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Bulimia And Binge-Eating-Disorder And Their Relationship To Family Characteristics, Attachment, Depression, And Self-Esteem

Barbara Brennan Ferguson
Seton Hall University

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BULIMIA AND BINGE-EATING-DISORDER AND THEIR RELATIONSHIP TO
FAMILY CHARACTERISTICS, ATTACHMENT, DEPRESSION, AND SELF-
ESTEEM

A dissertation submitted

by

BARBARA BRENNAN FERGUSON

in partial fulfillment of
the requirement for the
degree of

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2004

Dissertation Committee

Robert Massey, PhD, Mentor Adrianna Dunn, PhD

Sharon Davis Massey, PhD

Dedication

Dedicated to John Robert, Dolores, Michael, Brian, and Matthew in appreciation for the inspiration, motivation, and support that you provided throughout the dissertation process and throughout my life.

TABLE OF CONTENTS

List of Tables vi

CHAPTER I.....7

 Introduction7

 Attachment Theory and Family Systems12

 Depression and Self-esteem15

 Significance of the Proposed Study17

 Statement of the Problem17

 Hypotheses17

 Definitions of Terms18

 Limitations to the Present Study21

 Summary22

CHAPTER II.....25

 Literature Review25

 Historical Perspective.....25

 DSM-IV Criteria for Bulimia Nervosa and Binge Eating Disorder.....27

 Bulimia Nervosa27

 Binge Eating Disorder (BED).....28

 Etiology of Eating Disorders: Similarities and Differences Among the
 Subtypes: Bulimia and BED31

 Family Influences and Systems Theory32

 Family Studies on Eating Disorders36

 Attachment Theory.....52

 Attachment and Eating Disorders56

 Research on Attachment and Eating Disorders58

Depression and Self-esteem	64
Depression	64
Eating Disorders and Depression.....	65
Research on Eating Disorders and Depression.....	66
Self-esteem	71
Self-esteem and Eating Disorder	72
Summary	73
CHAPTER III	77
Methodology.....	77
Participants and Setting.....	77
Procedures	78
Administration of Materials	79
Instruments.....	80
Demographic Data Questionnaire (see Appendix A)	80
Family Environment Scale (FES).....	80
Parental Bonding Instrument (PBI)	84
Beck Depression Inventory (BDI).....	86
Rosenberg Self-Esteem Inventory (RSE).....	89
Eating Disorder Inventory – 2 (EDI-2).....	90
Binge Eating Scale (BES).....	91
Data Analysis	93
CHAPTER IV	95
Data Analyses.....	95
Demographic Variables.....	95
Preliminary Analyses	98

Tests of Hypotheses103

Summary110

CHAPTER V112

Discussion.....112

Summary of Results112

 Family Variables.....112

 Attachment.....113

 Depression114

 Self-esteem114

Interpretation of Results.....115

 Study Limitations.....115

Theoretical Implications of Results115

Comparison to Previous Research Findings117

 Family Variables- FES117

 Attachment – Parental Bonding.....119

 Depression120

 Self-esteem121

Practical Implications of Results122

Suggestions for Future Research123

APPENDIX125

REFERENCES130

List of Tables

TABLE 1 DSM-IV Criteria for Bulimia Nervosa	29
TABLE 2 Binge-Eating Disorder Criteria	30
TABLE 3 Demographic Statistics	96-97
TABLE 4. Correlations Among Criterion Variables	100
TABLE 5 Descriptive Statistics for Criterion Variables.....	101
TABLE 6 Analysis of Variance for Family Problems and Criterion Variables	102
TABLE 7 ANOVAs for Group and Criterion Variables	104
TABLE 8 Pairwise Comparisons based on Least Square Means.....	105
TABLE 9 Cohen <i>d</i> Values for Pairwise Comparisons.....	106

CHAPTER I

Introduction

In the 1970s and the early 1980s, anorexia nervosa was the eating disorder most studied. However, since the early 1980s, there has been much interest in the eating disorder bulimia nervosa. Prior to the 1970s, bulimia nervosa was rarely seen in clinical practice and had received little attention. Ten years later, it was the eating disorder most commonly encountered by clinicians (Garner & Fairburn, 1988). Initially, it was believed that bulimic patients did not differ from anorexic patients, but researchers (Garner, Garfinkel & O'Shaughnessy, 1983, 1985; Garner Pyle, Mitchell & Eckert, 1981) have shown differences between the two groups, both in psychopathology and in family functioning. As more was learned about bulimia nervosa, the diagnosis evolved with each publication of the Diagnostic and Statistical Manual (*DSM-III*, 1980; *DSM-III-R*, 1987; *DSM-IV*, 1994).

When bulimia nervosa was first included in the *DSM-III* (1980), it was viewed as a clinical entity distinct from anorexia nervosa. In the *DSM-III-R* (1987), the criteria for both anorexia and bulimia changed. In the *DSM-IV* (1994), the criteria for both anorexia nervosa and bulimia changed again. The essential features of anorexia nervosa (refusal to maintain body weight at a normal range for age and height, intense fear of weight gain, distortions in body image, and absence of menses) remained the same. However, anorexia nervosa now included two subtypes: a restricting type and a binge eating/purging type. Essentially, individuals who binge and purge, but maintain low

body weight, were classified as anorexia nervosa binge-purge type, rather than as bulimics.

In the *DSM-IV* (1994) the essential features of bulimia (recurrent binge eating, extreme behavior designed to control body shape and weight, and over concern with shape and weight) remained the same as in *DSM-III-R* (1987), but the *DSM-IV* (1994) criteria embodied two additional refinements. First, there was a specification that the individual does not currently meet diagnostic criteria for anorexia nervosa. In essence, this restricts the diagnosis of bulimia to those of average or above average weight. The second refinement is that bulimia nervosa is divided into a "purging type" in which there is either regular self-induced vomiting or regular misuse of laxatives or diuretics, and a "non-purging type" in which such behavior is not present. In this subtype, the individual engages in other types of inappropriate compensatory behavior to control weight (Fairburn & Wilson, 1993). Although both "purging" and "non-purging" subtypes were included in the diagnoses of bulimia, most of the research thus far has been on the purging subtype. Concurrent with refinements in the bulimia diagnosis, there has been increased awareness from research and clinical evidence that many individuals with marked distress about binge eating cannot be diagnosed with bulimia nervosa because they do not regularly engage in the characteristic bulimic compensatory behaviors (i.e., vomiting, laxative abuse, or over-exercise). Typically, (although not always) these individuals are overweight or obese and are common among participants in weight-control programs (Gormally, Black, Daston & Rardin, 1982; Keefe, Wyshgrod, Weinberger & Agras, 1984; Marcus, Wing & Lamparski, 1985; Telch, Agras & Rossiter, 1988; Loro & Orleans, 1981). Although Stunkard (1959) identified binge eating as a

distinct eating pattern in some obese individuals 35 years ago, this phenomenon received little attention until recently. The term "binge-eating disorder" has been proposed to designate this group. *DSM-IV* (1994) includes binge-eating disorder (BED) as an example within the general category of Eating Disorder NOS, and provides specific diagnostic criteria for BED in the appendix. There are two major distinctions between bulimia nervosa and BED. In BED there is an absence of both bulimic compensatory mechanisms and of over-concern with body shape and weight.

Additional information about the characteristics of individuals who binge eat is essential because this subgroup of the overweight or obese do poorly in traditional weight-loss programs (Gormally et al., 1982). Furthermore, it has been postulated (Barry, Grilo & Masheb, 2003; Kirkley, Kolotkin, Hernandez, & Gallagher, 1992; Peterson, Crow, Nugent, Mitchell, Engbloom & Mussell, 2000; Prather & Williamson, 1988;) that binge eaters might benefit from treatment programs more similar to those usually targeted at binge-purgers (bulimics). This premise has been proposed because anecdotal and descriptive studies have indicated that obese binge eaters closely resemble normal-weight bulimia nervosa patients with the important distinction that obese individuals do not report regular purge behaviors (Marcus & Wing, 1987). More recent research (Dominy, Johnson, & Koch, 2000) suggests both similarities and differences in the profiles of obese binge eaters and normal-weight bulimia nervosa patients. However, before these studies are discussed, it is important to note that few of the studies of binge eating in obese and overweight individuals have utilized the definition of binge eating that was adopted in the *DSM-IV* (1994) protocol (i.e., the consumption of an objectively large amount of food and loss of control, as defined by *DSM-IV*). The adoption of

differing definitions of the problem to be studied makes across-study comparisons difficult. One of the positive aspects of the inclusion of BED criteria in *DSM-IV* (1994) is that, hopefully, the criteria will be used to standardize future research on binge-eating disorder.

There have been several studies involving comparisons and contrasts among eating disorder subtypes on variables of depression, personality disorders and self-esteem. When eating-disorder researchers (Barry, Grilo, & Masheb, 2003; Casper, Eckert, Halmi, Goldberg, & Davis, 1980; Fornari, Wlodarczyk-Bisaga, Matthews, Sandberg, Mandel, & Katz, 1999; Garfinkel, Moldofsky & Garner, 1980; Strober, 1981a) compared anorexics to bulimics, they found that bulimics were more likely to be depressed, to experience mood instability, and to attempt suicide. However, other researchers (Rosen, Moldofsky, Steckler, & Spelnick, 1989) found that although anorexics and bulimics exhibited more depression than normal controls, they were not statistically different from each other. Researchers who examined personality and eating disorders (Piran, Lerner, Garfinkel, Kennedy & Brouillette, 1988) discovered higher rates of personality disorders in both anorexics and bulimics as compared to normal controls. Researchers who studied self-esteem (Button, 1993; Button, Loan, Davies & Sonaga-Barke, 1997; Gual, Perez-Gaspar, Martinez-Gonzalez, Lahortiga, de Rala-Estevez & Cervera-Enguix, 2002) reported lower rates of self-esteem among all eating disorder subtypes. Although there has been a significant amount of research focusing on the similarities and differences between anorexia and bulimia, the research on BED has been sparse.

Recently, the focus has been on comparing BED individuals with bulimic individuals. The results have been mixed. Williamson, Prather and McKenzie, and Blouin (1990), and Marcus, Wing, Ewing, Kern, Gooding and Mc Dermott (1990), found comparable rates of psychopathology in BED individuals and bulimic individuals. However, Barry et al., (2003); McCann, Rossiter, King and Agras (1991); Raymond, Mussel, Mitchell, de Zwaan and Crosby (1995) reported more depression and other types of psychopathology among bulimic individuals than BED individuals. Although there is still some uncertainty as to how similar bulimics are to BED individuals, what is relatively certain is that BED individuals do differ from their overweight or obese non-bingeing counterparts. Obese binge eaters are likely to experience higher rates of depression (Dominy et al., 2000; Marcus, Wing, & Hopkins, 1988; Specker, de Zwaan, Raymond, & Mitchell 1994; Yanovski, Nelson, Dubbert, & Spitzer 1993), more psychopathology (Fitzgibbon & Kirschenbaum, 1990; Marcus et al., 1988; Specker et al., 1994), and lower self-esteem (Sanftner & Crowther, 1998).

One area that has received little focus is the role of family dynamics in BED. Although studies have examined the characteristics of family members with anorexia nervosa and bulimia nervosa, little is known about the family characteristics of individuals with BED. Hodges, Cochrane and Brewerton (1998) conducted the first study of family characteristics of BED patients using *DSM-IV* (1994) criteria and found significant differences in cohesion and expressiveness on the FES when compared to the other eating-disorder subtypes. Further exploration of this area is indicated and will be the focus of this study.

Attachment Theory and Family Systems

Dynamic conceptualizations of anorexia and bulimia usually entail disturbances in the early mother-child or parent-child relationship that predispose a child to develop an eating disorder during adolescence (Bruch, 1973). Bruch (1978), Palazzoli (1978) and Masterson (1977) have been the most influential theorists advocating the central role of attachment disruption in the pathogenesis of eating disorders. Masterson (1977) gave an account of the early mothering of the anorexic as rewarding of dependency and threatening emotional abandonment for signs of separation or independence. The outcome for the child is an overwhelming fear of abandonment and confusion in attempts to separate and individuate at adolescence. This fear and confusion may be resolved for the anorexic by an avoidance of physical maturity as an equivalent for delaying or avoiding independent psychological functioning.

In the case of bulimia (Masterson, 1977), there is also an insecure attachment with bingeing viewed as a regressive attempt to maintain a sense of connection and hence to escape from the anxiety associated with separation. The psychological features of binge eating, such as loss of control and of volition that accompany the frantic consumption of food, could be seen as reflecting, in attachment terms, the uncontrollable distress connected with the feared losses associated with separation.

Although attachment theorists have not studied BED, we could postulate that several of the attachment issues driving binge eating in bulimics would also be present in BED individuals. Bowlby's (1969, 1973, 1980, 1982) theory allows us to explain various symptoms associated with anorexia and bulimia. For example, the "paralyzing sense of ineffectiveness" (Bruch, 1973) and concentration on control may be understood as a

reaction to the sense of being unable to influence important attachment figures to respond to one's needs. The phobic stance associated with anorexics (Bemis, 1983) can be seen as an outgrowth of a developmental process characterized by the absence of a secure base from which to explore and to develop competence in the environment. The central symptom of bulimia, binge-eating, also can be viewed from an attachment-theory frame of reference. Bulimic families have been characterized as disorganized and conflict-ridden (Ordman & Kirschenbaum, 1986; Root, Fallon, & Friedrich, 1986). Parents who are struggling with chronic social, financial, and emotional pressure cannot be relied upon to consistently perceive and to meet their children's needs for security. The bulimic then turns to bingeing as a readily available method of self-soothing. Attachment has been measured using a variety of tools. The tool most commonly used in the eating disorders literature is the Parental Bonding Instrument, which measures maternal and paternal overprotection and care. Recent studies (Ward, Ramsay, & Treasure, 2000; Ward, Ramsay, Turnbull, Benedettini, & Treasure, 2000) using the Reciprocal Attachment Questionnaire, have found that the ability to form reciprocal adult attachments is impaired among all eating disorder populations. Although reciprocal attachment is not the focus of this study, these results highlight the importance of secure attachments.

Several systemic theorists have also written about eating-disordered families. Minuchin's structural approach focused mainly on anorexic families and described how an anorexic child is needed by the other family members in order to deny and to detour them from confronting other issues concerning the parents and their marriage (Minuchin,

Rosman, & Baker, 1978). Selvini-Palazzoli (1978) also made some similar observations regarding anorexic families.

When the syndrome of bulimia nervosa was identified, family therapists developed formulations for this syndrome, most of which were derived from earlier paradigms that had been developed for anorexia nervosa (Root et al., 1986). However, familial differences between anorexia and bulimia became evident. Anorexics tended to report higher levels of family cohesion and bulimics tended to report more family conflict, although open, direct expression of conflict was discouraged (low expressiveness) (Johnson & Flach, 1985; Strober, 1981a). The overall assumption was that the bulimia symptoms performed a significant stabilizing function within a family.

Although these systemic formulations have been instructive in helping us to comprehend how a family operates as a whole and how an eating disorder is vital to sustaining the overall balance and functioning of its members, what seems missing is a theoretical explanation of the differences between the eating disorders. Attachment theory in conjunction with a systemic conceptualization helps bridge this gap.

Eating disorders typically first emerge in adolescence or early adulthood. The tasks to successful completion of this developmental stage involve leaving the parental home, individuating or differentiating within one's family network, and development of intimate peer relationships outside of the family of origin. When these tasks are not successfully negotiated, behavior problems and psychopathology may develop (Bowen, 1978; Erickson, 1963; Haley, 1980).

Theoretical models of the psychopathology of eating disorders have often included problems regarding separation-individuation (Bruch, 1973; Johnson & Connors,

1987). The research on family systems and eating disorders supports a general difference in family interactions for determining the etiology of anorexia versus bulimia (Humphrey, 1989), and there is no research in relation to BED. Restricting anorexics' families seem more enmeshed, overprotective, and unresponsive to a daughter's self-expression, then do families who did not have anorexic members. Consequently, the girl at risk for restricting anorexia nervosa may find the process of separation-individuation grossly inhibited by familial factors, leaving her overly enmeshed with her parents (Rhodes & Kroger, 1992; Smolok & Levine, 1993). The potential bulimic, on the other hand, approaches separation individuation wishing to be independent of her family, since they have often been experienced as hostile, unsympathetic, intrusive, overly protective, seductive and emotionally negligent (Bonne, Lahat, Kfir, Berry, Katz, & Bachar, 2003; Humphrey, 1989; Meyer & Gillings, 2004; Rorty, Yager, Rossotto, & Buckwalter, 2000). Smolok and Levine (1993) discovered that the potential bulimic may find the most effective path to individuation to be a combination of over- (attitudinal-opposition) and under- (guilt and conflict concerning separation) separation.

Depression and Self-esteem

Anorexia, bulimia and BED have all been associated with depressive symptoms, and the rates of major depression in these conditions appear to be much higher than in general population base rates. Longitudinal data on anorexia indicates a 20-40% rate of depression (Morgan & Russell, 1975). Previous studies have demonstrated lifetime rates of major depression in BED between 24% and 51% (Fornari et al., 1999; Marcus et al., 1990; Yanovski et al., 1993). For bulimia, the lifetime prevalence of depression appears

to be even higher: 47-73% (Hudson, Pope, & Jonas, 1983). Cooper and Fairburn (1987) examined the co-morbid relationship between eating disorders and depression and found that they were distinct entities. While the overall scores were similar in these two groups, the specific symptoms endorsed were dissimilar.

Within the context of this study, there is a predicted fundamental association between anxious attachment and depression. Specifically, attachment theory can account for the development of certain cognitive schemas, or “working models” (Bowlby, 1980) of primary relationships which predispose one to depression. Bowlby also hypothesized that there is a connection between self-esteem, self-efficacy, and quality of attachment. Namely as one receives sensitive support, one comes to see oneself as deserving it, and experiences oneself as able to work for it when needed and capable of giving it in return.

Coopersmith (1967), in his work on self-esteem, supported the importance of the relational material of family life in the service of developing and maintaining positive self-esteem. Self-esteem, according to Coopersmith, developed in response to “successes, values, aspirations and defenses” (p. 242). These experiences are optimized when they occur within a family context of unconditional acceptance, clearly defined and maintained limits, and respect. When these components are not present in a family, an adolescent approaches separation – individuation with difficulty. Rosenberg (1965) in his studies in self-esteem also focused on parental influence in the development of self-esteem.

Significance of the Proposed Study

The intent of the proposed investigation was to contribute to research in family therapy and eating disorders. Thus far, there is limited knowledge about binge-eating disorder. This study involved comparing and contrasting BED to bulimia, the eating disorder most similar to it, as well as normal controls, on several variables. By gaining further knowledge about this eating-disorder subtype, more effective treatment approaches can be developed.

Statement of the Problem

The purpose of this investigation was to explore the relationship among eating disorder subtypes (bulimia, and BED), social-environmental characteristics of families, parental bonding, depression, and self-esteem.

Hypotheses

H₁: It was hypothesized that there would be a difference among respondents identified as bulimic, BED, and normal controls on the independent variables: social-environmental characteristics of families, parental attachment, depression, and self-esteem.

H_a: It was hypothesized that bulimic and BED individuals would score lower than normal controls on the following social-environmental familial characteristics: cohesion, expressiveness, and active-recreational orientation and will manifest higher than normal controls on conflict. It was also hypothesized that bulimic and BED individuals would report similar levels of cohesion. BED individuals would report the

lowest levels of expressiveness and active recreational orientation of the three eating disordered groups. These assumptions were based on a review of the literature (Hodges et al., 1998).

H_b: It was hypothesized that bulimic and BED individuals would differ significantly from normal controls on parental bonding, and that bulimics and BED individuals would report low maternal and paternal overprotection and low maternal and paternal care. These assumptions were based on a review of the literature (Calam et al., 1990; Rhodes & Kroger, 1992; Steiger et al., 1989).

