RELATIONSHIP BETWEEN SELF-PERCEIVED LEVELS OF HEALTHY FUNCTIONING IN THE FAMILY-OF-ORIGIN AND SELF-PERCEIVED CORRELATES OF WEIGHT-PREOCCUPATION AMONG FEMALE COLLEGE STUDENTS

By

PATRICIA COX REEVES

Bachelor of Arts in Education
Central State University
Edmond, Oklahoma
1969

Master of Education
Central State University
Edmond, Oklahoma
1976

Submitted to the Faculty of the
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Oklahoma State University
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Thesis Approved:

Mark E. Johnson
Thesis Adviser

Alfred Carlozzi

Brent McKee

Joan Holloway

Paul M. Miller

Norman N. Durham
Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Introduction

This study investigated the possible relationship between self-perceptions of family-of-origin characteristics and eating disordered behavior in a nonclinical college population of female members and pledges of sororities at a large midwestern university. For the purposes of this study, family-of-origin was defined as the family in which a person spent most of her childhood. Of particular interest were the two family-of-origin characteristics of autonomy (self-differentiation from the family-of-origin) and intimacy (closeness or bond within the family-of-origin). Eating disordered behavior was defined as behavior which stemmed from a preoccupation with food and/or fear of weight gain, and which included self-starvation, compulsive eating, compulsive exercising, vomiting, and excessive use of laxatives and diuretics.

The two primary eating disorders with which this study was concerned were anorexia nervosa and bulimia

nervosa. Anorexia nervosa is characterized by a pattern of self-starvation in which there is a preoccupation with thinness, a fear of obesity, a disturbance of body image and internal perceptions, and a sense of helplessness and personal ineffectiveness. Bulimia nervosa is characterized by episodes of food binges, sometimes accompanied by episodes of purging through vomiting, laxative abuse, or extensive use of diuretics.

Overview of the Literature

During the last 10 years, there has been an abundance of research on various types of eating disorders (Holleran, Pascale, & Fraley, 1988). Because symptoms of anorexia nervosa and bulimia nervosa typically appear in adolescent and young adult females, many of these studies have chosen nonclinical college populations as the setting in which to collect data (Halmi, Falk, & Schwartz, 1981; Kagan & Squires, 1984; Katzman, Wolchik, & Braver, 1984; Pope, Hudson, Yurgelun-Todd, & Hudson, 1984). While the specific determinants of anorexia/bulimia nervosa remain elusive, there is a consensus among most researchers that their etiologies are multidimensional. Evidence

suggests a biopsychosocial paradigm influenced by biological, sociocultural, and familial factors (Baird & Sights, 1986).

Research focusing on family systems from which persons with eating disorders come has identified certain familial characteristics as contributors to the development of the disorders (Humphrey, 1986; Humphrey, Apple, & Kirschenbaum, 1986; Kog, Vandereycken, & Vertommen, 1985; Minuchin, Rosman, & Baker, 1978). However, the results of these studies have created new research questions that must be answered by further investigation. These critical questions will be addressed in the following section.

Background of the Problem

Former research has mistakenly sought a single common factor that would put an individual at risk for developing an eating disorder. A more appropriate approach would be to consider a specific group of these factors which would interact at an opportune time in a specific individual who is at risk for developing the disorder (Garfinkel & Garner, 1982). This approach was adopted from the models of Weirner (1977) and Kubie (1971) to explain theories of illness development.

According to Garfinkel and Garner (1982), the multidimensional aspects of the predisposing factors which contribute to the development of anorexia nervosa have been divided into three areas: (1) individual, (2) cultural, and (3) familial.

Individual psychological factors that may predispose an individual to the development of an eating disorder include difficulties with the development of autonomy and a personal identity (Garfinkel & Garner, 1982). These factors were previously mentioned by Selvini-Palazzoli (1970), Bruch (1973), and Crisp (1978). Other factors that Garfinkel and Garner (1982) classify in the individual category are perceptual disturbance (including body image and internal states), weight pathologies (including premorbid obesity), personality traits (including overcompliance, perfectionism, and dependence), and conceptual organization deficits (including dichotomous thinking, rigid morality, low self-worth, and extreme personalization). Individual biological factors include perinatal complications (including cerebral disease or damage), other illnesses (including Turner's syndrome and congenital urogenital malformations), and

unclassified factors (such as hormonal imbalance and neuroendocrine deficiency).

Cultural factors, the second area that may predispose an individual to the development of an eating disorder, include pressure for thinness and performance expectation (Garfinkel & Garner, 1982). Significant determinants of the development of an eating disorder may be found in studying the gender, age, and social class of persons predisposed or vulnerable (Bruch, 1973). The influence of cultural factors on the value of thinness has been discussed at length (Bruch, 1978; Chernin, 1981; Garner, Garfinkel, & Olmsted, 1983; Levenkron, 1982; Orbach, 1978).

A list of familial factors comprise the final category of Garfinkel and Garner's (1982) classification. Appearing here are such characteristics as demographic data (parental age, social class, etc.), compliance with cultural norms, history of affective disorder and alcoholism in the parents, history of anorexia nervosa in the siblings, maternal obesity, genetic factors, and specific interactions between parents and the child as they relate to difficulties with autonomous behavior.

The role of the family in the development of eating disorders was addressed in the literature as early as the late nineteenth century (Charcot, 1889; Gull, 1873). These authors stated an intimate connection between the illness and the desperate preoccupation of the family members. Studies into this phenomenon have been criticized on the basis of unsound methodological practices, including failure to provide proper controls, a propensity toward retrospective investigations, difficulty in separating predisposing factors from symptoms of the illness, use of qualitative rather than quantitative research, and an overrepresentation of idiosyncratic, descriptive research (Garfinkel & Garner, 1982; Kog & Vandereycken, 1983).

Nevertheless, most clinicians are in agreement that there is a psychological predisposition in patients who develop eating disorders and that one of the predisposing factors is related to disharmony in the family-of-origin (Gross, 1986). Although other familial characteristics listed above appear to make a contribution to the illness (Bruch, 1973; Crisp, Palmer, & Kalucy, 1976; Halmi, Goldberg, Eckert,

Casper, & Davis, 1977), there has been a substantial interest in investigating the influence of family dynamics in relationships as they apply to the development of anorexia nervosa and bulimia nervosa (Gross, 1986; Kog & Vandereycken, 1983). These investigators found that there appears to be primary psychopathology in the family's style of interactions that contribute to the development of anorexia nervosa or bulimia nervosa in one of its members, typically a child or an adolescent. As one of the authors stated, "It has long been noted that the individual in the family who is developing symptoms of mental or psychophysiological illness is internalizing the interpersonal relations in the family" (Gross, 1986, p. 3).

One perspective on family dynamics within interpersonal relationships has been to regard them as components of general systems theory (Von Bertalanffy, 1966). According to this theory, individuals within the family network both affect and are affected by other family members in an attempt to maintain balance or homeostasis. According to Von Bertalanffy (1966),

the entire system, rather than the "identified patient", is seen as dysfunctional.

In keeping with the systems perspective, a great deal of work has been done in the study of families who have children suffering from psychosomatic illnesses (Minuchen, 1974; Minuchin et al., 1978). Minuchen (1974) identified various patterns of interactional styles through observation of families. These styles include enmeshment (absence of role differentiation between parents and child), rigidity (lack of flexibility or willingness to make changes), overprotectiveness (emotional overinvolvement among members), and conflict avoidance (intolerance of conflict and unwillingness to negotiate compromise). Other dynamics of interaction seen in families of patients with anorexia nervosa are pseudomutuality, in which all members deny any problems in the family except the ones exhibited in the person with the eating disorder, and pseudohostility, in which the members become hostile to the patient in an attempt to get him or her to eat.

Bruch (1973) made mention of the extreme demands placed by parents on children who develop anorexia

nervosa, stressing compliant behavior, acceptable appearance, and high achievement, and resulting in difficulty in self-initiated behaviors and fear of losing self-control. According to Bruch, given no opportunity to advance from preconceptual cognitive development and being unable to identify internal states, the child becomes overcompliant and vulnerable to anorexia nervosa upon reaching adolescence, when a need for autonomy and separation from the parents developmentally occurs. Selvini-Palazzoli (1974) shared this view, as did Sours (1974), emphasizing the mother's vicarious need for gratification through the sacrifice of her perfect child.

Statement of the Problem

The following deficits in research literature presented a rationale for proposing this study. Most of the studies of anorexia nervosa and bulimia nervosa as they related to familial characteristics were clinically descriptive and were deficient in these areas: (a) studies which included normal controls and/or other patient groups; (b) studies which compared subgroups of eating disorders; (c) self-report studies in the field; and (d) studies focused on children who

are at high risk, but who have not as yet developed an eating disorder (Kog & Vandereycken, 1983; Yager, 1982). It was with consideration of these deficiencies in the literature that the present study was proposed.

This study examined the possible effects that self-perceptions of certain family-of-origin characteristics may have on the development of anorexia nervosa or bulimia nervosa in one of the family members. The problem that this study addressed may be delineated into the following research questions:

1. Does a relationship exist between individuals' perceptions of the way in which their families-of-origin functioned during their childhoods and their perceptions of their current attitudes and behaviors as they relate to those previously paired with eating disorders in the research literature?

2. If a relationship does exist, what is the nature of the relationship?

3. Which self-perceived family-of-origin characteristics best discriminate between persons who are weight-preoccupied and those who are not weight-preoccupied?

Significance of the Study

The justification for conducting this study was demonstrated in the following ways. First, the study contributed to the existing literature relative to familial characteristics that predispose individuals to the development of eating disorders. Second, the study can be seen as one of the first ones to exclusively use self-report instruments, assessing perceptions of the subjects' families-of-origin and their own attitudes and behaviors. Third, the study identified specific family-of-origin characteristics which may identify specific eating disordered attitudes and behaviors. When multiple predictor variables in the family-of-origin exist and can be identified, early screening and intervention can be facilitated. Finally, the study contributed new insights regarding early screening of women who are likely to be preoccupied with weight in a nonclinical sample.

Definitions

Family-of-Origin--the family in which a person spent most of her childhood.

Autonomy--self-differentiation from the family-of-origin in relation to forming, respecting, and taking responsibility for ones own thoughts and emotions.

Intimacy--a closeness or bond within the family-of-origin in which the members hold values of sensitivity, honesty, and trust for each other in a warm, positive, atmosphere.

Healthy Family-of-Origin Functioning--interactions within the family-of-origin in which there is a balance between high levels of autonomy and high levels of intimacy.

Eating Disordered Behavior--Behavior which stems from a preoccupation with food and/or fear of weight gain. Behaviors may include self-starvation, compulsive eating, compulsive exercising, vomiting, and excessive use of laxatives and diuretics.

Hypotheses

1. There will be a significant negative relationship between self-perceived levels of healthy functioning in the family-of-origin and self-perceived levels of eating disordered attitudes and behaviors among female college students.

2. Several family-of-origin characteristics will significantly discriminate between female college students who are preoccupied with weight and those who are not preoccupied with weight.

Assumptions and Limitations

There were three primary assumptions on which this study was based. The first assumption was that subjects would respond honestly to all items in the questionnaire. The second assumption was that the subjects used in this study comprised a representative sample of female, undergraduate college students who were associated with sorority life at a large midwestern university, allowing the results to be generalized to such students at other such universities. The third assumption was that if a relationship existed between self-perceived levels of health in the family-of-origin and self-perceived levels of eating disordered behavior, the relationship would be a linear one.

There were two significant limitations to this study. The first limitation involved the population, which was limited to female, undergraduate college students who were members and pledges of sororities on

the campus of a large midwestern university. As such, the generalizability of the results may have been compromised for use with other populations and restricted to populations similar to this one. However, the literature has shown that there is a significant amount of eating disordered behavior in college student populations (Holleran et al. 1988). Investigations which would have included gender and occupational variables were outside of the scope of this study.

The second limitation to this study was that subjects responded to self-report instruments. As such, perceptions of childhood were subject to distortion over time and perceptions of eating disordered correlates may have been influenced by exhibition of denial. The Family-of-Origin Scale attempts to quantify only the subjects' perceptions of family-of-origin experience, not the objective-factual experience, making the assumption that "perceived reality is reality" (FOS; Hovestadt, Anderson, Piercy, Cochran, & Fine, 1985, p. 295). The Eating Disorder Inventory (EDI; Garner & Olmsted, 1984) as a self-report measure is also susceptible to

response style bias and inaccurate reporting. However, it has been shown to be effective in identifying individuals who have weight-preoccupation in nonclinical populations (Garner & Olmsted, 1986).

Organization of the Study

Chapter II includes a review of the literature relative to research on eating disorders and family systems theory. It presents an overview of the etiology and prevalence of eating disorders, their physiological, psychological, and cultural concomitants, and their relevance with respect to family systems concepts. Chapter III presents the research design, including statistical analyses used and descriptions of the subjects and instrumentation, as well as explanations of the data collection, follow-up, and subject compensation procedures. The results of the statistical analyses are presented in Chapter IV, while Chapter V presents conclusions and recommendations based on these results.

CHAPTER II

REVIEW OF LITERATURE

Summarization of Literature Review

This chapter reports a review of the literature relative to the theoretical constructs that serve as the bases for the proposed investigation. The review begins with a discussion of the definitions, symptoms, and prevalence of the two eating disorders that are of interest in this study--anorexia nervosa and bulimia nervosa. A discussion of the physiological and psychological concomitants of each will follow, along with documentation supporting the research in these areas. Also included in this chapter is a presentation of the multidetermined nature of these disorders, as it is evidenced by biological, psychological, sociocultural, and familial factors. Finally, this chapter summarizes research into family systems as they predispose the development of eating disorders.

Definitions, Symptoms, and Prevalence

Anorexia nervosa was cited in the literature as early as 1689, when the condition was documented under the diagnosis of nervous consumption (Morton, 1689).

However, it was not acknowledged as a specific disorder until both Lasegue (1873) and Gull (1873) independently documented the disorder in separate writings from France and England, respectively. According to Schlesier-Stropp (1984), bulimia was only recently recognized as a separate entity from anorexia nervosa when the American Psychiatric Association (1980) provided distinct diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III, Third Edition).

