between preexisting assessment tools (e.g., BULIT-R) and diagnoses from clinical interviews (e.g., Did the Q-EDD diagnose more or less correctly that the preexisting test?). Strong support was found for the criterion validity of the Q-EDD across both the clinical interview and clinician judgment studies. Test-retest reliabilities were found to be very stable over a 2-week period of time (i.e., .94 for eating- disordered and non-eating-disordered groups; and .85 for eating-disordered, symptomatic, and asymptomatic groups) and less stable over a 1- to 3-month period of time (i.e., .64 for eating-disordered and non-eating-disordered groups; and .54 for eating-disordered, symptomatic, and asymptomatic groups). Interscorer agreement was at 100% that indicates that the scoring of the Q-EDD can be easily mastered by administrators and scorers of the instrument.

Eating Disorder Inventory-2. The Eating Disorder Inventory-2 (EDI-2; Garner, 1991) will be used to assess psychological and behavioral dimensions common in anorexia nervosa and bulimia nervosa. The EDI-2 is a 91-item, self-report measure generating scores for eight original scales (Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears) (Garner, Olmsted, & Polivy, 1983b) and three provisional scales (Impulse Regulation, Social Insecurity, and Asceticism) (Garner, 1991; Garner et al., 1983b). The EDI-2 requires respondents to rate on a 6-point continuum the extent to which each item describes them.

Reliability coefficients for the initial scale validation criterion group (AN) and

comparison group (FC) respectively are as follows: Drive for Thinness (AN = .85, FC = .85), Bulimia (AN = .90, FC = .83), Body Dissatisfaction (AN = .90, FC = .91), Ineffectiveness (AN = .90, FC = .86), Perfectionism (AN = .82, FC = .73), Interpersonal Distrust (AN = .85, FC = .76), Interoceptive Awareness (AN = .85, FC = .66), and Maturity Fears (AN = .88, FC = .76). Cronbach's alphas for the three provisional scales were as follows: Impulse Regulation (.77), Social Security (.80), and Asceticism (.70).

Evidence for criterion-related validity was indicated through a strong agreement between patients' self-report profiles and the clinical judgments of experienced clinicians familiar with characteristics of eating disorders. Due to the fact that several scales of the EDI-2 overlap conceptually with preexisting psychological tests, convergent and discriminant validity were able to be determined for subsamples of patients (e.g., anorexic attitudes on the EAT; restraint; overall body dissatisfaction; dissatisfaction with bodily regions such as the breasts, buttocks, hips, and abdomen that are associated with changes at maturation, locus of control, self-control, feelings of inadequacy, depression as measured by the BDI, physical anhedonia, and symptoms on the Hopkins Symptoms Check List). Construct validity was indicated by the congruence between clinicians' ratings and patients' subscale scores, subscales ability to differentiate between the criterion and comparison groups, and through the demonstration of convergent and discriminant validity

Beck Depression Inventory-II. The revised Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996) consists of 21 items assessing the presence and severity of depression in adults and adolescents aged 13 years and older. The BDI-II was developed for the assessment of symptoms corresponding to the criteria for diagnosing depressive

disorders listed in the *Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition* (DSM-IV; American Psychiatric Association, 1994). The BDI-II requires respondents to rate themselves along a 4-point continuum of severity for a variety of depressive symptoms. Scores may be classified as *minimal* (0-13); *mild* (14-19); *moderate* (20-28); or *severe* (29-63).

Concurrent validity of the BDI has been demonstrated in studies in which BDI scores were found to correlate significantly with clinical ratings of depression for psychiatric patients (Beck, Steer, & Garbin, 1988; Bumberry, Oliver, & McClure, 1978). The BDI-II builds on 35 years of accumulated psychometric data and clinical experience with the BDI and BDI-IA (Beck, Steer, & Garbin, 1988). The different versions of the BDI have been used in literally hundreds of published research studies as global measures of depression (Ponterotto, Pace, & Kavan, 1989), so evidence of its construct validity is extensive. The coefficient alpha of the BDI-II was .92 for the outpatient sample and .93 for the college sample, as well as a test-retest correlation of .93 (Beck, Steer, & Brown, 1996). Item-total correlations for the 21 BDI-II items ranged from .39 (Loss of Interest in Sex) to .70 (Loss of Pleasure) for the outpatient sample, and .27 (Loss of Interest in Sex) to .74 (Self-Dislike) for the college sample (Beck, Steer, & Brown, 1996).

State-Trait Anger Expression Inventory-2. The State-Trait Anger Expression Inventory-2 (STAXI-2; Spielberger, 1999) consists of 57 items assessing the experience, expression, and control of anger. The STAXI-2 requires respondents to make self-ratings along a 4-point scale. The six scales from the STAXI-2 that will be used in this study are briefly described from the manual as follows: (a) "State Anger - 'the intensity of angry

feelings and the extent to which a person feels like expressing anger at a particular time,' (b) Trait Anger - 'how often angry feelings are experienced over time and how often they feel that they are treated unfairly by others,' (c) Anger Expression-Out - 'how often angry feelings are expressed in verbally or physically aggressive behavior toward other persons or objects in the environment,' (d) Anger Expression-In - 'how often angry feelings are experienced but not expressed (suppressed),' (e) Anger Control-Out - 'how often a person controls or expends a great deal of energy in monitoring and preventing the outward experience and expression of anger (i.e., the control over external manifestations of anger),' and (f) Anger Control-In - 'how often a person attempts to control feelings or expends a great deal of energy in calming down and reducing their anger as soon as possible (i.e., the development of internal controls)'" (Spielberger, 1988).

The manual reports coefficient alphas for these scales ranging from .73 to .93. Internal consistency reliabilities for STAXI scales computed for the sample in the Newman, Gray, and Fuqua (1999) study were as follows: State Anger (.92); Trait-Anger Temperament (.89); Trait-Anger Reaction (.72); Anger-In (.79); Anger-Out (.75); and Anger-Control (.83). The empirical structure of the items seem to match the scale structure extremely well (Fuqua, Leonard, Masters, Smith, Campbell, & Fischer, 1991). Additional validity evidence can be found in positive correlations of anger scales with other measures of anger or hostility (Spielberger, 1988), the ability of anger scales to discriminate high and low anger groups (Spielberger, 1988), and the relationship of anger scores to hypertension and Type A behavior (Van der Ploeg, van Buuren, & van Brummelen, 1988 as cited in Newman et al., 1999).

Social Desirability Scale. Given the nature of the study, the impact of social

desirability on self-report measures will be examined. Social desirability will be assessed with 25 true/false items from the Marlowe-Crowne Social Desirability Scale (M-C SDS; Crowne & Marlowe, 1964). The M-C SDS has an internal consistency coefficient of .88 and a test-retest correlation of .89 (Crowne & Marlowe, 1960).

Procedures

Participants will be solicited on a voluntary basis. Following a brief description of the study and an explanation of the informed consent, participants will be given the six instruments in random order in a large manila envelope. For the purpose of confidentiality, participants will be asked to turn in the five instruments after sealing their envelopes. All participants will be treated in accordance with the ethical standards of the American Psychological Association (American Psychological Association, 1992).

Data Analysis

This study will rely exclusively on several components of descriptive and predictive discriminant analysis. Each of the four research questions will be addressed by a separate discriminant analysis procedure.

1. Is there a significant relationship between the eight original EDI scales within the EDI-2 and the three Q-EDD categories (i.e., eating disordered, symptomatic, and asymptomatic), and what is the nature of the relationship?