H_c: It was hypothesized that bulimics and BED individuals and normal controls would differ from each other on depression. Normal controls would report the lowest levels of depression. Bulimics and BED individuals would report high levels of depression, with bulimics reporting the highest levels. These assumptions were based on a review of the literature (Barry et al., 2003; Fornari et al., 1999; Hudson et al., 1987; Marcus et al., 1990; Prather & Williamson, 1988)

H_d: It was hypothesized that Bulimics and BED individuals and normal controls would differ from each other on self-esteem. Normal controls would report the highest self-esteem. BED individuals and bulimics would report low self-esteem. These assumptions were based on a review of the literature (Bruch, 1973; Button, 1993)

Definitions of Terms

Binge Eating Disorder (BED)

BED is characterized by recurrent episodes of binge eating, a sense of lack of control over eating during the episode, eating more rapidly than normal, eating until

feeling uncomfortably full, eating large amounts of food when not hungry, eating alone because of embarrassment, feeling disgusted or depressed over eating, and marked distress regarding binge eating. This was defined by *DSM-IV* (1994) criteria for BED.

Bulimia - Purging Type

Bulimia is characterized by recurrent episodes of binge eating and recurrent inappropriate compensatory behaviors to prevent weight gain. In this study the compensatory behavior was purging. This is defined as self-induced vomiting or the misuse of laxatives or diuretics. Self-evaluation is unduly influenced by body shape and weight. Operationally, this was defined by the *DSM-IV* (1994) criteria for bulimia, purging type.

Depression

Depression is defined by the following 21 categories of symptoms and attitudes: sad mood, pessimism, sense of failure, lack of satisfaction, guilty-feeling, sense of punishment, self-hate, self accusations, self-punitive wishes, crying spells, irritability, social withdrawal, indecisiveness, poor body image, weak inhibition, sleep disturbance, fatigability, loss of appetite, weight loss, somatic preoccupation, and loss of libido. Operationally, depression was defined by scores on the Beck Depression Inventory (BDI-II) (Beck & Steer, 1996).

Eating Disorder

An eating disorder was defined as a condition or syndrome attributed to individuals who met the definition of anorexia, bulimia or BED.

Parental Bonding

According to Parker, Tupling, and Brown (1979), parental bonding is comprised of two dimensions: care and overprotection. A high score on care and a low score on overprotection is considered "optimal bonding." "A high score on care and high score on overprotection is considered "affectionate constraint." "A high score on overprotection and a low score on care is considered "affectionless control." "A low score on overprotection and a low score on care is considered "absent and weak bonding" (Parker et al., 1979). Operationally, parental bonding was determined through scores on the Parental Bonding Instrument (PBI) (Parker et al., 1979)

Self-esteem

Self-esteem was defined as the attitude toward the self in social, family, and personal areas. Operationally, self-esteem was defined by scores on the Rosenberg Self-Esteem Inventory (Rosenberg, 1965).

Social Environmental Family Characteristics

According to Moos and Moos (1974), social environmental-family characteristics are comprised of three underlying dimensions: interpersonal relationships, personal growth emphasis, and system maintenance. Each dimension contains several items. The

relationship dimension is comprised of cohesion, expressiveness, and conflict. The personal growth dimension is comprised of independence, achievement orientation, intellectual orientation, active-recreational orientation, and moral-religious emphasis. The system maintenance dimension is comprised of organization and control. Operationally, social-environmental family characteristics was defined by the subjects' responses to the Family Environment Scale (FES) (Moos & Moos, 1981).

Limitations to the Present Study

1. The outcome of this study was not able to determine whether family pathology is a cause or a consequence of the presence of an identified disorder in one of the members of the family. Therefore, this study did not address the issue of whether these characteristics of family structure may have evolved in response to pathology in the eating disordered individual.

2. This study did not control for the co-morbidity of personality disorders. Some researchers (Piran, Kennedy, Owens & Garfinkel, 1985; Piran, Lerner, Garfinkel, Kennedy & Brouillette, 1988) believe that if these disorders are co-existing, they may influence the variables under investigation. However, other researchers (Garner, 1987) postulated that the valid determination of co-morbidity is problematic owing to the influence of the individual's clinical state of mind. This issue was not addressed in this study.

3. The subjects in this study were adult women. However, a large age range (18-45) was represented in this study. This was because bulimic patients tend to seek treatment at a younger age than do BED patients. However, the writer recognized that

there may be developmental differences in an age grouping of this range. Information on the ages of the respondents was gathered in the demographic questionnaire, and an effort was made to ensure that the ages of the clinical groups were similar to the ages of the control group.

4. The data in this study was obtained solely from the eating disordered participants' perspectives. Researchers (Humphrey, 1986b; Yager, 1982) who report parents' and patients' family perspectives have found that each person in the family experiences the family environment differently. This study did not control for this factor.

5. The data obtained in this study was derived from self-reports. It is generally accepted that opinions and beliefs expressed through self-report are not paralleled exactly by observed behavior (Jensen & Haynes, 1986).

6. Many of the respondents in this study were no longer be living with their families of origin. For those individuals no longer living with their families of origin, a retrospective bias was introduced, since they were depending upon recall when describing family dynamics. Instruments utilized to gather family information specified the developmental period (adolescence) that the respondent was recalling.

Summary

In the early 1970s, anorexia nervosa was the eating disorder most studied, but this changed in the 1980s when bulimia became more prevalent. The diagnosis of bulimia has gone through several changes. The most recent change is reported in the *DSM-IV* (1994). According to the most recent criteria, an individual who is bulimic cannot also be diagnosed as anorexic. Additionally, the *DSM-IV* divides bulimia into two subtypes - the

purging type and the non-purging type. The purging type appears to be more prevalent at the present time.

Concurrent with the refinements in the bulimia diagnosis, there is an increased awareness that many individuals who binge do not purge. Typically, (although not always) these individuals are obese. This led to including, under the category of Eating Disorder, NOS, the category of Binge Eating Disorder. The two main distinctions between bulimia and BED are the absence of compensatory mechanisms in BED and a lack of concern with body shape and weight in BED.

Additional knowledge about the characteristics of individuals who binge-eat is essential, because this subgroup of the obese do poorly in traditional weight-loss programs. Furthermore, some studies have shown similarities between bulimia and those with binge-eating disorder. One area that has received limited investigation concerns the family characteristics of those with binge-eating disorder. If characteristics are found that typify families of these two groups, treatment could address this issue.

The theoretical orientation utilized in this study was a combination of attachment theory and family systems theory. Separation-individuation difficulties are often cited (Bruch, 1973; Johnson & Connors, 1987) as a key factor in the development of eating disorders. The roles of self-esteem and depression, and how they are impacted by attachment difficulties and family dysfunction, were also explored in this study.

The central hypothesis of this study examined the relationship among bulimics, BED individuals, and normal controls on the dependent variables of social environment of the family, parental attachment, depression and self-esteem. The first sub-hypothesis examined the differences among these three groups on social environment of the family.

The second sub-hypothesis examined the differences among these three groups on parental attachment. The third sub-hypothesis examined the differences among these three groups on depression. The fourth sub-hypothesis examined the differences among these three groups on self-esteem.

The limitations of this study were that the outcome did not determine if family pathology was a cause or consequence of the disorder. Also, mediating variables, such as co-morbidity of personality disorder were not controlled for. Additionally, because of the age range, there could have been developmental differences among the subjects. In addition, this study only considered the perspective of the eating disordered individual, not the perspective of other family members. Furthermore, it is generally agreed that self-report methods do not always match with observations. This study relied solely on self-report methods.

CHAPTER II

Literature Review

In this chapter the literature on eating disorders was reviewed. An historical perspective will be presented first. This will be followed by a discussion of the various eating disorder subtypes (anorexia, bulimia, and binge-eating disorder), their etiologies, similarities and differences. The theoretical orientation involves both family-systems theory and attachment theory. Both theories were addressed in relationship to eating disorders. Empirical studies using these theoretical frameworks are discussed. Finally, the role of depression and self-esteem and their relationship to eating disorders was examined.

Historical Perspective

The oldest documented pattern of disordered eating is that of binge eating. Ziolko and Schrader (1985) reported that the distinction between hunger and "ravenous hunger" was made by Homer as early as the 8th century B.C., and the distinction was made by others as well. Thus, Hypocrites recognized "boulimas" as a sick hunger as distinct from ordinary hunger, and both Aristophanes and Kenophan referred to "boulimas" as "ravenous hunger" (Lidell and Scott, 1972).

In the 18th century new descriptions of binge eating began to appear. One of the earliest authors was James (1743). He described both "true boulimias" characterized by intense preoccupation with food and overeating at very short intervals, followed by fainting, and a variant, "caninus appetitus," in which the overeating was followed by

vomiting. In 1772 W. Allen reported on patients who suffered from "such strong hunger that more is eaten than can be digested," and he differentiated no less than seven forms of bulimia (as cited in Ziolkowski and Schrader, 1985).

The second pattern of disturbed eating noted in the literature was anorexia nervosa. According to Habermas (1989), Lasegue (1873) and Gull (1879) were the first to comment on the pattern of self-starvation. Charcot (as cited in Habermas, 1989) was the first to recognize concerns about body image and the relentless pursuit of thinness in anorexia nervosa.

Despite the excellence of occasional case reports, there remained for many years considerable confusion regarding the nature of anorexia nervosa. It was not until the 1960s that a consensus regarding the main features of anorexia nervosa was reached. This consensus, fostered by three leaders in the field (Bruch, 1970, 1973; Crisp, 1965; and Russell, 1970), has persisted to the present time. These authors agreed that the essential features of anorexia nervosa were a fear of being fat and a resulting relentless pursuit of thinness. These features were included in the criteria for anorexia nervosa in *DSM-III* (1980), and with minor changes these criteria have persisted.

During the 1970s anorexia nervosa received a considerable amount of attention. In studying patients with anorexia nervosa, another more common syndrome of disordered eating, bulimia nervosa, emerged. This disorder first appeared in *DSM-III* (1980), but, unlike anorexia nervosa, there has not been a consensus regarding its characteristics, and the criteria for diagnosis changed both in *DSM-III-R* (1987) and *DSM-IV* (1994).

Binge eating, as a distinct pattern of eating in a subset of the obese, was first recognized by Stunkard in 1959, but this phenomenon received little systematic attention in psychological literature until the late 1980s. It is now recognized (Marcus, 1993) that there is a subgroup of obese individuals with significantly disordered eating characterized by binge eating and psychosocial impairment. However, research on disordered eating behavior among overweight individuals is in its early stages, and many questions remain to be answered. Spitzer et al. (1992), through two multisite field trials, developed criteria for individuals who have problems with recurrent binge eating but do not engage in the characteristic compensatory behavior of bulimia nervosa, vomiting, or use of laxatives. The name given to this disorder is Binge Eating Disorder (BED). Although it was proposed to be a diagnosis in its own right, in *DSM-IV* (1994), it was felt by the *DSM-IV* task force that further research was indicated. To stimulate this research, the criteria for diagnosis was listed in the appendix of the *DSM-IV* (1994).

DSM-IV Criteria for Bulimia Nervosa and Binge Eating Disorder

Bulimia Nervosa

In principle, three features are required to make a diagnosis of bulimia nervosa. The first is recurrent episodes of binge eating. The second feature is the regular practice of extreme behavior designed to control body shape and weight. This includes self-induced vomiting, the misuse of laxatives or diuretics, excessive exercise, and extreme dieting or fasting. The third feature is the presence of a characteristic form of over concern with shape and weight, the essence of which is the tendency to judge self-worth largely or even exclusively in terms of shape or weight.

The *DSM-IV* criteria for bulimia nervosa include two additional refinements. First, the individual does not currently meet diagnostic criteria for anorexia nervosa. This has the effect of restricting the diagnosis of bulimia nervosa to those of average or above average weight. The main argument for giving anorexia nervosa precedence over bulimia nervosa relates to the clear therapeutic implication of the former diagnosis, namely the need for weight gain. The second refinement is that bulimia nervosa is subdivided into a "purging type" in which there is either regular self-induced vomiting or regular misuse of laxatives or diuretics, and a "non-purging type" in which such behavior is not present. This distinction derives from the evidence, albeit weak, that these two groups differ in certain respects, including their eating behavior (Mitchell, 1992, p.252).

For the purpose of this study, all bulimics will be the "purging type" as that is the type most frequently reported on in the literature.

Binge Eating Disorder (BED)

DSM-IV (1994) includes BED as an example within the general category of "Eating Disorder Not Otherwise Specified" and provides specific diagnostic criteria for BED in the appendix. The characteristics of this disorder are regular binges (as defined by *DSM-IV*) in the absence of extreme behavior designed to control body shape and weight (Spitzer et al., 1992).

Table 1

DSM-IV Criteria for Bulimia Nervosa

- A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
1. Eating, in a discrete period of time (e.g.: within any two-hour period) an amount of food that is definitely larger than most people would eat during a similar period of time in similar circumstances.
 2. A sense of lack of control over eating during the episode (e.g.: a feeling that one cannot stop eating or control what or how much one is eating).
- A. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting, misuse of laxatives, diuretics or other medications, fasting or excessive exercise.
- B. The binge eating and inappropriate compensatory behavior both occur, on average, at least twice a week for three months.
- C. Self-evaluation is unduly influenced by body shape and weight.
- E. The disturbance does not occur exclusively during episodes of anorexia nervosa.

Specify Type

Purging Type: The person regularly engages in self-induced vomiting or the misuse of laxatives or diuretics.

Non-Purging Type: The person uses other inappropriate compensatory behavior such as fasting or excessive exercise, but does not regularly engage in self-induced vomiting or the misuse of laxatives or diuretics (*DSM-IV*, pp. 549-550).

Table 2

Binge Eating Disorder Criteria

- A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
1. Eating, in a discrete period of time (e.g., within any two hour period, an amount of food that is definitely larger than most people would eat during a similar period of time in similar circumstances), and
 2. A sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).
- B. The binge eating episodes are associated with at least one of the following:
1. Eating more rapidly than normal.
 2. Eating until feeling uncomfortably full.
 3. Eating large amounts of food when not physically hungry.
 4. Eating alone because of being embarrassed by how much one is eating.
 5. Feeling disgusted with oneself, depressed or feeling very guilty after overeating.
- C. Marked distress regarding binge eating.
- D. The binge eating occurs, on average, at least two days a week for six months.
- E. The disturbance does not occur exclusively during the course of anorexia nervosa or bulimia nervosa (*DSM-IV*, p. 731).

Etiology of Eating Disorders: Similarities and Differences Among the Subtypes: Bulimia and BED

Biological factors, social-cultural pressures, and dysfunctional familial patterns have all been implicated in the etiology of eating disorders. The current belief is that multiple factors (biological, cultural, and psychological) impinge upon an individual to cause an eating disorder. The focus in this study is on the interpersonal factors, and more explicitly the familial factors, and their role in the genesis of eating disorders.

To date most of the research has focused on the similarities and differences that occur between anorexia and bulimia. Although many similarities have been noted, there have been several differences noted as well. Bulimics are more likely than anorexics to repeat a family history of an eating disorder, an affective disorder, substance abuse and/or obesity (Fairburn & Cooper, 1984; Garner et al., 1985). Furthermore, bulimics are more likely to report more depressive symptoms, more signs of impulsivity, sexual abuse, and a higher likelihood of pre-morbid obesity (Hsu, 1990). Several studies have focused on similarities and differences between the families of anorexics and bulimics, and these will be discussed extensively in this chapter.

Although BED has been recognized as a psychiatric disorder since the 1990s, it still is not classified as an independent disorder in *DSM-IV* (1994). The Eating Disorder NOS category must be utilized when diagnosing this disorder.

Anecdotal and descriptive studies have indicated that obese binge eaters closely resemble normal weight bulimia-nervosa patients with the notable exception that obese individuals do not report regular purge behaviors (Marcus & Wing, 1987). More recent research suggests both similarities and differences in the profiles of obese binge eaters

and normal-weight bulimia-nervosa patients. However, it should be noted at the outset that few of the studies of binge eating in obesity have utilized the definition of binge eating disorder as stated in the *DSM-IV* (1994). Therefore, interpretation of these studies must be cautious. An area that has received limited exploration is familial factors and BED. This study represents an attempt to address this overlooked area.

Family Influences and Systems Theory

Although it appears that the etiologies of anorexia nervosa, bulimia and BED are multidimensional, many theorists have recognized the importance of family influence. Lasegue (1873) saw such families as having a limited ability to cope with responses that could contribute to the illness. The awareness that family characteristics impact on the development, course, and outcome of eating disorders has continued into the present.

Bruch (1974) identified excessive parental control and inability to allow daughters to develop independence as important factors in the development of anorexia. She found little evidence for the relationship of oral impregnation fantasies to eating disorders. According to Bruch, “forces and events in the family . . . interfere with the child growing into a distinct individual with needs and impulses clearly differentiated from those of his parents” (p. 42). This idea is widely accepted in the literature. From her extensive experience with treating anorexics, Bruch described the syndrome of the “model” family. In such a family, parents emphasize “appropriate” behavior and absolute compliance rather than self-expression and autonomy. The anorexia may then be a way in which the daughter attempts to assert her sense of identity in spite of feeling intensely ineffective and powerless (Bruch, 1978).

Family therapists espoused similar views, but used a systems perspective. Two schools of family therapy with articulated theories on eating disorders are the structural family therapists and the strategic family therapists.

Among the structural family therapists, Minuchin et al., (1978) are the best known. They identified a group of family-system characteristics that they believed typify the “psychosomatic” families of patients with juvenile diabetes mellitus, bronchial asthma, and anorexia nervosa where pathological family interactions appear to evoke and sustain a child’s symptoms. One such characteristic is enmeshment, a form of family interaction in which members are over- involved with one another, each person may answer for any other and family members intrude on each other’s thoughts and feelings. This is said to result in family members developing poorly differentiated perception of one another and of themselves. Other characteristics include over protectiveness in which parents and children may be highly protective of one another; rigidity, expressed as the need to maintain appearances, the status quo, and conventional social roles; and a tendency to avoid overt conflict within the family, with subsequent lack of conflict resolution. In efforts to deal with family tensions, the child may be forced to side with one parent against another, sometimes shifting back and forth from support of one to support of the other, and sometimes more permanently aligning with one parent. Or the parents may suppress their own conflicts and focus on the child to reassure themselves about their own parenting.

Minuchin used structural family therapy with his population of young anorexic girls and reported an 86% success rate. This is an unusually high success rate, and there are several criticisms of his study. First, there exists a selection bias in the patient

population. Minuchin et al., (1974, 1978) studied younger patients with a shorter duration of food refusal, who came from intact families. Each of these selection characteristics is shown to be prognostically favorable. Second, outcome evaluations were carried out by members of the clinical team, who cannot objectively judge the effect of their treatment program. Third, no specific assessment of family functioning at follow-up was carried out. Finally, for the purpose of this study, Minuchin studied restricting anorexics. Normal-weight bulimics and BED individuals were not included.

As stated earlier, the second family therapy school to espouse views on eating disorders was the strategic school. Maria Selvini-Palazzoli (1974) and her co-workers at the Milan Family Center used a strategic approach to treat families of anorexic girls. Although the influence of the Milanese school on the family therapy approach to anorexia nervosa has not been as great as that of Minuchin, the impact has been considerable.

In their clinical studies of families with an anorexic child, the Milan group described certain predominant characteristics (Selvini-Palazzoli, 1974, pp. 205-216).

1. Unlike families with a schizophrenic member, the families of anorexics are thought to communicate in a coherent manner. More disturbed patterns of communication of a psychotic nature have been observed only in families with a bulimic individual.
2. It is common for members of these families to reject messages sent by others. While contradiction is common, there is little resolution of the conflict.
3. The parents are thought to have difficulty in openly assuming the role of leaders of the family. No one is prepared to assume responsibility for what goes wrong.

4. The central family issue relates to the formation of “covert coalitions.” While open alliances between parent and child are prohibited, the child is relegated to the role of secret ally to both father and mother. Selvini-Palazzoli referred to this triangle as “three-way matrimony.”
5. There is a spirit of “self-sacrifice.”
6. The marital relationship is felt to be characterized by a façade of unity, which generally conceals a profound underlying disillusionment. Each partner is thought to compete for a sense of moral superiority, i.e., for who has made the greater sacrifices for the sake of the family.

Both this and the spirit of self-sacrifice have previously been emphasized by Bruch (1974). Though the Milan school’s assumptions are widely accepted, they have not been put to an empirical test, and remain mostly anecdotal.