Anorexia nervosa and bulimia nervosa are thought to be related disorders of eating behavior (APA, 1987). Some independent studies have revealed bulimia nervosa to be present in approximately 40% of subjects with anorexia nervosa (Andersen, 1983; Casper, Eckert, Halmi, Goldberg, & Davis, 1980; Crisp, Hsu, Harding, & Hartshorn, 1980; Garfinkel, Moldofsky, & Garner, 1980). While bulimia is thought to be a subgroup of anorexia nervosa by some authors (Garfinkel et al., 1980), a more popular conceptualization is that there are more than two distinct disorders that are represented by anorexia nervosa and bulimia nervosa, and that the disorders are not necessarily mutually exclusive

(Andersen, 1983). Although both anorexia nervosa and bulimia nervosa share common characteristics, there are specific symptoms which are considered in making differential diagnoses.

Anorexia Nervosa

According to the Diagnostic and Statistical Manual of Mental Disorders--Third Edition, Revised (DSM-III-R; APA; 1987), there are four major criteria involved in making a diagnosis of anorexia nervosa. These include (1) failure to maintain minimal body weight within 15% of that which is expected, (2) persistent fear of weight gain, (3) distortion of body image, and (4) primary or secondary amenorrhea over three consecutive menstrual cycles. Onset occurs typically during adolescence, and reports of prevalence are mixed, varying from 1 in 800 to 1 in 100 females in this age range. Agras and Kraemer (1983) have reported that cases have doubled every decade during the last 30 years.

Bulimia Nervosa

In the DSM-III-R , four primary criteria are cited as necessary for determining the presence of bulimia nervosa. Symptoms that must occur include the

following: (1) at least two episodes of binge eating per week over a minimum of three months; (2) recognition of loss of impulse control during the binges; (3) regular attempts to thwart weight gain through self-initiated vomiting, diuretic abuse, laxative abuse, fasting, or exercise; and (4) relentless preoccupation with body image. Onset typically occurs during adolescence or early adulthood, and prevalence among college freshmen with a history of bulimia is reported to be 4.5% in females and 0.4% in males.

Physiological Concomitants of Anorexia Nervosa and Bulimia Nervosa

Anorexia Nervosa

Garfinkel and Garner (1982) found the physiological concomitants present in anorexia nervosa to be, in large part, the results of starvation. Studies have found these concomitants to include, in addition to an emaciated appearance, such physical characteristics as dry skin, brittle nails, thinning scalp hair, and cold hands and feet (Garfinkel & Garner, 1982; Levenkron, 1982; Romeo, 1986). Furthermore, Golden and Sacker (1984) reported that

lanugo (growth of soft body hair) may be present. Other evidence of anorexia nervosa was reported to be manifested by bracardia, hypotension, edema, and hypothermia. A reduction in lean tissue, fat tissue, and bone density are other signs (Mitchell & Truswell, 1987). Amenorrhea and constipation present as additional symptoms (Levenkron, 1982).

Bulimia Nervosa

Kaye and Gwirtsman (1985) documented that many of the concomitant physical symptoms of bulimia nervosa were those commonly reported for patients with anorexia nervosa who had dual diagnoses. However, additional signs and symptoms occur in bulimia nervosa, exclusive of those found in anorexia nervosa. Self-induced vomiting may produce severe effects, the most common of which may be irreversible damage to teeth due to exposure to vomitus and excessive ingestion of sweets (Halmi, 1985). Cauwels (1983) made mention of a phenomenon known as Russell's sign, which is a scar on the hand formed as a result of the skin coming in contact with the teeth. Serious gum infections, such as pyorrhea, loss of tooth enamel, and increased tooth sensitivity may be the result. Aspiration of vomitus

into the lungs and enlargement of the parotid glands have also been reported (Bauer, Anderson, & Hyatt, 1986). Perhaps the most serious side effect from self-induced vomiting, laxative abuse, and misuse of diuretics can be seen in the development of hypokalemia, which often results in muscle weakness, paralysis, cardiac dysrhythmias, dehydration, shock, and death.

In addition to complications resulting from self-induced vomiting, complications resulting from binge eating have been cited as well (Bauer et al., 1986). Esophageal rupture, abdominal pain, abdominal distention, and post-binge pancreatitis may be seen as negatively affecting the gastrointestinal system. A diversity of nonspecific neurological signs have been linked to binge eating. These signs range from headaches to epilepsy, and they include dizziness, tingling and numbness in the extremities, perceptual disorders, and chronic depression (Bauer, et al., 1986; Halmi, 1985). Halmi (1985) also reported abnormalities of serum enzymes in the endocrine system. Sleep disturbance has been cited by Crisp (1970, 1980).

Psychological Concomitants of Anorexia Nervosa and Bulimia Nervosa

Wardel (1980) highlighted a relationship between dietary restriction (anorexia nervosa) and binge eating (bulimia nervosa). Both behavioral syndromes appear to be complex. Each one seems to display its own emotional and psychological concomitants, some of which are mutually shared (Beaumont, Burrows, & Casper, 1987).

Anorexia Nervosa

Various premorbid personality characteristics have been reported (Garfinkel & Garner, 1982). Dally (1969) and Halmi (1974) have observed obsessive compulsive and hysterical personality traits, while Bruch (1973), Crisp (1965), and Halmi et al. (1977) emphasized a dependent personality type given to perfectionism and overcompliance. However, Morgan and Russell (1975) purport no specific prevalence of personality type in patients with anorexia nervosa.

Bruch (1973, 1978) found patients who suffer from anorexia nervosa to have psychological deficiencies in three areas: (1) distorted body image, (2) distorted perception or cognitive processing of internal stimuli

such as fatigue, hunger, and satiety, and (3) feelings of ineffectiveness. Some or all of these psychological functions have been reported by others (Crisp, 1970; Garfinkel & Garner, 1982; Garner & Bemis, 1982; Selvini-Palazzoli, 1974).

Body Image Distortion

The concept of body image distortion has recently received attention as having significant considerations for treatment. This distortion is characterized by the patient's stubbornness to acknowledge accurate body size, a relentless pursuit of thinness, fear of weight gain, and denial of the emaciated state (Garfinkel & Garner, 1982; Touyz & Beaumont, 1987). Research shows that there may be a focus on a particular body part that the patient sees as too large, and self-loathing may follow. Food rituals are instituted to ease the fear of weight gain.

Perceptual Distortion

Bruch (1973) reported that interoceptive awareness has also been found to be distorted in anorexia nervosa patients. She found that patients are unable to accurately perceive internal stimuli that allow them to recognize feelings of fatigue, hunger, satiety, cold,

and sexuality. Just as they are vigilant in their denial of the extent of their thinness, these patients continue to deny their emotions.

Ineffectiveness

A sense of personal mistrust has been found repeatedly in studies using patients diagnosed with anorexia nervosa as subjects (Bruch, 1973, 1978). This construct has had far-reaching influence into a variety of correlates displayed by the patients. For example, Bruch (1978) found that patients were overly obedient, well-behaved, and academically superior. Dichotomous thinking, rigidity, and preoccupation with control were found to be prevalent in a study by Garner and Bemis (1982). Rumney (1983) stated that a commitment to perfectionism and a frame of reference involving competition reflect the patients' sense of external control and lack of self-esteem.

Bulimia Nervosa

Cauwels (1983) cited examples of patients with bulimia nervosa who shared certain personality correlates with patients diagnosed with anorexia nervosa, among which are perfectionism, low

self-esteem, feelings of ineffectiveness, interpersonal mistrust, preoccupation with appearance and achievement, fear of gaining weight, and obsession with food. However, she reported that along with lack of emotional awareness, patients with bulimia nervosa have an inability to appropriately express anger. Bauer et al. (1986) purported that fear of becoming fat is a primary personality factor among those with bulimia. In a comprehensive volume, Root, Fallon, and Friedrich (1986) described the most commonly expected features of the bulimic personality as low self-esteem; a sense of powerlessness; an inability to experience feelings of anger, anxiety, and fear; depression; a poor sense of self; social isolation; a preoccupation with appearance, weight and food; few intimate relationships; and hypersensitivity to criticism or approval.

Results have been mixed in regard to investigations of persons with bulimia nervosa and locus of control (Holleran et al., 1988). Josephson (1985) argued that persons with anorexia treasure their hunger and derive a feeling of mastery from restricting, while those with bulimia tend to feel more

helpless over their eating behavior and more externally controlled. According to Josephson (1985), persons in the latter group also exhibit a bigger problem with loss of impulse control and are more socially outgoing and sexually active than patients within the former group. Other studies, however, have found no significant relationship between external locus of control and bulimia nervosa (Fisher-McCanne, 1985).

Research into Physiological and Psychological Concomitants

A review of all relative research on physiological and psychological concomitants of eating disorders was beyond the scope of this study. Therefore, only a concise overview with respect to the literature particularly relevant to the present study is presented in this section.

Physiological Concomitants of Anorexia Nervosa and Bulimia Nervosa

This section will review the literature germane to the physiological concomitants of anorexia nervosa and bulimia nervosa separately. However, it is stressed that many patients demonstrate symptoms that would

classify them as having both disorders, either serially or concomitantly. This fact is evidenced by studies in which bulimia was present in approximately 40% of patients with anorexia nervosa (Andersen, 1983; Casper et al., 1980; Crisp et al., 1980; Garfinkel et al., 1980).

Anorexia Nervosa

Most research in regard to the physiological concomitants of anorexia nervosa has produced results suggesting that the signs and symptoms are closely associated with malnutrition and are secondary to starvation (Barbosa-Saldivar & Van Itallie, 1979). Keys, Brozek, Henschel, Mickelsen, and Taylor (1950) found a decrease in gastric motility in studies involving semi-starvation. This phenomenon has been corroborated by others (Dubois, Gross, Ebert, & Castell, 1979; Holzl & Lautenbacher, 1984; Saleh & Lebwohl, 1980). These findings are in contrast to the contradictory results reported by Silverstone & Russell (1967).

Keys et al. (1950) made mention of other complications prevalent in patients with anorexia nervosa. Studies which produced results indicating

inaccurate thermoregulation have been confirmed in other studies (Luck & Wakeling, 1980; Vigersky & Loriaux, 1977). Fohlin (1977), Seidensticker and Tzagournis (1968), and Silverman (1977) found low pulse rates, while Warren and Vande Wiele (1973) reported low blood pressure rates in patients with this disorder. Other cardiovascular abnormalities have attracted researchers. Approximately 50% of anorexia nervosa patients have been reported as having abnormal electrocardiographic (EKG) readings (Thurston & Marks, 1974). Research has been conducted with respect to circulatory dynamics (Gottdiener, Gross, Henry, Borer, & Ebert, 1978; Kalager, Brubakk, & Basse, 1978; Powers, 1982; Silverman & Krongrad, 1983).

The relationship between anorexia nervosa and neurological processes has been explored by Crisp, Fenton, and Scotton (1968), Handler and Perkin (1982), Lewin, Mattingly, and Millis (1972), Sein, Searson, and Nicol (1981), and Weller and Weller (1982). However, most research that has been published pertains to patients who are bulimic or who are compulsive eaters.

Wigley (1960) has suggested that a relationship exists between anorexia nervosa and renal complications

after finding 17 cases who developed hypokalemic alkalosis and eight cases who had a history of renal problems. Other data regarding renal problems in patients with anorexia nervosa have been reported by Gold, Kaye, Robertson, and Ebert (1983), Mecklenberg, Loriaux, Thompson, Andersen, and Lipsett (1974), and Vigersky, Loriaux, Andersen, and Lipsett (1975).

The area of endocrine disorders is perhaps the focus of the most intense research in regard to physiological concomitants of eating disorders. A study by Garfinkel, Brown, and Darby (1981) stated that secondary amenorrhea was the most frequently observed abnormality of menstruation in women with anorexia nervosa, although observations have been made of primary amenorrhea, as well. The authors speculated that a dysfunction in the hypothalamus may be indicated. Research as it relates to other endocrine abnormalities will be covered in a subsequent section of this chapter, as it surveys work done in the area of biological determinants of eating disorders.

Bulimia Nervosa

Root et al. (1986) have stated that documentation of research regarding physiological symptoms of bulimia

are scanty and that documentation with respect to physiological recovery is unavailable. Russell (1979) viewed the diverse medical complications to be more relatively tied to vomiting than to either bingeing or purging. Mitchell, Pyle, and Miner (1982), as well as Pyle, Mitchell, and Eckert (1981), purported that the only medical abnormality attributed to binge eating is gastric dilation. Stomach rupture has been reported in the literature for individuals of normal weight with both a history of anorexia nervosa (Saul, Decker, & Watson, 1981) and bulimia nervosa (Mitchell et al., 1982). Acute pancreatitis as a consequence of bingeing has also been suggested (Rampling, 1982).

Some studies have produced useful results in the areas of serum enzyme and endocrine abnormalities (Halmi, 1985). Zucker (1984) reported elevated serum amylase levels in 30 of the 108 subjects with bulimia nervosa studied, and the frequency of higher levels was significantly elevated in those patients reporting more frequent episodes of bingeing and vomiting. It was suggested that these levels may be employed in behavior monitoring. Similar results were confirmed by Mitchell, Pyle, Eckert, Hatsukami, and Lentz (1983).

Hypokalemia has been stressed to be the result of excessive vomiting and purging (Fairburn, 1980; Geller, Kelly, Traxler, & Marone, 1978; Herzog, 1982). Although Russell (1979) concluded that hypokalemia was responsible for renal failure in one patient and urinary infections in another, Pyle et al.'s (1981) study determined that hypokalemia and renal failure were absent in all subjects. In contrast to results of renal function studies using patients with anorexia nervosa (Mecklenberg et al., 1974), two studies using patients with bulimia nervosa did not show renal complications. Mitchell et al., (1983) found only four abnormalities when performing renal function screening for persons with bulimia nervosa in which anorexia nervosa was absent. Likewise, nonsignificant results were achieved in a study employing water deprivation with six patients diagnosed with bulimia nervosa who were of normal weight (Mitchell & Bantle, 1983).