To address the first question, the eight original EDI scales within the EDI-2 will serve as discriminating variables and the three Q-EDD categories will serve as the classification variables.

2. Do the three provisional scales of the EDI-2 improve classification over the eight original EDI scales into the three Q-EDD categories?

To address the second question, a second discriminant analysis will be performed using the eight original EDI scales within the EDI-2 and the three provisional EDI-2 scales as discriminating variables and the three Q-EDD categories as the classification variables. Results of the first and second analysis will be compared using the canonical correlation coefficients and other discriminant results.

3. Is there a significant relationship between depression and anger dimensions and three Q-EDD categories, and what is the nature of the relationship?

To address the third question, a third discriminant analysis will be performed in which the BDI-II and the STAXI-2 scales will serve as the discriminating variables and the three Q-EDD categories as the classification variables.

4. Do the depression and anger dimensions improve classification into the three Q-EDD categories when used with the EDI-2 scales?

To address the fourth question, a discriminant analysis will be performed where the EDI-2 scales, the BDI-II, and the STAXI-2 scales will all be included jointly as discriminating variables and the three Q-EDD categories will serve as the classification variables. Results of this analysis will be compared to the analyses using the EDI-2 scales separately.

References

Abramson, L.Y., Seligman, M.E., & Teasdale, J.D. (1978). Learned helplessness in humans: Critiques and reformulation. Journal of Abnormal Psychology, 87, 49-74.

American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

American Psychological Association (1992). Ethical principles of psychologists and code of conduct. American Psychologist, 47, 1597-1611.

Beck, A.T., Steer, R.A., & Brown, G.K. (1996). Beck Depression Inventory-II professional manual. San Antonio, TX: The Psychological Corporation.

Beck, A.T., Steer, R.A., & Garbin, M.G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. Clinical Psychology Review, 8, 77-100.

Bruch, H. (1973). Eating disorders. New York: Basic Books.

Bruch, H. (1978). The golden cage: The enigma of anorexia nervosa. Cambridge, MA: Harvard University Press.

Bumberry, W., Oliver, J.M., & McClure, J.N. (1978). Validation of the Beck Depression Inventory in a university population using psychiatric estimates as the criterion. Journal of Consulting and Clinical Psychology, 46, 150-155.

Button, E.J., & Whitehouse, A. (1981). Subclinical anorexia nervosa. Psychological Medicine, 11, 509-516.

Casper, R.C. (1998). Recognizing eating disorders in women. Psychopharmacology Bulletin, 34(3), 267-269.

Clarke, M.G., & Palmer, R.L. (1983). Eating attitudes and neurotic symptoms in university students. British Journal of Psychiatry, 142, 299-304.

Clinton, D.N., & Glant, R. (1992). The eating disorders spectrum of DSM-III-R: Clinical features and psychosocial concomitants of 86 consecutive cases from a Swedish urban catchment area. Journal of Nervous and Mental Disease, 180, 244-250.

Cooper, Z., Cooper, P.J., & Fairburn, C.G. (1985). The specificity of the Eating Disorder Inventory. British Journal of Clinical Psychology, 24, 129-130.

Crago, M., Yates, A., Beutler, L.E., & Arizmendi, T.G. (1985). Height-weight ratios among female athletes: Are collegiate athletes the precursors to an anorexic symptoms? International Journal of Eating Disorders, 4, 79-87.

Crisp, A.H. (1965). Some aspects of the evolution, presentation and follow-up of anorexia nervosa. Proceedings of the Royal Society of Medicine, 58, 814-820.

Crowne, D.P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. Journal of Consulting Psychology, 24(4), 349-354.

Crowne, D.P., & Marlowe, D. (1964). The approval motive: Studies in evaluative dependence. New York: Wiley.

Crowther, J.H., Lilly, R.S., Crawford, P.A., & Shephard, K.L. (1992). The stability of the Eating Disorder Inventory. International Journal of Eating Disorders, 12(1), 97-101.

Devlin, M.J., & Walsh, B.T. (1989). Eating disorders and depression. Psychiatric Annals, 19(9), 473-476.

Drewnowski, A., Hopkns, S., & Kessler, R. (1988). The prevalence of bulimia nervosa in the US college student population. American Journal of Public Health, 78,

1322-1325.

Drewnowski, A., Yee, D.K., & Krahn, D.D. (1988). Bulimia in college women: Incidence and recovery rates. American Journal of Psychiatry, 145, 753-755.

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.

Edelstein, C.K., & Yager, J. (1992). Eating disorders and affective problems. In J. Yager, H.E. Gwirtsman, & C.K. Edelstein (Eds.), Special problems in managing eating disorders (pp. 15-50), Washington, DC: American Psychiatric Press, Inc.

Fairburn, C.G., & Beglin, S.J. (1990). Studies of the epidemiology of bulimia nervosa. American Journal of Psychiatry, 147(4), 401-408.

Fairburn, C.G., & Beglin, S.J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? International Journal of Eating Disorders, 16(4), 363-370.

Fallon, A.E., & Rozin, P. (1985). Sex differences in perceptions of desirable body shape. Journal of Abnormal Psychology, 94, 102-105.

Fava, M., Abraham, M., Clancy-Colecchi, K., Pava, J.A., Matthews, J., & Rosenbaum, J.F. (1997). Eating disorder symptomatology in major depression. The Journal of Nervous and Mental Disease, 185(3), 140-144.

Fichter, M.M., Quadflieg, N., & Brandl, B. (1993). Recurrent overeating: An empirical comparison of binge eating disorder, bulimia nervosa, and obesity. International Journal of Eating Disorders, 14, 1-16.

Franko, D.L. (1998). Secondary prevention of eating disorders in college women at risk. Eating Disorders, 6, 29-40.

Fries, H. (1977). Studies on secondary amenorrhea, anorectic behavior and body image perception: Importance for the early recognition of anorexia nervosa. In R. Vigersky (Ed.), Anorexia nervosa (pp163-176). New York: Raven.

Fuqua, D.R., Leonard, E., Masters, M.A., Smith, R.J., Campbell, J.L., & Fischer, P.C. (1991). A structural analysis of the State-Trait Anger Expression Inventory. Educational and Psychological Measurement, 51, 439-446.

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

Garfinkel, P.E., Kennedy, S.H., Kaplan, A.S. (1995). Views on classification and diagnosis of eating disorders. Canadian Journal of Psychiatry, 40, 445-456.

Garner, D.M. (1991). Eating Disorder Inventory-2 professional manual. Odessa, FL: Psychological Assessment Resources, Inc.

Garner, D.M., & Garfinkel, P.E. (1979). The Eating Attitudes Test: An index of the symptoms of anorexia nervosa. Psychological Medicine, 9, 273-279.

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

Garner, D.M., Garfinkel, P.E., Bemis, K.M. (1982). A multidimensional psychotherapy for anorexia nervosa. International Journal of Eating Disorders, 1, 3-64.

Garner, D.M., Garfinkel, P.E., Rockert, W., & Olmsted, M.P. (1987). A prospective study of eating disturbances in the ballet. Psychotherapy and Psychosomatics, 48, 170-175.

Garner, D.M., Garfinkel, P.E., Schwartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. Psychological Reports, 47, 483-491.

Garner, D.M, Olmsted, M.P., & Garfinkel, P.E. (1983a). Does anorexia nervosa exist 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., Olmsted, M.P., & Polivy, J. (1983b). Development and validation of a multi-dimensional Eating Disorder Inventory for anorexia nervosa and bulimia. International Journal of Eating Disorders, 2, 15-34.