When bulimia first became recognized in the early 1980s, it was thought that bulimic families were similar to anorexic families. Although both families are dysfunctional, research and clinical observations have reported differences between the two groups (Blouin, Zuro & Blouin, 1990; Dolan, Lieberman, Evans & Lacy, 1989; Garner et al., 1985; Hodges et al., 1998; Humphrey, 1986; Ordman & Kirschenbaum, 1986; 1987; Stern, Dixon, Jones, Lake, Nemzer & Sansone, 1989; Strober, 1981b; Wirth, 1987). Root et al., (1986) described bulimic families as disengaged, hostile, chaotic, and conflicted. They reported that bulimic families have contradictory communication patterns and low levels of expressiveness and cohesion. There have been no systemic formulations regarding BED families and only one study to date that measured social environmental characteristics of families (Hodges et al., 1998).

Family Studies on Eating Disorders

Strober (1981b) was the first to use a standardized scale to investigate the nature of the family environment of anorexic patients, and the first to report familial differences between anorexic patients who present with bulimic symptoms and anorexic patients who only restrict their food intake (restricting anorexic). Using the Family Environment Scale and the Short Marital Adjustment Test, Strober compared 22 bulimic anorexic subjects with 22 restricting anorexic subjects. The results indicated that bulimic anorexic families had higher levels of conflictual interactions and expressions of negativity than did families of restricting anorexics. In contrast, mutual support and concern and clarity of structure of rules and responsibilities were more strongly associated with restricting families. In addition, parents of bulimic anorexic individuals reported greater marital discord than did parents of restricting anorexics. Bulimic anorexic individuals showed more feelings of distance from both their parents (particularly fathers) than did restricting anorexic subjects.

Yager (1982) also used the FES (Family Environment Scale) to compare a group of 30 bulimic anorexics and restricting anorexics. He found great diversity within both groups with regard to how they view their families. In this study, the FES was administered separately to each parent and patient. The results were that each person experiences, or at least reports, a very different family environment. However, the inconclusiveness of this study may, in part, be related to the small sample size.

Humphrey, (1986b) compared patterns of family relations in 16 bulimic anorexic and 24 non-distressed families. The bulimic anorexics were recruited through the University of Wisconsin's Eating Disorder Program where the daughter was beginning

treatment. The remaining 24 families had no prior history of any psychiatric problems in their immediate families. This control group was recruited through the Dane County public schools and through two psychology courses at the University of Wisconsin.

Each family member was asked to complete a set of two rating scales independently of one another. The rating scales were the FES and the Family Adaptability and Cohesion Evaluation Scales II (FACES II). The results were obtained by first factor analyzing the FES and FACES II. Factor analysis of the FES produced eight orthogonal factors, which jointly accounted for 42% of the total variance. The main analyses consisted of a series of repeated measures analysis of variance, with one between factors (bulimic-anorexic group and the control group) and one within factors (using the eight orthogonal factor scores). Each family member's ratings were analyzed separately for the two scales. These ANOVAs were then followed up to determine which factor differed for the two groups.

The three ANOVAs on daughters', mothers' and fathers' FES ratings yielded a significant group-by-factor interaction and a significant main effect for factor. The main effects for groups were not significant. Results from the three ANOVAs for the FACES rating were significant for group-by-factor interaction and for the main effect of factor. On the subsequent main effects, daughters, mothers and fathers agreed that bulimic-anorexic families were significantly more isolated (both scales) and detached (FACES), less involved and less supportive (both) and had poorer boundaries (FACES) than did their control counterparts.

This study, in contrast to Yager's (1982), found similar perceptions among family members. These results lend support to the assumptions that bulimia reflects a

corresponding family-wide problem. However, one of the criticisms of this study was its relatively small sample size. Although there were 120 subjects in the study, only 40 families were involved, and, of these 40, only 16 were bulimic anorexic. Another criticism is that the ANOVAs were performed on the results of the factor analysis. Yet the factor analysis of the FES accounted for only 42% of the total variance. This means that more than half of the variance was unaccounted for. Likewise, the factor analysis of FACES yielded only 45% of the total variance. Additionally, this is a very small sample for factor analysis.

Another study by Humphrey (1986c) tested the psychodynamic formulation that binge eating in bulimia reflects familial and intrapsychic deficits in nurturance, empathy, and to some extent affective regulation. The study compared parental relationships and introjects among young women ($N = 80$) with bulimia, bulimia-anorexia, anorexia and normal controls using Benjamin's Structural Analysis of Social Behavior model and rating scales. The results revealed that the two bulimic subgroups experienced deficits in parental nurturance and empathy relative to normal young women. However, only the deficits in perceived nurturance were specific to bulimia, that is, were more severe than in classical anorexia. In addition, both bulimics and anorexics viewed their parents as more blaming, rejecting, and neglectful toward them relative to normal controls, and they treated themselves with the same hostility and deprivation. These findings did not fully substantiate the psychoanalytic formulation of bulimia. If the psychoanalytic approach is to be considered a comprehensive theory of bulimia, then one would expect to find a pattern of emotional deficits that are specific to bulimia and not to any other form of psychopathology. Otherwise, it is not a theory of bulimia per se. Here, however, only

deficits in parental nurturance and comfort were wholly specific to bulimia and this was not true of anorexia nervosa. Therefore, either the methodology here was inadequate to measure the other central conflicts, or the constructs themselves were too global and nonspecific to be tested empirically. However, for the purposes of this study, the results were significant since they lend support to the idea that families of bulimics and anorexics differ from one another, at least in some aspects.

Johnson and Flach (1985) also investigated the differences between families of bulimics and normal controls. A total of 191 female subjects participated in this study. The bulimic sample ($N = 105$) was recruited from individuals who had contact with an eating-disorders program at a major teaching hospital. Control subjects ($N = 86$) were recruited through undergraduate psychology courses at a large Midwestern university. All subjects were between 19-28 years of age, and were similar regarding age of parents, number of siblings, years of education, religion, race, and marital status. A diagnosis of bulimia was based on a screening to see if the participants met the *DSM-III* criteria for bulimia. All respondents completed an assessment protocol which included the Diagnostic Survey for eating disorders, a self-report questionnaire on symptomatic eating behavior, the Eating Disorders Inventory (EDI), a 64-item self-report questionnaire designed to assess attitudes and behavior common to anorexia nervosa and bulimia patients, and the Family Environment Scale (FES).

The data was analyzed through a series of *t* tests comparing the two groups (bulimic and controls) on all eighteen subscales of the EDI and the FES. The results showed that bulimic subjects scored significantly higher than the control sample on all eight subscales of the EDI. The FES indicated that bulimic women perceived their

families as being significantly less supportive and helpful (low cohesiveness) and reported that their families did not encourage assertive, self-sufficient behavior (low independence). The bulimic subjects viewed their families as experiencing a great deal of conflict and anger (high conflict), and yet they reported that open, direct expression of feelings was discouraged (low expressiveness). Furthermore, although the achievement expectation (achievement orientation) was not significantly different between the two groups of families, there was significantly less emphasis in the bulimic subjects' families on intellectual and social activities and on participation in recreational activities.

In comparing the findings of this study (Johnson & Flach, 1985) to those reported by Strober (1981b) on bulimic and restricting anorexic subjects, it appears that the family environment of the normal-weight bulimic patients is similar to the bulimic anorexic patient. One apparent difference between the two groups is that members of the normal-weight bulimic group scored substantially lower on expressiveness and conflict and higher on achievement expectations than did the bulimic-anorexic subjects in Strober's (1981b) study.

Although the results of the Johnson and Flach (1985) study are quite interesting, there are several criticisms. First, the authors did not clearly describe the screening process. Secondly, differences between the two groups on the 18 subscales were arrived at by multiple *t* tests. It would have been more methodologically sound to analyze the results through discriminant analysis. Also, the findings of this study did not allow one to comment on whether there are specific differences between families of individuals with eating disorders and other symptomatic families.

Ordman and Kirschenbaum (1986) also compared bulimics to normal-weight controls on eating attitudes and behavior, psychological functioning and family dynamics. Their 25 bulimic subjects and their 36 normal controls completed five self-report measures of eating attitudes and behavior (the Binge Questionnaire, the Body Cathexis Test, the Eating Attitudes Test, the Eating Disorder Inventory, and the Eating Pattern Questionnaire), two self-report measures of psychological adjustment (the SCL-90 and the Beck Depression Inventory), two self-report family measures (FACES and the FES), and the short version of the Attitudes Toward Women Scale.

Multivariate analyses of variance were used to analyze the data. If the MANOVAs revealed significant differences, they were followed by ANOVAs. Finally, discriminant function analyses were performed on each group of dependent measures to examine more specifically how well these variables discriminate bulimic from normal subjects. The results indicated that bulimic patients differed significantly from the controls on a variety of measures. Not surprisingly, the bulimics displayed many more problems in their eating attitudes and behaviors. The psychological adjustment measures revealed that the bulimics had a disturbingly high level of distress. On family measures, the two groups differed significantly on all of the FES subscales that make up the relationship dimension. Also, the bulimics reported less cohesion on both the FES and FACES. This is consistent with the theory that bulimic families, unlike anorexic families, are characterized by disengagement.

There were several problems regarding methodology in this study. First, the respondents were diagnosed and grouped by one of the authors of the study. There were no checks to assess if these groupings were correct, and this may have introduced a bias

into the sample. Secondly, although there were 25 bulimics in the sample, only 16 completed all of the instruments. This resulted in a sample size too small for the type of analyses carried out.

The following studies compared three subtypes of eating disorders with control groups. Garner et al., (1985) compared the demographic, clinical and psychometric features of groups of patients with bulimic and restricting subtypes of anorexia nervosa with those of a group of similarly referred bulimic patients who never had been anorexic. Participants consisted of three samples of female patients selected from consultation at the Toronto General Hospital and the Clarke Institute of Psychiatry. The normal-weight bulimic group consisted of 59 patients who reported severe episodes of binge eating, but who had never met the weight loss criteria for anorexia nervosa. The normal-weight bulimics were compared with samples of consecutively referred patients with anorexia nervosa restricting type ($N = 59$) and bulimic subtype ($N = 59$), for whom the presence or absence of bulimia could be clearly determined both by the consulting clinician and the research assistant. Following the initial consultation, subjects completed a comprehensive battery of standardized psychometric instruments. Measures included the Eating Disorders Inventory (EDI), Distorted Photograph Technique, Locus of Control Scale, Hopkins Symptom Checklist, Janis-Field Feelings of Ineffectiveness Scale, Physical Anhedonia Scale, Beck Depression Inventory, and the Family Assessment Measure (FAM). For the purposes of this study, the focus will be on the results of the FAM.

Wirth (1987) compared three groups of eating disorders: restricting anorexics, bulimics, and a mixed group (a combination of bulimia and anorexia). Respondents for

the eating-disorders group were obtained by announcements in local papers. A diagnosis of eating disorder and type of eating disorder was made through the Eating Attitudes Test (EAT). There were six participants in the restricting anorexic group, 16 in the mixed group, and 15 in the bulimic group. Because of the small number in the restricting anorexic group, this group was eliminated from statistical analysis. There were 34 respondents in the control group. All respondents were given the FES and FACES II. Three dimensions were obtained from the two tests. They were relationship dimension, family adaptability, and family cohesion. Five independent ANOVAs were conducted to determine whether the controls, bulimics and mixed type differed on these five dependent variables. Wirth found that the eating disorder group (mixed and bulimic) rate their families as lower in adaptability and cohesion than do control subjects and that there was no difference in adaptability and cohesion between bulimic and mixed anorexics.

There are several criticisms of this study. Respondents were recruited from the newspaper, and were not a clinical sample diagnosed on the basis of the EAT. Although it is a reliable and valid test, it is a self-report instrument. Secondly, Wirth's sample size for the eating disorders subtype was too small. This led to her having to eliminate one group (restricting anorexics) from the study. Also, the data was analyzed by five independent ANOVAs. A MANOVA with ANOVAs as follow-ups would have reduced the possibility of a Type-I error. Also, Wirth did not indicate if the five independent variables were correlated with one another.

Stern et al., (1989) used the FES to evaluate the family functioning of eating disordered families and normal controls. The FES was administered to both the focus groups and controls and a parent of each. His respondents were composed of 57 eating

disordered women (20 with restricting anorexia, 13 with bulimic anorexia, and 24 normal-weight bulimics) and 57 controls. The scores of each subject and her parent were averaged on each FES subscale to derive a family score. One-way analysis of variance used to compare the four-subject, four-parent, and four-family means revealed significant differences on five of the ten FES subscales i.e., cohesion, expressiveness, conflict, achievement orientation, and active recreational orientation. The only statistically significant diagnosis-related difference in family environment among families of patients with bulimic anorexia, restricting anorexia and bulimia involved achievement orientation, on which the parents and families of bulimic patients rated higher than the anorexic families. However, on cohesion, expressiveness, and conflict, the scores of the bulimic-anorexic families were more abnormal than those of the other two patient groups. These results were consistent with Strober's (1981a) findings that parents of bulimic-anorexic patients rated their families higher on conflict and lower on cohesion and organization than did the parents of restricting anorexics. There was no tendency for either of the eating-disorder groups to resemble each other more than they did the third. This finding is in contrast to the report of Garner et al., (1985) who, using a different scale (FAM), observed that families with bulimic anorexia resembled families with bulimia more closely than they resembled families with restricting anorexia. One criticism of this study is that there are problems methodologically with the different cell sizes. In one case (bulimic-anorexic) there were only 13 subjects, and the use of univariate statistics inflates the Type-I error rate.

In a somewhat similar study, Waller, Slade and Calam (1990) used FACES II to compare eating-disordered women to normal controls. They found that eating-disordered

women differed from normal controls in that they were more likely to perceive their families as rigid and disengaged. Although no differences were found among the eating-disorder subtypes, this may have been attributable to problems with the sample size. In this study, 12 patients were anorexic, and 29 were bulimic. They further subdivided the bulimic group into 21 bulimics with a history of anorexia and 8 without such a history. They did not clearly specify if any of the bulimics were currently anorexic. The results of this study were congruent with what previous researchers (Johnson & Flach, 1985; Ordman & Kirschenbaum, 1986) noted among bulimic subjects. This is not surprising when one considers that the majority of participants in this study were bulimic. Other problems with this study included a lack of clarity regarding how the sample was obtained. Kog and Vandereycken (1989) compared the families of 30 eating-disordered patients with 30 normal controls. They tested whether the age (adolescent and young adult) and the symptomatology of the patient (restricting anorexic, bulimic anorexic, and normal-weight bulimic) had a significant effect on behavioral and self-report measure of cohesion, adaptability and conflict. The age of the patient proved to be non-significant. The concepts of cohesion, adaptability and conflict were operationalized by means of both behavioral (semi structured tasks) and self-report measures (Leuven Belgium Family Questionnaire). Parents as well as patients were included in the study. The statistic used to test for differences among the groups was a MANOVA. The findings indicated a difference among the three eating-disorder subtypes. The anorexic families emerge as consensus-sensitive and the bulimic families as interpersonal-distance-sensitive. Their results suggested that families of bulimic anorexics are more similar to restricting-anorexic families than to normal-weight bulimic families. However, the bulimic-

anorexic families tend to have the conflict-avoidant, rigid tight-knit family structure of the restricting-anorexic families, as well as negative perceptions of family interactions by the patients themselves, as in the normal-weight bulimic group, although to a less extreme. The test results of this study differed from other studies (Stern et al., 1989; Waller et al., 1990) indicating no differences among the three groups, but it also differed from Garner et al. (1985) study suggesting a conclusion that bulimic anorexics are more similar to bulimics than they are to restricting anorexics. One of the major flaws with the Kog and Vandereycken study is its extremely small sample size (19 restricting anorexic, 6 bulimic anorexic, and 5 bulimic). However, the results are certainly interesting and add a different perspective to the current body of knowledge.

Dolan, Evans, and Lacy (1989) compared 50 bulimic women with 40 non-eating disordered women. The bulimic sample was based on *DSM-III* diagnostic criteria. The respondents were females between the ages of 17 and 40, and not pregnant. These women were recruited from a clinic program. The control group came from a general practitioners office and were matched by age. They had no history of an eating disorder, had no past psychiatric history nor a history of an eating disorder, and were not pregnant. The normal control group was screened for an eating disorder using two subscales (Drive for Thinness, Bulimia) of the Eating Disorder Inventory (EDI) (Garner et al., 1983). Both groups were given a questionnaire developed for the study inquiring about family relationships and demographic data. There were no major differences in social class, birth order, size of the family, or sibling sex ratio between the groups. The researchers noted that the age of the parents at the time of the birth of the participants was found to be older in the eating disordered group. The authors maintained that the tendency of

parents of bulimics to be older may be a reflection of the family process. Some criticisms of this study are that no reliable or valid instrument was used to assess family function, and researchers did not follow Garner et al. (1983) recommendation that a minimum of three subscales of the EDI should be used to rule out an eating disorder.

Blouin et al. (1990) examined family environment in bulimia nervosa patients, along with the presence ($n = 61$) or absence ($n = 38$) of depression and compared this to normal controls ($n = 37$). Respondents were given the EDI (Garner et al., 1983), the FES (Moos and Moos, 1981), the Hopkins Symptoms Checklist, SCL-90, and the Diagnostic Interview Schedule. The results revealed that all the bulimic women perceived their families as less cohesive, less independent, achievement-oriented, less expressive, and low in recreational endeavors as compared to normal controls. However, these differences were specific to the depressed subgroup of bulimic women. The non-depressed bulimic women were similar to the controls on their perceptions of the family environment with the exception that the bulimic women were less involved in recreational pursuits. The authors suggested that family dysfunction may be related to depression associated with bulimia instead of just bulimia alone.

Head and Williamson (1990) examined the association between the family environment and the psychological profile of bulimia nervosa subjects. They used the *DSM-III-R* criteria and utilized either inpatients or outpatients for the total sample ($N=58$). Respondents were given the Family Environment Scale (Moos and Moos, 1981), the Millon Clinical Multiaxial Inventory (MCMI) (Millon, 1982), and the Eating Disorders Inventory (Garner et al., 1983). Results showed that a restrictive-conflictual family environment with a high level of parental control was associated with neuroticism

and introversion and that these characteristics were inversely correlated with bulimia nervosa. This finding differs from previous research, and the authors suggested that the secondary pathology found in bulimia, as opposed to bulimic symptoms, is associated with the dysfunctional family environment. Another finding showed that an association appeared between a stimulating, achievement-oriented family environment, extroversion, perfectionism, and paranoid personality characteristics. Again, the analysis of data did not support a strong association between a dysfunctional family environment and symptoms of bulimia nervosa. The authors maintained that their study represented a third order of investigation, which deals with whether dysfunctional family characteristics associated with bulimia are correlated with bulimic symptoms. These findings conflict with the results of other studies and imply that dysfunctional family environments are associated with personality disturbances. The authors further speculated that a more specific learning history (e.g., obesity or being teased about weight) may be associated with an eating-disorder diagnosis. Again, it would appear that, if learning takes place within families, that this learning contributes to family dynamics, which impact on the individual with an eating disorder.

Two other studies used Benjamin's Structural Analysis of Social Behavior (SASB) model (Benjamin, 1974) in studying eating disorders. Humphrey (1989) compared observations of families' interactions among anorexic, bulimic and normal families. A total of 74 family triads including father, mother, and teenage daughter participated. Each family was videotaped during a 10 minute discussion of the daughter's separation from the family. These tapes were coded using Benjamin's SASB model and observational schema. The data were analyzed using four repeated measures analyses of

variance (ANOVAs). The SASB methodology differentiated clinical from non clinical families and there were unique patterns among subtypes of eating disorders. Specifically, parents of anorexics communicated a double message of nurturing affection combined with neglect of their daughter's needs to express themselves and their feelings. Anorexic daughters, in turn, were ambivalent about disclosing their feelings versus submitting to their parents. In contrast, bulimics and their parents were hostilely enmeshed, and, for them, this appeared to undermine the daughter's separation and self-assertion. Humphrey claimed that these findings are consistent with current theory and research on anorexia and bulimia. Although that is true, Humphrey also hypothesized that bulimic anorexics would have family patterns similar to bulimics and different from restricting anorexics. This was not borne out by this study. Analysis of the data showed that, although bulimic-anorexic families were consistently more disturbed than control families in their interaction with one another, they were not distinctly different from the other two subtypes of eating disorders. Other researchers (Garner et al., 1985; Strober, 1981a) have suggested that the interfamilial environments of bulimics are similar to one another and different from restricting anorexics. However, the results of this study lend support to Stern et al.'s (1989) findings that bulimic anorexic families have more abnormal scores on family measures than do either normal-weight bulimics or restricting-anorexic families. Further investigation of the eating-disorder subtypes is indicated. Additionally, a criticism of Humphrey's study is that she used univariate statistics rather than the more appropriate multivariate statistics to analyze her data. Furthermore, since the purpose of her study was to discern what particular characteristics differentiate the eating-disorder

subtypes, multiple regression, rather than analysis of variance would be a more appropriate statistic.