Amenorrhea and irregular menstrual periods have been reported in persons who have bulimia nervosa (Johnson, Stuckey, Lewis, & Schwartz, 1982; Pyle et al., 1981). However the incidence of these symptoms appears to be less widespread than in anorexia nervosa

(Hsu, 1980). Fairburn and Cooper (1982) referred to temporary cessation of menstrual periods in all weight categories--underweight, normal weight, and overweight individuals--due to poor eating habits. Dental caries and tooth erosion have been commonly reported in the literature (Brady, 1980; Crisp, 1970; Herzog, 1982; House, Crisius, Bliziotes, & Licht, 1981; Hurst, Lacey, & Crisp, 1977; Pyle et al., 1981). Other frequent complaints include sore throats (Fairburn, 1980; Pyle et al., 1981), swelling in the parotid glands (Herzog, 1982; Levin, Falko, Dixon, Gallup, & Saunders, 1980; Pyle et al., 1981; Russell, 1979; Walsh, Crofts, & Katz, 1981-82), cold intolerance (Root et al., 1986), and abnormal EEGs (Green & Rau, 1974; Rau & Green, 1975, 1978).

Psychological Concomitants of Anorexia Nervosa and Bulimia Nervosa

Just as it was stated in the previous subsection that many patients show physiological symptoms that would classify them as having both anorexia nervosa and bulimia nervosa, it is further stressed that many patients demonstrate psychological symptoms that are germane to both diagnoses. Although this section will

speak to the research in regard to anorexia nervosa and bulimia nervosa separately, much of the research deals with psychological symptomatology found in both disorders.

Anorexia Nervosa

The prolific body of research into perceptual and conceptual deficits in anorexia nervosa originated from the clinical observations of Bruch (1973, 1978), with which she developed a tripartite model of pathogenesis of the eating disorder (Garfinkel & Garner, 1982). As stated earlier, her paradigm espoused three general categories of these dimensions: (1) distorted body image; (2) distorted perception or cognitive processing of internal stimuli, such as fatigue, hunger, and satiety; and (3) feelings of ineffectiveness.

Body image distortion. There have been three primary methods used in studies designed to measure distortion of body size: (1) movable caliper, (2) image-marking, and (3) distortion of photograph (Garfinkel & Garner, 1982). Some studies found that subjects with anorexia nervosa overestimated their body size compared to normal controls using the movable caliper method (Russell, Campbell, & Slade, 1975;

Slade & Russell, 1973). However, other investigators reported that both groups overestimated their body size (Ben-Tovim, Whitehead, & Crisp, 1979; Button, Fransella, & Slade, 1977; Crisp & Kalucy, 1974; Garner, Garfinkel, Stancer, & Moldofsky, 1976). A relationship was found between overestimation and denial of the eating disorder (Casper et al. 1980; Goldberg, Halmi, Casper, Eckert, & Davis, 1977), as well as with poor prognosis (Button et al., 1977; Russell et al., 1975; Slade & Russell, 1973).

When using the Askevold image-marking method to determine overestimation of body size, Pierloot and Houben (1978) found that although subjects with anorexia nervosa and normal controls overestimated body size, there was a significantly greater overestimation found among the eating disorders group. There were no significant differences found in a study conducted by Strober, Goldenberg, Green, and Saxon (1979). Although the results of studies using the movable caliper method and the image-marking method have been mixed, it appears that both experimental and control groups tend to overestimate body size and that those subjects with anorexia nervosa that display this tendency may be more

likely to have a poor prognosis for recovery (Garfinkel & Garner, 1982). Garfinkel, Moldofsky, and Garner (1977) showed this to be true for the distortion of photograph method, as well.

Distortion of body image has been shown to be a fairly stable phenomenon across experimental variable manipulations (Garfinkel, Moldofsky, Garner, Stancer, & Coscina, 1978) and across time (Garfinkel et al., 1978; Garfinkel, Moldofsky, & Garner, 1979). In clinical populations it has been associated with greater indications of anxiety, depression, external locus of control, ineffectiveness, and greater overall symptomatology (Garfinkel & Garner, 1982).

Perceptual distortion. Distortion of interoceptive awareness is another psychological concomitant under investigation in this study. Confusion with regard to hunger and satiety has been of particular interest to the research conducted in this area. Crisp (1967b) and Silverstone and Russell (1967) investigated awareness of hunger sensations using intragastric tubes and intragastric pressure telemetrypills, respectively, to compare perceptions of gastric contractions between patients with anorexia

nervosa and normal controls. Although both groups identified the gastric contractions, some members of the experimental group did not associate them with hunger.

In another study, subjects with anorexia nervosa were found to be deficient in internal state awareness of the amount of food they had been administered (Coddington & Bruch, 1970), suggesting that this phenomenon applies to awareness of satiety, as well as hunger. Garfinkel et al. (1978) found significant differences when comparing patients with anorexia nervosa to normal controls on aversion to sucrose following ingestion of glucose. Lack of interoceptive awareness has also been linked to body image distortion (Garfinkel & Garner, 1982). These studies suggest that satiety may be regulated more often by expectation than by internal cues in patients with anorexia nervosa.

Ineffectiveness. Cognitive and conceptual distortion is yet another psychological concomitant of anorexia nervosa that is of interest to this study. Very little has been done empirically in this area (Garfinkel & Garner, 1982). There has been some attempt to measure attitudes among patients with

anorexia nervosa (Ben-Tovim, Hunter, & Crisp, 1977; Crisp & Fransella, 1972). An attempt to measure distorted cognitions has also been made (Garner & Bemis, 1982). These assessments are believed to have treatment implications (Garfinkel & Garner, 1982).

Bulimia Nervosa

Research in the area of bulimia nervosa has been done on many variables that at times overlap with the concomitants listed above for anorexia nervosa, as well as with others. Some investigators have found persons with bulimia nervosa to have a negative self-image, a tendency toward shyness (timidity), low self-esteem, and assertion deficiency (Baird & Sights, 1986; Fisher-McCanne, 1985; Grant & Fodor, 1986; Katzman, et al., 1984; Lewis & Johnson, 1985; Segal & Figley, 1985). Holleran et al. (1988) found significance when selecting out low assertiveness scores as a variable to be used in predicting subjects with bulimia nervosa.

Obsession with food has been the focus in a variety of studies regarding bulimia nervosa (Fairburn, 1980; Fairburn & Cooper, 1982; Herzog, 1982; Rosen & Leitenberg, 1982). Fear of weight gain and body image

distortion have been investigated (Fairburn & Cooper, 1982; Garfinkel & Garner, 1982; Pyle et al., 1981), as has overall preoccupation with weight, dieting, and body size (Fairburn, 1980; Palmer, 1979; Russell, 1979).

Russell (1979) found that depression is a common symptom in bulimia nervosa. Herzog (1982) revealed in his study that greater than 75% of the 30 subjects who had bulimia nervosa met the DSM-III criteria for depression, and Fairburn (1980) showed that these symptoms intensified as the subjects' weights increased. Pyle et al. (1981) reported that many of the subjects in their study seemed clinically depressed. In another investigation that used 56 female subjects with bulimia nervosa, Lee, Rush, and Mitchell (1985) found that depression may be related to bulimia--either pathophysiologically or symptomatically. Viesselman and Roig (1985) reported that results of their research suggest that, although related, eating disorders are not variations of affective disorders.

Anxiety has also been the focus of empirical study in bulimia nervosa (Fairburn & Cooper, 1982). Anxiety

has been associated with the fear of loss of control (Palmer, 1979; Rau & Green, 1975), as well as with the binge-purge cycle (Rosen & Leitenberg, 1982). The subsequent emotions of guilt and shame which follow the binge have been investigated (Fairburn, 1980; Herzog, 1982; White & Boskind-White, 1981). In addition, studies linking bulimia nervosa to chemical dependency have been mixed (Pyle et al., 1981; Wermuth, Davis, Hollister, & Stunkard, 1977).

Multidimensional Influences in the Development of Eating Disorders

Concern with determining which specific factors predispose particular individuals to the development of eating disorders has motivated research into biological, psychological, sociocultural, and familial determinants (Garfinkel & Garner, 1982; Josephson, 1985). In addition, there has been an interest in determining the external precipitating events that trigger onset of the disorders' symptoms. This emphasis on the initiating event is crucial because it is perceived by the individual as a threat to self-esteem and autonomy. The symptoms are manifested in an attempt to regain control and self worth. The

following sections will discuss each of the four classifications of predisposing factors in the development of eating disorders (biological, psychological, sociocultural, and familial determinants) as they contribute to a biopsychosocial model.

Biological Determinants

Early research into biological causes of eating disorders, which centered on pituitary dysfunction and endocrine disease, has been replaced in the literature with studies involving primary hypothalamic dysfunction theory (Vandereycken & Meerman, 1984). The theory ascribes to the notion of vulnerability or defect in the hypothalamus, and most of the literature to date has focused on primary and secondary dysfunction (Garfinkel et al., 1981).

Moore (1981) has proposed two models as a result of empirical research with respect to biological correlates of eating disorders. The first model is based on the presence of amenorrhea in subjects before weight loss and its continuance in some subjects despite appreciable weight gain (Hsu, 1983). The author suggested that a hypothalamic vulnerability or

defect may exist before the weight loss and that a precipitating stressor, such as entry into adolescence, may serve to both activate and terminate the amenorrhea, independent of weight loss or restoration.

The second model proposed by Moore (1981) purported that a normal hypothalamus, which is controlled by higher cortical structures, may be altered during stress (such as the adolescent period), so that its functioning is also altered. Research has held possible implications for neurotransmitter dysfunction in neurochemical pathways from the limbic system or cerebral cortex to be involved in amenorrhea, hypothermia, hyperactivity, and abnormalities in appetite function as a result of stress. Studies have also investigated various neurotransmitters, with no conclusive evidence obtained with respect to eating disorder etiology (Ebert, Kaye, & Gold, 1984; Leibowitz, 1984; Wurtman & Wurtman, 1984).

To a lesser extent, genetic predisposition to the development of eating disorders through studies on monozygotic twins has been investigated, but there is no substantial support for this position (Vandereycken & Pierloot, 1981). The authors suggested that further

research is needed using the adoptive method. Harper (1983) regarded the research results with respect to endocrinological, physiological, and genetic determinants of eating disorders to be speculative at this time, a position shared by other investigators. (Garfinkel & Garner, 1982).

Review of other possible biological determinants was beyond the scope of this study. Some other factors that may contribute to a predisposition to develop eating disordered behavior include twinning, weight pathology, Turner's syndrome, congenital urogenital malformations, perinatal trauma, parental affective disorder, maternal migrane, paternal alcoholism, and other illnesses (Garfinkel & Garner, 1982).

Psychological and Personality Determinants

The premorbid personalities of patients with anorexia nervosa and bulimia nervosa have been described as being compliant with family and peers and successful in academics and athletics (Golden & Sacker, 1984). However, closer scrutiny has revealed obsessive and dependent personality styles, a tendency toward overachievement, psychosexual inadequacy, depression, and feelings of inferiority (Levenkron, 1982).

This sense of personal ineffectiveness has been conceptualized by Bruch (1962, 1973) as a difficulty in autonomous functioning due to failure in developing a personal identity. Selvini-Palazzoli (1970) also described this ineffectiveness as a developmental issue, but she emphasized an interpersonal/social model in which the parents, especially the mother, failed to help the infant feel satisfied and secure, thus producing an adolescent who felt no sense of personal power.

Conceptual organization deficit has been emphasized, as well (Bruch, 1977, 1979). Individuals with eating disorders tend to remain in what Piaget (1955) called the preconceptual and concrete operations stages of cognitive development, rather than progressing to the stage of abstract reasoning. This results in egocentrism, dichotomous thinking, rigidity, superstitious thinking, overpersonalization, and the tendency to view related events as causal (Garner & Bemis, 1982).

Bruch (1980) pointed out that the onset of an eating disorder most likely occurs at the beginning of a developmental crisis (adolescence) with its

concomitant fears of adulthood, responsibility, and sexual involvement. The individual who has been overly conforming and obedient uses the eating disorder as a means of withdrawal from a world in which he or she feels a sense of helplessness. The illness can be seen as an attempt to establish independence, autonomy, and control.

Crisp (1965, 1970, 1978) has explained fear of weight gain in patients who have eating disorders as an attempt to avoid development of physical characteristics that occur at puberty. The author has hypothesized that early menarche would be a conflict, perhaps a crisis, for a young woman who was not psychologically prepared for the accompanying physiological changes. It was suggested that "weight phobia" and dieting result in a "regression" to childhood in girls that may additionally reject female sex roles (Crisp, 1965).

But whether the development of eating disorders is attributed to ego deficits, developmental delay, or regression, the primary concern is one of inadequacy in addressing issues of autonomy and personal identity at the pubertal crisis (Crisp, 1970). The strongest

determinants of the syndrome, age and gender distribution, are consistent with this theory.

Sociocultural Determinants

There seems to be evidence to suggest that the development of eating disorders may be attributed, at least in part, to sociocultural factors (Bruch, 1978; Garner & Garfinkel, 1980; Garner, Garfinkel, Schwartz, & Thompson, 1980; Selvini-Palazzoli, 1978). These authors have emphasized the similarities in social class, gender, and age in these individuals, as well as the increased incidence of the disorders reported in the past several decades. The upper social classes have been found to be overrepresented by patients with these disorders, although the trend appears to be changing (Crisp et al., 1976; Jones, Fox, Babigan, & Hutton, 1980; Kendell, Hall, Hailey, & Babigan, 1973; Morgan & Russell, 1975), and the gender distribution shows that females represent between 90-95% of the patients (Bemis, 1978). Age of onset has most consistently been during the adolescent years (Halmi, Casper, Eckert, Goldberg, & Davis, 1979), although the disorders have been found in older subjects (Halmi,

1974; Kay & Leigh, 1954; Kellett, Trimble, & Thorley, 1976; Launer, 1978).

While there appear to be many sociocultural factors that are interrelated and complex, the most powerful ones seem to be associated with the Western culture's pressure on women to be thin and its expectation of them relative to performance (Chernin, 1981; Garfinkel & Garner, 1982; Orbach, 1978). Bruch (1978) has addressed fashion's and media's influence on women to be thin as a possible causative factor in the increased incidence of eating disorders. A larger discrepancy between the "ideal" feminine shape and the "actual" feminine shape in Western society than was present in the past was found by Garner et al. (1980), and this discrepancy may contribute to the present preoccupation with dieting and thinness.