Garner, D.M., Olmsted, M.P., Polivy, J., & Garfinkel, P.E. (1984). Comparison between weight-preoccupied women and anorexia nervosa. Psychosomatic Medicine, 46, 255-266.

Garner, D.M., Rockert, W., Olmsted, M.P, Johnson, C., & Coscina, D.V. (1985). Psychoeducational principles in the treatment of bulimia and anorexia nervosa. In D.M. Garner & P.E. Garfinkel (Eds.), Handbook of psychotherapy for anorexia nervosa and bulimia (pp. 513-572). New York: Guilford Press.

Goldberg, D.P., & Hillier, V.F. (1979). A scaled version of the General Health Questionnaire. Psychological Medicine, 9, 139-145.

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

Hall, A., & Hay, P.J. (1991). Eating disorder patient referrals from a population region 1977-1986. Psychological Medicine, 21, 697-701.

Heffernan, K. (1995). Assessment of eating disorders. Journal of Mental Health, 4(5), 443-450.

Herman, C.P., & Polivy, J. (1984). A boundary model for the regulation of eating. In A.J. Stunkard & E. Stellar (Eds.), Eating and its disorders (pp. 141-156). New York: Raven.

Herzog, D.B. (1984). Are anorexic and bulimic patients depressed? American Journal of Psychiatry, 141, 1594-1597.

Herzog, D.B., & Copeland, P. (1985). Eating disorders. New England Journal of Medicine, 313, 295-303.

Herzog, D.B., Hopkins, J.D., & Burns, C.D. (1993). A follow-up study of 33 subdiagnostic eating disordered women. International Journal of Eating Disorders, 14, 355-361.

Hesse-Biber, S. (1992). Report on a panel longitudinal study of college women's eating patterns and eating disorders: Noncontinuum versus continuum measures. Health Care for Women International, 13, 375-391.

Hill, A.J. (1993). Preadolescent dieting: Implications for eating disorders. International Review of Psychiatry, 5, 87-100.

Hudson, J., Laffer, P., & Pope, H. (1982). Bulimia related to affective disorder by family history and response to dexamethasone suppression test. American Journal of Psychiatry, 139, 685-687.

Jacobovits, C., Halstead, P., Kelley, L., Roe, D.A., & Young, C.M. (1977). Eating habits and nutrient intakes of college women over a thirty year period. Journal of the American Dietetic Association, 77, 405-411.

Joiner, T.E., & Heatherton, T.F. (1998). First- and second-order factor structure of five subscales of the Eating Disorder Inventory. International Journal of Eating Disorders, 23, 189-198.

Kalodner, C.R., & Scarano, G.M. (1992). A continuum of nonclinical eating disorders: A review of behavioral and psychological correlates and suggestions for intervention. Journal of Mental Health Counseling, 14(1), 30-41.

Keys, A., Brozek, J., Henschel, A., Mickelson, O., & Taylor, H.L. (1950). The biology of human starvation. Minneapolis, MN: University of Minnesota Press.

Killen, J.D., Hayward, C., Wilson, D.M., Taylor, C.B., Hammer, L.D., Litt, I., Simmonds, B., & Haydel, F. (1994). Factors associated with eating disorder symptoms in a community sample of 6th and 7th grade girls. International Journal of Eating Disorders, 15(4), 357-367.

Klesges, R.C., Mizes, J.S., & Klesges, L.M. (1987). Self-help dieting strategies in college males and females. International Journal of Eating Disorders, 6(3), 409-417.

Kopper, B.A. (1993). Role of gender, sex role identity, and Type A behavior in anger expression and mental health functioning. Journal of Counseling Psychology, 40(2), 232-237.

Kopper, B.A., & Epperson, D.L. (1996). The experience and expression of anger: Relationships with gender, gender role socialization, depression, and mental health functioning. Journal of Counseling Psychology, 43, 158-165.

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.

Leung, F., Geller, J., & Katzman, M. (1996). Issues and concerns associated with different risk models for eating disorders. International Journal of Eating Disorders, 19(3), 249-256.

Levine, M.P., & Smolak, L. (1996). Media as a context for the development of disordered eating. In L. Smolak, M.P. Levine, & R.H. Striegel-Moore (Eds.), The developmental psychopathology of eating disorders: Implications for research, prevention, and treatment (pp. 235-237). Mahwah, NJ: Lawrence Erlbaum Associates.

Lowenkopf, E.L. (1982). Anorexia nervosa: Some nosological considerations. Comprehensive Psychiatry, 23(3), 233-240.

Mann, T., Nolen-Hoeksema, S., Huang, K., Burgard, D., Wright, A., & Hanson, K. (1997). Are two interventions worse than none? Joint primary and secondary prevention of eating disorders in college females. Health Psychology, 16(3), 215-225.

Matto, H.C. (1997). An integrative approach to the treatment of women with eating disorders. The Arts in Psychotherapy, 24(4), 347-354.

McCarthy, M. (1990). The thin ideal, depression and eating disorders in women. Behaviour Research and Therapy, 28(3), 205-215.

McCaulay, M., Mintz, L.B., & Glenn, A.A. (1988). Body image, self-esteem, and depression proneness: Closing the gender gap. Sex Roles, 18, 381-391.

Mintz, L.B., & Betz, N.E. (1988). Prevalence and correlates of eating disordered behavior among undergraduate women. Journal of Counseling Psychology, 35(4), 463-471.

Mintz, L.B., O'Halloran, M.S., Mulholland, A.M., & Schneider, P.A. (1997). Questionnaire for eating disorder diagnoses: Reliability and validity of operationalizing DSM-IV criteria into a self-report format. Journal of Counseling Psychology, 44(1), 63-79.

Newman, J.L., Gray, E.A., & Fuqua, D.R. (1999). Sex differences in the

relationship of anger and depression: An empirical study. Journal of Counseling and Development, 77, 198-203.

Nolen-Hoeksema, S. (1978). Sex differences in unipolor depression: Evidence and theory. Psychological Bulletin, 101, 259-282.

Noles, S.W., Cash, T.F., & Winstead, B.A. (1985). Body image, physical attractiveness, and depression. Journal of Consulting and Clinical Psychology, 53, 88-94.

Nylander, J. (1971). The feeling of being fat and dieting in a school population: Epidemiologic interview investigation. Acta Sociomedica Scandinavica, 3, 17-26.

Palmer, R.L. (1979). The dietary chaos syndrome: A useful new term? British Journal of Medical Psychology, 52, 187-190.

Patton, G.C. (1988). The spectrum of eating disorders in adolescence. Journal of Psychosomatic Research, 32, 579-584.

Patton, G.C. (1992). Eating disorders: Antecedents, evolution and course. Annals of Medicine, 24, 281-285.

Patton, G.C., Johnson-Sabine, E., Wood, K., Mann, A.H., & Wakeling, A. (1990). Abnormal eating attitudes in London schoolgirls: A prospective epidemiological study, outcome at twelve month follow-up. Psychological Medicine, 20, 383-394.

Piran, N. (1997). Prevention of eating disorders: Directions for future research. Psychopharmacology Bulletin, 33(3), 419-423.

Polivy, J., Garner, D.M., & Garfinkel, P.E. (1986). Causes and consequences of the current preference for thin female physiques. In C.P. Herman, M.P. Zanna, & E.T. Higgins (Eds.), Physical appearance, stigma, and social behavior: The third Ontario symposium in personality and social psychology, (pp. 89-112). Hillsdale, NJ: Erlbaum.

