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PERSONALITY VARIABLES, LOCUS OF CONTROL, AND SEX-ROLE STEREOPTYPING FOUND IN BULIMIC WOMEN

The Ohio State University

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PERSONALITY VARIABLES, LOCUS OF CONTROL, AND
SEX-ROLE STEREOTYPING FOUND IN
BULIMIC WOMEN

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Patricia A. Child, B.S., B.S. in Ed., M.A.

* * * * *

The Ohio State University
1984

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CHAPTER I
INTRODUCTION

Introduction

The study of eating disorders has in the past been mostly centered around those individuals who eat excessive amounts of food and become fat and those who restrict their intake to the extent of becoming emaciated. These conditions are known as obesity and anorexia nervosa. It has been estimated that 30% or more of the people in the United States are overweight or obese (Bruch, 1973) and that approximately 10% are anorexic (Nylander, 1971). More is being learned about the characteristics of people who become anorexic, about the course of the illness, and about treatment procedures. Overweight individuals are also being studied with far greater frequency than in the past (Bruch, 1973; Bailey et al., 1970; Slade & Russell, 1973; Garner et al., 1976; Cappon & Banks, 1968; Pearlson et al., 1981). Because of these studies and current interest centered around the importance of maintaining a normal weight, a clearer picture is being formed of the basic problems in weight disturbance, including obesity, and how these problems of weight are associated with personality and emotional problems (Bruch, 1973).
Through these studies there has been an increasing awareness of the eating disorder known as bulimia. Its prevalence is not clearly known at this time, but many feel it is on the increase (Russell, 1979). Estimates have ranged from 13% among the population on a campus of the State University of New York (Halmi, Falk, & Schwartz, 1981) to 18% taken from a sample of 279 students from a small residential liberal arts college (Ondercin, 1979).

The bulimic syndrome epitomizes the abuse use of food. It can be very instructive to study because it incorporates nearly every element evident in other eating disorders. These elements include a fear of becoming fat as seen in anorexia nervosa, an excessive intake of food as seen in overeating or binge eating, and many types of purge behaviors including self-induced vomiting, diuretics, laxatives, dieting, and fasting (Wooley & Wooley, 1981). Bulimia can be viewed as very similar to other types of substance abuse because it occupies a great deal of time and energy for the individual, it is costly and creates financial problems, it becomes the focus of the individual's life at the exclusion of other experiences, it can be progressive, and it is physically abusive to the body causing very severe physiological problems and sometimes death. For these reasons bulimia is an important area to research.

**Need for the Study**

Theories on eating disorders are varied. The theories include a psychoanalytic approach which basically indicates a rejection of femininity on the part of the woman (Shainess, 1979) to the theory put forth by Boskind-Lodahl and White (1978) which states that
bulimia is the result of a desperate need on the part of the woman to fit the self into a stereotyped feminine role by meeting society's expectations and pursuing thinness (Boskind-Lodahl, 1976).

Orbach (1978a, 1978b, 1982), on the other hand, feels that the most important factors in the development of eating disorders are social-psychological ones. She feels that women are rebelling against the stereotyped female role and the powerlessness felt by women in this society.

Peele (1975) views binge eating as an addiction. He feels the binge eater is addicted to a sensation, a prop, an experience which structures one's life at a time of frustration, anxiety, or stress. Engaging in this behavior makes it difficult to deal with real needs, and therefore, a sense of well-being comes to depend more and more on a single external source of support and reinforcement--food.

Both Bruch (1973) and Garfinkel and Garner (1982) take a multidimensional approach to eating disorders that include such forces as physiochemical, physiological, psychological, social and cultural factors. In particular, Bruch (1973) puts great emphasis on external factors and a feeling of not being in control of one's own behavior, needs, and impulses to explain how eating disorders develop.

These theories have several concepts in common. While some researchers disagree about the role femininity plays in bulimia, such as whether bulimia demonstrates an effort to conform to stereotyped femininity or whether it represents a rejection of femininity, they feel that sex-role identity is an issue for the
woman defined as bulimic, hereafter referred to as the bulimic woman. Research here has relied on interview data and inference and very little on systematic, quantified research. Dunn and Ondercin (1981) attempted to assess this dimension using the Bem Sex-Role Inventory (Bem, 1974), however replication of their study is needed and subjects need to be more clearly defined as meeting the criteria listed in the Diagnostic and Statistical Manual of Mental Disorders, III (DSM III, 1980).

These theories all assume the important influence of external forces on the individual with bulimia. Having an external locus of control has been interpreted as a failure on the part of the individual to listen or be aware of one's inner promptings, has been associated with a sense of alienation and a low self-esteem, and has been associated with a sense of ineffectiveness (Hood, Moore, & Garner, 1982). Locus of control as it relates to bulimia is therefore an important dimension to examine through research.