For those individuals engaged in occupations in which they must be unusually slender or those who were premorbidly obese, the emphasis on thinness may be especially important as a perpetuating factor (Garner et al., 1980). Thinness has been found to be associated with upper socioeconomic class, success,

self-discipline, and control (Garner & Bemis, 1982; Stunkard, 1975).

Cultural expectations of women as defined by the female sex role have been suggested as predisposing factors of eating disordered behavior (Holleran et al., 1988). In this respect, the behaviors can be seen as mechanisms for coping on a daily basis (Hooker & Convisser, 1983). Social inequality contributing to inferiority as a product of devalued roles has been associated with compulsive eating and weight preoccupation (Chernin, 1981; Orbach, 1978). Food may serve as a means of nurturing the nurturer whose needs are not being met. The position was taken by Selvini-Palazzoli (1978) that the inability of the family to meet society's demands may co-exist with role expectations as contributors to the development of eating disorders.

Familial Determinants

A review of demographic variables and individual pathology among family members of patients with eating disorders was beyond the scope of this study. This review was confined to familial relationships and

interactive patterns as possible determinants of eating disorders.

There appears to be evidence to suggest that familial determinants of anorexia nervosa and bulimia nervosa may be significant (Singh et al., 1988). Eating disordered behavior has been conceptualized as an attempt by dysfunctional family systems to avoid conflict, particularly in the marital subsystem (Minuchin et al., 1978; Selvini-Palazzoli, 1978). The family patterns contribute to both the development and the maintenance of the behaviors. In this respect, the child's symptoms have meaning for the family as it selects him or her to be the scapegoat of the family system. Parent-child coalitions and triangulations, relationships in which he or she participates in the detouring of marital conflict, were also noted by these authors.

Selvini-Palazolli (1974) reported strong marital dysfunction behind a facade of closeness, reluctance to assume leadership, faulty communication patterns, difficulty with conflict resolution, triangulation, covert coalitions, blaming, value of self-sacrifice, and excessive rigidity to be the predominant

characteristics of eating disordered family systems in clinical studies investigated by her group from Milan. These results suggest that faulty family interactional patterns may predispose the child to develop an eating disorder when coupled with the stresses of puberty. More than likely, familial contribution is one of many determinants that predispose a particular individual to symptom development (Garfinkel & Garner, 1982).

Minuchin et al. (1978) proposed a structural analysis, resulting in an open systems model for various psychosomatic disorders in children. The disorders are developed and maintained contingent upon three conditions: (1) physiological vulnerability, (2) participation in parental conflict, and (3) one of four specific family organizational structures. These structures are (1) enmeshment (absence of role differentiation between parents and child), (2) rigidity (lack of flexibility or willingness to make changes), (3) overprotectiveness (emotional overinvolvement among members), and (4) inability to resolve conflict (poor skills in tolerating differences or in negotiation engagement). The child with an eating disorder serves the function of

maintaining homeostasis and stability for the family system. This model has been expanded to a transgenerational system perspective (White, 1983). In this model, role prescriptions are transmitted from generation to generation through a rigid structural system.

The similarities in the systems approach developed by Selvini-Palazzoli (1974) and Minuchin et al. (1978) are indicative of the commonalities found in their clinical observations of patients and families. The threat to autonomy that is implied in these family models is consistent with that found by Crisp (1967a) in regard to impoverished adolescent maturation. The overcompliance and lack of conflict resolution skills are consistent with the family's discouragement of emotional expression (Garner & Garfinkel, 1985).

Research into Familial Determinants

Studies which investigated relationships within the families-of-origin of patients with eating disorders have yielded various outcomes. The presence of parental conflict in the family has been demonstrated (Crisp et al., 1980; Humphrey, 1986). In a study reported by Kog and Vandereycken (1983) that

investigated role structure in families of patients with anorexia nervosa and normal controls, maternal dominance was found. Moreover, the dominant role was assumed by a female living outside the nuclear family in greater than 50% of the cases, and in over 25% of the cases, the father suffered from a chronic illness.

Parental roles provided interesting accounts in a descriptive report of three cases of anorexia nervosa (Wold, 1973). All of the mothers had been emotionally unavailable to the subjects during their formative years due to depression, and the maternal grandmothers had assumed the role of mother surrogate. All were overly preoccupied with dieting. All of the fathers had violent tempers and were extremely rigid and compulsive. In all cases, the fathers had grown up in homes with mothers who were dominant and fathers who were passive. As a result, neither of the parents were able to openly express hostility toward their mothers. It was hypothesized that the fathers identified the subjects with their mothers and vented the unexpressed hostility onto them, thus contributing to the patients' difficulties with heterosexual development (Wold, 1973).

Owen (1973) found that mothers of daughters with anorexia nervosa appeared to be overidentified with them, but this did not seem to be true for the fathers. Garfinkel et al. (1983) issued the Family Assessment Measure to persons with anorexia nervosa, their mothers, and their fathers. Results revealed that both the mothers and daughters reported familial difficulty with communication, role performance, task accomplishment, and expression of affect. However, the fathers reported no difficulty in these areas.

The literature is replete with clinically descriptive studies on eating disorders and family relationships and structures. Bruch (1973, 1978) purported the need for correction of distorted familial interactional patterns in the process of individuation. Morgan and Russell (1975) correlated poor outcome to disturbed family relationships at illness onset, when conducting follow-up work on patients who were successfully treated four years earlier. Unstable factors in parental backgrounds were found to be contributing factors in a study of 50 patients with anorexia nervosa (Hall, 1978).

In a study comparing subjects with bulimia nervosa to normals on the Social Adjustment Scale, Johnson and Berndt (1983) reported significantly higher scores across all scales, including family relationships. However, when 30 females with anorexia nervosa and 30 female college students were administered instruments assessing Minuchin's et al. (1978) family systems theory variables (enmeshment, overprotectiveness, and rigidity) and Bruch's (1973) theory of personal ineffectiveness, the best predictor of both absence and severity of the syndrome was locus of control orientation. Additionally, a study using the Parental-Bonding Instrument to compare patients with anorexia nervosa to patients with bulimia nervosa yielded insufficient data to suggest that there is a characteristic family structure specific to patients with eating disorders (Palmer, Oppenheimer, & Marsall, 1988).

Humphrey (1986) used the Family Environment Scale and the Family Adaptibility Scale to independently assess familial relationships in family triads with bulimia nervosa and family triads of normal subjects. The families of the patients with eating disorders were

found to be more disengaged than those of normal controls. This is consistent with studies conducted by Johnson and Flach (1985) and Singh et al. (1988).

Higher measures of behavioral-emotional distress have also been found in families of clients with bulimia nervosa when compared to normal controls on self-report measures, suggesting familial determinants of the disorder (Ordman & Kirschenbaum, 1986). A study by Igoin-Apfelbaum (1985) hypothesized that the development of bulimia may be associated with a history of familial separation of a violent nature, or the threat of such, and the concomitant denial of its existence.

Studies comparing familial attitudes, interactions, and relationships between patients with anorexia nervosa and patients with bulimia nervosa have been conducted. Strober (1981), using the Family Environment Scale to assess emotionality in family relationships and the Locke-Wallace Marital Scale to assess the marital relationship, found more interactions of conflict and expressions of negativity among families in which there was bulimia nervosa. Families with anorexia nervosa were more firmly

associated with cohesiveness, clarity of structure, rules, and organization. Patients with bulimia nervosa had a more impoverished emotional relationship with both parents than did patients with anorexia nervosa, and the alienation was significantly greater with the father in this group. The patients with bulimia nervosa had significantly higher levels of marital discordance, although incidence was reported for both groups.

Humphrey (1983) compared the family triad of a patient with anorexia nervosa to that of a patient with bulimia nervosa on affiliation and interdependence. Results indicated that, while the former patient viewed both parents as controlling, the father was viewed as exclusively controlling by the latter patient. Using 10-minute role-plays of family interaction on videotape by the two family triads, the author concluded that both were conflicted over the issues of control and autonomy.

Summary of research into familial determinants.

Most of the research to date on familial determinants of eating disorders rests with clinical descriptions, rather than empirically validated

scientific investigation (Kog, Pierloot, & Vandereycken, 1983). It is clear that no evidence exists that can show a causal relationship between particular family interactional patterns and a predisposition for eating disordered behavior (Hsu, 1983; Yager, 1982). Kog and Vandereycken (1983) suggest the need for systematic intragroup and intergroup comparisons--between patients with eating disorders, other psychiatric groups, and/or normal control subjects, and between different subgroups of eating disordered behavior, respectively. In addition, Kog et al. (1983) report a scarcity of observational studies and self-report studies. Observational studies hold some difficulty in regard to systematic methodological design, external validity, and time commitment. The authors contend that self-report studies, on the other hand, are becoming increasingly easier to conduct and are becoming more common, despite the possibility of obtaining some socially desirable responses. Ideally, future research will adopt a multitrait-multimethod design.

Summary

This review of relative literature has discussed the definitions, symptoms, and prevalence of eating disordered behavior, namely anorexia nervosa and bulimia nervosa. There appear to be multidimensional influences which must be considered in the development of these disorders. The influences appear to interact in a complex manner and can be conceptualized by a biopsychosocial model in which certain biological, psychological, sociocultural, and familial factors may contribute to an individual's predisposition to eating disorder development. While the literature has shown substantial theoretical support for this hypothesis, empirical support from which clear models can be adopted is insufficient.

Relative to the first three factors, the literature on biological determinants has focused on three theories: (1) hypothalamic vulnerability or defect, (2) neurotransmitter dysfunction in pathways between the limbic system or cerebral cortex and the hypothalamus, and (3) genetic transmission. Research on these factors presently appears to be at the level of speculation. The literature on psychological and

personality determinants of eating disordered behavior converges on an obsessive and dependent personality style, a tendency toward overachievement, an inadequate psychosexual development, and an external locus of control. Feelings of personal ineffectiveness appear to be at the core of the personality who has failed to individuate from the parents and develop an autonomous personal identity. Lastly, there appears to be evidence for sociocultural determinants of eating disorders, as well. The most powerful ones seem to be associated with Western culture's pressure on women to be thin, its expectation of them relative to performance, and its devaluation of the female sex role.

The fourth factor, familial determinants, was also considered with an emphasis on relationships and interactive patterns, rather than demographic characteristics and individual psychopathology within the family. Interdependence and control issues appear to be paramount in these families, whose patient members deny or appear ambivalent toward their importance.

The review revealed that marital conflict in which the child participates actively seems to contribute to the development of an eating disorder. Typical family organization is characterized by enmeshment, extreme rigidity, overprotectiveness, and poor skills for conflict resolution. However, no empirically supported evidence exists to show a causal relationship between particular family interactional patterns and a predisposition to eating disordered behavior.

This review has summarized research into the physiological and psychological concomitants of the disorders, as well as the multidimensional influences of the biopsychosocial paradigm. Particular emphasis has been given to the familial determinants of eating disordered behavior. It was shown that most research to date can be defined as clinically descriptive, rather than empirically validated scientific investigation. The literature reflects a need for systematic intragroup comparisons between eating disorder subjects, other psychiatric groups, and normal controls, as well as intergroup comparisons between different subgroups of patients with eating disorders on the familial determinant variable. Further research

is warranted with respect to observational studies and self-report studies in the investigation of familial determinants of eating disorder development.

CHAPTER III

METHOD

Summarization of Method

This chapter describes the subjects, instrumentation, and procedures that were used in the study. In addition, the research design and statistical analyses that were used in the investigation are presented.

Subjects

Since, as stated in CHAPTER I, the literature has shown that there is a significant amount of eating disordered behavior in college student populations (Holleran et al., 1988), and since symptoms typically appear in young adult females, sorority pledges and members were chosen as subjects for this study. Three hundred seventy-two female undergraduate students, who were actively involved in six different sororities on the campus of a large midwestern university, completed the protocols. The women, who were single and whose ages fell within the range of 18 to 22 years, were asked to participate in this study.

Instrumentation

Each subject completed a research protocol, consisting of the Informed Consent Statement, the Demographic Data Form, the Family-of-Origin Scale, and the Eating Disorder Inventory. The order of the protocols was identical, with the exception of the last two instruments, which were alternated to control for possible order effect.

Demographic Data Form

The Demographic Data Form was used to acquire information with respect to the subjects' backgrounds and their families-of-origin (see Appendix B). Information elicited on this form included age, ethnicity, classification in college, years in the sorority and sorority status, and demographic information about the subjects' parents and siblings. In addition, subjects were asked to indicate whether they had had previous counseling and/or inpatient treatment, and if so, the type of treatment and the number of counseling sessions.

Family-of-Origin Scale

The Family-of-Origin scale (FOS; Hovestadt et al., 1985) was developed to quantify the perceived levels of

healthy functioning in a person's family-of-origin. This construct is inferred from two essential concepts in relation to an individual's parents: autonomy and intimacy (Erikson, 1950; Framo, 1976). These concepts stress that emotional health can be seen in relationships in which both closeness and separation are present.

The FOS is a Likert-type scale consisting of 40 self-report items. Subjects respond on a 5-point scale (1=strongly agree, 2=agree, 3=are neutral, 4=disagree, 5=strongly disagree) as to whether the item statement describes their families-of-origin by circling the corresponding number. Test administration takes approximately 10 minutes. Overall scores can be obtained for each of the two concept scales, autonomy and intimacy, by summing the responses. These scores can range from 40 to 200. (A copy of the FOS is included in Appendix C).

Development of the FOS items was based on identified family health constructs (Lewis, Beavers, Gossett, & Phillips, 1976). The autonomy concept is comprised of the following five key constructs: Clarity of Expression, Responsibility, Respect for

Others, Openness to Others, and Acceptance of Separation and Loss. Clarity of Expression indicates that in a healthy family, thoughts and feelings are clear; Responsibility assesses the family members' claim of responsibility for their own actions; Respect for Others indicates that the family members are allowed to speak for themselves; Openness to Others reflects family members' receptivity to one another; and Acceptance of Separation and Loss indicates that separation and loss are dealt with openly in the family.