Polivy, J., & Herman, C.P. (1985). Dieting and binging. American Psychologist, 40, 193-210.

Polivy, J., & Herman, C.P. (1987). Diagnosis and treatment of normal eating. Journal of Consulting and Clinical Psychology, 55(5), 635-644.

Ponterotto, J.G., Pace, T.M., & Kavan, M.G. (1989). A counselors guide to the assessment of depression. Journal of Counseling and Development, 67, 301-309.

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(4), 631-647.

Riley, W.T., Treiber, F.A., & Woods, M.G. (1989). Anger and hostility in depression. The Journal of Nervous and Mental Disease, 177(11), 668-674.

Rodin, J., Silberstein, L.R., & Streigel-Moore, R.H. (1985). Women and weight: A normative discontent. In T.B. Sonderegger (Ed.), Nebraska symposium on motivation: Vol. 32. psychology and gender (pp. 267-307). Lincoln: University of Nebraska Press.

Rolls, B.J., Fedoroff, I.C., & Guthrie, J.F. (1991). Gender differences in eating behavior and body weight regulation. Health Psychology, 10(2), 133-142.

Rozin, P., & Fallon, A. (1988). Body image, attitudes to weight and misperceptions of figure preferences of the opposite sex: A comparison of men and women in two generations. Journal of Abnormal Psychology, 97, 342-345.

Scarano, G.M., & Kalodner-Martin, C.R. (1994). A description of the continuum of eating disorders: Implications for intervention and research. Journal of Counseling and Development, 72, 356-361.

Schotte, D., & Stunkard, A. (1987). Bulimia vs. bulimic behaviors on a college

campus. Journal of the American Medical Association, 258, 1213-1215.

Selvini-Palazzoli, M. (1978). Self-starvation: From individuation to family therapy in the treatment of anorexia nervosa. New York: Aronson.

Sharkin, B.S. (1993). Anger and gender: Theory, research, and implications. Journal of Counseling and Development, 71, 386-389.

Sharkin, B.S. (1996). Understanding anger: Comment on Deffenbacher, Oetting, et al. (1996), Deffenbacher, Lynch, et al. (1996), and Kopper and Epperson (1996). Journal of Counseling Psychology, 43, 166-169.

Shisslak, C.M., Crago, M., & Estes, L.S. (1995). The spectrum of eating disturbances. International Journal of Eating Disorders, 18(3), 209-219.

Silverstein, B., Peterson, B., & Perdue, L. (1986). Some correlates of the thin standard of bodily attractiveness for women. International Journal of Eating Disorders, 5(5), 895-905.

Spielberger, C.D. (1988). State-Trait Anger Expression Inventory. Orlando, FL: Psychological Assessment Resources.

Spielberger, C.D. (1999). State-Trait Anger Expression Inventory-2. Orlando, FL: Psychological Assessment Resources.

Striegel-Moore, R.H., McAvay, G., & Rodin, J. (1986). Psychological and behavioral correlates of feeling fat in women. International Journal of Eating Disorders, 5(5), 935-947.

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(5), 499-509.

Striegel-Moore, R.H., Silberstein, L.R., & Rodin, J. (1986). Toward an understanding of risk factors for bulimia. American Psychologist, 41, 246-263.

Swift, W.J., Andrews, D., Barklage, N.E. (1986). The relationship between affective disorders and eating disorders: A review of the literature. American Journal of Psychiatry, 143, 290-299.

Thelen, M.H., Farmer, J., Wonderlich, S., & Smith, M. (1991). A revision of the Bulimia Test: The BULIT-R. Psychological Assessment: A Journal of Consulting and Clinical Psychology, 8, 119-124.

Vervaet, M., van Heeringen, C., & Jannes, C. (1998). Weight concerns and eating patterns in schoolboys and girls. Eating Disorders, 6, 41-50.

Wear, R.W., & Pratz, O. (1987). Test-retest reliability for the Eating Disorder Inventory. International Journal of Eating Disorders, 6(6), 767-769.

Williamson, D.A. (1990). Assessment of eating disorders: Obesity, anorexia, and bulimia- nervosa. New York: Pergamon Press.

Williamson, D.A., Anderson, D., Jackman, L.P., & Jackson, S.R. (1995). Assessment of eating disordered thoughts, feelings, and behaviors. In D. Allison (Ed.), Handbook of assessment methods for eating behaviors and weight-related problems (pp. 303-346). Thousand Oaks, CA: Sage Publication, Inc.

Williamson, D.A., Gleaves, D.H., & Savin, S.S. (1992). Empirical classification of eating disorder not otherwise specified: Support for DSM-IV changes. Journal of Psychopathology and Behavioral Assessment, 14, 201-216.

Williamson, D.A., Kelley, M.L., Davis, C.J., Ruggiero, L., & Blouin, D.C. (1985). Psychopathology of eating disorders: A controlled comparison of bulimic, obese,

and normal subjects. Journal of Consulting and Clinical Psychology, 53, 161-166.

Worthington-Roberts, B. (1995). Mental health. In C.I. Fogel & N.R. Woods (Eds.) Women's health care: A comprehensive handbook (pp. 221-260). Thousand Oaks, CA: Sage Publications, Inc.

Yager, J., Landsverk, J., & Edelstein, C.K. (1987). A twenty-month follow-up study of 628 women with eating disorders. I. Course and severity. American Journal of Psychiatry, 144, 1172-1177.

APPENDIX B

CONSENT FORM

INFORMED CONSENT

Research conducted under the auspices of the
University of Oklahoma - Norman Campus

Psychological Dimensions Related To Categories of Symptomatic, Asymptomatic, and Eating Disordered College Women

You are being asked to participate in a study examining women's attitudes and behaviors towards food. This study is being conducted by Doctoral Student Lisa Petersen and Professor Jody L. Newman in the Department of Educational Psychology.

If you choose to participate in this study you will be asked to complete several questionnaires asking you about yourself. There are no right or wrong answers. An administrator will be available to answer any questions you might have regarding the instruments. Participants are expected to read instructions carefully and answer all items before departure. The expected duration of the study is approximately 1 hour.

There may be risks associated with participation in this research. Please contact Goddard Counseling Services at 325-4611 or the OU Counseling Psychology Clinic at 325-2914 for questions or concerns that may arise from participation. The benefit to you is that participation will fulfill one departmental research requirement. Your participation in this study is voluntary. There will be no penalty should you decide not to participate. Additionally, should you change your mind about participating once you have begun, you may withdraw at any point. If you choose to withdraw from the study you may not receive research credit.

Your written responses will be treated confidentially. Your signed consent form will not be attached to your questionnaire. You should not put your name or any other identifying information on the instruments. At no time will your name be made public. Only summary data for the entire pool of participants will be reported. If you have any questions regarding the research project please contact either Lisa Petersen at 325-2914 or Jody L. Newman at 325-5974. If you have questions regarding your rights as a research participant please contact the office of Research Administration at 325-4757.

I hereby consent to participate in the study described above.

_____ _____

Signature Date

APPENDIX C

QUESTIONNAIRE OF EATING DISORDERS DIAGNOSIS

Q-EDD

Please complete the following questions as honestly as possible. The questions refer to current behaviors and beliefs, meaning those that have occurred in the past 3 months.