Research on eating disorders has included the study of personality variables, demographic information, eating behavior and weight fluctuation, and family characteristics. But most of these studies have centered around anorexia nervosa and its subtypes (Beumont, 1977; Beumont, George, & Smart, 1976; Garrow et al., 1975; Casper et al., 1980; Garfinkel et al., 1980). Even though bulimia has been defined as an eating disorder separate from anorexia nervosa by DSM III (1980), research in this area has been routinely done with individuals who engage in bulimic behavior rather than with individuals who meet the criteria for the eating disorder known as
bulimia. The difference is important since nearly half of the individuals who have anorexia nervosa will also rely on bulimic behaviors, such as binging and self-induced vomiting, laxatives and/or diuretic use, to maintain an extremely low body weight.

Researchers typically obtain a sample of hospitalized subjects diagnosed with anorexia nervosa and divide them according to whether they control their weight by strict dieting (restrictors) or by binge-purge behavior. Results are based on comparisons with these two groups with normal controls rarely utilized. The tendency then has been to generalize these results from bulimic anorexics to bulimics in general. The studies with bulimic anorexics have questionable generalizability to those bulimics who are not anorexic. Further, these bulimics who also have anorexia nervosa are compared to restrictors instead of normals. These methodological problems make further research necessary to determine how generalizable the current findings are to bulimics as defined by DSM III (1980).

Other researchers like Ondercin (1979) and Dunn and Ondercin (1981) have given a screening instrument for compulsive eating and divided their sample into high compulsive eaters and low compulsive eaters and compared the results in this way. There is a great need for more controlled studies using a clearly defined sample that meets the criteria listed in DSM III (1980) for bulimia and a control group which has an absence of eating disorders.

Because of the methodology utilized in research in this area, generalizations about the personality variables associated with bulimia come into question also. Many researchers (Russell, 1979;
1979; Casper et al., 1980; Strober, 1980) feel that individuals who are bulimic tend to be more social than anorexics but exhibit difficulties in their interpersonal relationships. However, tightly controlled studies designed to examine this dimension cannot be located in the literature.

Because most of the theories on bulimia rely heavily on the influence of sex-role identity and on the importance of external forces to explain bulimia, these two dimensions are felt to be important areas for further research. Personality variables as they relate to interpersonal functioning are also very important in understanding the individual with bulimia. This understanding allows the planning of more effective treatment procedures.

**Purpose of the Study**

This study examined selected personality variables, locus of control, and sex-role identity of those individuals who met the criteria for bulimia listed in DSM III (1980). Selected personality variables were those contained in the California Psychological Inventory (Gough, 1957) and include Dominance, Capacity for Status, Sociability, Social Presence, Self-Acceptance, Sense of Well-Being, Responsibility, Socialization, Self-Control, Tolerance, Good Impression, Communality, Achievement Via Conformance, Achievement Via Independence, Intellectual Efficiency, Psychological Mindedness, Flexibility, and Femininity.

The purpose of the study was to gain a better understanding of the type of individual who chooses this method of stress and weight control. It is hoped that through this understanding more
effective treatment programs can be implemented to help these individuals with this eating disorder. The study of bulimia is important because the behavior is very disruptive for the individual, interfering with the quality of life experienced and because in many cases it is life-threatening due to the physical abuse to the body, the high risk of suicide, and the poor prognosis of women diagnosed as bulimic (Russell, 1979).

Research Questions

The research questions that were addressed included the following:

Question 1: What differences can be found in locus of control when comparing women defined as having bulimia to those defined as having no eating disorder?

Question 2: What differences in sex-role identity can be found between women defined as bulimic and those defined as having no eating disorder?

Question 3: Do selected personality variables as measured by the California Psychological Inventory (Gough, 1957) (Dominance, Capacity for Status, Sociability, Social Presence, Self-Acceptance, Sense of Well-Being, Responsibility, Socialization, Self-Control, Tolerance, Good Impression, Communality, Achievement Via Conformance, Achievement Via Independence, Intellectual Efficiency, Psychological Mindedness, Flexibility and Femininity) discriminate between women defined as bulimic and women who have no eating disorder?
Question 4: What implications for treatment from differences found in locus of control can be drawn about those subjects who feel a loss of control of behavior, needs, and impulses when compared to those who do not experience this loss of control?

Hypotheses

The following hypotheses were examined:

Hy 1: Women defined as bulimic exhibit a significantly greater external locus of control than do nonbulimic women as assessed by the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974).

Hy 2: Women defined as bulimic obtain significantly higher scores on the self-control subscale of the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974) than do nonbulimic women.