The intimacy concept is comprised of the following five key constructs: Range of Feelings, Mood and Tone, Conflict Resolution, Empathy, and Trust. Range of Feelings indicates that family members express a wide range of feelings; Mood and Tone means that a positive atmosphere exists in the family; Conflict Resolution indicates that normal conflicts in the family are resolved without undue stress; Empathy assesses family members' sensitivity to one another; and Trust reflects the family's view of human nature as primarily good.

Validity

In developing the FOS, the authors initially generated 89 items. Of these items, 29 were eliminated due to lack of understandability or deficiency in content. To further corroborate content validity, six authorities who were nationally recognized in the family therapy field rated the 60 remaining items as to their ability in reflecting the appropriate construct. The 40 items that comprise the final scale are the result of this scrutiny (Hovestadt et al., 1985).

Several measures of empirical validity have been mentioned in the literature. Hotler (1982) found significant differences when comparing men in marriages that were distressed by alcohol abuse and those that were not distressed by alcohol abuse on ratings of perceived health in the family-of-origin, $t(48)=3.20$, $p < .01$. Significantly different perceptions of marriage were found by Fine and Hovestadt (1984) when comparing subjects with high, medium, and low FOS scores, $F(21, 181)=14.056$, $p < .01$. Using a Tukey post hoc test, subjects reporting a higher perception of health in their families-of-origin also reported a more positive perception of marriage on a semantic

differential scale. Canfield (1983) found a significant positive correlation when comparing subjects' levels of perceived health in the family-of-origin and those in their current families, $r(169)=.48$, $p < .01$.

Reliability

Over a two-week interval, test-retest procedures on 41 graduate psychology students yielded a reliability coefficient of $r = .97$ ($p < .001$). Test-retest coefficients based on the five subscales which comprise the concept of autonomy ranged from .39 to .88 on the 20 items, with a median of .77. Test-retest coefficients based on the five subscales which comprise the concept of intimacy ranged from .46 to .87, with a median of .73 on the 20 items. A standardized item alpha of .97 from a Cronbach's (1951) coefficient alpha of .75 was obtained in another study involving 116 undergraduate students (Hovestadt et al., 1985).

Eating Disorder Inventory

The Eating Disorder Inventory (EDI; Garner & Olmsted, 1984) was developed to evaluate psychological and behavioral traits found commonly in both anorexia

nervosa and bulimia nervosa. The authors list these traits as drive for thinness, body image disturbances, disturbed internal perceptions, self-concept deficits, fears of psychobiological maturity, and other personality characteristics. These characteristics appear to show individual differences in quality and degree of impairment (Strober, 1983). Eight subscales are derived from the EDI: Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears. Justification for the instrument's construction was based on the view of anorexia nervosa as a multidimensional disorder which displays a considerable amount of variability among heterogeneous patient groups (Garfinkel & Garner, 1982).

The EDI consists of 64 self-report items to which subjects respond on a 6-point scale (1=always, 2=usually, 3=often, 4=sometimes, 5=rarely, 6=never) as to whether the attitude, feeling, or behavior expressed applies. Test administration takes approximately 20 minutes. Raw scores on each of the eight subscales are obtained by summing the item responses; they can range from 0 to 30 and can be converted to percentile ranks.

Scores greater than or equal to the mean score of the normative clinical sample (≥15) on the Drive for Thinness subscale have been used to successfully identify individuals who are preoccupied with weight in nonclinical samples. (A copy of the EDI is included in Appendix D).

The EDI items were based on investigations by several experts in the field (Beaumont, George, & Smart, 1976; Bruch, 1973, 1978; Crisp, 1965, 1980; Garfinkel & Garner, 1982; Garner & Garfinkel, 1981). The Drive for Thinness subscale indicates excessive preoccupation with weight loss and fear of weight gain; the Bulimia subscale reflects episodes of uncontrollable bingeing, which may be followed by impulses to induce vomiting; the Body Dissatisfaction subscale indicates a belief that changes in body shape occurring at puberty produce areas of the body that are too large; the Ineffectiveness subscale assesses locus of control, insecurity, feelings of negative self-concept and general inadequacy; the Perfectionism subscale reflects extremely high personal expectations for superior achievement; the Interpersonal Distrust subscale indicates feelings of alienation and

reluctance in forming intimate relationships; the Interoceptive Awareness subscale indicates lack of confidence in recognizing and identifying emotions or sensations of hunger and satiety; and the Maturity Fears subscale reflects the desire to escape adult responsibilities and the wish to return to the security of childhood.

Validity

The 146 items in the original item pool were written by clinical experts who were familiar with both treatment of anorexia nervosa and bulimia nervosa and who were familiar with the research literature. Of the 11 key constructs, only 8 were retained as having met conditions of validity and reliability. Although patients with anorexia nervosa were used in the development of the EDI (50% of whom met the criteria for bulimia nervosa), subsequent investigations have shown that patients with bulimia nervosa who do not have anorexia nervosa symptomatology produce elevated scores on all subscales. This has led the authors to conclude that the EDI is indicated for use in assessment of both groups of patients (Garner & Olmsted, 1984).

EDI profiles and clinical judgments of one psychologist and one psychiatrist familiar with the patients' psychological presentations were compared to establish criterion-related validity (Garner, Olmsted, & Polivy, 1983). All correlations were significant and ranged from .43 to .68, $p < .001$. Bulimic (n=102) and restricter (n=53) anorexia nervosa groups were found to score in a theoretically expected manner, and 85% were accurately classified by subtype based on the Bulimia subscale scores resulting from a discriminant analysis. The same study found scores of patients who had recovered from anorexia nervosa (n=17) to be significantly lower than the patients with anorexia nervosa (n=155) on each subscale but not significantly higher than the female college student group (n=271). Scores of patients with bulimia nervosa (n=105) were found to be significantly higher on all subscales than those of college women (n=86) in an investigation by Johnson and Flach (1985).

Criterion validity on the EDI was further demonstrated by a cluster analysis, based on the EDI subscales (Garner & Olmsted, 1986). Three target groups of subjects were differentiated: students

engaged in self-induced vomiting (n=77), students never engaged in self-induced vomiting (n=366), and patients with bulimia nervosa engaged in self-induced vomiting (n=127). Furthermore, external validity was demonstrated as a result of empirically deriving subgroups based on EDI subscale scores. The external criteria evaluated were prevalence of laxative abuse and discrepancy between present and ideal weight. Convergent and discriminant validity correlations between EDI subscales and other psychometric instruments for patients with anorexia nervosa, including the Eating Attitudes Test (EAT; Garner & Garfinkel, 1979), yielded all expected correlations, as well as other significant correlations that were congruent with the diagnostic criteria. Intercorrelations among EDI subscales revealed that they were not to be seen as measures of independent constructs, although each is useful in deriving a more intricate profile of a specific individual (Garner & Olmsted, 1984). Lastly, a discriminant analysis using EDI subscales optimally differentiated among groups of college women who were preoccupied with weight, those who were not preoccupied with weight, and anorexia

nervosa patients (Garner, Olmsted, Polivy, & Garfinkel, 1984).

Reliability

Garner et al. (1983) reported adequate within scale variance, based on the average item-total correlation coefficient of $r = .63$. Item-scale correlation coefficients of $r > .40$ for the sample of patients with anorexia nervosa was necessary for item inclusion, with the exception of one item on Drive for Thinness and two items on Interoceptive Awareness, which were thought to be conceptually significant enough to warrant their retention. Each subscale had a Cronbach's (1951) alpha coefficient of internal consistency of $r > .80$. Studies have suggested that EDI scores are sensitive to change following group treatment and hospital treatment for both bulimia and anorexia nervosa (Conners, Johnson, & Stuckey, 1984; Steinhausen, 1985). In another investigation involving anorexia nervosa patients, EDI subscale pre- and post-

weight restoration correlations ranged from .58 to .86, indicating good test-retest reliability.

Procedure

The investigation was coordinated in conjunction with the campus Panhellenic Adviser. Data were collected by the investigator immediately before or after sorority chapter and pledge meetings. The meetings were held weekly during the academic semester. Appointments at each of six chapter houses were coordinated through the Office of Greek Life with assistance from the campus Panhellenic Adviser.

Subjects were asked to participate in a study designed to gather college students' perceptions of their families and themselves and were asked to complete the research protocols. Prior to active participation, subjects were presented with the Informed Consent Statement. This statement apprised the subjects of the voluntary nature of their participation, that they could terminate participation at any time and for any reason without recourse, that confidentiality would be respected, and that data would be gathered in compliance with standards defined by the university's Institutional Review Board and the American Psychological Association (see Appendix A for a copy of the Informed Consent Statement). On this

form was a provision for each subject to write her name and address if she was interested in obtaining a written synopsis of the study. The written synopsis of results was reported exclusively as group data--not as individual responses, and it provided information on the purpose, objectives, and results of the study. Subjects were asked to sign the statement, signifying an understanding of their rights as research participants. This statement was immediately detached from the rest of the protocol so that it would not be possible to match responses to names.

Subjects were told that there was an incentive for participation in this study; however, it was made clear that there would be no penalty for nonparticipation. The investigator made available a $100 cash award to the sorority with the largest proportion of respondents after all data were collected.

Research Design and Statistical Analyses

Because the variables did not lend themselves to controlled manipulation and since the interrelationships between the 10 Family-of-Origin Scale subscales and the eight Eating Disorder Inventory subscales were of interest, a correlational research

design was chosen for this study (Isaac & Michael, 1981). Interest in determining the maximum degree of association between self-perceived family-of-origin characteristics and characteristics common to persons with eating disorders suggested a canonical correlation analysis. A canonical correlation analysis was selected for the statistical evaluation of the data because it is specifically designed for research which focuses on composite association between groups of multiple criterion and multiple predictor variables. The correlation can then be maximized by the development of a number of independent canonical functions (Hair, Anderson, & Tatham, 1987). The independent variables were the 10 subscales that assess perceived levels of healthy functioning in the family-of-origin as measured by the FOS, and the dependent variables were the eight subscales measuring personality correlates of weight-preoccupation as measured by the EDI. Since a subject to variable ratio of 20:1 is recommended when utilizing a canonical correlation (Stevens, 1986), a rather large subject pool was employed. The alpha level of statistical significance was set at $p < .05$. No post hoc tests

were performed, as they are inappropriate for use with the canonical correlation analysis.

A standard discriminant analysis was performed to allow for the investigation of which Family-of-Origin Scale subscales best differentiated between persons who would likely score high on the Drive for Thinness subscale of the Eating Disorder Inventory and those who would not. The Drive for Thinness subscale has been used to identify persons who are weight-preoccupied in nonclinical populations (Garner & Olmsted, 1984). The discriminant analysis is designed to detect which multiple predictor variables correlate best with categorical criterion variables (Betz, 1987). Since caution must be used with the stepwise discriminant analysis because of positive bias in the initial F test and the subsequent significance tests, a standard discriminant analysis was performed on the ten subscales and two overall scales as a whole and on each one independently (Stevens, 1986). The test is thought to be a useful complement to the canonical correlation analysis.

CHAPTER IV

RESULTS

Presentation of Results

This chapter will present the results of the statistical tests and procedures performed for the study. In addition, the research questions and the hypotheses will be addressed, along with outcome information pertinent to each. Tables are presented in support of these results.

Demographic Variables

A summary of the demographic variables is presented in Table 1. Descriptive statistics are included. Subjects ranged from 18 to 22 years of age, with the majority of subjects being Caucasian. Members outnumbered pledges by a ratio of more than 3:1, and most of the subjects were within their first three years of sorority and college life. The majority of their parents had experienced college life, as well, with almost one-half of their mothers and over two-thirds of their fathers having earned bachelors or graduate degrees.

Insert Table 1 about here

A series of Pearson correlation coefficients was run between each of the demographic variables and each of the independent and dependent variables. Only 47 of the 396 correlations (12%) were statistically significant at the $p < .05$ alpha level. Additionally, their practical significance to the study was negligible, since only 2 of the 396 correlations (.5%) exceeded a cutoff level of .3 (Tabachnick & Fidell, 1983). All but two demographic variables contributed less than 10% to the variance in any particular independent or dependent variable; in fact, even these two contributed to less than 11% of the variance. As a result, the demographic variables were not included in any subsequent analyses. This decision was further corroborated by the emphasis in the literature on familial relationships and interactive patterns, rather than on demographic variables and familial psychopathology.

Table 2 lists means and standard deviations for each of the independent and dependent variables, and

Table 3 provides a series of Pearson correlation coefficients between the two sets of variables. Percentile ranks for the mean EDI subscale scores ranged from 65th to 75th when compared to the normative female college student group.

Insert Table 2 about here

All correlations were negative. While less than 10% of the coefficients exceeded $|.3|$, 85 of the 112 correlations (76%) were found to be statistically significant at the $p < .05$ alpha level.

Insert Table 3 about here

Canonical Correlation Analysis

Data were next analysed using a canonical correlation, a multivariate procedure, to test the first hypothesis. The independent variable set was operationally defined as self-perceived family-of-origin functioning in childhood and consisted of the ten subscales of the Family-of-Origin Scale (FOS; Hovestadt et al., 1985), i. e., Clarity of

Expression, Responsibility, Respect for Others, Openness to Others, Acceptance of Separation and Loss, Range of Feelings, Mood and Tone, Conflict Resolution, Empathy, and Trust. The dependent variable set was operationally defined as eating disordered attitudes and behaviors and consisted of the eight subscales of the Eating Disorder Inventory (EDI; Garner & Olmsted, 1984), i. e., Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears.

The analysis extracted eight canonical roots, three of which were significant at the $p < .05$ alpha level. The first root was significant ($F=2.33615$, $df=80$, $p < .05$) with canonical R-square (redundant shared variance between the two composite variates) of .19465. Approximately 45% of the total variance extracted by the eight roots can be accounted for by the first canonical root. While two other canonical roots were statistically significant, neither of them was practically significant, each contributing to less than 10% of the variance between the two composite variates after variance previously accounted for was

partialed out (Tabachnick & Fidell, 1983). For practical purposes, the significant relationship between the two sets of composite variables, the independent variable set and the dependent variable set, can be explained exclusively by the first canonical root.