In a more recent study Fornari et al. (1999) examined family functioning and depression among four eating disordered subtypes (anorexic nervosa, bulimia, anorexia/bulimia and eating disorder-NOS). Family functioning was measured by the McMaster Family Assessment device (FAD) and depression was measured by self-report (the Beck Depression Inventory). Subjects also participated in a structured interview (SADS-L) that was used to elicit symptoms of affective disorder and schizophrenia.

The mean FAD scores for the four groups were compared using analysis of variance. Post-hoc comparisons were made using Tukey's least significant difference test. Pearson product-moment correlation coefficients were used to measure the relationship between FAD subscales and the severity of depressive symptoms. Two sets of analysis of covariance models were used to examine the family functioning scores. The group factors were eating disorder diagnoses. The covariates were depression, age, SES, and educational level.

The results of this study indicated no significant difference between the eating disorder subgroups and perceived family interaction. There was also no difference in the mean BDI scores for the former eating disorder diagnostic groups. However, overall the eating disorder groups were significantly depressed. Fornari et. al. (1999) concluded that the presence of self-reported depressive symptoms is the best predictor of perceived familial dysfunctional patterns, even better than a clinical diagnosis of major depressive disorder.

There were several methodological considerations in this study worthy of discussion. First, the ages of the subjects ranged from 9.7 to 29.9, which was significantly different from most of the other studies which examined adults' perception of family functioning. Secondly, although the FAD can discriminate between eating disorder subtypes and normal controls, it has historically not been able to differentiate among the eating disorder subtypes. Finally, there were only 26 subjects in the bulimic group and 13 in the ED-NOS group, and the ED-NOS group was made up solely of BED subjects.

Hodges et al. (1998) completed the first study to examine the family characteristics of BED patients utilizing *DSM-IV* (1994) criteria. The FES was administered to 88 patients with a *DSM-III-R* (1987) diagnosis of an eating disorder (23 restricting anorexic, 45 bulimic, and 20 bulimic anorexic) as well as 43 patients with BED as defined by *DSM-IV* (1994) criteria. Statistically significant differences were found among the groups in the cohesion, expressiveness, and active-recreational subscales of the FES by analysis of variance. On the cohesion subscale significant differences were noted between anorexia nervosa and BED, with anorexia nervosa scoring higher than the BED cohort. Bulimics and BED individuals did not differ from each other in cohesion, and all four eating-disordered groups, when compared to normative data, were significantly lower on cohesion. On the expressiveness subscale, significant differences were noted for BED and bulimia nervosa, with the bulimia nervosa group scoring higher than the BED group. BED individuals also scored lower than the anorexic individuals in expressiveness, but the difference was not statistically significant. All four eating-disorder groups scored lower than the comparison normative

data on expressiveness. On the active-recreational subscale there were significant differences for BED when compared to all eating-disorder subtypes and normative data. As one might expect, the BED individuals, who were also frequently obese, scored lower on this subscale.

This study is important since it represents the first attempt to examine the family characteristics of the BED population. The results indicated that BED individuals differed from control groups in all areas, and they are similar to bulimics on cohesion and similar to anorexics on expressiveness. Replication of this study is indicated. Replication should involve using other variables, like depression, which may shed a different perspective on the results. Also, in repeating this study, one should consider using all *DSM-IV* (1994) classifications rather than the *DSM-IV-R* (1987) classifications, which were used for anorexia and bulimia.

Attachment Theory

Within the conceptual framework of attachment theory, the attachment relationship is differentiated from other relationships by its primary function, which is protection. According to the model, the outcome of attachment is behavioral and/or psychological proximity and its set goal is subjective "felt security." The attachment model provides a framework to understand how problems with eating, self-esteem and mood regulation can occur.

Attachment theory was developed by John Bowlby (1969) and Mary Ainsworth (1963). Their attachment theory combined concepts from developmental, cognitive, social and personality psychology and systems theory as well as ethology, cybernetics

and psychoanalysis. Attachment theory grew out of Bowlby's and Ainsworth's observations of infants separated from their mothers. Subsequently, most of the empirical work arising from attachment theory has focused on individual differences in patterns of attachment in infancy and early childhood assessed through observation of responses to threats to attachment, that is, separations from parents (Ainsworth, Blehar, Waters & Wall, 1978). The main difference is between patterns classified as secure and those classified as insecure. According to attachment theory, secure attachment arises when infants develop, through experiences of appropriate parental responsiveness, an expectation that parents will be available and that they are worthy of care (Dozier, 1990). In times of threat, the securely attached infant actively seeks closeness to the caregiver in order to reduce distressing affect, actively greets the parent upon reunion, and at other times is able to interact confidently with the world. Insecure attachment occurs when the expectations of parental availability and personal self-worth fails to develop because of perceived inaccessibility or inappropriate responsiveness of the caregivers. Ainsworth et al. (1978) described two types of insecure attachment: insecure-avoidant (Group A) and insecure-ambivalent (Group C).

In times of threat, the insecure-avoidant infant minimizes the importance of the parent's absence, often failing to seek closeness at reunion or to display separation distress. Ainsworth et al.'s (1978) findings suggested that the infants in the insecure-avoidant group were anxious as well as avoidant. These infants lacked confidence in their mother's accessibility and responsiveness. Ainsworth et al. (1978) described these infants as having a classic approach-avoidance conflict. Because they experienced chronic frustration, these infants tended to be angry. Bowlby (1988) described infants in

this category as lacking confidence in their parents' responsiveness as well as expecting rebuff. According to Ainsworth et al. (1978), the mothers of the insecure-avoidant infants were rejecting as well as frequently angry with and irritated by the babies. They were characteristically rigid and compulsive, and generally rebuffed the infant's desires for close physical contact.

The other type of insecurely attached infant, according to Ainsworth et al. (1978), is the insecure-ambivalent infant. In describing the insecure-ambivalent infants (Group C), Ainsworth noted that they were anxious in their attachments to their mothers. They cried more than infants in the secure group and manifested more separation anxiety. They did not appear to have confident expectations of their mothers' accessibility and responsiveness. They were unable to use the mother as a secure base. In the presence of strangers, they were distressed.

Infants in the insecure-ambivalent group were slower to be soothed than the secure infants. They mingled angry resistance with clinging behaviors. The conflict of these infants was between wanting close bodily contact and being angry because their mothers did not constantly pick them up when they signaled or did not hold them as long as they desired to be held. Because mothers were insensitive to their signals, infants in the group lacked confidence in their responsiveness. When the attachment systems were activated, these infants were doubly upset because they had learned to expect to be frustrated rather than comforted (Ainsworth et al. 1978). Bowlby (1980) described this type of infant as having an anxious-resistant attachment. Because this infant was uncertain whether the parent would be available or responsive, the child was prone to separation anxiety, tended to cling, and was anxious about exploring the environment.

Ainsworth et al. (1978) described the mothers of the Group C infants as less responsive to crying, signals, and communication in general. They were not rejecting as were the mothers in Group A. They did not appear to have an aversion to physical contact with the infants. Bowlby (1978) viewed this type of parent as inconsistent in responding to signals and possibly using abandonment as a means of control. Main and Solomon (1990) have identified a third type of insecure attachment characterized by mixed, disorganized, and disoriented responses to separation and reunion.

In broad terms, working models of attachment at a cognitive level include memories of attachment-related experiences, beliefs, attitudes, and expectations about the self and others in relation to attachment; attachment goals and needs; and plans and strategies to achieve these goals and satisfy these needs (Collins & Read, 1994). This move to “the level of representations” (Bretherton, 1985, p.42) has facilitated the application of observations of individual differences in infants’ separation and reunion behavior to attachment in older children, adolescents, and adults. Research in attachment theory has focused on enduring attachment styles (Mikulincer & Nachshen, 1991), and adult’s representatives of childhood experiences with their parents (Main, Kaplan, & Cassidy, 1985).

The premise of the application of attachment theory to psychopathology in adults and adolescents is that the behavioral, cognitive and affective realities of the attachment system are central to the progress toward adaptive functioning and personality formation. The attachment experience impacts on the development of beliefs and competencies regarding interpersonal functioning, the emerging sense of self, self-efficacy, self-esteem, the capacity to regulate affective life, and motivation. According to Cicchetti (1993),

insecure attachment puts one at risk, not only of significant impairments in areas of functioning, but also has the possibility of profound disruption or delay in the individual's psychological development through "sensitive periods." This may be particularly true for periods which necessitate changes in attachment relationships. Certainly, adolescence with its emphasis on separation from the parents and gaining independence, is a sensitive period for the attachment system. Since the majority of eating disorders have their onset in adolescence, it is likely that these eating disturbances are a manifestation of a disruption in the attachment process.

Attachment and Eating Disorders

Bruch (1973) and Masterson (1977) theorized that attachment disruption was related to the development of an eating disorder. Despite differences in emphasis, each of these theorists described disturbances in early infant-mother relationships, the demand for increasing independence at adolescence, and the obsessive pursuit of thinness, which is the core phenomenon of the pathology of anorexia nervosa. While theorizing about the nature of impaired developmental processes in bulimia is more recent, it also emphasizes inappropriate parental involvement and the resultant "failure to adequately separate both physically and cognitively from the maternal object" (Sugarman & Kurash, 1982).

In terms of attachment theory, the development of autonomy is equivalent to freedom to explore the physical and social environment and is predicated on the secure base of attachment relations and the internalization of this sense of security (Hazan & Ziefman, 1994). O'Kearney (1996) hypothesized:

The over intrusiveness and non-contingent protectiveness of the mother of the anorexic do not allow the infant to develop adaptive self-competencies to tolerate the distress and anxiety associated with any threat of separation. The prediction from attachment theory is that such infants would show patterns representing insecure attachment when the attachment system is threatened. However, it is difficult to be more precise in mediating the type of insecure attachment involved in anorexia as the pathological pursuit of thinness and the exclusive reliance on weight and shape for self-evaluation and self-esteem may be interpreted as reflecting either insecure-avoidant or insecure-ambivalent attachments. It could be argued that the anorexic's preoccupation with her body enables her to dismiss the importance of family and peer relationships and avoid the anxiety involved in separating from family and establishing peer attachments and indeed to avoid the necessity of these changes. Alternatively, the emphasis on body shape, weight, and appearance could be seen as a type of hyper vigilance to the judgments of others and to the possibility of criticism, rejection and abandonment. In either case, the symptoms of anorexia may function to regulate and ensure predictability in the young women's proximity to parents and peers (p. 119).

Regarding bulimia O'Kearney (1996) believed:

In the case of bulimia, the above formulations also predict insecure attachments with bingeing viewed as a regressive attempt to maintain a sense of connection and hence to escape from the anxiety associated with

separation. The psychological features of binge eating such as loss of control and volition that accompany the frantic consumption of food could be seen as reflecting, in attachment terms, the uncontrollable distress connected with separation for the insecure-resistant type of attachment (p. 119).

Although O'Kearney (1996) did not comment on BED, some of the same issues in bulimia would also be present here.

Research on Attachment and Eating Disorders

Most of the literature on eating disorders and attachment is clinical and theoretical and does not rely heavily on empirical observations. The information which is reported in this section represents what is currently known empirically about bulimia and anorexia and attachment. There is a lack of empirical studies on attachment and BED.

The instrument that is most widely used to measure attachment is the Parental Bonding Instrument (PBI) (Parker et al., 1979). This instrument measures maternal and paternal care and overprotection. Palmer et al. (1988) used the PBI in their study of 72 female adults, patients referred to an eating-disorder clinic in the United Kingdom. Diagnoses were made according to *DSM-III* criteria. There were 35 subjects diagnosed with anorexia and 37 diagnosed with bulimia. The comparison group was drawn from published normative data from Australian-general-medical practice patients (Parker, 1983). Anorexics and bulimics in this study reported their mothers as less caring as compared to the normative sample. Only bulimics in the sample described their fathers as less caring. Neither eating-disordered group differed from the normative sample in

terms of perceived maternal and paternal protection. The data from this study did not support the hypothesis that eating-disordered patients, particularly anorexics, have a childhood characterized by overprotection. Three criticisms of this study are that the cultural differences of the Australian normative group as compared to the British sample were not taken into consideration (see chapter 3 – description in Parental Bonding Instrument), and that the study was one-dimensional. That is, other family scales were not also utilized. Also, the author did not control for other types of psychopathology, mainly depression, which could have affected the results of the study.

Pole, Waller, Stewart and Parkin-Feigenbaum (1988) measured PBI responses of 56 U.S. bulimics being treated at an outpatient eating disorder clinic and 30 age-matched controls. These respondents were also administered the Beck Depression Inventory (BDI). A significant lower proportion of bulimics described their parents as “optimal” (high care, low protection). Perceived differences in maternal care were most powerful in discriminating bulimics from controls with a “trend” toward significant differences in paternal over protectiveness. Depressive symptoms did not appear to be related to the respondents’ current negative perceptions of earlier parenting. This study addressed two of the criticisms (i.e., cultural differences and depression) of the Palmer et al. (1988) study, but still was one dimensional in its measurement of family dynamics.

Calam et al. (1990), of the United Kingdom administered the PBI to 98 eating-disordered women, recruited from clinical practices and self-help groups (31 anorexics, 34 bulimics with a history of anorexia nervosa, and 33 bulimics with no history of anorexia nervosa). They were compared to 242 female volunteers. Maternal and paternal care scores and paternal protection scores discriminated the controls from the

eating-disordered group. Additionally, there were some significant differences between the individual clinical groups. The bulimics with a history of anorexia perceived their fathers as less caring. The bulimics with no history of anorexia perceived both parents as less caring. This is somewhat consistent with family theories about anorexia and bulimia, which indicate that bulimics will come from families where there is less care than anorexic families. Some criticism of this study relates to its problems in sampling. Eating-disordered women were chosen from self-help groups rather than a clinical sample. Additionally, there was no screening done of the control group to eliminate those with eating problems. Finally, the study was uni-dimensional since it examined only PBI scores and did not take into account any co-existing psychopathologies.

Steiger et al. (1989) also used the PBI together with measures of defense style and eating attitude in a comparison of 58 eating-disordered and 24 non-eating-disordered women in Montreal. The eating-disordered women were divided into four subgroups using *DSM-III-R* criteria, anorexia nervosa/restrictor ($n = 15$), anorexia nervosa/binger ($n = 9$), normal-weight bulimia ($n = 21$), and bulimia following a prior history of anorexia nervosa ($n = 13$). One strength of this study was that the control group was given the Eating Attitude Test to rule out any eating disorder pathology. In the PBI measures, there were significant differences between the two groups in paternal care and protection. Eating-disordered respondents rated their fathers as less caring than the non-eating-disordered women. On the overprotection dimension paternal over protectiveness was noted for bulimic anorexia. No significant differences were noted on measures of maternal care or overprotection. A criticism of this study is that its small sample size makes prediction unreliable.

Rhodes and Kroger (1992) used the PBI along with the Separation Individuation Test of adolescence in their New Zealand study. 20 eating-disordered women were compared with 20 late adolescent, control-group women. The control group was administered the Eating Disorder Inventory (EDI) to rule out the presence of an eating disorder. The eating-disorder subtypes were identified by using *DSM-III-R* (1987) criteria and were as follows: anorexia ($n = 4$), bulimia ($n = 9$) and seven subjects met the criteria for both disorders. The eating-disordered women rated their mother as less caring and more protective than the non-eating-disordered women. Anorexics scored significantly higher than bulimics on the Father Care Scale of the PBI. A criticism of this study is its extremely small sample size and the fact that it did not control for other psychopathology.

Although the results of studies that utilized the PBI have been inconclusive, there is a trend for the eating-disordered to score their parents lower in care and higher in overprotection. The difference among subtype is less conclusive, but there have been several flaws in the studies. The flaws include inadequate sample size, not controlling for distorted eating behaviors in the control groups, cultural differences, and not controlling for other types of psychopathology, most notably depression. Other studies of attachment using measures other than the PBI will be commented on briefly.

Haesacker and Neimeizer (1990) examined the relationship between eating-disorder behavior as measured by the EDI and the EAT, object-relation function using the Bell Object Relations Inventory, and aspects of relational schema. Their sample was not a clinical sample, but was a sample of 183 college women who volunteered to take part in a study of eating attitudes and interpersonal relationships. Using multiple-regression

analysis the results indicated that higher levels of self-reported eating disturbances were related to a particular pattern of object relations. This pattern implied that more insecure attachment in formative, parental relationships was associated with greater eating disorder.

Kenny and Hart (1992) examined the relationships between the three scales of the Parental Attachment Questionnaire (PAQ) and the eating-disorder symptoms measured by the EDI. The eating-disorder sample consisted of 68 female inpatients with bulimia ($n = 50$), anorexia ($n = 18$) and 162 college women. The eating-disorder group scored lower than the college group in the PAQ measures of affective quality of attachment, parental fostering of autonomy, and parental role in providing emotional support. In addition, the perceived affective quality of attachment to the parents and the degree to which the parents were judged to promote autonomy were negatively associated with feelings of personal ineffectiveness, preoccupation with thinness, and high levels of bulimic behavior.

In a study on parental attachment, eating disorders and affective instability, Salzman (1997) conducted a semi-structured clinical interview with 28 female college undergraduates. Two readers coded common themes focused on attachment to mother and experience of self. Ten subjects were classified as secure, 11 as ambivalent and 7 as avoidant. Relative to the other 2 attachment groups, the most stunning observations among the ambivalently attached subjects were the prevalence of eating disorder in 7 of the 11 subjects, and reports of dysthymia and an inability to regulate affect in 9 of the 11 subjects. Although the sample size was small, this study has interesting implications

since it sheds further light on the connection between attachment difficulties, eating problems and depression.

Several recent studies have examined attachment patterns in eating disorders. Ward et al. (2000) used the Reciprocal Attachment Questionnaire (RAQ) to focus on the ability to form reciprocal adult attachments, that is, those that would typically be embodied in partner or spousal relationships. The author believed that such attachments reflect both the internal working models received from childhood and subsequent experience with important attachment figures. This study found significant differences in reciprocal attachment patterns between eating-disordered participants and controls. However, the various attachment patterns did not differentiate the different diagnostic subgroups of eating disorders. They concluded that attachment insecurities may cut across eating disorder diagnoses.

Rorty et al. (2000) administered the Parental Intrusiveness Rating Scale (PIRS) to 26 bulimic subjects and a non-clinical cohort of women. The results of their study indicated that women in the bulimic group reported that their mothers were more likely to invade their personal privacy, related to them in a jealous and/or competitive manner, and showed excessive or intrusive concern with their eating, weight, and shape during adolescence, relative to women in the comparison group. With regard to fathers, bulimic women reported higher levels of seductiveness or sexualized interactions and greater parental concern with the daughter's eating behaviors relative to comparison women.

Dominy et al. (2000) examined the perception of parents and satisfaction with life among obese women with and without eating disorders. Groups consisted of obese women with BED ($n = 32$), obese women who had no eating disorders ($n = 51$), and non-

obese women with no eating disorders ($n = 30$). All participants completed the Parental Acceptance/Rejection Questionnaire (PARQ), the Satisfaction with Life Scale (SWLS) and the Beck Depression Inventory (BDI). The results indicated that women with BED perceived their fathers as more rejecting than did women in the other group. Also, BED women perceived their fathers as significantly more rejecting than their mothers. The BED group indicated lower satisfaction with life and higher levels of depression than the group without eating disorders. The authors concluded that since most of the research on eating disorders focused on the mother-daughter relationship, perhaps further research on the father-daughter relationship is indicated, especially as it relates to BED. Research on attachment difficulties in BED is minimal. It is hoped that this current study will provide us with a better understanding of attachment difficulties in the BED population.

Depression and Self-esteem

Bowlby's (1980) attachment theory maintained that primary relationships can predispose individuals to depression, and that there is a connection between self-esteem, self efficacy, and the quality of attachment. This section will explore theories of depression and self-esteem and will discuss studies relating these variables to eating disorders.