Hy 3: Women defined as bulimic are significantly more sex-role stereotyped in their attitudes as measured on the Bem Sex-Role Inventory (Bem, 1974) when compared to women who are not bulimic.

Hy 4: Women defined as bulimic show more conflict than non-bulimic women between self-concept and self-ideal personality characteristics as measured on the Bem Sex-Role Inventory (Bem, 1974).

Hy 5: Women defined as bulimic exhibit significant differences among some of the selected personality
variables (Dominance, Capacity for Status, Sociability, Social Presence, Self-Acceptance, Sense of Well-Being, Responsibility, Socialization, Self-Control, Tolerance, Good Impression, Communality, Achievement Via Conformance, Achievement Via Independence, Intellectual Efficiency, Psychological Mindedness, Flexibility, and Femininity) as measured by the California Psychological Inventory (Gough, 1957) when compared to women who have no eating disorder.

Definition of Terms

The literature contains many different criteria for describing bulimia and other eating disorders. Terms used in this study are defined below using the following criteria.

1) Eating Disorder: This is considered to be a misuse of the eating function and is characterized by gross disturbances in eating behavior.

2) Anorexia Nervosa: The diagnostic criteria according to DSM III were used to define anorexia nervosa. These are:
   a) Intense fear of becoming obese, which does not diminish as weight loss progresses.
   b) Disturbance of body image.
   c) Weight loss of at least 25 percent of original body weight or, if under 18 years of age, weight loss from original body weight plus projected weight gain expected from growth charts may be combined to make the 25 percent.
d) Refusal to maintain body weight over a minimal normal weight for age and height.

e) No known physical illness that would account for the weight loss.

3) Bulimia: The diagnostic criteria according to DSM III were used to define bulimia. These criteria are:

a) Recurrent episodes of binge eating.

b) The presence of at least three of the following:

   (1) Consumption of high caloric, easily ingested food during a binge.

   (2) Inconspicuous eating during a binge.

   (3) Termination of binges by pain, sleep, social interruption or self-induced vomiting.

   (4) Repeated attempts to lose weight by fasting, self-induced vomiting, laxatives or diuretics.

   (5) Frequent weight fluctuations greater than 10 pounds due to binge-fast behavior.

c) An awareness that the eating pattern is abnormal.

d) The presence of depressed mode and self-deprecating thoughts following binges.

e) The bulimic episodes are not due to anorexia nervosa or any known physical disorder.

4) Locus of Control: This is a measure of how the individual perceives the degree of control he/she has in determining his/her own fate. Operationally defined locus of control is the concept measured by the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974), and the degree of externality is determined by the score on this instrument.
5) **Sex-Role Identity:** This concept is a measure of the degree to which the individual identifies with the stereotyped characteristics of masculinity and femininity in this culture and is operationally defined as those concepts are measured by the Bem Sex-Role Inventory (Bem, 1974).

6) **Personality Variables:** The personality variables considered in this study are those that are measured by the California Psychological Inventory (Gough, 1957). They are defined from the manual as follows (Gough, 1975):
   a) **Dominance (Do):** The dominance variable assesses factors of leadership ability, such as confidence, persistence, aggressiveness and planfulness, persistence, and social initiative.
   b) **Capacity for Status (Cs):** This variable serves as an index of an individual's capacity for status (not his actual or achieved status). The scale attempts to measure the personal qualities and attributes which underlie and lead to status.
   c) **Sociability (Sy):** This variable identifies persons who are outgoing, sociable, and are of a participative temperament.
   d) **Social Presence (Sp):** This variable assesses factors such as poise, spontaneity, and self-confidence in personal and social interaction.
   e) **Self-Acceptance (Sa):** This variable assesses factors such as sense of personal worth, self-acceptance, and capacity for independent thinking and action.
f) Sense of Well-Being (Wb): This variable identifies persons who minimize their worries and complaints, and who are relatively free from self-doubt and disillusionment.

g) Responsibility (Re): This variable identifies persons of conscientious, responsible, and dependable disposition and temperament.

h) Socialization (So): This variable indicates the degree of social maturity, integrity, and rectitude which the individual has attained.

i) Self-Control (Sc): This variable assesses the degree and adequacy of self-regulation and self-control and freedom from impulsivity and self-centeredness.

j) Tolerance (To): This variable identifies persons with permissive, accepting, and non-judgmental social beliefs and attitudes.

k) Good Impression (Gi): This variable identifies persons capable of creating a favorable impression, and who are concerned about how others react to them.

l) Communality (Cm): This variable indicates the degree to which an individual's reactions and responses correspond to the modal (common) pattern established for the inventory.

m) Achievement via Conformance (Ac): This variable identifies those factors of interest and motivation which facilitate achievement in any setting where conformance is a positive behavior.
n) Achievement via Independence (Ai): This variable identifies those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors.

o) Intellectual Efficiency (Ie): This variable indicates the degree of personal and intellectual efficiency which the individual has attained.

p) Psychological Mindedness (Py): This variable is a measure of the degree to which the individual is interested in, and responsive to, the inner needs, motives, and experiences of others.

q) Flexibility (Fx): This variable indicates the degree of flexibility and adaptability of a person's thinking and social behavior.

r) Femininity (Fe): This variable assesses the masculinity or femininity of interests. High scores indicate more feminine interests, low scores more masculine.