The first canonical root explained approximately 50% of the variance among the independent variables within their own set. A .0967518 redundancy measure of the independent variate in relation to the dependent variate allowed for a reduction of uncertainty of approximately 10% when predicting a dependent variable value, given knowledge of the canonical variable from the independent variable set.

Canonical loadings are presented in Table 4. Using the criterion of .3 as a cutoff point for interpretation (Tabachnick & Fidell, 1983), all independent variables in the first canonical root were relevant. In order of relevance, they were: Range of Feelings (.84), Conflict Resolution (.83), Responsibility (.80), Empathy (.76), Clarity of Expression (.76), Mood and Tone (.66), Respect for Others (.61), Openness to Others (.60), Trust (.57),

and Acceptance of Separation and Loss (.55). All independent variables showed salient contributions within the covariate set to the relationship with the dependent variate, eating disordered attitudes and behaviors.

The first canonical root explained approximately 27% of the variance among the dependent variables within their own set. The redundancy measure for the dependent variate relative to the independent variate was .0519540. Using the criterion of .3 as a cutoff point for interpretation (Tabachnick & Fidell, 1983), six of the eight dependent variables (75%) in the first canonical root were relevant. All correlations were negative. In order of relevance, they were: Interpersonal Distrust (.90), Ineffectiveness (.72), Interoceptive Awareness (.59), Bulimia (.41), Perfectionism (.33), and Drive for Thinness (.32). These dependent variables showed salient contributions within the dependent variate to the relationship with the independent variable composite, self-perceived family-of-origin functioning in childhood.

The independent and dependent canonical loadings indicate that self-perception of family-of-origin

functioning in childhood is inversely related to the development of eating disordered attitudes and behaviors in a variety of important ways, and this relationship is significant. These findings are consistent with reports in the professional literature with respect to those discussed in CHAPTER II above and with the complex, multifaceted paradigm currently accepted regarding the development of eating disorders.

Insert Table 4 about here

Discriminant Analysis

A standard discriminant analysis was next performed in an attempt to identify which FOS subscales best differentiated between subjects classified as weight-preoccupied (N=47) and those classified as not weight-preoccupied (N=325). Scores greater than or equal to 15 on the Drive for Thinness subscale of the EDI have successfully identified subjects who had weight-preoccupation in nonclinical samples, since 15 is the mean for the clinical sample on which this subscale was normed (Garner & Olmsted, 1984). The

overall analysis was not significant at the $p < .05$ alpha level.

Five of the FOS subscales, however, when treated independently, as well as one of the composite FOS scales, significantly classified subjects into Group 1 (those who did not meet the criterion of ≥ 15 for weight-preoccupation) and Group 2 (those who met the criterion for weight-preoccupation) at the $p < .05$ alpha level. Results of these analyses are presented in Table 5.

Insert Table 5 about here

Classification results for each of these five FOS subscales are presented in Table 6. Results for the significant FOS composite scale, Intimacy, is also presented.

Insert Table 6 about here

Thus, information with respect to self-perception of childhood family functioning can be of use in correctly classifying persons as having weight-preoccupation or

as not having weight-preoccupation in up to approximately 66% of the cases. Those variables that appear to be of particular importance in this classification are clarity of expression; quality of mood and tone; and degree of respect, empathy, trust, and intimacy in the family-of-origin.

Summary

Research Questions

1. Does a relationship exist between individuals' perceptions of the way in which their families-of-origin functioned during their childhoods and their perceptions of their current attitudes and behaviors as they relate to those previously paired with eating disorders in the research literature? As stated previously in this chapter, an overall significant relationship exists between these self-perceptions and current eating disordered attitudes and behaviors (F=2.33615, df=80, $p < .05$).

2. If a relationship does exist, what is the nature of the relationship? As a result of this study, the relationship can be described as a moderately strong negative one ($r = -.44$). That is, persons who perceived their families-of-origin as operating at high

levels of healthy functioning during their childhoods were more likely to demonstrate low levels of eating disordered attitudes and behaviors. Parenthetically, those persons who perceived their families-of origin as operating at low levels of healthy functioning during their childhoods were more likely to demonstrate high levels of eating disordered attitudes and behaviors.

3. Which self-perceived family-of-origin characteristics best discriminate between persons who have weight-preoccupation and those who do not have weight-preoccupation? As a result of this study, those self-perceived family-of-origin characteristics can be described as clarity of expression; quality of mood and tone; and degree of respect, empathy, trust, and intimacy in the family-of-origin.

Hypotheses

1. There will be a significant negative relationship between self-perceived levels of healthy functioning in the family-of-origin and self-perceived levels of eating disordered attitudes and behaviors among female college students. As previously stated, this hypothesis was supported (F=2.33615, df=80, $p < .05$).

2. Several family-of-origin characteristics will significantly discriminate between female college students who have weight-preoccupation and those who do not have weight-preoccupation. The characteristics that significantly discriminated between the group who had weight-preoccupation and the group who did not have weight-preoccupation were clarity of expression; quality of mood and tone; and degree of respect, empathy, trust, and intimacy in the family-of-origin.

CHAPTER V

DISCUSSION

Review and Summarization

This chapter will review and summarize the purpose, hypotheses, and methods of the study. It will review and discuss the results and implications found, as well as present conclusions based on these results.

Review of Purpose

The purpose of this study was to explore the relationship of self-perceived family functioning with self-perceived eating disordered attitudes and behaviors. The primary eating disorders of interest were anorexia nervosa--in which there is a persistent drive to be thin, a fear of weight gain, body image and internal perception disturbance, and a sense of interpersonal distrust and personal ineffectiveness--and bulimia nervosa--characterized by food binges that are often coupled with purging through vomiting, laxative abuse, or abuse of diuretics. The specific objectives are listed below:

1. To determine if a relationship existed between self-perception of family functioning during

childhood and self-perception of current eating disordered attitudes and behaviors.

2. To determine the nature of the relationship, if one did exist.

3. To determine which self-perceived family-of-origin characteristics best discriminated between persons who had weight-preoccupation and those who did not have weight-preoccupation.

Review of Literature

The literature with regard to the development of anorexia nervosa and bulimia nervosa has fostered the acceptance of a biopsychosocial paradigm in which certain biological, psychological, sociocultural, and familial factors contribute in a complex fashion of interaction. The literature on biological determinants appears to be speculative and has focused on (1) hypothalamic vulnerability or defect, (2) neurotransmitter dysfunction in pathways between the limbic system or cerebral cortex and the hypothalamus, and (3) genetic transmission. With respect to psychological determinants, the literature espouses feelings of personal ineffectiveness as being at the core of the obsessive and dependent personality style.

Other factors include an external locus of control, inadequate psychosocial development, and a tendency toward overachievement. Sociocultural determinants are cited in the literature as Western culture's pressure on women to be thin, its expectation of them relative to performance, and its devaluation of the female sex role.

Familial determinants have tended to explore relationships and interactive patterns, rather than demographic variables and psychopathology. The importance of control issues and interdependence among family members is supported in the literature, as is the emphasis on marital conflict in the parental subsystem. Family styles are characterized by enmeshment, overprotectiveness, extreme rigidity, and inadequate skills for conflict resolution.

Most research to date can be defined as clinically descriptive, rather than empirically validated scientific evidence. With regard to the role of familial determinants in the development of eating disorders, further research is warranted with respect to observational studies. The literature reflects the need for self-report studies, as well.

Review of Hypotheses

This study had two hypotheses. They are stated below:

1. There will be a significant negative relationship between self-perceived levels of healthy functioning in the family-of-origin and self-perceived levels of eating disordered attitudes and behavior among female college students.

2. Several family-of-origin characteristics will significantly discriminate between female college students who have weight-preoccupation and those who do not have weight-preoccupation.

Review of Methods

Three hundred seventy-two female undergraduate students who were members or pledges in one of six social sororities on the campus of a large midwestern university served as subjects. The women completed research protocols consisting of the Informed Consent Statement, the Demographic Data Form, the Family-of-Origin Scale, and the Eating Disorder Inventory. Data were gathered immediately preceding or following weekly sorority meetings by the investigator,

through arrangements made by the campus Panhellenic Adviser.

Statistical analyses were conducted using the SPSS/X program (SPSS/X, 1986). The multivariate procedure, canonical correlation, was performed to simultaneously analyze multiple independent and dependent variables. This procedure was followed by a standard discriminant analysis to determine which of the independent variables identified high scores on one of the dependent variables, Drive for Thinness. When the EDI is used as a screening instrument, scores greater than or equal to the mean score ($\geq$15) obtained in the normative clinical sample on this subscale have successfully identified subjects who have weight-preoccupation in nonclinical populations (Garner & Olmsted, 1984).

Discussion, Implications, and Conclusions

It should be reiterated that the development of an eating disorder is an extremely complex and multidimensional process. This study did not purport to make predictions with respect to eating disorder development based on self-perceptions of functioning in the family-of-origin. Rather, it attempted to explore

whether a relationship between the two variable composites existed. Such a relationship was thought to lend valuable information to the explanation of eating disorder development, thereby holding possible implications for screening and providing additional data which might contribute to early diagnosis and intervention, when coupled with thorough clinical assessment.

Summary of Findings

The first research hypothesis for this study stated that there would be a significant negative relationship between self-perceived levels of healthy functioning in the family-of-origin and self-perceived levels of eating disordered attitudes and behaviors among female college students. In the population sampled, the statistical analysis revealed that several family-of-origin characteristics were inversely related to eating disordered attitudes and behaviors. However, the shared variance between the family-of-origin characteristics and the eating disordered attitudes and behaviors was less than 20%. Since the redundancy index of .097 allows for less than 10% reduction of

uncertainty when predicting eating disordered attitudes and behaviors, given a knowledge of several family-of-origin characteristics, the practical significance of the results is negligible.

What may be of greater practical significance are the transformations of mean EDI subscale scores to percentile ranks. When compared to the female college student group on which this instrument was normed, percentile ranks ranged from 65th to 75th--all well above the 50th percentile. The small amount of variance accounted for and the high percentile ranks serve to highlight the perplexing and multifaceted nature of the development of eating disorders. These are findings which lend support to the complexity of the biopsychosocial paradigm.

Additionally, the family-of-origin characteristics appear to be related to the eating disordered attitudes and behaviors in a variety of different ways. In the independent variable set, the most heavily weighted variables were Range of Feelings, Conflict Resolution, Responsibility, Empathy, and Clarity of Expression, although all of the 10 variables showed salience in the relationship to the dependent

variate. In the dependent variable set, six of the eight variables were salient, with the most heavily weighted ones being Interpersonal Distrust, Ineffectiveness, and Interoceptive Awareness. This indicated that those women who perceived persons in their families-of-origin during their childhoods as displaying the inability to accurately express thoughts and emotions, give empathy and resolve conflict, or take personal responsibility for their actions were more likely to be unaware of their internal states and feelings. They also were more likely to perceive themselves as being ineffective and to lack trust in others, as well as in themselves. Those women who perceived their families-of-origin as operating at high levels of healthy functioning during their childhoods were more likely to demonstrate low levels of eating disordered attitudes and behaviors; inversely, those women who perceived their families-of-origin as operating at low levels of healthy functioning during their childhoods were more likely to demonstrate high levels of eating disordered attitudes and behaviors.

The second research hypothesis for this study stated that several family-of-origin characteristics

would significantly discriminate between female college students who had weight-preoccupation and those who did not have weight-preoccupation. A knowledge of the clarity of expression; quality of mood and tone; and degree of respect, empathy, trust, and intimacy in the family-of-origin correctly classified female college students as having weight-preoccupation or not having weight-preoccupation in up to approximately 66% of the cases. However, this finding lends little clinical utility, given that the probability of correct classification with no knowledge of family-of-origin characteristics would be .50. It might be expected that clinical observation alone would allow a probability rate of correct classification at least as great as this one, based on knowledge of family-of-origin characteristics.

The hypothesis that there would be a significant negative relationship between self-perceived levels of healthy functioning in the family-of-origin and self-perceived levels of eating disordered attitudes and behaviors among college students was borne out. The hypothesis that several family-of-origin characteristics would significantly discriminate

between female college students who had weight-preoccupation and those who did not have weight-preoccupied was also borne out.

Significance of the Study

A strength of this study can be found in the manner in which the canonical correlation analysis permits the study of family-of-origin characteristics taken as a set with eating disordered attitudes and behaviors taken as a set. In this way, the effects of their interactions can be studied in a manner similar to the way in which they occur in life.

Another strength of this study is that it is one of the first ones to exclusively use self-report instruments to assess family-of-origin characteristics and eating disordered attitudes and behaviors in a nonclinical setting. In addition, the FOS is one of the first instruments by which perceptions of healthy family functioning can be quantified. In this way, the previous research into family dynamics' relationship to eating disordered attitudes and behaviors, which has been clinically descriptive for the most part, can be supported empirically.

These results provide empirical support for the theoretical models proposed by Selvini-Palazzoli (1974) and Minuchin et al. (1978). Both of these models emphasize family discord in which there is strong marital dysfunction, often masked behind a facade of closeness. A predominant characteristic is enmeshment, the overinvolvement of the child with conflict in the marital subsystem. The family structure is dysfunctional in its ability to establish intimacy and autonomy and typically manifests rigidity, overprotectiveness, and inability to resolve conflict.

The threat to autonomy that is implied in these family models is consistent with that found by Crisp (1967a) in regard to impoverished adolescent maturation. The overcompliance and lack of conflict resolution skills are consistent with the family's discouragement of emotional expression (Garner & Garfinkel, 1985). These results are expanded by the present study, which generally and specifically assessed the concepts of autonomy and intimacy. Those subjects who reported that they felt a lack of warmth, openness, sensitivity, and personal responsibility among family members, as well as difficulty with

conflict resolution, tended to report preoccupation with weight loss and fear of weight gain, feelings of personal ineffectiveness, high personal expectations for superior achievement, and reluctance in forming intimate relationships.

Summary of Limitations

In interpreting the results of this study, a number of inherent limitations must be considered. These limitations may have had an effect on the study's outcome, thereby biasing the results.