Depression

There are a variety of theories that describe depression. The major theoretical schools of thought on depression include the psychoanalytic perspective (Freud, 1917/64;

Rado, 1928), ego psychology orientation (Bibring, 1953), interpersonal formulations based on cultural, societal and interpersonal influences (Adler, 1918), cognitive explanations (Beck, 1961; Seligman, 1975), biological approaches (Baldessarini, 1975), and object-relations theories (Bowlby, 1980; Fairburn, 1946/52; Sandler, 1976). In this section we will explore depression from an object-relation, and more specifically, an attachment perspective. Bowlby (1969/1982) focused on the primacy of developing affective bonds throughout a child's development. The quality of these affective bonds reflected the developmental progression towards ongoing differentiation of the self and object and the capacity of the object to respond in emotionally mature ways to the needs of the infant. Thus, the impact of any interaction was conceptualized as being affected by the child's subjective experiences and underlying innate factors. However, when actual or perceived loss was experienced, the dominant factor which determined the response of a child was related to the early intrapersonal experiences that provided an inner sense of security developed through a trusting bond. Such an introjected support structure could help to tolerate loss and foster new attachments which were seen as renewals of bonds that were a source of emotional comfort (Bowlby, 1980). Subsequent distorted self-other relationships are viewed as manifested in either over-ready elicitation of attachment or anxious attachment, or in more maladaptive attachment behavior, partial or complete withdrawal of attachment behavior.

Eating Disorders and Depression

In numerous studies depression is prominent in the clinical presentation of anorexia, bulimia, and BED. Longitudinal data in anorexia indicate a 20-40% rate of

depression (Morgan & Russell, 1975). Rates of depression among BED individuals have been reported to range from 24-51% (Marcus et al., 1990). Bulimics affective instability is well-documented with lifetime prevalence rates of depression ranging from 47-73% (Fornari et. al., 1999). Strober and Katz (1988) suggested four possibilities to explain this coexistence. (a) Depressive disorder, when it occurs in certain personality types, increases the risk for the development of weight-preoccupation culminating in an eating disorder. (b) Certain aspects of the inadequate and unusual nutrition of eating-disorder patients could account for deficiencies in precursors essential for the synthesis of neurotransmitters required for normal limbic hypothalamic system functioning, which may result in depression. (c) A combination of the social, psychological, and physical stresses associated with eating disorders may precipitate depression in eating-disordered patients with pre-existing affective instabilities. (d) Some form of eating disorder and affective disorder may have psychological and/or biological risk factors in common, thereby increasing the likelihood of the co-morbidity. Since difficulties in attachment have been noted for depressed patients and eating-disorder patients (Salzman, 1996), this may be one of the links between the two disorders.

Research on Eating Disorders and Depression

There have been many studies on anorexia and bulimia and depression. In this section we will briefly discuss some of the older studies, but will focus mostly on more current studies, particularly those regarding BED.

Descriptive studies have involved objective and standardized instruments to arrive at estimates of depression in eating disorders. The general finding across diverse

instruments including the Beck Depression Inventory (BDI) (Hatsukami, Eckert, Mitchell & Pyle 1984; Lee et al., 1985), Minnesota Multiphasic Personality Inventory (MMPI) (Strober, 1983), Hamilton Depression Rating Scale (Lee et al., 1985) has been of mild to moderate levels of self-reported depression in both anorexia nervosa and bulimic patients.

In one study Rosen et al. (1989), compared psychological and depressive symptoms among restricting anorexics ($n = 19$), bulimic anorexics ($n = 23$), and normal-weight bulimics. The participants were given both the Zung Self-Rating Depression scale and the Hamilton Rating Scale. The groups did not statistically differ from one another. However, the trend was for the bulimic anorexics to score lower in depression. The problem with this study was its small sample size.

Other studies have compared bulimics with obese binge eaters on various measures of depression. Prather and Williamson (1988) gave 48 patients who presented to an eating disorder clinic ($n = 16$ purging bulimics, $n = 16$ non-purging binge eaters, and $n = 16$ obese non-binge eaters) the MMPI, the SCL-90-R, and the BDI. There was also a control group comprised of 16 subjects. Clinically important differences in psychopathology were noted in the three eating-disordered groups as compared to normal controls. The results suggested a continuum with binge-purgers having the highest level of depression on the BDI. The BDI scores of the clinically obese binge eaters were higher than the control group. A small sample size was used in this study. There were an equal number of respondents in each group.

Marcus et al. (1990) compared the prevalence of Psychiatric Disorders among obese binge eaters ($n = 25$) and obese non-binge eaters ($n = 25$). Sixty percent of bingers

met criteria for one or more psychiatric disorders, compared with 28% of non-bingers, with differences most apparent in affective disorders. Thirty-two percent of obese bingers reported a history of affective disorder versus only 8% of non-bingers. Criticisms of the study are its small sample size and the fact that it was obtained from newspaper solicitation rather than a clinical sample.

Fichter et al. (1993) compared 22 BED subjects to a matched sample of bulimia-nervosa participants and to 16 obese subjects without BED. The bulimia-nervosa group displayed increased psychopathology compared to the BED group. However, BDI scores were equal in the two groups. This study has been criticized because of its small sample size.

Raymond et al. (1995) compared 35 obese BED participants with 35 bulimic subjects. The participants were given the Hamilton Depression Scale and the BDI. The results from the Hamilton and BDI all indicated higher levels of depression in the bulimia-nervosa respondents. However, only the mean BDI scores for the bulimia-nervosa group indicated a level of depressive symptoms that would be considered clinically significant.

Raymond et al. (1995) examined the relationship among onset of binge eating, dieting, obesity, BED, and affective disorder in a sample selected from a treatment study of BED. Current major depressive disorder, alcohol abuse, and any history of substance dependence were exclusionary criteria for the treatment study from which this sample was selected. Therefore, these findings may underestimate the actual rates of psychopathology found in the general BED population. However, half of the sample reported a history of clinical depression.

Considering the high level of depression in eating-disordered individuals one needs to question if the depressive syndromes in eating disorders and those diagnosed with an affective disorder are similar. Cooper and Fairburn (1986) demonstrated that bulimia-nervosa patients could be differentiated from primary unipolar depressives on the basis of aggregate syndrome scores on the Present State Examination (PSE), as well as the frequency of individual PSE items. Simple depression was present in a significantly greater number of depressives whereas bulimic patients were more likely to score positive on PSE syndromes of obsessional behaviors, situational anxiety, and hypomania. Individual symptoms occurring more frequently in primary depressive disorder included depressed mood, social withdrawal, loss of usual interests, suicide thoughts, and a loss of libido. In contrast, bulimics were distinguished by increased symptoms of pathological guilt, rumination, autonomic and situational anxiety, and expansive mood. Discriminant analysis of this data produced a bimodal distribution of symptom scores, implying a fundamental difference in profiles across the two populations. In a more recent study, Crow & Crosby (1996) administered the Hamilton Depression Scale to 122 BED patients, 142 bulimic patients, and 200 major-depression patients. Discriminant analysis indicated that all three groups differed significantly. Those subjects with major depressive disorder ranked highest on depression, and BED subjects ranked the lowest. BED participants and bulimic participants scored very similarly. Only three items distinguished the BED and bulimia-nervosa participants from each other. The three items were gastrointestinal somatic symptoms, paranoid symptoms, and obsessional symptoms. This study validated Cooper and Fairburn's conclusions that, despite the fact that eating-

disorder participants have a higher ratio of depression than in the general population, they differ from those with major depressive disorder.

Three studies that were previously discussed in the family-dynamics literature review are briefly mentioned here. Blouin et al. (1990) divided bulimic subjects into depressed and non-depressed groups and administered the FES. The results indicated that depressed bulimics perceived their families to be more controlling, less cohesive, less encouraging of independence, less expressive, less encouraging of recreational pursuits, and more achievement-oriented. Non-depressed bulimic patients did not perceive their families as more distressed than controls, with the exception that non-depressed bulimics saw their families as being more achievement-oriented. In this study the bulimic non-depressed group was quite small ($n = 18$) and this may have affected the results. Blouin et al. concluded that family distress in bulimics' families may be more a function of depression rather than bulimia.

Salzman (1996) examined the role of affective instability and eating disorders in attachment difficulties. Her respondents received 2 hour, semi-structured interviews focused on attachment to mother and experience of self. Based on these interviews, participants were categorized as securely attached ($n = 10$), ambivalently attached ($n = 11$), avoidantly attached ($n = 7$). Those who were ambivalently attached reported affective instability (in 9 of 11 subjects) and histories of anorexia or bulimia (7 of 11 subjects). She concluded that her findings suggested specific areas of overlap among ambivalent attachment, affective dysregulation, and eating disorders. However, it should be noted that these associations are based on very small numbers. Moreover, because the

investigation was not originally intended as a clinical study, it did not include formal diagnostic indices for psychopathology.

Dominy et al. (2000) administered the BED Depression Inventory to obese women with BED, obese women with no eating disorder, and non-obese women with no eating disorder. The BED group scored higher in depression than did either of the two other groups. The authors noted that despite the difference, the BED group could only be classified as “mildly depressed”, not “clinically depressed.”

Self-esteem

The parental role in the development of self-esteem, and the association between low self-esteem and eating disorders will be discussed in this section. Two theorists who have laid the foundation for self-esteem theory are Coopersmith (1967) and Rosenberg (1965). Coopersmith believed that the antecedents of self-esteem could be stated as three conditions:

Total or nearly total acceptance of the children by their parents, clearly defined and enforced limits, and the respect and latitude for individual action that exist within the defined limits (p. 236).

According to Coopersmith (1967), acceptance was manifested as concern, affection, close rapport, and availability. The idea of availability during times of distress is closely correlated with the tenets of attachment theory. In discussing limits, Coopersmith concluded that parents who established and enforced rules provided their children with a definition of reality and answers that had the potential to minimize doubt and anxiety and to maximize success. In examining respect, Coopersmith thought that

the inclusion of children in some family planning and decision-making was a form of both acceptance and respect. Coopersmith also found that parents with higher self-esteem did not have a need "to gain vicarious successes from the accomplishments of their children and were able to provide their children with a definite idea of what they expected and desired.

Rosenberg (1965) also observed on the role of parents in developing a child's self-esteem. His focus was primarily on how parental indifference affected self-esteem. He concluded from his data that extreme parental indifference is associated with lower self-esteem in a child and may be more damaging than punitive parental reactions. His data also revealed that the association between parental indifference and a child's self-esteem was not related to socioeconomic status, race, or religion. This theoretical discussion of self-esteem provides evidence that both Coopersmith's and Rosenberg's ideas about the development of self-esteem overlap with attachment theory.

Self-esteem and Eating Disorder

Self-image deficits, in particular low self-esteem, are often present well before the onset of an eating disorder (Bruch, 1973; Button, 1993). Additionally, many theoretical models contain an emphasis on fluctuations or changes in self-esteem and negative affect as factors that contribute to binge-eating behavior (Johnson & Connors, 1987). Both bulimia-nervosa patients and dieters appear to have lower than average self-esteem (Eldridge, Wilson & Whaley, 1990). Polivy and Herman (1993) believed that there are several reasons for this. It may well be that having a low opinion of oneself makes individuals vulnerable to the pressures to be thin and thus more likely to diet. It may be

that those who decide to diet and then find themselves subsequently losing control of their eating and engaging in eating binges may feel worse and worse about themselves, lowering their levels of self-esteem each time they failed at dieting. Of particular importance to this study is the connection between eating disorders, family environment, and self-esteem. Leung, Schwartzman, and Steiger (1996) suggested that family environment contributes to the development of an eating disorder in two ways. On the one hand, family preoccupation with weight and appearance has a direct effect on body dissatisfaction and eating symptoms. Body dissatisfaction has a direct effect on self-esteem and eating symptoms. On the other hand, general family dysfunction has a direct influence on negative self-esteem and an indirect one on eating and psychiatric symptoms. Leung et al. tested their hypotheses on 918 high school students in Montreal. The findings did not validate these hypotheses, but there were several limitations to the study. First, the measure of family attitude toward weight and appearance did have face validity, but construction and external validity were not established. Secondly, since it was a correlational study, it was vulnerable, as are all correlation-based studies, to alternative casual explanations and influences of non-measured variables.

Summary

The various eating disorder subtypes – anorexia, bulimia and binge-eating disorder – were described. It was noted that each subsequent *Diagnostic and Statistical Manual (DSM-III, DSM-III-R, and DSM-IV)* redefined anorexia and bulimia. Binge eating disorder, as an eating disorder not otherwise specified, was added only recently. These changes in definition make comparisons across studies difficult.

Family environment and its role in eating disorders were also addressed. The contributions of Bruch (1974, 1978), Minuchin et al., (1978), and Selvini-Palazolli (1974) were noted. The literature on family environment and eating disorders were reviewed. To date there has been only one research study, which focused on BED and family environment (Hodges et al., 1998). The findings in Hodges et al. (1998) study support a hypothesis of this study, as it supported the position that all eating-disorder participants differ from the norm on cohesion. Additionally, Hodges et al. (1998) also found that the anorexic participants scored higher on cohesion than the BED and bulimic participants, and that no difference was noted between BED and bulimic participants on cohesion. The authors, however, did find differences between the BED and bulimic participants in the expressiveness subscale and the active-recreational subscale. Bulimic participants scored higher on both the expressiveness and active-recreational subscales than did the BED participants.

Attachment theory and its relationship to family environment was discussed. There have been several studies to examine attachment models in anorexia and bulimia. These studies, especially those using the Parental Bonding Instrument, were reviewed. Although the results of these studies were mixed, there is some evidence to support hypothesis b in this study. Several researchers (Calam et al., 1989; Pole et al., 1988; Rhodes & Kroger, 1992; Steiger et al., 1989) found that all eating-disordered groups differ from normal controls on parental bonding. However, anorexic and bulimic participants also differed from each other in the Care dimension with bulimic participants reporting lower levels of care than the anorexic participants. The impact of the Protection dimension was somewhat inclusive. There have been limited studies on

attachment and BED (Dominy et al., 2000), and more using the PBI. However, since bulimic participants and BED participants have scored similarly on related family measures (i.e., cohesion), the assumption was that they will score similarly on parental bonding.

Depression is a variable often cited in eating-disorder research. The relationships of depression to family environment and attachment theory were examined. Several researchers have reported higher rates of depression in all eating-disorder subtypes when compared to a normative sample (Fornari et al., 1999; Hudson et al., 1987; Marcus, Wing, Ewing, Kern, Gooding, & McDermott, 1990). Prather and Williamson's (1988) study suggested a continuum with bulimics having the highest levels of depression and anorexic participants having the lowest level of depression among the eating-disorder subtypes. BED participants' scores on the level of depression fell between the bulimics' and anorexics' scores. This supports hypothesis C.

Another variable frequently cited in eating-disorder research is self-esteem. Theories of self-esteem and its relationship to eating disorders will be explored in this study. Bruch (1973) and Button (1993) reported low levels of self-esteem among eating-disorder subtypes. Both bulimic participants and BED participants reported extremely low levels of self-esteem (Eldridge et al., 1990; Polivy & Herman, 1993). This is in support of hypothesis D.

In conclusion, the review of the literature supports the premise that there are relationships between cohesion, parental indifference, insecure attachments, and the development of an eating disorder, depression, and low self-esteem. This study focused on examining these relationships. There has been limited research on BED. A purpose

of this study was to understand how BED is related to other eating disorders (bulimia and anorexia) with particular emphasis on the connection between BED, family relationships, depression, and self-esteem.

CHAPTER III

Methodology

This chapter outlines the methods used in the investigation. Major attention is given to participants and setting, instrument administration, and procedures, including collection of the data, and the statistical analyses.

Participants and Setting

The sample included 162 women between the ages of 18 and 45. There were three groups. Two of the groups were eating-disordered (bulimic & BED), and one was a control group. According to Cohen (1988) and Lipsey (1990), a sample size of 54 participants per group attains a power criteria of .85 for an effect size of .30 at $\alpha = .05$.

The eating-disorder groups were obtained from outpatient eating-disorder programs and private practitioners in New Jersey. The 54 non-eating-disorder control group participants were obtained from a sample of college students at a northern New Jersey college, and the age of the control group was similar to the age range of the eating-disordered groups. Since eating-disorder patients are primarily female, only females were included in this group. The Eating Disorder Inventory (Garner, 1991) was administered to the control group to rule out any evidence of bulimia and anorexia. Only individuals who fall +1 standard deviation above the mean on the eight separate subscales were included. Due to these criteria, 21 prospective participants were excluded from the study since their scores on the EDI were not more than +1 standard deviation above the

mean. The 2 eating disordered groups also completed the EDI. This assisted in confirming an eating-disorder diagnosis. Additionally, since the validity of the EDI with overweight or obese binge eaters had not been established, the control group was also asked to complete the Binge Eating Scale (BES). The BES is a 16 item self-rating questionnaire to assess the severity of binge-eating tendencies (Spitzer et al. 1992). Individuals who scored above 17 on the BES were not included. The BES was also administered to the eating-disordered groups.

Procedures

All bulimic participants were patients in an outpatient eating-disorder program or in treatment with a private therapist. Their mental-health therapists gave them information on the study with an option to participate. All therapists were masters-prepared with experience in treating and diagnosing eating disorders. The therapists diagnosed the patients as bulimic. Binge Eating Disorder (BED) participants were also solicited from outpatient eating-disorder programs and private therapists. Since these individuals do not typically seek mental-health treatment, a sufficient sample size was not obtained for this group. Therefore, BED subjects were also obtained from medical weight-loss programs. Participants obtained from weight-loss programs also completed the BES to ensure that they warranted a diagnosis of Binge Eating Disorder, since they were not being treated by a mental-health therapist experienced with eating disorders.

The criteria for diagnosis were the *DSM-IV* (1994) criteria for bulimia. The criteria for BED were specified in the appendix of *DSM-IV* (1994). Data was collected until the designated number of subjects was obtained. Human subject requirements were

satisfied for both the University and the eating-disorder facilities' Institutional Review Boards.

The participants in the control group were obtained by utilizing volunteers who were enrolled in psychology courses in undergraduate or graduate college programs. Human subject requirements were satisfied for the University and College.

All participants in both the control group and the eating-disordered group received written invitations to participate. The invitation to participate indicated that the results were anonymous and that the researcher would not be contacting them for follow-up at the completion of the study. The phone number of the researcher was provided to the subjects so that those who had a concern or wanted further information on the tests or final research results could obtain them.

Administration of Materials

The test battery for the control group included the Demographic Data Questionnaire (DDQ), the Eating Disorder Inventory (Garner, 1991), the Binge Eating Scale (Spitzer et al., 1992), the Family Environmental Scale (Moos & Moos, 1981), the Parental Bonding Instrument (Parker et al. 1979), the Beck Depression Inventory (Beck & Steer, 1996) and the Rosenberg Self-Esteem Inventory (Rosenberg, 1965). All instruments and were handed to the prospective participants by their psychology professor. Participants were asked to complete the Demographic Data, the EDI, the BES, the FES, the PBI, the BDI, and the RSE, and to return to the author the entire packet in the stamped self-addressed envelope provided for them or, if it was more convenient, they could return the packet to the department secretary.

The test battery for the eating-disordered group provided to them by their respective therapist included the DDQ, the EDI, the BES, the FES, the PBI, the BDI and the RSE. The eating-disordered participants were asked to complete the battery. They were also told to complete the FES and the PBI from the perspective of what the family was like when they were 13. This age was chosen as several authors (Bruch 1978; Garner et al. 1985) noted that the onset of eating disorders typically occurs in adolescence. The control group was given the same instructions in regard to the FES and PBI. The two eating-disordered groups were asked either to return their completed packets to the therapist's secretary or to return it to the researcher in the stamped, self-addressed envelope provided.

Instruments

Demographic Data Questionnaire (see Appendix A)

The DDQ asked the participants to specify their age, sex, race, ethnicity, religion, marital status, living situation, educational level, occupation, parents' education and occupation, family of origin living situation (i.e.: intact, single parent, or remarried), birth order, any family of origin psychopathology, and if they had ever been in therapy. For eating-disordered patients, the age of the participant at the onset of the eating disorder was asked.

Family Environment Scale (FES)

The FES (Moos & Moos, 1981) is a ninety-item instrument, comprised of ten subscales designed to measure the social-environmental characteristics of families. The

ten FES subscales allow assessment of three underlying domains, or sets of dimensions: the relationship dimensions, the personal growth dimensions, and the system maintenance dimensions.