Gender: (please circle) Male Female

Age: _____

School Status: (please circle)
College:
Freshmen
Sophomore
Junior
Senior

Race/Ethnicity: (please circle)
Caucasian/White
African-American/Black
Hispanic/Latino/Mexican-American
American Indian
Asian-American/Pacific Islander
Other: _____ (specify)

Present Height: _____ feet _____ inches

Present Weight: _____ pounds

My body-frame is: (please circle) small medium large

I would like to weigh _____ pounds

Have you ever been diagnosed with an eating disorder? (please circle) Yes No

Are you currently in counseling for an eating disorder? (please circle) Yes No

1. **Do you experience episodes of binge eating, meaning eating in a discrete period of time (e.g., within any 2-hour period) an amount of food that is definitely larger than most people would eat during a similar time period?**

   YES NO

   If YES: Continue to answer the following questions

   If NO: Skip to Question #4 (on the next page)

2. **Do you have a sense of lack of control during the binge eating episodes (i.e., the feeling that you cannot stop eating or control what or how much you are eating)?**

   YES NO

3. ***Circle the answer within the TWO sets of [BOLD BRACKETS] below that best fit for you:***

   On the average, I have had **[1 – 2 – 3 – 4 – 5 – 6 – or more]** binge eating episodes a WEEK for at least **[1 month – 2 months – 3 months – 4 months – 5 months – 6-12 months – more than 1 year]**.

Please circle the appropriate responses below concerning things you may do **currently** to prevent weight gain. If you circle yes to any question, please indicate how often on average you do this and how long you have been doing this.

4. a) **Do you make yourself vomit to prevent weight gain?** YES NO
How often do you do this?
Daily Twice/Week Once/Week Once/Month
How long have you been doing this?
1 month - 2 months - 3 months - 4 months - 5-11 months - More than a year

b) **Do you take laxatives to prevent weight gain?** YES NO
How often do you do this?
Daily Twice/Week Once/Week Once/Month
How long have you been doing this?
1 month - 2 months - 3 months - 4 months - 5-11 months - More than a year

c) **Do you take diuretics (water pills) to prevent weight gain?** YES NO
How often do you do this?
Daily Twice/Week Once/Week Once/Month
How long have you been doing this?
1 month - 2 months - 3 months - 4 months - 5-11 months - More than a year

d) **Do you fast (skip food for 24 hours) to prevent weight gain?** YES NO
How often do you do this?
Daily Twice/Week Once/Week Once/Month
How long have you been doing this?
1 month - 2 months - 3 months - 4 months - 5-11 months - More than a year

e) **Do you chew food but spit it out to prevent weight gain?** YES NO
How often do you do this?
Daily Twice/Week Once/Week Once/Month
How long have you been doing this?
1 month - 2 months - 3 months - 4 months - 5-11 months - More than a year

f) **Do you give yourself an enema to prevent weight gain?** YES NO
How often do you do this?
Daily Twice/Week Once/Week Once/Month
How long have you been doing this?
1 month - 2 months - 3 months - 4 months - 5-11 months - More than a year

g) **Do you take appetite control pills to prevent weight gain?** YES NO
How often do you do this?
Daily Twice/Week Once/Week Once/Month
How long have you been doing this?
1 month - 2 months - 3 months - 4 months - 5-11 months - More than a year

h) **Do you diet strictly to prevent weight gain?** YES NO
How often do you do this?
Daily Twice/Week Once/Week Once/Month
How long have you been doing this?
1 month - 2 months - 3 months - 4 months - 5-11 months - More than a year

i) **Do you exercise a lot?** YES NO
How often do you do this?
Daily Twice/Week Once/Week Once/Month
How long have you been doing this?
1 month - 2 months - 3 months - 4 months - 5-11 months - More than a year

If you answered YES to "exercise a lot," please answer questions **#5a, 5b, 5c, & 5d**. If you answered NO to "exercise a lot," skip to question **#6**

5. a) **Fill in the blanks below:**

I _____ (types of exercise, e.g., jog, swim) for an average of

_____ hours at a time.

b) **My exercise sometimes significantly interferes with important activities.**

YES NO

c) **I exercise despite injury and/or medical complications.**

YES NO

d) **Is your primary reason for exercising to counteract the effects of binges or to prevent weight gain?**

YES NO

For the following questions, circle the response that best reflects your answer:

6. **Does your weight and/or body shape influence how you feel about yourself?**

1	2	3	4	5
Not at all	A little	A moderate amount	Very much	Extremely or Completely

7. **Are you afraid of becoming fat?**

1	2	3	4	5
Not at all	A little	A moderate amount	Very much	Extremely or Completely

8. **How afraid of gaining weight are you?**

1	2	3	4	5
Not at all	A little	A moderate amount	Very much	Extremely or Completely

9. **Do you consider yourself to be:**

1	2	3	4	5	6
Grossly obese	Moderately obese	Overweight	Normal weight	Low weight	Severely underweight

10. **Certain parts of my body (e.g., my abdomen, buttocks, thighs) are too fat.**

YES NO

11. **I feel fat all over.**

YES NO

12. **I believe that how little I weigh is a serious problem.**

YES NO

13. **I have missed at least 3 consecutive menstrual cycles (not including those missed during pregnancy).**

YES NO

APPENDIX D

EATING DISORDER INVENTORY – SECOND EDITION

ITEM BOOKLET

EDI-2 ITEM BOOKLET

David M. Garner, Ph.D.

DIRECTIONS

Enter your name, the date, your age, sex, marital status, and occupation. Complete the questions on the rest of this page. Then turn to the inside of the booklet and carefully follow the instructions.

Name _____ Date _____

*Age _____ Sex _____ Marital status _____ Occupation _____

A. *Current weight: _____ pounds

B. *Height: _____ feet _____ inches

C. Highest past weight excluding pregnancy: _____ pounds

How long ago did you first reach this weight? _____ months

How long did you weigh this weight? _____ months

D. *Lowest weight as an adult: _____ pounds

How long ago did you first reach this weight? _____ months

How long did you weigh this weight? _____ months

E. What weight have you been at for the longest period of time? _____ pounds

At what age did you first reach this weight? _____ years old

F. If your weight has changed a lot over the years, is there a weight that you keep coming back to when you are not dieting? ___ Yes ___ No

If yes, what is this weight? _____ pounds

At what age did you first reach this weight? _____ years old

G. What is the most weight you have ever lost? _____ pounds

Did you lose this weight on purpose? ___ Yes ___ No

What weight did you lose to? _____ pounds

At what age did you reach this weight? _____ years old

H. What do you think your weight would be if you did not consciously try to control your weight? _____ pounds

I. How much would you like to weigh? _____ pounds

J. Age at which weight problems began (if any): _____ years old

K. Father's occupation: _____

L. Mother's occupation: _____

PAR Psychological Assessment Resources, Inc.
P.O. Box 998/Odessa, Florida 33556/Toll-Free 1-800-331-TEST

Copyright © 1984, 1991 by Psychological Assessment Resources, Inc. All rights reserved. May not be reproduced in whole or in part in any form or by any means without written permission of Psychological Assessment Resources, Inc. Contains the original EDI scales developed by Garner, Olmsted, and Polivy (1984)

9 8 7 6 5 This form is printed in blue ink on white paper. Any other version is unauthorized. Reorder #1761-TB Printed in the U.S.A.

INSTRUCTIONS

First, write your name and the date on your EDI-2 Answer Sheet. Your ratings on the items below will be made on the EDI-2 Answer Sheet. The items ask about your attitudes, feelings, and behavior. Some of the items relate to food or eating. Other items ask about your feelings about yourself.