First, although it was stressed that participation in the study was strictly voluntary, the subjects may have felt pressured to comply, since data were collected from a group of women directly before or after sorority meetings. It is possible that the other women's knowledge of their participation or nonparticipation could have influenced their decision to comply. Bruch (1977) has noted that patients with eating disorders commonly feel externally controlled. If some of the subjects' perceptions of control were primarily external, then they may have believed that they had no personal power within this situation. As such, the results may reflect responses that may show

reactions to the testing session itself and may not truly reflect what otherwise would be different responses. Perhaps mailing a packet containing the protocol to each subject would have alleviated the possible biasing effects of this limitation. However, this method may have also resulted in a lower response rate.

The second limitation involved the setting in which the data were collected. Although confidentiality was ensured, the close proximity of the seating arrangements in some of the sorority meeting rooms may have made it possible for some of the subjects to see the responses of the others. This could have caused a response set in which the women answered exclusively in socially desirable ways. Individual administration of the protocols may have eliminated this possible limitation.

The third limitation involved the external validity of the study. As stated earlier, the protocols were completed by a select group of women--those who were members and pledges of one of six sororities on the campus of a large midwestern university. As such, the results may not be

generalizable beyond this population. Perhaps concurrent data collection in residence halls and married student housing would have given a more useful result.

The fourth limitation occurred with respect to the nature of the measures employed in this study. Although there is a deficit in the literature of studies in which self-report instruments are used, the EDI responses may be biased due to subjects who demonstrate denial of attitudes and behaviors that may be linked to the development of eating disorders. Additionally, the FOS responses may be biased due to the subjects' distorted perceptions over time of family-of-origin functioning in their childhoods. Unobtrusive assessment by clinically skilled observers would be a meaningful complement to the administration of the protocols.

The last limitation to this study pertained to the use of the EDI as a diagnostic instrument. Attitudes and behaviors reported to be present in those persons who have been diagnosed with eating disorders may also be present in other persons who are dieters and who do not meet the diagnostic criteria for anorexia nervosa

or bulimia nervosa. Additionally, some of these attitudes and behaviors may have resulted from having the eating disorder; they may not have been factors in the development of such disorders. Caution must be used with the interpretation of elevated scores, since their meaning in nonclinical populations may not be the same as in clinical ones. Finally, the EDI should be seen as a screening tool and must be coupled with extensive clinical assessment in order for an appropriate diagnosis to be made.

Implications for the Practitioner

Results of these self-report measures indicate that some women in this study have an awareness of the low levels of autonomy and intimacy in their families-of-origin. Identifying these individuals opens doors to providing education in the areas of communication skills and assertiveness training in relating to family members. This training could be valuable in giving the women a sense of personal power that they need in developing a healthy independence from and congruence within their families-of-origin. This need for congruence was noted in the apparent contradiction in those subjects who have demonstrated a

sense of achievement in college life--socially, intellectually, and emotionally--and yet perceived themselves as having little personal effectiveness. Bruch (1977) advocated increasing the patient's sense of self-direction as an integral part of the treatment process, and it would make good sense to address this concept in nonclinical populations where the disorder is likely to develop, such as the one sampled in this study. Family counseling in which the dynamics in the family-of-origin could be altered might prove to be an appropriate intervention in those who are in the high risk group of women with weight-preoccupation.
It seems likely that there would be similar rates of weight-preoccupation (13%) in the population of college females who are active in sorority life on other campuses. Lectures and discussion on the symptoms, development, and treatment of eating disorders should become an important part of the sororities' educational program. This education should include both referral and support components.

The results of this study may have strong implications for both early identification of and timely intervention into eating disorders. It is

their awareness of the relationship between specific family dynamics and the development and maintenance of eating disorders. It would behoove professionals, particularly those who work with young adult females, to consider the possible presence of eating disorders when conceptualizing cases in which clients show signs of personal ineffectiveness and distrust, fears of maturity, problems with autonomous behavior, or difficulty in establishing interpersonal relationships.

Suggestions for Further Research

Some of the needs in conducting further research in the area of the family-of-origin's impact on eating disordered attitudes and behaviors were implied elsewhere in this paper. Specifically, there appears to be a need for studies in which the confidentiality of the subjects can be secured more carefully, i. e., studies conducted using mail-out questionnaires or those in which the protocols could be administered individually. Secondly, studies of a similar nature which include an additional component of observation might prove useful. The employment of the two self-report instruments--the EDI to screen for eating disordered attitudes and behaviors and the FOS to

assess functioning in the family-of-origin--could then be coupled with observations of actual eating behaviors, lending critical supplemental data to the study.

Thirdly, there seems to be a need to provide some type of assessment of actual levels of healthy functioning in the family-of-origin, apart from self-perceptions. To date, most of the research in this area has dealt with the parental subsystem exclusively, and these have primarily been concerned with families of patients who have been clinically diagnosed with eating disorders. There appears to be a deficit in the literature with respect to studies involving siblings and in studies of families of subjects in nonclinical populations.

Finally, more self-report studies are needed which would discriminate between subjects with various types of eating disorders and those subjects in nonclinical populations who otherwise have weight-preoccupation. The literature reflects the views of many researchers who are beginning to realize the difficulty of discernment among the very complex behaviors that discriminate among various types of eating disorders

discriminate among various types of eating disorders and their overlapping dynamics in clinical populations. As such, it may be reasonable to assume that similar phenomena operate in nonclinical populations, as well, and that the nature of their processes appears to be very complex, indeed.

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APPENDIXES

APPENDIX A

INFORMED CONSENT STATEMENT

This packet of papers is part of an ongoing study to understand how college students perceive themselves and their families. In participating in this study, all we will ask of you is to complete a series of short questionnaires. Your participation is strictly voluntary; however, your decision to take the 10-15 minutes to complete the questionnaires will provide important information that may be of great benefit in understanding how college students perceive their families and themselves. You may withdraw from participating in this study at any time for any reason whatsoever.

All information will be gathered in conformance with APA guidelines for human subjects participation. Your responses will be completely anonymous; no attempt will be made to attach your name to your responses and your responses will not be shared with anyone. The results of this study will only be reported as group data, not individual responses. If you should have any questions about this study, please contact Dr. Mark Johnson or Patricia Reeves, Applied Behavioral Studies, OSU at (405) 624-6036. We appreciate your cooperation and efforts.

I have read these instructions and understand my rights. I further understand that this sheet will be immediately removed from the rest of the packet.

_____	_____
(signed)	(witness)
_____	_____
(date)	(date)

_____ Check here if you want feedback regarding the results of the study when they are available. Include your mailing address only if you want this feedback. This page will be immediately detached from your responses.

_____
(name)

_____
(address)

_____
(city, state, zip)

APPENDIX B

DEMOGRAPHIC DATA FORM

Age _____

Ethnicity (circle one):
1 Asian American
2 Black
3 Caucasian
4 Hispanic
5 Native American
6 Other _____

Years in Sorority: _____

Your Current Sorority Status:
Pledge _____ Member _____

Year in College (circle one):
1 Freshman
2 Sophomore
3 Junior
4 Senior
5 Graduate Student

In your family:

Number of sisters: _____
Ages: _____

Number of brothers: _____
Ages: _____

Number of half/step sisters: _____
Ages: _____

Number of half/step brothers: _____
Ages: _____

Parents' Current Marital Status (circle one):
1 Married to each other
2 Divorced
3 Father deceased
4 Mother deceased
5 Never Married

Please answer the following questions if your parents are divorced:

What was your age at time of parents' divorce? _____

Who was the primary caretaker after the divorce? _____ Father
_____ Mother
_____ Other

Has your mother remarried? _____ Yes
_____ No

Your age at time of her remarriage _____

Has your father remarried? _____ Yes
_____ No

Your age at time of his remarriage _____

Highest level of Mother's Education
_____ Elementary School Graduate
_____ High School Graduate
_____ Some College
_____ Bachelor's Degree
_____ Graduate Degree

Mother's Occupation_____

Highest level of Father's Education
_____ Elementary School Graduate
_____ High School Graduate
_____ Some College
_____ Bachelor's Degree
_____ Graduate Degree

Father's Occupation_____

Prior Counseling Experiences:
Check if you have received:
_____ Personal Counseling
_____ Academic/Career Counseling
_____ Marital/Family Counseling
_____ Substance Abuse Counseling
_____ Eating Disorders Counseling

Approximate number of sessions:
_____
_____
_____
_____
_____

Have you ever had inpatient treatment for any of the following problems (please check all that apply):
_____ Drug/Alcohol Abuse
_____ Eating Disorder
_____ Depression
_____ Other emotional difficulties

APPENDIX C

FAMILY-OF-ORIGIN SCALE

Directions: The family of origin is the family with which you spent most or all of your childhood years. This scale is designed to help you recall how your family of origin functioned.

Each family is unique and has its own ways of doing things. Thus, there are no right or wrong choices in this scale. What is important is that you respond as honestly as you can.

In reading the following statements, apply them to your family of origin, as you remember it. Using the following scale, circle the appropriate number. Please respond to each statement.

Key:
- 5 (SA) = Strongly agree that it describes my family of origin.
- 4 (A) = Agree that it describes my family of origin
- 3 (N) = Neutral
- 2 (D) = Disagree that it describes my family of origin
- 1 (SD) = Strongly disagree that it describes my family of origin

		SA	A	N	D	SD
1.	In my family, it was normal to show both positive and negative feelings.	5	4	3	2	1
2.	The atmosphere in my family usually was unpleasant.	5	4	3	2	1
3.	In my family, we encouraged one another to develop new friendships.	5	4	3	2	1
4.	Differences of opinion in my family were discouraged.	5	4	3	2	1
5.	People in my family often made excuses for their mistakes.	5	4	3	2	1
6.	My parents encouraged family members to listen to one another.	5	4	3	2	1
7.	Conflicts in my family never got resolved.	5	4	3	2	1
8.	My family taught me that people were basically good.	5	4	3	2	1
9.	I found it difficult to understand what other family members said and how they felt.	5	4	3	2	1
10.	We talked about our sadness when a relative or family friend died.	5	4	3	2	1
11.	My parents openly admitted it when they were wrong.	5	4	3	2	1
12.	In my family, I expressed just about any feeling I had.	5	4	3	2	1
13.	Resolving conflicts in my family was a very stressful experience.	5	4	3	2	1
14.	My family was receptive to the different ways various family members viewed life.	5	4	3	2	1
15.	My parents enouraged me to express my views openly.	5	4	3	2	1
16.	I often had to guess at what other family members thought or how they felt.	5	4	3	2	1
17.	My attitudes and my feelings frequently were ignored or criticized in my family.	5	4	3	2	1

		SA	A	N	D	SD
18.	My family members rarely expressed responsibility for their actions.	5	4	3	2	1
19.	In my family, I felt free to express my own opinions.	5	4	3	2	1
20.	We never talked about our grief when a relative or family friend died.	5	4	3	2	1
21.	Sometimes in my family, I did not have to say anything, but I felt understood.	5	4	3	2	1
22.	The atmosphere in my family was cold and negative.	5	4	3	2	1
23.	The members of my family were not very receptive to one another's views.	5	4	3	2	1
24.	I found it easy to understand what other family members said and how they felt.	5	4	3	2	1
25.	If a family friend moved away, we never discussed our feelings of sadness.	5	4	3	2	1
26.	In my family, I learned to be suspicious of others.	5	4	3	2	1
27.	In my family, I felt that I could talk things out and settle conflicts.	5	4	3	2	1
28.	I found it difficult to express my own opinions in my family.	5	4	3	2	1
29.	Mealtimes in my home usually were friendly and pleasant.	5	4	3	2	1
30.	In my family, no one cared about the feelings of other family members.	5	4	3	2	1
31.	We usually were able to work out conflicts in my family.	5	4	3	2	1
32.	In my family, certain feelings were not allowed to be expressed.	5	4	3	2	1
33.	My family believed that people usually took advantage of you.	5	4	3	2	1
34.	I found it easy in my family to express what I thought and how I felt.	5	4	3	2	1
35.	My family members usually were sensitive to one another's feelings.	5	4	3	2	1
36.	When someone important to us moved away, our family discussed our feelings of loss	5	4	3	2	1
37.	My parents discouraged us from expressing views different from theirs.	5	4	3	2	1
38.	In my family, people took responsibility for what they did.	5	4	3	2	1
39.	My family had an unwritten rule: Don't express your feelings.	5	4	3	2	1
40.	I remember my family as being warm and supportive.	5	4	3	2	1

APPENDIX D

EATING DISORDER INVENTORY

INSTRUCTIONS

This is a scale which measures a variety of attitudes, feelings and behaviors Some of the items relate to food and eating Others ask you about your feelings about yourself THERE ARE NO RIGHT OR WRONG ANSWERS SO TRY VERY HARD TO BE COMPLETELY HONEST IN YOUR ANSWERS. RESULTS ARE COMPLETELY CONFIDENTIAL. Read each question and fill in the circle under the column which applies best to you Please answer each question *very* carefully. Thank you.