The relationship dimensions are measured by the cohesion, expressiveness, and conflict subscales. These subscales contain items on the degree of commitment, help, and support family members provide for one another, the extent to which family members are encouraged to act openly and to express their feelings directly, and the amount of openly expressed anger, aggression, and conflict among family members.

The personal growth, or goal-orientation dimensions, are measured by the independence, achievement-orientation, intellectual-cultural orientation, active-recreational orientation, and moral-religious-emphasis subscales. These subscales are focused on the extent to which family members are assertive, self-sufficient and make their own decisions, the extent to which activities are cast into an achievement-oriented or competitive framework, the degree of interest in political, social, intellectual, and cultural activities, the extent of participation in social and recreational activities, and the degree of emphasis on ethical and religious issues and values.

The system maintenance dimensions are measured by the organization and control subscale. These subscales involve questions about the degree of importance of clear organization and structure in planning family activities and responsibilities and the extent to which set rules and procedures are used to run family life.

The FES (Moos & Moos, 1981) was included in this study because it is one of the most widely known family instruments, and is often used in studies on eating disorders

and family dynamics (Blouin et al., 1990; Hodges et al., 1998; Johnson & Flach, 1985; Yager, 1982).

Normative data were collected for 1,125 normal and 500 distressed families. The subsample for normal families included families from all areas of the country, single-parent and multigenerational families, families drawn from ethnic minority groups, and families of all age groups. There were several sources of distressed families. The initial subsample ($n = 42$) was collected from a psychiatrically oriented family clinic and a probation and parole department affiliated with a local correctional facility. Subsequent subsamples were composed of families of alcohol abusers ($n = 220$), of general psychiatric patients ($n = 77$), and of families in which an adolescent or younger child was in a crisis situation, had run away from home, was identified as delinquent, or was being placed in a foster home ($n=161$).

Scoring is obtained through use of a template, and scores can be obtained for each of the subscales. The FES (Moos & Moos, 1981) has a two-point format. To derive a score for the whole family's view of the environment, an average score can be calculated for all the members of each family for each score. Both individual and family profiles can be generated.

Internal consistency data were obtained for each of the FES subscales. The Cronbach Alphas were: Cohesion .78, Expressiveness .69, Conflict .75, Independence .61, Achievement Orientation .64, Intellectual-Cultural Orientation .78, Active-Recreational Orientation .67, Moral-Religious Emphasis .78, Organization .76, and Control .67.

Test-retest reliability scores for the 10 subscales were calculated for 47 family members in nine families who took the test twice with an 8 week interval between testing sessions. Test-retest reliabilities at 2 months are: Cohesion .86, Expressiveness .73, Conflict .85, Independence .68, Achievement-Orientation .74, Intellectual-Cultural .82, Active-Recreational .77, Moral-Religious .80, Organization .76, Control .77.

Several studies support the construct validity of the FES subscales. (Schaeffer & Olsen, 1980; Waring, McElrath, Lefcoe, & Weisz, 1981). Another way to examine validity is to link **individuals' reports about their families** to **trained raters' judgements**. Speigel & Wessler (1983) asked professional staff members to rate five aspects of psychiatric patients' family milieus on the basis of information **obtained** during a home visit. Staff-member rating correlated significantly with patients' and their wives' reports of family cohesion-expressiveness, conflict, and religious emphasis.

Finally, the FES (Moos & Moos, 1981) has been found to discriminate, based on the number, ages and gender of children in the family, differences between normal families, and families with some level of pathology (Abbott & Brady, 1985). The FES has been shown to discriminate between families with a delinquent or disturbed adolescent (Kirst-Ashman, 1984; Haddad, 1985) and normal controls, families with a history of physical and sexual abuse and normal controls (Chan, 1985; Perry, Wells & Doran, 1983), families of substance abusers and normal controls (Moos & Moos, 1984) and families of eating-disordered women and normal controls (Blouin et al., 1990; Head & Williamson, 1990; Hodges et al., 1998; Johnson & Flach, 1985; Stern et al., 1989; Yager, 1982).

Parental Bonding Instrument (PBI)

The PBI (Parker et al., 1979) measures recall, up to the age of 16 years, of two aspects of parental style. Care reflects the warmth and empathy within the relationship, while Protection measures perceived overprotection and control by the parents. The scale consists of 25 items, comprising 12 Care items and 13 Overprotective items. Using a Likert scale from 0-3, the 12 items of the Care scale allow a maximum score of 36, and the 13 items of the Overprotection scale allow a maximum score of 39. The combined scales allow for five types of parental bonding to be examined: average (defined statistically), high care-low Overprotection (which is conceptualized as optimal bonding), low care-low Overprotection (conceptualized as absent or weak bonding), high care-high overprotection (conceptualized as affectionate constraint), and low care-high overprotection (conceptualized as affectionless control).

Normative data were obtained from 410 patients of three general practitioners in Sydney, Australia (Parker et al, 1979). The relationship between social class and parental care and overprotection was examined. While a weak positive association between higher social class and a greater material Care score was suggested, there was no clear association between social class and parental care and overprotection. The effect of age was examined, but an association between the age of the recipient and parental care and overprotection was not found. This is an important finding since a positive association would suggest either a change in the report of parental attitudes over time, or that the further removed the respondents are from childhood the more their responses might be influenced by social desirability. Although this study was conducted in Australia, additional studies have examined cultural differences. Data presented by Parker (1983)

showed that Australians see their parents as more protective than do British people, and U.S. respondents rated their parents as less caring and more protective than the British.

To obtain some measure of the reliability of the response of the sample, two identical items had been included in the questionnaire. Responses to these items were intercorrelated producing a Pearson correlation coefficient of .70 ($p < .001$). Seventeen members of the sample completed the inventory on two occasions, 3 weeks apart, to assess for test-retest reliability. A Pearson correlation coefficient of .76 ($p < .001$) was obtained for the Care scale and .62 ($p < .001$) for the Overprotection scale.

The questionnaire was divided into two halves for a measure of the split-half reliability. A Pearson correlation coefficient of .87 ($p < .001$) was obtained for the Care scale and of .73 ($p < .001$) for the Overprotection scale.

After joint interviews with 65 of the participants, the two raters independently assigned a Care and an Overprotection score for each parent. The inter-rater reliability coefficient in the Care dimension was .85 ($p < .001$) and .68 ($p < .001$) in the Overprotection dimension. As a test of the concurrent validity of the scales, the raters' scores of Care and Overprotection obtained in the interviews were correlated with those determined by the scales. The Pearson correlations for the two Care measures were .77 ($p < .001$) for one rater and .77 ($p < .001$) for the second rater, and for the two Overprotection scores they were .47 ($p < .001$) for one rater and .50 ($p < .001$) for the second rater.

The intercorrelation between scores in the Care and Overprotective scales for 300 responses for separate parents was -0.23 ($p < .001$). This suggests that scores in the two dimensions were not independent in the study group.

The PBI was chosen for this study because it is widely used to measure attachment in eating-disorder populations (Calam et al., 1990; Garner & Garfinkel, 1979; Palmer et al., 1988; Pole et al., 1988; Rhodes & Kroger, 1992; Steiger et al. 1989).

Beck Depression Inventory (BDI)

The BDI (Beck 1967) is a widely used clinical and research measure for the diagnosis of depression. Beck (1967) developed the instrument by selecting items that distinguished depressed from non-depressed psychiatric patients. The BDI has since been used to identify depressed individuals in diverse populations (Golin & Hartz, 1979; Hammen & Padesky, 1977; Robbins & Tanek, 1997).

The BDI scale consists of 21 categories of items to assess symptoms or attitudes observed in depressed patients (Beck & Steer, 1987). The categories reflect the emotional, cognitive, motivational, and physical manifestations of depression (Golin & Hartz, 1979). Golin & Hartz further divided the BDI into the psychological (items 1-13) and somatic (items 14-21) subscales. The BDI items are (a) mood, (b) pessimism, (c) sense of failure, (d) lack of satisfaction, (e) guilt feelings, (f) sense of punishment, (g) self-dislike, (h) self-accusations, (i) suicidal wishes, (j) crying, (k) irritability, (l) social withdrawal, (m) indecisiveness, (n) distortion of body image, (o) work inhibition, (p) sleep disturbance, (q) fatigability, (r) loss of appetite, (s) weight loss, (t) somatic preoccupation, and (u) loss of libido (Beck & Steer, 1987).

Each category contains a series of four graded self-evaluative statements which reflect a range of symptom severity from a neutral state to one of maximal severity. Each item statement is assigned a 0 to 3 numerical value to indicate the degree of severity. The

BDI yields a total depression score. The score is the sum of the weighted responses selected from each group of statements.

The following guidelines have been suggested for interpreting the scores: 0 to 9 -- normal range, 10 to 15 -- mild depression, 16 to 19 -- mild-moderate depression, 20 to 29 -- moderate-severe depression, 30 to 63 -- severe depression (Beck & Steer, 1987).

The original normative data for the BDI were derived from a sample of 409 psychiatric participants. The standardization group was 39.1% male, 60.9% female, 64.7% White, and 35.3% Black (Beck et al., 1961). Subjects ranged in age from 15 years to 55+ with a concentration of subjects between the ages of 15 and 44.

The BDI was revised recently (Beck & Steer, 1996). The purpose of the revision (see Appendix A) was to present clearer statements which would facilitate a self-report form. The earlier scale required administration by trained personnel (Beck, 1961). The revised scale will be used in the present study.

Reliability. Two methods were utilized to determine the internal consistency of the 1961 scale (Beck, 1961). The Kruskal-Wallis Non-Parametric Analysis of variance by ranks was used to analyze the relationship of each category score to the total BDI score in the protocols of 200 consecutive cases. A significance level beyond .001 was achieved for all categories except weight-loss, which was significant at the .01 level. The second method of internal consistency involved item analysis. Ninety-seven of the 200 cases of the first sample were used for this analysis. A split-half reliability involving the Pearson correlation between the odd and even categories yielded a reliability coefficient of .86. When the Spearman-Brown correction formula was applied, the coefficient rose to .93.

The internal consistencies of two versions of the BDI were evaluated by Beck & Steer (1996) to determine the comparability of the two. The corrected item-total correlations for both were significant beyond the .05 level.

Validity. The Kruskal-Wallis One-Way Analysis of Variance by ranks was used to evaluate the overall association between the scores on the BDI and the depth of depression categories (none, mild, moderate, severe) (Beck & Steer, 1996). The statistical significance of the differences among the means was at the <.001 level (Beck & Steer, 1996).

The Mann-Whitney U test was used to determine to what extent the BDI discriminates between specific depth-of-depression categories. Differences between adjacent categories in the two studies were significant at <.0004 (Beck & Steer, 1996).

A Pearson biserial correlation was employed to determine the degree of correlation between the BDI scores and the clinical judgment of the psychiatrists utilized in the initial normative sample regarding the depth of depression. Biserial coefficients of .65 for the original study and .67 for the replication study were both significant at the .01 level. Minor changes in the depth of depression over time were predicted by a change in the BDI total score 85% of the time (Beck & Steer, 1996).

The BDI was selected for use in this study because it is a practical and efficient measure of depressive symptomatology with a substantial research base (Barrera & Garrsion-Jones, 1988; Golin & Hartz, 1979; Hammen & Padesky; Robbins & Tanek, 1997; Strober et al., 1981b). Also, there have been several studies (Marcus et al, 1988; Prather & Williamson, 1988; Raymond et al., 1995) which used the BDI with an eating-disorder population, and more specifically with a BED population.

Rosenberg Self-Esteem Inventory (RSE)

The RSE (Rosenberg, 1965) was designed for brevity and ease of administration. It was standardized on 5,024 high school juniors from 10 high schools in New York. It is a 10 item Guttman scale. Each item has 4 possible responses from *strongly agree* to *strongly disagree*. Half of the items are positively worded and half are negatively worded to reduce the effects of the response set. A score of three or below is indicative of low self-esteem.

Reliability. Rosenberg (1965) and Silber & Tippet (1965) showed a test-retest correlation over two weeks of .85 ($N=28$), and a .92 Guttman score reproducibility coefficient. Sansone (1982) found a reliability alpha of .82 for the RSE with a sample of 213.

Validity. Rosenberg (1979) reported construct validity based upon the correlation with three other scales: (a) depressive affect, (b) psychosomatic symptoms and (c) peer-group reputation. Wylie (1974) stated that "it was impressive that such a high reliability is attainable with only 10 items and that such a short scale has yielded relationships supporting its construct validity" (p. 189). Silber & Tippet (1965) noted the scale correlated from .53 to .83 with other similar measures and clinical assessments.

Silber & Tippet (1965) examined the convergent and discriminant validity of the RSE and found that the scale correlated from .53 to .83 with other similar measures and clinical assessment. They found that correlations with stability ratings of others and stability of perceptual performance were close to zero. The correlations of RSE to the self-ideal discrepancy score was $r = .67$, to the self-image questionnaire, $r = .83$, and to

the psychiatrist's rating, $r = .56$ (Rosenberg, 1979). Discriminant validity on tests that measure self-concept stability showed correlations between them and RSE to be $r = .40$, $r = .34$, and $r = .21$ which are considerably lower than correlations of self-esteem measured by different methods (Rosenberg, 1979).

The RSE was chosen for this study for many reasons. It is brief, easy to administer and score, and has been used before to evaluate the correlation of self-esteem with eating disorders (Button, 1993; Button et al., 1997; Leung et al. 1996). This scale has been used extensively with adolescents and adults. See Appendix E.

Eating Disorder Inventory – 2 (EDI-2)

The EDI (Garner, 1983) was conceived as a multidimensional measure of personal, interpersonal and behavioral characteristics found in both anorexics and bulimics. The EDI-2 (Garner, 1991), which is a revised version of the EDI, consists of the eight original subscales and three new provisional subscales. The eight original subscales include drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, and maturity fears. The three new provisional subscales are asceticism, impulse regulation, and social insecurity. The EDI-2 will be administered to the control group to ensure that they do not have an eating disorder. It will also be used with the two eating-disordered groups. Although the EDI-2 is not recommended as a sole diagnostic tool for eating disorder patients, it is recommended as a screening device in non-clinical populations to ascertain individuals who have an eating disorder or are at risk of developing one (Garner, 1991; Garner et al., 1983).

A reliability study conducted with female college students resulted in an average item-total score correlation of $r = .63$ (Garner et al., 1983). All scales on the instrument have Cronbach Alpha of $r = .80$ or higher. A test-retest reliability study was conducted with undergraduate students, and there was a test-retest correlation of .96 for the total score with a three-week interval between assessments.

Criteria-related validity was established by comparing self-report EDI patient profiles with the clinical judgments of experienced clinicians. The original criterion-validity studies were done with a group of restricting anorexics and bulimic anorexics (Garner et al., 1983) and correlations were significant at the .01 level. Later studies focused on bulimic patients without Anorexia Nervosa (Garner & Olmstead, 1986a). The results were also significant on all subscales.

Normative data were obtained on 770 female college students between the ages of 18 and 25. Garner (1991) suggested that scores above the 90th percentile be considered as evidence of an eating disorder. Additional normative data on adolescent boys and girls have also been reported by Rosen, Gross, and Vara (1987).

The EDI-2 is a 91-item Likert-type scale ranging from always to never with higher scores indicating a more extreme response. Scores range from 0 to 30, depending upon the subscale. A score falling on or above the 90th percentile on five out of eight original subscales is designated as the cutoff score for the presence of an eating disorder.

Binge Eating Scale (BES)

The BES (Spitzer, Devlin, Walsh, Hasin, Wing, Marcus, Stunkard, Wadden, Yanovski, Agras, Mitchell & Nonas, 1992) is a 16-item self-rating questionnaire to assess

the severity of binge-eating tendencies in the obese population. The scale was normed on two samples of overweight persons seeking behavioral obesity treatment. The BES describes both behavioral manifestations (i.e., eating large amounts of food) and feelings/cognitions surrounding an eating binge (i.e., guilt, fear of being unable to stop eating). The first sample ($n = 65$) was comprised of all females ranging in age from 24 to 55 ($M = 39.3$; $S.D. = 8.1$) with an average pretreatment weight of 178 lbs. The second sample ($n = 47$) was comprised of 32 females and 15 males, aged between 24 and 67, with an average pretreatment weight of 209.9 lbs. Both samples were almost entirely middle-class and Caucasian.

Internal consistency of the scale was determined by comparing the respondents' total scale scores, grouping the scores based on which weighted statement was endorsed. Kruskal-Wallis' analysis of variance of ranked data was used to compare the group of scores, using the 65 cases from sample 1. All the tests of significance for the 16 items were above 9.1 ($p < .01$) and in each case, except item 12, those with highest ranks were obtained from those endorsing the highest weighted statement.

In addition to discriminating among obese binge eaters, the BES has also been shown to highly correlate with a *DSM-III* (1980) diagnosis of bulimia (Marcus et al., 1990). Each of the 16 questions is weighted with responses ranging from never, occasionally, frequently, to always. A score of twenty-seven or greater is frequently used as evidence of a bingeing disorder, and a score of less than seventeen is often used for control groups (Marcus et al., 1985; Marcus et al., 1988; Marcus et al., 1990).

Data Analysis

All data were coded and keyed for computer analysis using the SPSS-PC computer program. Frequency distributions and descriptive statistics were obtained for all background and demographic items for the individual items of the Family Environmental Scale (Moos & Moos, 1981), the Parental Bonding Instrument (Parker et al., 1979), the Beck Depression Inventory (Beck & Steer, 1996), and the Rosenberg Self-esteem Scale (Rosenberg, 1965), and for the scale scores from the FES, the PBI, the BDI, and the RSE.

The first hypothesis predicted differences between the two eating-disorder subtypes (bulimia, and BED). Also, normal controls were assessed on all the independent variables (social-environmental characteristics of families, parental attachment, depression and self-esteem. Multivariate analysis of variance (MANOVA) were performed to test for significant differences.

The second, third, fourth, and fifth research hypotheses predicted mean differences among the three groups (two eating disorder subtypes and normal controls) on the scale scores obtained from the FES, the PBI, the BDI, and the RSE. Raw scale scores were transformed, so that they were in the same direction. There are a total of 15 scale scores (BDI physical and somatic scale; PBI care and overprotection; RSE self-esteem and FES cohesion, expressiveness, conflict, independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation, moral-religious emphasis, organization and control) derived from the responses of each subject. An analysis of variance (ANOVA) was used to test for the significance of mean differences. A significance test was followed by univariate F tests to identify the specific measures

where significant differences existed. Significance univariate tests were followed by post-hoc Scheffé contrasts.

CHAPTER IV

Data Analyses

The sample of 162 participants was first analyzed in regards to demographic variables and correlations among criterion variables. Then the hypothesis identified in Chapter 1 was analyzed through multivariate statistics. Follow-up ANCOVAs and Scheffé testing were performed where indicated.

Demographic Variables

The sample included 162 participants. Fifty-four were bulimic participants, 54 were Binge Eating Disorder (BED) participants, and 54 were comparison participants. The recruitment method for each of the three groups was previously described in Chapter 3.