For each item, decide if the item is true about you ALWAYS (A), USUALLY (U), OFTEN (O), SOMETIMES (S), RARELY (R), or NEVER (N). Circle the letter that corresponds to your rating on the EDI-2 Answer Sheet. For example, if your rating for an item is OFTEN, you would circle the O for that item on the Answer Sheet.

Respond to all of the items, making sure that you circle the letter for the rating that is true about you. DO NOT ERASE! If you need to change an answer, make an "X" through the incorrect letter and then circle the correct one.

---

1. I eat sweets and carbohydrates without feeling nervous.
2. I think that my stomach is too big.
3. I wish that I could return to the security of childhood.
4. I eat when I am upset.
5. I stuff myself with food.
6. I wish that I could be younger.
7. I think about dieting.
8. I get frightened when my feelings are too strong.
9. I think that my thighs are too large.
10. I feel ineffective as a person.
11. I feel extremely guilty after overeating.
12. I think that my stomach is just the right size.
13. Only outstanding performance is good enough in my family.
14. The happiest time in life is when you are a child.
15. I am open about my feelings.
16. I am terrified of gaining weight.
17. I trust others.
18. I feel alone in the world.
19. I feel satisfied with the shape of my body.
20. I feel generally in control of things in my life.
21. I get confused about what emotion I am feeling.
22. I would rather be an adult than a child.
23. I can communicate with others easily.
24. I wish I were someone else.
25. I exaggerate or magnify the importance of weight.
26. I can clearly identify what emotion I am feeling.
27. I feel inadequate.
28. I have gone on eating binges where I felt that I could not stop.
29. As a child, I tried very hard to avoid disappointing my parents and teachers.
30. I have close relationships.
31. I like the shape of my buttocks.
32. I am preoccupied with the desire to be thinner.
33. I don't know what's going on inside me.
34. I have trouble expressing my emotions to others.
35. The demands of adulthood are too great.
36. I hate being less than best at things.
37. I feel secure about myself.

38. I think about bingeing (overeating).
39. I feel happy that I am not a child anymore.
40. I get confused as to whether or not I am hungry.
41. I have a low opinion of myself.
42. I feel that I can achieve my standards.
43. My parents have expected excellence of me.
44. I worry that my feelings will get out of control.
45. I think my hips are too big.
46. I eat moderately in front of others and stuff myself when they're gone.
47. I feel bloated after eating a normal meal.
48. I feel that people are happiest when they are children.
49. If I gain a pound, I worry that I will keep gaining.
50. I feel that I am a worthwhile person.
51. When I am upset, I don't know if I am sad, frightened, or angry.
52. I feel that I must do things perfectly or not do them at all.
53. I have the thought of trying to vomit in order to lose weight.
54. I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close).
55. I think that my thighs are just the right size.
56. I feel empty inside (emotionally).
57. I can talk about personal thoughts or feelings.
58. The best years of your life are when you become an adult.
59. I think my buttocks are too large.
60. I have feelings I can't quite identify.
61. I eat or drink in secrecy.
62. I think that my hips are just the right size.
63. I have extremely high goals.
64. When I am upset, I worry that I will start eating.
65. People I really like end up disappointing me.
66. I am ashamed of my human weaknesses.
67. Other people would say that I am emotionally unstable.
68. I would like to be in total control of my bodily urges.
69. I feel relaxed in most group situations.
70. I say things impulsively that I regret having said.
71. I go out of my way to experience pleasure.
72. I have to be careful of my tendency to abuse drugs.
73. I am outgoing with most people.
74. I feel trapped in relationships.
75. Self-denial makes me feel stronger spiritually.
76. People understand my real problems.
77. I can't get strange thoughts out of my head.
78. Eating for pleasure is a sign of moral weakness.
79. I am prone to outbursts of anger or rage.
80. I feel that people give me the credit I deserve.
81. I have to be careful of my tendency to abuse alcohol.
82. I believe that relaxing is simply a waste of time.
83. Others would say that I get irritated easily.
84. I feel like I am losing out everywhere.

(Continued)

85. I experience marked mood shifts
86. I am embarrassed by my bodily urges.
87. I would rather spend time by myself than with others.
88. Suffering makes you a better person.
89. I know that people love me.
90. I feel like I *must hurt myself* or others
91. I feel that I really know who I am.

Additional copies available from:
PAR Psychological Assessment Resources, Inc.
P.O. Box 998/Odessa, Florida 33556/Toll-Free 1-800-331-TEST

APPENDIX E

BECK DEPRESSION INVENTORY – SECOND EDITION

BDI-II

Name: _____ Marital Status: _____ Age: _____ Sex: _____

Occupation: _____ Education: _____

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness

0 I do not feel sad.
1 I feel sad much of the time.
2 I am sad all the time.
3 I am so sad or unhappy that I can't stand it.

2. Pessimism

0 I am not discouraged about my future.
1 I feel more discouraged about my future than I used to be.
2 I do not expect things to work out for me.
3 I feel my future is hopeless and will only get worse.

3. Past Failure

0 I do not feel like a failure.
1 I have failed more than I should have.
2 As I look back, I see a lot of failures.
3 I feel I am a total failure as a person.

4. Loss of Pleasure

0 I get as much pleasure as I ever did from the things I enjoy.
1 I don't enjoy things as much as I used to.
2 I get very little pleasure from the things I used to enjoy.
3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

0 I don't feel particularly guilty.
1 I feel guilty over many things I have done or should have done.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.

6. Punishment Feelings

0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.

7. Self-Dislike

0 I feel the same about myself as ever.
1 I have lost confidence in myself.
2 I am disappointed in myself.
3 I dislike myself.

8. Self-Criticalness

0 I don't criticize or blame myself more than usual.
1 I am more critical of myself than I used to be.
2 I criticize myself for all of my faults.
3 I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10. Crying

0 I don't cry anymore than I used to.
1 I cry more than I used to.
2 I cry over every little thing.
3 I feel like crying, but I can't.

_____ Subtotal Page 1

Continued on Back

THE PSYCHOLOGICAL CORPORATION®
Harcourt Brace & Company
SAN ANTONIO
Orlando • Boston • New York • Chicago • San Francisco • Atlanta • Dallas
San Diego • Philadelphia • Austin • Fort Worth • Toronto • London • Sydney

Copyright © 1996 by Aaron T. Beck
All rights reserved. Printed in the United States of America.

0154018392

11. Agitation

0 I am no more restless or wound up than usual.

1 I feel more restless or wound up than usual.

2 I am so restless or agitated that it's hard to stay still.

3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

0 I have not lost interest in other people or activities.

1 I am less interested in other people or things than before.

2 I have lost most of my interest in other people or things.

3 It's hard to get interested in anything.

13. Indecisiveness

0 I make decisions about as well as ever.

1 I find it more difficult to make decisions than usual.

2 I have much greater difficulty in making decisions than I used to.

3 I have trouble making any decisions.

14. Worthlessness

0 I do not feel I am worthless.

1 I don't consider myself as worthwhile and useful as I used to.

2 I feel more worthless as compared to other people.

3 I feel utterly worthless.

15. Loss of Energy

0 I have as much energy as ever.

1 I have less energy than I used to have.

2 I don't have enough energy to do very much.

3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

0 I have not experienced any change in my sleeping pattern.

1a I sleep somewhat more than usual.

1b I sleep somewhat less than usual.