		ALWAYS	USUALLY	OFTEN	SOMETIMES	RARELY	NEVER
1	I eat sweets and carbohydrates without feeling nervous.	O	O	O	O	O	O
2	I think that my stomach is too big.	O	O	O	O	O	O
3	I wish that I could return to the security of childhood.	O	O	O	O	O	O
4	I eat when I am upset	O	O	O	O	O	O
5	I stuff myself with food.	O	O	O	O	O	O
6	I wish that I could be younger	O	O	O	O	O	O
7	I think about dieting.	O	O	O	O	O	O
8	I get frightened when my feelings are too strong.	O	O	O	O	O	O
9	I think that my thighs are too large.	O	O	O	O	O	O
10	I feel ineffective as a person.	O	O	O	O	O	O
11	I feel extremely guilty after overeating.	O	O	O	O	O	O
12	I think that my stomach is just the right size.	O	O	O	O	O	O
13	Only outstanding performance is good enough in my family.	O	O	O	O	O	O
14	The happiest time in life is when you are a child.	O	O	O	O	O	O
15	I am open about my feelings	O	O	O	O	O	O
16	I am terrified of gaining weight	O	O	O	O	O	O
17	I trust others	O	O	O	O	O	O
18	I feel alone in the world	O	O	O	O	O	O
19	I feel satisfied with the shape of my body.	O	O	O	O	O	O
20	I feel generally in control of things in my life.	O	O	O	O	O	O
21	I get confused about what emotion I am feeling.	O	O	O	O	O	O
22.	I would rather be an adult than a child.	O	O	O	O	O	O
23	I can communicate with others easily	O	O	O	O	O	O
24	I wish I were someone else.	O	O	O	O	O	O
25	I exaggerate or magnify the importance of weight.	O	O	O	O	O	O
26	I can clearly identify what emotion I am feeling.	O	O	O	O	O	O
27	I feel inadequate	O	O	O	O	O	O
28	I have gone on eating binges where I have felt that I could not stop.	O	O	O	O	O	O
29.	As a child, I tried very hard to avoid disappointing my parents and teachers	O	O	O	O	O	O
30	I have close relationships	O	O	O	O	O	O

		ALWAYS	USUALLY	OFTEN	SOMETIMES	RARELY	NEVER
31	I like the shape of my buttocks	O	O	O	O	O	O
32.	I am preoccupied with the desire to be thinner	O	O	O	O	O	O
33	I don't know what's going on inside me.	O	O	O	O	O	O
34	I have trouble expressing my emotions to others	O	O	O	O	O	O
35.	The demands of adulthood are too great	O	O	O	O	O	O
36	I hate being less than best at things.	O	O	O	O	O	O
37	I feel secure about myself	O	O	O	O	O	O
38	I think about bingeing (over-eating)	O	O	O	O	O	O
39	I feel happy that I am not a child anymore	O	O	O	O	O	O
40	I get confused as to whether or not I am hungry	O	O	O	O	O	O
41	I have a low opinion of myself	O	O	O	O	O	O
42.	I feel that I can achieve my standards.	O	O	O	O	O	O
43	My parents have expected excellence of me	O	O	O	O	O	O
44	I worry that my feelings will get out of control	O	O	O	O	O	O
45	I think that my hips are too big.	O	O	O	O	O	O
46	I eat moderately in front of others and stuff myself when they're gone	O	O	O	O	O	O
47	I feel bloated after eating a normal meal.	O	O	O	O	O	O
48	I feel that people are happiest when they are children	O	O	O	O	O	O
49	If I gain a pound, I worry that I will keep gaining.	O	O	O	O	O	O
50	I feel that I am a worthwhile person.	O	O	O	O	O	O
51	When I am upset I don't know if I am sad, frightened, or angry	O	O	O	O	O	O
52	I feel that I must do things perfectly, or not do them at all	O	O	O	O	O	O
53	I have the thought of trying to vomit in order to lose weight.	O	O	O	O	O	O
54	I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close)	O	O	O	O	O	O
55	I think that my thighs are just the right size.	O	O	O	O	O	O
56	I feel empty inside (emotionally)	O	O	O	O	O	O
57	I can talk about personal thoughts or feelings.	O	O	O	O	O	O
58	The best years of your life are when you become an adult.	O	O	O	O	O	O
59	I think that my buttocks are too large.	O	O	O	O	O	O
60	I have feelings that I can't quite identify	O	O	O	O	O	O
61	I eat or drink in secrecy	O	O	O	O	O	O
62	I think that my hips are just the right size	O	O	O	O	O	O
63	I have extremely high goals.	O	O	O	O	O	O
64	When I am upset, I worry that I will start eating	O	O	O	O	O	O

FOR OFFICE USE ONLY

Tables

Table 1

Demographic Variables

Age		Ethnicity	
N	Years of age	N	Ethnic orientation
86	18	3	Asian American
105	19	14	Black
109	20	332	Caucasion
59	21	1	Hispanic
13	22	20	Native American
Mean = 19.484		2	Other
Standard Deviation = 1.115			

Years in college		Sorority status		Years in sorority	
N	Years	N	Status	N	Years
113	1	85	Pledge	144	1
115	2	287	Member	110	2
102	3			90	3
42	4			28	4
Mean = 2.196				Mean = 2.005	
Standard Deviation = 0.997				Standard Deviation =0.996	

(table continues)

Education of parents

Mother	Father	Education
1	0	Some elementary school
1	0	Elementary school graduate
72	32	High school graduate
132	62	Some college
107	147	Bachelors degree
59	131	Graduate degree

Table 2

Family-of-Origin Scale and Eating Disorder Inventory

Means and Standard Deviations

Family-of-Origin Scale

Composite scale	Mean	Standard Deviation
Autonomy	77.699	11.972
Intimacy	83.352	11.303

Subscale	Mean	Standard Deviation
Clarity of Expression	15.202	2.866
Responsibility	15.140	2.777
Respect for Others	16.223	2.821
Openness to Others	15.876	2.779
Acceptance of Separation and Loss	15.258	3.410
Range of Feelings	16.718	2.646
Mood and Tone	17.812	2.627
Conflict Resolution	5.395	3.121
Empathy	16.718	2.630
Trust	16.710	2.530

(table continues)

Eating Disorder Inventory

Subscale	Mean	Standard Deviation
Drive for Thinness	5.707	5.867
Bulimia	1.409	2.892
Body Dissatisfaction	12.167	8.345
Ineffectiveness	1.970	3.574
Perfectionism	6.546	4.118
Interpersonal Distrust	1.876	3.069
Interoceptive Awareness	2.640	4.203
Maturity Fears	2.355	2.650

Table 3

Pearson Correlation Coefficients Between Independent and Dependent Variables[1]

	DFT	B
COE	-.201 p=.000***	-.158 p=.001**
R	-.113 p=.015*	-.123 p=.009**
RFO	-.160 p=.001**	-.127 p=.007**
OTO	-.176 p=.000***	-.160 p=.001**
ASL	-.051 p=.162	-.133 p=.005**
ROF	-.121 p=.010*	-.135 p=.005**
MAT	-.148 p=.002**	-.153 p=.002**
CR	-.159 p=.001***	-.187 p=.000***
E	-.151 p=.002**	-.193 p=.000***
T	-.207 p=.000***	-.193 p=.002**
A	-.168 p=.001**	-.171 p=.000***
I	-.188 p=.000***	-.197 p=.000***

* $p < .05$ ** $p < .01$ *** $p < .001$ (table continues)

	BD	I
COE	-.121 p=.010*	-.273 p=.000***
R	-.142 p=.003***	-.300 p=.000***
RFO	-.117 p=.012*	-.230 p=.000***
OTO	-.196 p=.000***	-.234 p=.000
ASL	-.118 p=.012*	-.230 p=.000***
ROF	-.109 p=.018*	-.210 p=.000***
MAT	-.117 p=.012*	-.255 p=.000***
CR	-.123 p=.009**	-.317 p=.000***
E	-.151 p=.002**	-.287 p=.000***
T	-.133 p=.005**	-.227 p=.000***
A	-.168 p=.001**	-.309 p=.000***
I	-.151 p=.002**	-.314 p=.000***

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

(table continues)

	P	ID
COE	-.091 p=.039*	-.302 p=.000***
R	-.074 p=.078	-.306 p=.000***
RFO	-.105 p=.021*	-.226 p=.000***
OTO	-.116 p=.013*	-.233 p=.000***
ASL	-.010 p=.420	-.240 p=.000***
ROF	-.142 p=.003**	-.356 p=.000***
MAT	-.048 p=.177	-.255 p=.000***
CR	-.137 p=.004	-.308 p=.000***
E	-.107 p=.020*	-.281 p=.000***
T	-.150 p=.002**	-.245 p=.000***
A	-.094 p=.036*	-.319 p=.000***
I	-.141 p=.003**	-.348 p=.000***

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

(table continues)

	IA	MF
COE	-.224 p=.000***	-.075 p=.075
R	-.213 p=.000***	-.050 p=.168
RFO	-.189 p=.000***	-.059 p=.128
OTO	-.194 p=.000***	-.130 p=.006**
ASL	-.133 p=.005**	-.128 p=.007*
ROF	-.200 p=.000***	-.035 p=.251
MAT	-.249 p=.000***	-.078 p=.066
CR	-.264 p=.000***	-.081 p=.060
E	-.224 p=.000***	-.063 p=.113
T	-.246 p=.000***	-.180 p=.000***
A	-.230 p=.000***	-.110 p=.017*
I	-.285 p=.000***	-.103 p=.023*

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

(table continues)

[1]Independent Variables

COE = Clarity of Expression

R = Responsibility

RFO = Respect for Others

OTO = Openness to Others

ASL = Acceptance of Separation and Loss

ROF = Range of Feelings

MAT = Mood and Tone

CR = Conflict Resolution

E = Empathy

T = Trust

A = Autonomy

I = Intimacy

Dependent Variables

DFT = Drive for Thinness

B = Bulimia

BD = Body Dissatisfaction

I = Ineffectiveness

P = Perfectionism

ID = Interpersonal Distrust

IA = Interoceptive Awareness

MF = Maturity Fears

Table 4

Canonical Loadings Between the Independent Variate and the Dependent Variate, Shared Variance and Redundancy Index

Self-perceived family-of-origin functioning Subscale	Loading
Clarity of Expression	.76142
Responsibility	.80109
Respect for Others	.60744
Openness to Others	.59631
Acceptance of Separation and Loss	.54510
Range of Feelings	.83836
Mood and Tone	.65700
Conflict Resolution	.82495
Empathy	.76432
Trust	.57288

(table continues)

Self-perceived eating disordered attitudes and behaviors	
Subscale	Loading
Drive for Thinness	-.32013
Bulimia	-.40558
Body Dissatisfaction	-.27347
Ineffectiveness	-.71641
Perfectionism	-.33267
Interpersonal Distrust	-.90207
Interoceptive Awareness	-.58741
Maturity Fears	-.10418
Shared variance	.19465
Redundancy index	.09675

Table 5

Significance Levels in Classification of Subjects into Group 1 and Group 2

Family-of-Origin Scale

Composite scale	F	Significance
Autonomy	2.747	0.098
Intimacy	5.614	0.018*

Subscale	F	Significance
Clarity of Expression	5.157	0.024*
Responsibility	2.410	0.121
Respect for Others	3.884	0.050*
Openness to Others	3.288	0.071
Acceptance of Separation and Loss	0.203	0.652
Range of Feelings	1.222	0.270
Mood and Tone	4.658	0.032*
Conflict Resolution	3.005	0.084
Empathy	4.287	0.039*
Trust	8.337	0.004**

Group	N
1	325
2	47

* $p < .05$

** $p < .01$

*** $p < .001$

Table 6

Percent of Grouped Cases Correctly Classified

Clarity of Expression 65.86%

Actual group	No. of cases	Predicted group 1	Predicted group 2
Group 1	325	219 (67.4%)	106 (32.6%)
Group 2	47	21 (44.7%)	26 (55.3%)

Respect for Others 65.59%

Actual group	No. of cases	Predicted group 1	Predicted group 2
Group 1	325	222 (68.3%)	103 (31.7%)
Group 2	47	25 (53.2%)	22 (46.8%)

Mood and Tone 64.52%

Actual group	No. of cases	Predicted group 1	Predicted group 2
Group 1	325	221 (68.0%)	104 (32.0%)
Group 2	47	28 (59.6%)	19 (40.4%)

(table continues)

Empathy 63.71%

Actual group	No. of cases	Predicted group 1	Predicted group 2
Group 1	325	213 (65.5%)	112 (34.5%)
Group 2	47	23 (48.9%)	24 (51.1%)

Intimacy 63.44%

Actual group	No. of cases	Predicted group 1	Predicted group 2
Group 1	325	216 (66.5%)	109 (33.5%)
Group 2	47	27 (57.4%)	20 (42.6%)

Trust 61.56%

Actual group	No. of cases	Predicted group 1	Predicted group 2
Group 1	325	204 (62.8%)	121 (37.2%)
Group 2	47	22 (46.8%)	25 (53.2%)

VITA

Patricia Cox Reeves

Candidate for the Degree of

Doctor of Philosophy

Thesis: RELATIONSHIP BETWEEN SELF-PERCEIVED LEVELS OF HEALTHY FUNCTIONING IN THE FAMILY-OF-ORIGIN AND SELF-PERCEIVED CORRELATES OF WEIGHT-PREOCCUPATION AMONG FEMALE COLLEGE STUDENTS

Major Field: Applied Behavioral Studies

Biographical:

Personal Data: Born in Ardmore, Oklahoma, March 2, 1947, the daughter of Madge L. Cox and Billy S. Cox.

Education: Graduated from Ardmore High School, Ardmore, Oklahoma, in May, 1965; received Bachelor of Arts in Education degree in English from Central State University in July, 1969; received Master of Education degree in Counseling Psychology from Central State University in May, 1976; completed requirements for the Doctor of Philosophy degree at Oklahoma State University in July, 1990.

Professional Experience: Psychology Intern, Texas Woman's University Counseling Center, August, 1989, to July, 1990; Editor, CHIME Newsletter, College of Education, Oklahoma State University, June, 1988, to July, 1989; Marriage and Family Practicum Student, Oklahoma State University Marriage and Family Clinic, January, 1988, to May, 1988, and also from August, 1988, to December, 1988; Counseling Psychology Practicum Student, Norman Alcohol and Drug Treatment Center,

August, 1987, to May, 1988; Research Assistant, Department of Applied Behavioral Studies in Education, Oklahoma State University, January, 1987, to May, 1988; Counseling Psychology Practicum Student, Stillwater Community Mental Health Clinic, August, 1986, to July, 1987; Teaching Assistant, Department of Applied Behavioral Studies in Education, Oklahoma State University, August, 1986, to December, 1986; Counselor and Coordinator of Counseling Services, Oklahoma State University, Oklahoma City Branch, July, 1976, to August, 1986; Counseling Psychology Practicum Student, Bethany Guidance Center, August, 1975, to May, 1976.

Professional Organizations: American Psychological Association, Student Affiliate; American Association for Counseling and Development, Student Affiliate; Association for Specialists in Group Work, Student Affiliate; Southwest American Psychological Association, Student Affiliate; Texas Psychological Association, Student Affiliate; Oklahoma Psychological Association, Student Affiliate; Dallas Psychological Association, Student Affiliate; Mental Health Association in Oklahoma County.