Table 3 provides demographic information for the sample as a whole and for each group. The participants' ages ranged from 18 to 45. The mean ages for the group were: Bulimics = 27.72, BED = 26.19, and comparison group = 25.37. The participants were predominantly Caucasian (134 of the 162 participants), followed by Hispanics (17), Blacks (5), Other (4), and Asians (2). The majority of the participants were single (96 of 162), followed by married participants (36), divorced (25) and separated (5). There was no statistical difference among the groups for age, $F(2, 159) = 1.60, p = .21$, ethnicity, $\chi^2(8, N = 162) = 5.36, p = .72$, or marital status, $\chi^2(6, N = 162) = 3.05, p = .80$. Chi-square statistics indicated significant differences across groups for participant's education, $\chi^2(6, N = 162) = 39.84, p < .001$, father's education, $\chi^2(6, N = 162) = 19.07, p = .004$, and self-

Table 3

Demographic Statistics

Variable	Entire Sample <i>N</i> = 162	Bulimics <i>N</i> = 54	BED <i>N</i> = 54	Comparison <i>N</i> = 54
Age (<i>M, SD</i>)	26.43 (6.97)	27.72 (7.70)	26.19 (6.26)	25.37 (6.81)
Range	18-45	18-45	18-43	19-45
Ethnicity (<i>N, %</i>)				
Caucasian	134 (82.72)	46 (85.19)	42 (77.78)	46 (85.19)
Black	5 (3.09)	0 (0.00)	2 (3.70)	3 (5.56)
Hispanic	17 (10.49)	6 (11.11)	7 (12.96)	4 (7.41)
Asian	2 (1.23)	1 (1.85)	1 (1.85)	0 (0.00)
Other	4 (2.47)	1 (1.85)	2 (3.70)	1 (1.85)
Marital Status (<i>N, %</i>)				
Single	96 (59.26)	32 (59.26)	32 (59.26)	32 (59.26)
Married	36 (22.22)	13 (24.07)	11 (20.37)	12 (22.22)
Divorced	25 (15.43)	9 (16.67)	8 (14.82)	8 (14.82)
Separated	5 (3.09)	0 (0.00)	3 (5.56)	2 (3.70)
Education*** (<i>N, %</i>)				
High School	15 (9.26)	3 (5.56)	12 (22.22)	0 (0.00)
Some College	117 (72.22)	39 (72.22)	25 (46.30)	53 (98.15)
College Grad	26 (16.05)	11 (20.37)	14 (25.93)	1 (1.85)
Post-college	4 (2.47)	1 (1.85)	3 (5.56)	0 (0.00)

Table 3 (continued)

Variable	Entire Sample <i>N</i> = 162	Bulimics <i>N</i> = 54	BED <i>N</i> = 54	Comparison <i>N</i> = 54
Father's Education** (<i>N</i> , %)				
High School	61 (37.65)	31 (57.41)	19 (35.19)	11 (20.37)
Some College	42 (25.93)	7 (12.96)	16 (29.63)	19 (35.19)
College Grad	56 (34.57)	16 (29.63)	17 (31.48)	23 (42.59)
Post-college	3 (1.85)	0 (0.00)	2 (3.70)	1 (1.85)
Mother's Education (<i>N</i> , %)				
High School	89 (54.94)	32 (59.26)	31 (57.41)	26 (48.15)
Some College	43 (26.54)	12 (22.22)	14 (25.93)	17 (31.48)
College Grad	30 (18.52)	10 (18.52)	9 (16.67)	11 (20.37)
Post-college	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Family Problems*** (<i>N</i> , %)				
No	79 (48.77)	16 (29.63)	25 (46.30)	38 (70.37)
Yes	83 (51.23)	38 (70.37)	29 (53.70)	16 (29.63)

p* < .05 *p* < .01 ****p* < .001

reported family problems, $\chi^2(2, N = 162) = 18.14, p < .001$. Family problems were defined on the demographic questionnaire as a parental history of psychiatric or substance abuse problems. Review of the frequencies in Table 3 indicates that bulimic and BED participants reported more diversity in their levels of education when compared to comparison participants. While all but one comparison group member reported having completed some college, the other two groups had representatives from each level of

educational attainment. This is not surprising since the comparison group was recruited from college psychology classes, thus ensuring a very similar level of education across the comparison group. Bulimics also reported their fathers had received less education than comparisons: more than half of the bulimics' fathers never attended college while almost half of the comparisons' fathers had graduated from college. Neither of these groups differed significantly from the BED group. Finally, bulimics also reported more family problems than comparisons. The BED group did not report significant levels of family problems when compared to either the bulimic group or the comparison group.

Preliminary Analyses

Table 4 provides correlations among the criterion variables, as well as means and standard deviations for each group.

As might be expected, many of the positive criterion variables (cohesion, expressiveness, active-recreational orientation, and self-esteem) correlated well with each other, and negatively with indicators of emotional difficulties (conflict and depression). In particular, expressiveness correlated significantly, at the .05 level of significance with every other criterion variable, while cohesion correlated significantly at the .05 level with all variables except maternal overprotection. In contrast, active-recreational orientation and conflict each correlated with only five of the other nine variables, suggesting they were the most distinct from the rest of the set in terms of the constructs they tap. Specifically, these two variables did not correlate significantly with each other ($r = .013$) or with self-esteem ($r = .088$ for active-recreational orientation, $-.143$ for conflict). Active-recreational orientation also failed to correlate with paternal ($r = -.042$) or

maternal ($r = .100$) overprotection. The results suggest some overlap among the variables considered as criterion variables, but also some uniqueness. Given that the square of the correlation coefficient indicates the proportion of overlapping variance, no pair of variables shared more than 50% of their variance except for cohesion and expressiveness ($r = .772$).

A second issue worth consideration was the use of variables from the Demographic Data Questionnaire as possible covariates. As discussed earlier, three variables differed significantly across groups: participant's education, father's education, and self-reported family problems. Of the three of these, self-reported family problems seemed most important as a possible confound since it is the only one of the three directly related to the development of psychopathology. Accordingly, since discussions of analyses of covariance recommend against partialing of possible confounds unless there is a substantive rationale for doing so (Allison, 1995), consideration of possible covariates was restricted to family problems.

In addition to demonstrating significant differences across the predictor variable, a worthwhile covariate must also demonstrate significant relationships with criterion variables. Table 6 provides results from one-way analyses of variance (ANOVAs) using self-reported family problems as the categorical variable, and the various dimensional criterion variables.

As indicated in the table, self-reported family problems were significantly related to five of the criterion variables (cohesion, maternal and paternal care, BDI and RSE). Since it is unclear conceptually whether a family history of problems would represent a possible confounding variable in this study, the conservative approach suggests using

Table 4
Correlations Among Criterion Variables

	Cohesion	Express	Act-Rec	Conflict	P Overprot	M Overprot	P Care	M Care	BDI
Express	0.772***								
Act-Rec	0.333***	0.244**							
Conflict	-0.265***	-0.186*	0.013						
P Overprot	0.298***	0.304***	-0.042	-0.436***					
M Overprot	0.120	0.190*	0.100	-0.272***	0.638***				
P Care	0.641***	0.529***	0.188*	-0.251***	0.350***	0.205**			
M Care	0.577***	0.602***	0.224**	-0.053	0.164*	0.285***	0.577***		
BDI	-0.503***	-0.534***	-0.183*	0.100	-0.144	-0.156*	-0.409***	-0.490***	
RSE	0.443***	0.404***	0.088	-0.143	0.191*	0.092	0.452***	0.335***	-0.617***

* $p < .05$

** $p < .01$

*** $p < .001$

Note. Express = Expressiveness; Act-Rec = Active-Recreational Orientation; P Overprot = Paternal Overprotection; M Overprot = Maternal Overprotection; P Care = Paternal Care; M Care = Maternal Care; BDI = Beck Depression Inventory; RSE = Rosenberg Self-Esteem Scale; BED = Binge Eating Disorder; BUL = Bulimic; Comp = Comparisons.

Table 5

Descriptive Statistics for Criterion Variables

	BED		BUL		Comp	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Cohesion	5.204	1.559	3.444	1.110	5.852	1.295
Express	3.685	1.146	2.370	0.734	4.185	0.803
Act-Rec	4.889	1.110	4.704	1.176	4.759	0.889
Conflict	4.944	1.522	5.019	1.619	3.778	0.744
P Overprot	15.574	5.207	12.463	5.466	17.870	3.671
M Overprot	19.759	7.169	15.389	6.126	19.944	2.993
P Care	22.056	6.858	11.370	4.904	22.593	5.247
M Care	25.556	5.961	18.278	7.577	28.167	4.433
BDI	18.352	5.921	21.648	6.926	8.759	3.933
RSE	16.759	4.000	13.111	5.589	20.204	2.811

Note. Express = Expressiveness; Act-Rec = Active-Recreational Orientation; P Overprot = Paternal Overprotection; M Overprot = Maternal Overprotection; P Care = Paternal Care; M Care = Maternal Care; BDI = Beck Depression Inventory; RSE = Rosenberg Self-Esteem Scale; BED = Binge Eating Disorder; BUL = Bulimic; Comp = Comparisons.

analyses of covariance (ANCOVAs), covarying out the family problems variable, for these five criteria. For the sake of comparability across analyses, ANCOVA was used for all criteria.

Table 6

Analyses of Variance for Family Problems and Criterion Variables

Source	SS	df	MS	F	p
Cohesion	14.43	1	14.43	5.29	.023
Express	4.39	1	4.39	3.15	.078
Act-Rec	0.03	1	0.03	0.03	.875
Conflict	0.58	1	0.58	0.27	.604
P Overprot	16.84	1	16.84	0.60	.441
M Overprot	30.66	1	30.66	0.84	.362
P Care	385.09	1	385.09	6.72	.010
M Care	443.63	1	443.63	8.49	.004
BDI	1364.34	1	1364.34	25.10	<.001
RSE	323.24	1	323.24	13.07	<.001

Note. Express = Expressiveness; Act-Rec = Active-Recreational Orientation; P Overprot = Paternal Overprotection; M Overprot = Maternal Overprotection; P Care = Paternal Care; M Care = Maternal Care; BDI = Beck Depression Inventory; RSE = Rosenberg Self-Esteem Scale.

The final preliminary analysis involved evaluating whether there were marked differences between BED participants recruited through the weight-control program and the other BED participants, who were recruited from a clinical setting. A multivariate analysis of variance was conducted comparing these two groups on the complete set of criterion variables. This analysis was not significant, Wilks' Lambda = .72, $F(10, 42) =$

1.67, $p = .120$. Based on this finding, it seemed reasonable to combine the two BED subgroups for hypothesis tests. In all cases, alpha was set at $p < .05$.

Tests of Hypotheses

The remaining discussion will address results of tests of the hypotheses. Table 7 provides results of ANCOVA analyses for each of the criterion variables.

Table 9 provides corresponding effect sizes for pair-wise comparisons based on least-squares means and standard errors. The values in this table represent the statistic d , which signifies the difference between the means in standard deviation units. For example, the d value of 1.31 for BED versus bulimics on cohesion suggests the BED

participants were on average 1.3 standard deviations higher on cohesion than the bulimic participants. Cohen (1988) recommended the following benchmarks for d values: .20 represents a small but potentially important effect, .50 a medium-sized effect, and .80 a large effect. According to Cohen, medium-sized effects are typical in psychological research while a large effect is one that is likely to be patently obvious.

The most striking finding from this table is the number of large effects associated with the comparisons between bulimics and comparison group members. In all but one variable, there is a substantial difference between bulimics and the comparison group

These tables can be used as background to the discussion of the results. From here on, results will be organized according to the hypotheses.

Table 7

ANOVAs for Group and Criterion Variables

Source	SS	df	MS	F	P	Least Squares Means		
						BED	BUL	Comp
Cohesion	153.23	2	76.62	42.80	< .001	5.20 ^a	3.44 ^b	5.86 ^a
Express	91.55	2	45.77	55.06	< .001	3.68 ^a	2.34 ^b	4.22 ^a
Act-Rec	0.96	2	0.48	0.42	.658	4.89	4.71	4.76
Conflict	54.26	2	27.13	14.85	< .001	4.95 ^a	5.07 ^a	3.72 ^b
P	808.61	2	404.31	17.24	< .001	15.54 ^a	12.28 ^b	18.06 ^a
Overprot								
M	691.38	2	345.69	10.54	< .001	19.75 ^a	15.32 ^b	20.01 ^a
Overprot								
P Care	3943.97	2	1971.98	59.64	< .001	22.06 ^a	11.42 ^b	22.55 ^a
M Care	2415.04	2	1207.52	32.09	< .001	25.59 ^a	18.44 ^b	28.01 ^a
BDI	3698.24	2	1849.12	58.43	< .001	18.26 ^a	21.14 ^a	9.26 ^b
RSE	1072.43	2	536.21	29.37	< .001	16.89 ^a	13.32 ^b	20.00 ^c

Note. Express = Expressiveness; Act-Rec = Active-Recreational Orientation; P Overprot = Paternal Overprotection; M Overprot = Maternal Overprotection; P Care = Paternal Care; M Care = Maternal Care; BDI = Beck Depression Inventory; RSE = Rosenberg Self-Esteem Scale; BED = Binge Eating Disorder; BUL = Bulimic; Comp = Comparisons. Least squares means are adjusted for the covariate, and therefore represent the actual means used in group comparisons. Means with different subscripts in a row were significantly different based on Scheffé tests ($p < .05$).

Table 8

Pairwise Comparisons Based on Least Squares Means.

Source	BED	BUL	Comp
Cohesion	5.20 ^a	3.44 ^b	5.86 ^a
Express	3.68 ^a	2.34 ^b	4.22 ^a
Act-Rec	4.89	4.71	4.76
Conflict	4.95 ^a	5.07 ^a	3.72 ^b
P Overprot	15.54 ^a	12.28 ^b	18.06 ^a
M Overprot	19.75 ^a	15.32 ^b	20.01 ^a
P Care	22.06 ^a	11.42 ^b	22.55 ^a
M Care	25.59 ^a	18.44 ^b	28.01 ^a
BDI	18.26 ^a	21.14 ^a	9.26 ^b
RSE	16.89 ^a	13.32 ^b	20.00 ^c

Note. Express = Expressiveness; Act-Rec = Active-Recreational Orientation; P Overprot = Paternal Overprotection; M Overprot = Maternal Overprotection; P Care = Paternal Care; M Care = Maternal Care; BDI = Beck Depression Inventory; RSE = Rosenberg Self-Esteem Scale; BED = Binge Eating Disorder; BUL=Bulimic; Comp = Comparison Least squares means are adjusted for the covariate, and therefore represent the actual means used in group comparisons. Means with different subscripts in a row were significant differences based on Scheffe` tests ($p < .05$).

Table 9

Cohen d Values for Pairwise Comparisons.

	BED	Bulimia	BED
Criterion	vs.	vs.	vs.
	Bulimia	Comparisons	Comparisons
Cohesion	1.31 ^a	-1.77 ^a	-0.49 ^c
Express	1.46 ^a	-2.02 ^a	-0.59 ^b
Act-Rec	0.17	-0.04	0.13
Conflict	-0.09	0.98 ^a	0.90 ^a
P Overprot	0.67 ^b	-1.17 ^a	-0.52 ^b
M Overprot	0.77 ^b	-0.80 ^a	-0.05
P Care	1.84 ^a	-1.89 ^a	-0.08
M Care	1.16 ^a	-1.53 ^a	-0.39 ^c
BDI	-0.51 ^b	2.07 ^a	1.59 ^a
RSE	0.81 ^a	-1.53 ^a	-0.74 ^b

^aRepresents a large effect ^bRepresents a medium effect ^cRepresents a small effect

Note. Express = Expressiveness; Act-Rec = Active-Recreational Orientation; P Overprot = Paternal Overprotection; M Overprot = Maternal Overprotection; P Care = Paternal Care; M Care = Maternal Care; BDI = Beck Depression Inventory; RSE = Rosenberg Self-Esteem Scale; BED = Binge Eating Disorder.

H₁: It was hypothesized that there would be a difference among respondents identified as bulimic, BED and normal controls on the social-environmental

characteristics of families, parental attachment, depression, and self-esteem. To test this hypothesis, a multivariate analysis of covariance was conducted, using group as the categorical variable and family problems as the covariate. Results of the analysis supported the hypothesis, Wilks' Lambda = .20, $F(2, 298) = 18.13, p < .001$. Based on this result, tests were conducted to evaluate the individual sub-hypotheses.

H_a : It was hypothesized that bulimic and BED individuals would score lower than normal controls on the following social-environmental familial characteristics: cohesion, expressiveness, and active-recreational orientation and higher than normal controls on conflict. It was also hypothesized that bulimic and BED individuals would report similar levels of cohesion, and BED individuals would report the lowest levels of expressiveness and active recreational orientation of the three eating disordered group. Results differed from expectation in several ways. First, the ANCOVA test comparing the three groups on active-recreational orientation was not significant, $F(2,158) = 0.42, p = .658$, and the three means demonstrated little variability. ANCOVA tests for cohesion, $F(2,158) = 42.80$, and expressiveness, $F(2,158) = 55.06$, were significant ($p < .001$ in both cases). Based on Scheffé tests, bulimic participants were significantly lower than were comparison participants on cohesion ($M = 3.44$ vs. $M = 5.86, p < .001$) and expressiveness ($M = 2.34$ vs. $M = 4.22, p < .001$). The same was true for bulimics as compared to BED participants on both cohesion ($M = 3.44$ vs. $M = 5.20, p = .046$) and expressiveness ($M = 2.34$ vs. $M = 3.68, p = .012$), though the effects were substantially smaller. Specifically, where the d values for the comparisons between bulimics and comparison participants were both very large (-1.77 and -.202), values for the comparisons between BED and comparison participants were in the moderate range

(-0.49 and -0.59). Contrary to expectation, bulimic participants were significantly lower on both measures than BED participants (both $p < .001$), and the effects were quite large.

The hypothesis also suggested higher reported levels of conflict among BED ($M = 4.95$) and bulimic ($M = 5.07$) participants than among comparison participants ($M = 3.72$). In this case, the results supported the hypothesis. Based on a significant test comparing all three groups on level of conflict, $F(2,158) = 14.85, p < .001$, Scheffé tests indicated both BED and bulimic participants reported more conflict than comparison participants ($p < .001$). Both effects fell in the large range. In contrast, the difference between the bulimic and BED groups was not significant ($p = .904$), with an effect that approached zero.

H_b : It was hypothesized that bulimic and BED individuals would differ significantly from normal controls on parental bonding. It was also hypothesized that bulimics and BED individuals would both report low maternal and paternal overprotection and low maternal and paternal care. The ANCOVAs comparing the three groups on Paternal Overprotection (BED $M = 15.54$; bulimic $M = 12.28$; comparison $M = 18.06$), $F(2,158) = 17.24$; maternal overprotection (BED $M = 19.75$; bulimic $M = 15.32$; comparison $M = 20.01$), $F(2,158) = 10.54$; paternal care (BED $M = 22.06$; bulimic $M = 11.42$; comparison $M = 22.55$), $F(2,158) = 59.64$; and maternal care (BED $M = 25.59$; bulimic $M = 18.44$; comparison $M = 28.01$), $F(2,158) = 32.09$, were all significant at the .001 level. However, in each case post-hoc analyses indicated that the primary discrimination was between bulimics and members of the other two groups. All comparisons of bulimics to the other two groups were significant, with bulimics consistently reporting less parental care and overprotection. In fact, all but one of the

analyses were significant at $p \leq .001$. The difference between BED participants and bulimic participants on paternal overprotection was significant at $p = .003$. All eight effect sizes for comparisons of bulimics to other groups fell within or approached the large range (range = .67 to 1.89).

There was also a significant difference and medium effect between the BED and comparison groups for paternal overprotection ($p = .033$). No significant differences were found for paternal care ($p = .913$), maternal care ($p = .089$), or maternal overprotection ($p = .972$). These results suggest that in general the bulimics demonstrated poorer parental bonding than the other two groups.

H_c : It was hypothesized that bulimics, BED individuals, and normal controls would differ from each other on depression. Normal controls ($M = 9.26$) were expected to report the lowest levels of depression, while BED individuals ($M = 18.26$) were expected to report higher levels of depression, and bulimics ($M = 21.14$) the highest levels. The ANCOVA comparing the three groups' depression levels was significant, $F(2,158) = 58.43, p < .001$. A significant difference was found between each of the two clinical groups and the comparison group at $p < .001$, with large effects found as well. In addition, the mean BDI score was significantly greater for bulimics than for BEDs ($p = .033$). In this last case the effect was medium-sized (-.51).

H_d : Finally, it was hypothesized that bulimics, BED individuals, and normal controls would differ from each other on self-esteem. Normal controls would report the highest self-esteem, and BED individuals and bulimics would both report low self-esteem. The ANCOVA test for self-esteem was significant, $F(2,158) = 29.37, p < .001$. Results supported the hypothesis in that normals' RSE scores ($M = 20.00$) were

significantly higher than those reported by bulimics ($M = 13.32, p < .001$) and by BEDs ($M = 16.89, p = .001$). Both effects were in or near the large range. It was also found that BEDs reported significantly greater self-esteem than bulimics ($p < .001$), producing a large effect (.81).

Summary

Preliminary analyses assessed the correlations among criterion variables. Although many of the positive criterion variables correlated fairly well with each other, the correlations were not of a level that would suggest excessive overlap in the variables being measured. Chi-square statistics for the demographic data indicated significant differences across the groups for participant's education, father's education and self-reported family psychopathology. Of the three, self-reported family psychopathology seemed the most important as a possible confound, so to avoid overcorrection (Allison, 1995) analyses of covariance (ANCOVAs) controlling only for the family problems variable were used for all criteria. The final preliminary analyses evaluated whether there were marked differences between the participants recruited through a weight-control program and those recruited from a clinical setting. A multivariate analysis revealed that there were no significant differences between these two groups.