2a I sleep a lot more than usual.

2b I sleep a lot less than usual.

3a I sleep most of the day.

3b I wake up 1–2 hours early and can't get back to sleep.

17. Irritability

0 I am no more irritable than usual.

1 I am more irritable than usual.

2 I am much more irritable than usual.

3 I am irritable all the time.

18. Changes in Appetite

0 I have not experienced any change in my appetite.

1a My appetite is somewhat less than usual.

1b My appetite is somewhat greater than usual.

2a My appetite is much less than before.

2b My appetite is much greater than usual.

3a I have no appetite at all.

3b I crave food all the time.

19. Concentration Difficulty

0 I can concentrate as well as ever.

1 I can't concentrate as well as usual.

2 It's hard to keep my mind on anything for very long.

3 I find I can't concentrate on anything.

20. Tiredness or Fatigue

0 I am no more tired or fatigued than usual.

1 I get more tired or fatigued more easily than usual.

2 I am too tired or fatigued to do a lot of the things I used to do.

3 I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

0 I have not noticed any recent change in my interest in sex.

1 I am less interested in sex than I used to be.

2 I am much less interested in sex now.

3 I have lost interest in sex completely.

7 8 9 10 11 12 A B C D E

NOTICE: [illegible]

____ Subtotal Page 2

____ Subtotal Page 1

____ Total Score

APPENDIX F

STATE – TRAIT ANGER EXPRESSION INVENTORY – SECOND EDITION

ITEM BOOKLET

STAXI-2™

Item Booklet (Form HS)

Instructions

In addition to this Item Booklet you should have a STAXI-2 Rating Sheet. Before beginning, enter your name, gender, and age; today's date; years of education completed, your marital status, and your occupation in the spaces provided at the top of the STAXI-2 Rating Sheet.

This booklet is divided into three Parts. Each Part contains a number of statements that people use to describe their feelings and behavior. Please note that each Part has *different* directions. Carefully read the directions for each Part before recording your responses on the Rating Sheet.

There are no right or wrong answers. In responding to each statement, give the answer that describes you best. DO NOT ERASE! If you need to change your answer, mark an "X" through the incorrect response and then fill in the correct one.

Examples

1. ① ✗ ● ④
2. ① ● ③ ④

PAR Psychological Assessment Resources, Inc./P.O. Box 998/Odessa, FL 33556/Toll-Free 1.800.331.TEST www.parinc.com

Copyright © 1979, 1984, 1988, 1995, 1998, 1999 by Psychological Assessment Resources, Inc. All rights reserved. May not be reproduced in whole or in part in any form or by any means without written permission of Psychological Assessment Resources, Inc. This form is printed in blue ink on white paper. Any other version is unauthorized.

9 8 7 6 5 4 3 2 Reorder #RO-4352 Printed in the U.S.A.

Part 1 Directions

A number of statements that people use to describe themselves are given below. Read each statement and then blacken the appropriate circle on the Rating Sheet to indicate how you feel *right now*. There are no right or wrong answers. Do not spend too much time on any one statement. Mark the answer that *best* describes your *present feelings*.

Fill in ① for *Not at all*	Fill in ② for *Somewhat*	Fill in ③ for *Moderately so*	Fill in ④ for *Very much so*

How I Feel Right Now

1. I am furious
2. I feel irritated
3. I feel angry
4. I feel like yelling at somebody
5. I feel like breaking things
6. I am mad
7. I feel like banging on the table
8. I feel like hitting someone
9. I feel like swearing
10. I feel annoyed
11. I feel like kicking somebody
12. I feel like cursing out loud
13. I feel like screaming
14. I feel like pounding somebody
15. I feel like shouting out loud

Part 2 Directions

Read each of the following statements that people have used to describe themselves, and then blacken the appropriate circle to indicate how you *generally* feel or react. There are no right or wrong answers. Do not spend too much time on any one statement. Mark the answer that *best* describes how you *generally* feel or react.

Fill in ① for *Almost never*	Fill in ② for *Sometimes*	Fill in ③ for *Often*	Fill in ④ for *Almost always*

How I Generally Feel

16. I am quick tempered
17. I have a fiery temper
18. I am a hotheaded person
19. I get angry when I'm slowed down by others' mistakes
20. I feel annoyed when I am not given recognition for doing good work
21. I fly off the handle
22. When I get mad, I say nasty things
23. It makes me furious when I am criticized in front of others
24. When I get frustrated, I feel like hitting someone
25. I feel infuriated when I do a good job and get a poor evaluation

Part 3 Directions

Everyone feels angry or furious from time to time, but people differ in the ways that they react when they are angry. A number of statements are listed below which people use to describe their reactions when they feel *angry* or *furious*. Read each statement and then blacken the appropriate circle to indicate how *often* you *generally* react or behave in the manner described when you are feeling angry or furious. There are no right or wrong answers. Do not spend too much time on any one statement.

Fill in ① for *Almost never*	Fill in ② for *Sometimes*	Fill in ③ for *Often*	Fill in ④ for *Almost always*

How I Generally React or Behave When Angry or Furious...

26. I control my temper
27. I express my anger
28. I take a deep breath and relax
29. I keep things in
30. I am patient with others
31. If someone annoys me, I'm apt to tell him or her how I feel
32. I try to calm myself as soon as possible
33. I pout or sulk
34. I control my urge to express my angry feelings
35. I lose my temper
36. I try to simmer down
37. I withdraw from people
38. I keep my cool
39. I make sarcastic remarks to others
40. I try to soothe my angry feelings
41. I boil inside, but I don't show it
42. I control my behavior
43. I do things like slam doors
44. I endeavor to become calm again
45. I tend to harbor grudges that I don't tell anyone about
46. I can stop myself from losing my temper
47. I argue with others
48. I reduce my anger as soon as possible
49. I am secretly quite critical of others
50. I try to be tolerant and understanding
51. I strike out at whatever infuriates me
52. I do something relaxing to calm down
53. I am angrier than I am willing to admit
54. I control my angry feelings
55. I say nasty things
56. I try to relax
57. I'm irritated a great deal more than people are aware of

APPENDIX G

SOCIAL DESIRABILITY SCALE

ID# _____

SDS

BELOW ARE A NUMBER OF STATEMENTS CONCERNING PERSONAL ATTRIBUTES AND TRAITS. READ EACH ITEM AND DECIDE WHETHER THE STATEMENT IS TRUE OR FALSE AS IT PERTAINS TO YOU PERSONALLY.

T	F	1.	I never hesitate to go out of my way to help someone in trouble.
T	F	2.	It is sometimes hard for me to go on with my work if I am not encouraged.
T	F	3.	I have never intensely disliked anyone.
T	F	4.	On occasion I have had my doubts about my ability to succeed in life.
T	F	5.	I sometimes feel resentful when I don't get my way.
T	F	6.	I like to gossip at times.
T	F	7.	There have been times when I felt like rebelling against people in authority even though I knew they were right.
T	F	8.	No matter who I'm talking to, I'm always a good listener.
T	F	9	I can remember "playing sick" to get out of something.
T	F	10.	There have been occasions when I took advantage of someone.
T	F	11.	I'm always willing to admit it when I make a mistake.
T	F	12.	I always try to practice what I preach.
T	F	13.	I sometimes try to get even, rather than forgive and forget.
T	F	14.	When I don't know something I don't at all mind admitting it.
T	F	15.	I am always courteous, even to people who are disagreeable.
T	F	16.	At times, I have really insisted on having things my own way.
T	F	17.	There have been occasions when I felt like smashing things.
T	F	18.	I would never think of letting someone else be punished for my wrongdoings.
T	F	19.	I never resent being asked to return a favor.
T	F	20.	I have never been bothered when people expressed ideas very different from my own.
T	F	21.	There have been times when I was quite jealous of the good fortune of others.
T	F	22.	I have almost never felt the urge to tell someone off.
T	F	23.	I am sometimes irritated by people who ask favors of me.
T	F	24.	I sometimes think when people have a misfortune they only got what they deserved.
T	F	25.	I have never deliberately said something that hurt someone's feelings.