Regarding the hypotheses proposed, bulimics and BED sufferers scored significantly lower than comparison groups on cohesion and expressiveness. Bulimics demonstrated substantially less cohesion and expressiveness than the BED participants. Both clinical groups also reported higher levels of conflict than the comparison group,

with no difference emerging between the two groups. There was no difference among the three groups on active-recreational orientation.

Another finding was the consistent tendency for bulimics to score significantly lower than the other groups on parental overprotection and care. No difference was found between the BED group and the comparison group.

Bulimics and BED participants scored significantly higher (more depressed) than comparison participants on the BDI. The mean scores for both groups (bulimics: $M = 21.14$, BED: $M = 18.26$) placed them in Beck's (1967) moderately depressed range. There was no significant difference between the bulimic and BED group.

The self-esteem variable also differentiated the three groups. The comparison group reported the highest level of self-esteem, followed by the BED group, with the bulimic group reporting the lowest levels of self-esteem.

CHAPTER V

Discussion

The following discussion explores study results, study limitations, theoretical implications of the results, and indications for future research.

*Summary of Results**Family Variables*

Bulimics scored significantly lower than the comparison group on cohesion and expressiveness, thus supporting the literature (Hodges et al., 1998; Johnson & Flach, 1985; Ordman & Kirschenbaum, 1986; Stern et al., 1989) and the hypotheses proposed in this study. Also, as suggested, the binge eating disorder group (BED) did, in fact, differ from the comparison group on cohesion and expressiveness, but the difference was not significant. Contrary to expectation, the bulimic group and the BED group were statistically different from each other. In this study, the comparison groups scored highest on cohesion and expressiveness, followed by the BED group, and the bulimic group reported the lowest levels of cohesion and expressiveness. Both the bulimic group and the BED group reported similarly high levels of family conflict, which supported both the literature and hypothesis H_a (Hodges et al., 1998). However, contrary to hypothesis H_a, there was no difference among the three groups on active-recreational orientation.

Although not addressed in the hypotheses, several findings relating to family functioning were noted. The BED group differed significantly from the bulimic group on

the independence dimension. The BED group reported the lowest level of independence among the three groups. Additionally, the BED participants rated their families as significantly more controlling than both bulimic participants and normal controls. The results of this study indicated that the families of the BED participants were both different from and similar to the normal, comparison group and the bulimic group. BED families were characterized as being high in control and low in independence. Additionally, BED families reported similar high levels of conflict to that experienced by bulimic families. The levels of expressiveness and cohesion were significantly higher for BED families when compared to those found in bulimic families. The results for bulimics in this study were consistent with the findings in the literature and hypothesis H_a of this study. That is, bulimic families were characterized by low levels of cohesion and expressiveness as well as high levels of conflict.

Attachment

As hypothesized, the bulimic group exhibited significant problems with parental bonding. Bulimics scored significantly lower than both BED participants and the normal comparison group on paternal care, maternal care, paternal overprotection, and maternal overprotection. However, it was also hypothesized (hypothesis H_b) that the BED group would score similarly to the bulimic group on these variables. This hypothesis was not supported. Actually, the BED group was very similar to the comparison group. The BED group reported less paternal overprotection than in the comparison group, but the difference was not statistically significant.

In summary, bulimic families were characterized as low in paternal and maternal overprotection and low in paternal and maternal care. BED families in this study were characterized by healthy levels of attachment.

Depression

As hypothesized (hypothesis H_c), the bulimic group and the BED group were significantly more depressed than the comparison group. However, the hypothesis that the bulimic group would report higher levels of depression than the BED group was not upheld. Although the mean depression score for the bulimic group indicated that they were more depressed than the BED group, the results were not significant. An interesting aspect of this study is that both the bulimic group and the BED group scored in the “moderately depressed” range on the BDI. For both groups, this is a greater level of depression than had been reported previously (Blouin et al., 1990; Fornari et al., 1999).

Self-esteem

As hypothesized (hypothesis H_d), the bulimic group and the BED group exhibited significantly less self-esteem than did the comparison group. However, it was also found that participants with BED reported significantly greater self-esteem than bulimics. In essence, self-esteem was expressed as a continuum with the comparison group reporting the highest levels of self-esteem, followed by the BED group, and finally the bulimic group.

Interpretation of Results

Study Limitations

The sample size was sufficient and was based on the recommendation of the power analysis (Cohen, 1988). However, all sampling biases could not be eliminated. Numerous therapists were involved in diagnosing the participants in this study. This was necessary because of the large sample size involved. However, it raises the question of interrater reliability.

Another aspect of sampling bias relates to the selection process. Those bulimics who participated in this study and the majority of the BED participants were all in some phase of therapy. The question arises whether this population of bulimics and BED's could possibly be different from those with eating disorders who have not entered treatment.

Other potential intervening variables relate to measurement concerns. All the instruments in the study were self-report instruments, which are not considered as reliable as clinical interviews. Additionally, the family instruments, the FES (Moos & Moos, 1981) and the PBI (Parker et al., 1979) involved the participants' recalling their families of origin when they were 13. Since the average age of the participants was in the mid-twenties, one could question the accuracy of their memories.

Theoretical Implications of Results

The results of this study both differed and concurred with theory (Ainsworth, 1963; Ainsworth et al., 1978; Bowlby, 1969; Bruch, 1973; Selvini-Palazzoli, 1974) and hypotheses. Based on these results, as well as those of the Hodges et al., (1998) study, it

is clear that the families of women with BED are different from the families of comparison women. Both the present study and the Hodges et al. study imply that the families of BED women are more conflict-ridden than normal controls. These families also appear to be less likely to encourage independence and more inclined to be controlling. There is also a tendency toward low cohesion and expressiveness, but the tendency was not significant. It was theorized that these family differences were primarily attributable to attachment difficulties, yet this was not borne out by this study. In this study the BED participants did not differ from the comparison group on three measures of parental bonding (paternal care, maternal care, and maternal overprotection). In essence, BED families reported healthy levels of attachment.

With regard to depression and self-esteem, the hypotheses were partially supported. BED women did report higher levels of depression and lower self-esteem than normal controls. Again, though, it was hypothesized that increased depression and lower self-esteem were related to attachment difficulties, this was not supported.

It appears that faulty attachment is either not at the root of these differences, or that the Parental Bonding Instrument (Parker et al., 1979) was not accurately capturing the attachment difficulties that exist in this population. The Parental Intrusiveness Rating Scale (PIRS) (Rorty et al., 2000) and the Parental Acceptance/Rejection Questionnaire (PARQ) (Dominy et al., 2000) are two instruments that have been recently utilized to capture different aspects of attachment. Using the PARQ, Dominy et al. did find differences in paternal rejection when BEDs were compared to normal controls. This lends credence to the notion that the PBI might not be measuring a faulty attachment process in BED families. It is also interesting to note that although paternal over

protectiveness was not significantly different for BED families when compared to normal controls, the mean scores were different. The trend in BED families was towards a higher level of paternal over protectiveness. Therefore, it appears that further research on the role of the father in BED development would be helpful. Additionally, further research using a variety of instruments designed to measure attachment would be needed before a conclusion could be drawn in this area.

Comparison to Previous Research Findings

Family Variables- FES

The findings regarding families of bulimics primarily support the results of other research studies. In this study bulimics scored lower in cohesion when compared to controls, which is consistent with previous research findings (Blouin et al., 1990; Hodges et al. 1998; Johnson & Flach, 1985; Ordman & Kirschenbaum, 1986; Stern et al., 1989; Wirth, 1987). The present research findings differed from those of the Hodges et al. study with respect to families of BED participants. Hodges and her colleagues noted that bulimics and BED participants scored similarly on cohesion, and that both groups scored lower than the normal comparison group. In the present study a significant difference between the BED group and bulimics emerged, but there was not a significant difference between the BED group and normal controls. The BED group scored lower than the normal comparison group, but this result was not significant. The BED group scored higher than the bulimic group, which was different from the results of Hodges and her colleagues. A similar trend was noted with the expressiveness variable. Again, the results from the current study supported the finding that expressiveness was significantly

lower in bulimic families when compared to normal controls (Blouin et al. 1990; Stern et al., 1989). However, the results of this study did not support the findings of Hodges et al. (1998) who observed that bulimics score higher than BED participants on expressiveness. In fact, the current study found that bulimics scored significantly lower than both BED participants and the comparison group on the expressiveness variable.

The results for the conflict variable supported the hypothesis, as well as previous research studies (Johnson & Flach, 1985; Stern et al., 1989; Strober, 1981b), that bulimic families report higher conflict than normal controls. The results also validated Hodges et al.'s findings that BEDs score similarly to bulimics on conflict. In essence, both bulimics and BED participants describe their families as more conflict-ridden than normal controls.

The results for the active-recreational variable differed from theory. Blouin et al. (1990) and Johnson and Flach (1985) reported that bulimics scored lower than normal controls on this variable. Hodges et al.'s (1998) data also supported these findings, and they found that BED participants scored lower than bulimics on the active-recreational variable. Hodges and her colleagues hypothesized that this difference was most likely related to the fact that BED participants tend to be overweight, thus inhibiting their recreational pursuits. Results from the present study did not support these findings since no significant difference was noted among the three groups. This was surprising since most BED individuals are overweight, and hence are less physically active. However, participants were not queried about their weights, so it is possible that the BED participants in this study did not demonstrate the typical weight pattern. If so, one might

not expect a difference on the active-recreational orientation between the BED participants and the other participants in this study.

Other noteworthy findings, although not included in the hypotheses, pertain to the independence and the control variables on the FES (Moos & Moos, 1981). In previous research (Blouin et al., 1990; Johnson & Flach, 1985) bulimics scored lower on independence than did normal controls. In this study no statistical differences were found between bulimics and controls. However, the BED group did differ significantly from bulimics. The BED group scored the lowest on independence of the three groups. This finding is consistent with Hodges et al.'s (1998) results.

A similar finding was noted for the control variable. In this study the BED participants rated their families as significantly more controlling than both the bulimic participants and normal controls. There was no significant difference between the bulimic participants and normal controls. This differs from previous research (Humphrey, 1986b) in which bulimic families were disengaged and low in control when compared to a normal comparison group. However, it is consistent with the findings of Hodges et al. (1998), as they observed that BED participants reported the highest levels of control within their families of origin.

Attachment – Parental Bonding

Several researchers (Bonne et al. 2003; Calam et al., 1990; Palmer et al., 1988; Pole et al., 1988; Rhodes & Kroger, 1992; Steiger et al. 1989) reported low scores on care among bulimics when compared to normal controls. The present study validated these results. However, some researchers (Bonne et al., 2003; Rhodes & Kroger, 1992)

reported higher levels of overprotection when compared to normal controls, especially among fathers (Meyer & Gillings, 2004; Pole et al., 1988; Steiger et al., 1989). In the present study, bulimics had the lowest levels of over-protection when compared to normal controls and BED participants. There have been no other studies on attachment, using the Parental Bonding Instrument, with BED participants.

However, Dominy et al.'s (2000) examined attachment through the Parental Acceptance/Rejection Questionnaire and reported that women with BED perceived their fathers as more rejecting than did comparison women. In the present study, the comparison group did not differ from the BED group using the PBI. However, since rejection and over protectiveness are two different dimensions of attachment, it is possible that the PARQ might be a more effective tool than the PBI to assess attachment difficulties in the BED population.

Depression

Raymond et al., (1995), in comparing bulimia to BED, noted that although bulimic subjects reported mild levels of depression, those with BED had no evidence of depression on the BDI. However, the majority of studies on eating disorders and depression have shown agreement that bulimics and BED participants are more depressed than normal controls (Dominy et al., 2000; Fichter et al., 1993; Fonari et al., 1999; Prather & Williamson, 1988).

However, the research is divided on whether differences in level of depression exist between BEDs and bulimics. Fornari et al. (1999) and Fichter et al. (1993) reported no significant differences between the BED group and the bulimic group on depression.

Conversely, Barry et al., (2003) and Prather and Williamson's (1988) results indicated a continuum of depressive symptoms, with the BED group exhibiting less depression than bulimics, but more than normal controls. In the present study a significant difference also appeared between eating-disorder groups and normal controls. A significant difference was not found between the bulimic group and the BED group, thus validating the studies of Fornari et al (1999) and Fichter et al. (1993). Both groups scored in the moderately depressed range, and there was a trend for the bulimics to exhibit more depression than the BED participants. Previous research reported a milder level of depression for both the BED and bulimic group. In this study that did not occur. The degree of depression was more profound in both groups when compared to previous research.

Self-esteem

There has been a significant amount of research conducted on eating disorders and self-esteem (Button, 1993, Eldridge, Wilson & Whaley, 1990; Heatherton & Baumeister, 1991; Johnson & Connors, 1987), with the results indicating that bulimics reported lower self-esteem when compared to normal controls. de Zwaan (2001) found that BED participants also reported lower self-esteem when compared to normal controls. The present study supported the previous research findings, since both eating-disorder groups reported lower levels of self-esteem when compared to normal controls. However, this study also found a difference in self-esteem levels between the BED group and the bulimic group, with the bulimic group reporting the lowest levels of self-esteem.

Practical Implications of Results

Based on this study and other research findings, it appears that women with BED are more likely to be depressed and to manifest lower self-esteem than normal controls. Additionally, they are more likely to report that their families of origin were conflict-ridden, controlling, and did not encourage independence. These factors contribute to the notion that women with BED will most likely experience limited success in traditional weight-loss programs, which do not address psychological and familial issues.

Clearly, psychological intervention is needed to address these issues and to ensure that women diagnosed with BED receive appropriate treatment. Since the Binge Eating Scale (Spitzer et al., 1992) is easy to administer and to score, it would be an ideal instrument for physicians and weight-loss centers to use when they treat obese women. If BED women can be differentiated from other obese women who seek help with weight loss, they can be referred to an appropriate therapeutic setting. Treatment can address weight loss and also the underlying psychological deficits such as depression, low-self-esteem and dysfunctional family dynamics. Family physicians, endocrinologists, nutritionists, and clinicians would also benefit from receiving education on Binge Eating Disorder.

Secondly, the results of this study support the results of previous research findings on bulimics and bulimic families. Therapy for these groups also needs to address depression, self-esteem, and family issues.

Suggestions for Future Research

Further research is indicated in several areas. One suggestion is to control for interrater reliability. In this study, numerous therapists were involved in diagnosing the participants as bulimic or as binge eating disordered. Ideally, this should be controlled for by having a limited number of trained therapists involved in the diagnostic process.

Additionally, it would be ideal to control for sampling bias. In this study some BED participants were recruited from clinical settings and some from weight-loss programs. A multivariate analysis of the two groups indicated that there was no significant difference between the groups. Ideally, though, all participants should be recruited from either weight-loss programs or a clinical setting to control for intervening variables, or a large enough sample size to make comparisons should be used. Another sampling issue for future researchers to consider is the differences between obese women with BED and non-obese women with BED. Since Barry et al. (2003) found differences between these two groups of BED women on the EDI, future researchers may wish to examine if these two groups differ on other variables as well.

The present study should be replicated using different instruments to measure attachment. This will provide additional information regarding the role of attachment in binge-eating disorder. Difficulties with attachment were hypothesized as a source of family dysfunction, depression and low self-esteem. This was not borne out by the results. Future researchers could also explore theoretical models other than attachment to explain the increased depression, lower self-esteem and family dysfunction among BED participants.

This study relies involves heavy reliance on self-report instruments. Future researchers may want to consider utilizing clinical interviews or observational techniques to assess the variables measured in this study.

APPENDIX

Appendix A

Demographic Data Questionnaire

Please answer the following questions: Age _____

Religion: _____ Sex: Male ___ Female ___ Race: _____

Ethnic Background of Family of Origin (Country of Family's Original Heritage): _____

MARITAL STATUS: (circle one)

Single Married Separated Divorced

With whom do you live? (please choose only ONE option)

Alone w/Mother w/Mother + siblings
 w/ Spouse w/Father w/Father + siblings
 w/Spouse & child(ren) w/BOTH parents w/Significant Other
 w/children w/BOTH parents + siblings
 Other _____

EDUCATIONAL LEVEL: (choose one)

Some High School College Graduate
 High School Graduate Some Post-Graduate
 Some College Post-Graduate Degree
 Vocational or Trade School Other _____

OCCUPATION: _____

Please identify your current household income:

0-\$30,000 \$31,000-\$60,000 \$61,000-\$90,000
 \$91,000-\$120,000 greater than \$120,000

Appendix A - Demographic Data Questionnaire – Page 2

PARENTS' EDUCATION:

MOTHER:

- Some High School*
- High School Graduate*
- Some College*
- College Graduate*
- Some Post-Graduate*
- Post-Graduate Degree*
- Vocational or Trade School*
- Other* _____

FATHER:

- Some High School*
- High School Graduate*
- Some College*
- College Graduate*
- Some Post-Graduate*
- Post-Graduate Degree*
- Vocational or Trade School*
- Other* _____

PARENTS OCCUPATION:

Mother: _____

Father: _____

Family of Origin Living Situation (with whom you lived as a child):

- Intact/Traditional Family (Mother + Father + Children)*
- Single Parent Family (single, widowed, divorced, or separated parent + children)*
- Remarried/Blended Family (second marriage for one or both parents + children)*
- Other (please describe)* _____

Birth Order: Your position in family: (firstborn, second, etc.) _____
 If not firstborn, are you the firstborn of your SEX: Yes No

Did either of your parents have psychiatric or substance abuse problems. If YES, please specify the type of disorder and if they received treatment: _____

Have you ever been diagnosed with a psychiatric or substance abuse disorder?
 Yes No

If YES, please specify the type of disorder and age of onset (when disorder began):

If YES, have you ever received treatment for the disorder?

Appendix B

Letter to Participate

Dear Potential Participant:

I, Barbara Ferguson, am currently a doctoral student at Seton Hall University in the Department of Professional Psychology and Family Therapy, and I am conducting a research project, my dissertation, as partial fulfillment toward my degree.

The purpose of my study is to better understand eating behaviors and the personal, relationship, and family factors that may affect it. If you choose to participate in this study, you will be involved in completing several paper and pencil questionnaires, which will take between thirty-five and fifty-five minutes. All of your responses will be anonymous and confidential. The questionnaires include the Demographic Data Sheet, the Eating Disorder Inventory, the Binge-Eating Scale, the Family Environment Scale, the Parental Bonding Instrument, the Beck Depression Inventory, and the Self-Rating Inventory. To preserve your anonymity and confidentiality, please do not put any identifying information on any of the forms you receive. You are free to choose to participate or not to participate, and you may discontinue participation at any time without negative consequences. If you choose to discontinue participation, please discard all materials. Some of the information in the questionnaires is sensitive, and you may experience some discomfort in completing the questionnaires. If completing these questionnaires makes you feel uncomfortable, I recommend that you talk to a friend, counselor, or professional therapist depending upon the severity of the discomfort. If you are currently in therapy and experience discomfort in completing these questionnaires,

you may talk to your therapist. If you have any concerns about the questionnaires, you may contact the researcher at 973-402-6322. Participation is voluntary and you may withdraw at any time. All information is kept confidential and locked in a secure place.

If you are in therapy, your therapist will give you this invitation to participate and a slip of paper with a diagnostic code. If you choose to participate, you may pick up the questionnaires from the office secretary. If you do participate, it is important that you include this slip of paper when you return your packet. This slip of paper contains no identifying information. You may return the packet to the office secretary or, if you prefer, in the stamped envelope with the researcher's return address.

Completing and returning this research packet implies your informed consent.

I hope that this research permits new information to be examined about eating disorders, which may assist in identifying new treatment approaches. If you would like to obtain the results of this study, please send a postcard to the researcher at 420 Blvd. Suite 208, Mountain Lakes, NJ 07046. All results will be reported in group form.

This project has been reviewed by the Seton Hall University Institutional Review Board for Human Subjects Research (IRB). The IRB believes that the research procedures adequately safeguard the subjects' privacy, welfare, civil liberties, and rights. The chairperson of the IRB may be reached through the Office of Grants and Research Services. The telephone number of the Office is (973) 275-2974.

Barbara Ferguson

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