APPENDIX H

PERMISSION TO USE THE Q-EDD

College of Education
University of Missouri-Columbia

Department of Educational and Counseling Psychology
16 Hill Hall
Columbia, MO 65211
PHONE (573) 882-7731
FAX (573) 884-5989
(573) 882-4947 (Office)
edcolbm@showme.missouri.edu (Internet)

Dear Q-EDD Users:

Thank you for your interest in using the Q-EDD. Attached please find a copy of the Q-EDD and the scoring manual. The scoring manual looks quite daunting at first, but is actually quite simple to use once you understand it. First, the respondent's height and weight are converted to a Body Mass Index (B.M.I), and then this B.M.I is used to determine a weight category. The remainder of the manual involves the assignment of a diagnosis. Diagnoses are arrived upon by following the flow-chart like decision rules specified in the manual. Please note that each number and abbreviation corresponds directly to the DSM-IV criteria (e.g., 307.1B Fear on page two of the manual corresponds to the DSM-IV Anorexia Nervosa criteria 307.1B pertaining to fear of becoming fat, even though underweight).

As detailed in Mintz, O'Halloran, Mulholland, and Schneider (1997, volume 44, pages 63-79), based on scoring manual decision rules, respondents are placed into diagnostic categories. At the most general level are the diagnostic categories of non-eating-disordered and eating-disordered, each of which is comprised of more specific categories. The eating- disorder category is comprised of six specific diagnoses: two reflect the DSM-IV diagnoses of bulimia and anorexia (which can be further broken down to reflect the DSM-IV subtypes) and four reflect the DSM-IV EDNOS descriptions of subthreshold bulimia, menstruating anorexia, nonbinging bulimia, and binge-eating disorder. The non-eating-disordered category is comprised of two other categories: asymptomatic (i.e., no eating disorder symptoms) and symptomatic (i.e., some eating disorder symptoms but no DSM-IV diagnosis). For those classified as symptomatic, a descriptive label can be assigned if desired; however, these labels were considered exploratory in the initial validation studies and hence, little data exists to support their accuracy.

Because of the way that the scoring manual is set up, at the initial scoring the possible diagnoses are: anorexia, menstruating anorexia, bulimia, subthreshold bulimia, exercise bulimic, nonbinging bulimic, chew\spitters, binge-eating disorder, symptomatic, or asymptomatic. Hence, the categories of eating-disordered and non-eating-disordered are not in the manual. Anyone whose responses lead to a label of symptomatic or asymptomatic would be considered non-eating-disordered; anyone whose responses lead to a label of anorexia, bulimia, menstruating anorexia, subthreshold bulimia, nonbinging bulimia, or binge-eating disorder would be considered eating-disordered. These diagnostic categories and sub-categories can be found at the top of the Scoring Manual and can be circled to indicate the respondent's diagnosis after scoring is complete.

As noted in Mintz et al. (1997), psychometric data exists to support the use of the Q-EDD for making the following diagnostic differentiations: (a) between eating-disordered and

AN EQUAL OPPORTUNITY/ADA INSTITUTION

non-eating-disordered; (b) among eating-disordered, symptomatic, and asymptomatic; and (c) between anorexic and bulimic. Only exploratory data has been gathered for differentiating among the six eating disorder groups and for differentiating among symptomatic subtypes. Likewise, while the scoring manual is set up to differentiate anorexic and bulimic subtypes, only a limited amount of psychometric data has been gathered on this distinction. While in our initial validation study "subtype was never missed" (Mintz et al., 1997, p. 72), using the Q-EDD to differentiate subtypes should nevertheless be done cautiously.

An additional word about two of the diagnoses yielded by the scoring manual is in order. Chew/spitters: While chewing food and spitting it out is contained in the DSM-IV as an EDNOS, our interviews indicated that the very few respondents who endorsed only such an item indicated that they spit out food that did not taste good. Hence, if a person answers only yes to this item (i.e., no other eating disorder symptoms), this person would be given the label of chew/spitter by the scoring manual. A conservative approach would be to eliminate these individuals from your study (we had little data on them); on the other hand, a less conservative but clearly justifiable alternative is to place these individuals in the asymptomatic category. Exercise bulimic: These would be individuals who meet all the criteria for bulimia, with the criteria regarding inappropriate compensatory behavior being met by excessive exercise alone. We found they are rare, but do exist; furthermore, in our study, the few we had in the sample were considered to be eating-disordered by our interviewers. Again, since we have little data on these individuals, a conservative approach would be to eliminate these individuals from your study. A less conservative but clearly justifiable approach would be to consider these individuals to be eating-disordered (i.e., restricting-type bulimics).

We hope you find the Q-EDD to be a useful tool in your research or practice. We request that you inform us of the results of any study you conduct using the Q-EDD. Also, if you have any problems with the scoring manual, please let us know so that we can use this information to make any needed revisions.

Finally, if you have questions about the Q-EDD or the scoring manual, please contact Laurie Mintz. If at all possible, please use email for such correspondence (address listed above). Telephone is the next best alternative.

Good luck with whatever project you are using the Q-EDD for.

Sincerely,

Laurie Mintz, Ph.D. Sean O'Halloran, Ph.D. Amy Mulholland, M.A.

APPENDIX I

INSTITUTIONAL REVIEW BOARD APPROVAL

The University of Oklahoma

OFFICE OF RESEARCH ADMINISTRATION

March 2, 2000

Ms. Lisa Petersen
809 Peppertree Court
Norman OK 73071

Dear Ms. Petersen:

The Institutional Review Board-Norman Campus has reviewed your proposal,"Psychological Dimensions Related to Categories of Symptomatic, Asymptomatic, and Eating Disordered Individuals," under the University's expedited review procedures. The Board found that this research would not constitute a risk to participants beyond those of normal, everyday life, except in the area of privacy, which is adequately protected by the confidentiality procedures. Therefore, the Board has approved the use of human subjects in this research.

This approval is for a period of twelve months from this date, provided that the research procedures are not changed significantly from those described in your "Application for Approval of the Use of Humans Subjects" and attachments. Should you wish to deviate significantly from the described subject procedures, you must notify me and obtain prior approval from the Board for the changes.

At the end of the research, you must submit a short report describing your use of human subjects in the research and the results obtained. Should the research extend beyond 12 months, a progress report must be submitted with the request for re-approval, and a final report must be submitted at the end of the research.

Sincerely yours,

Susan Wyatt Sedwick

Susan Wyatt Sedwick, Ph.D.
Administrative Officer
Institutional Review Board-Norman Campus

SWS:pw
FY00-173

Cc: Dr. E. Laurette Taylor, Chair, Institutional Review Board
Dr. Jody L. Newman, Educational Psychology

1000 Asp Avenue, Suite 314, Norman, Oklahoma 73019-0430 PHONE: (405) 325-4757 FAX: (405) 325-6029