Limitations

There are certain limitations regarding research in bulimia. First, for individuals who are currently bulimic, it would have been very difficult to determine what symptoms or characteristics were present prior to the eating disorder and which were the result of the eating disorder itself. Premorbid personality is very difficult to study due to the merging of personality traits with the symptoms and disturbances caused by the illness (Russell, 1979). This is also true with anorexia nervosa because the onset
occurs most frequently in early adolescence before full maturation of the personality occurs. Because bulimia tends to develop in later adolescence and early adulthood, a more stable picture of personality traits can be obtained. Even though personality is affected by the syndrome itself, obtaining a measure of where the individual is currently functioning is a valid way of examining personality characteristics and evaluating such individuals in terms of understanding bulimia and how to treat those who experience it.

Second, self-report measures in personality research have been employed for some time and are assumed to be a valid procedure. The use of this measure is based on the assumption that the individual will answer truthfully and to the best of his/her ability and that indeed the individual is aware of what may motivate his/her behavior.

Third, while only individuals who meet the criteria for bulimia were included in the study, they varied in the degree to which they engaged in various bulimic behaviors. Some engaged in self-induced vomiting, restricted food intake for long periods of time, or took laxatives and/or diuretics to control weight. Frequency of each of these methods varied with each individual. It was assumed that by examining the mean scores for the group, useful knowledge could be obtained about these individuals that would be useful in their treatment. However, generalizability of the findings were dependent on the composition of the bulimic group examined.
Fourth, the population to be investigated was restricted to women between the ages of 18 and 45. Binge eating is found to be more of a problem with women than for men as is the case with anorexia nervosa (Halmi et al., 1981; Boskind-Lodahl & White, 1978; Wermuth, 1976; Ondercin, 1979). Studies repeatedly find 90 to 95% of cases are female (Bemis, 1978; Jones et al., 1980). Many researchers (Casper et al., 1980; Garner et al., 1983) support the exclusion of male subjects due to the small numbers who present eating disorders and thus preclude a valid analysis. Therefore, the results of this study are generalizable to women only.

Fifth, the instrument chosen to measure locus of control, Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1974), contained five items out of 45 that were felt to be sexually biased. Since subjects for this study were women, the sexually biased word "guy" in items 7, 13, 24, and 39 and the word "man" in item 39 were all changed to the word "person." To whatever extent this change altered the validity of the instrument, the change became a limitation of the study. However, the effect should be minimal since the dimension under investigation was one of control and perceived expectancy and not sexuality. The advantage of the change was eliminating sex bias. Dr. D. W. Reid (personal communication, September 17, 1983) felt this change in no way affected the validity of the instrument.

A further limitation of this instrument was that the scale was normed on a Canadian population. However, it was assumed to be valid with an American population. This assumption was based
on research that found a multiple correlation of 0.75 of the 12-item Fatalism and 12-item Social-Systems Control scales with scores on Rotter's scale (1966) for a sample of 102 subjects (Reid & Ware, 1974). These correlations indicated that the Reid-Ware Three Factor Internal-External Scale was measuring a response domain very similar to that indexed by Rotter's scale. This correlation was not surprising since most of the items were taken directly from Rotter's scale.

Summary

This chapter provides information on the need for the study, the purpose of the study, research questions, hypotheses that were tested, definition of terms used throughout the study, and limitations. Chapter II presents a review of the relevant literature in the area of bulimia. Chapter III provides the research methodology which includes the research design, subjects, instruments used, procedure followed for collecting data, and statistical procedures that were employed. Chapter IV contains the Binge Eating Questionnaire results and the results of the statistical analyses on the data by hypotheses. Chapter V presents a summary, conclusions, and recommendations for future research.
CHAPTER II
LITERATURE REVIEW

This chapter includes a review of the literature on the following general topics: theories of eating disorders, characteristics of anorexia nervosa and its subtypes, characteristics of bulimia, characteristics of the compulsive eater, and the role of the family. Also included is a brief review of how the instruments to be used in this study have been used in other research on eating disorders. These areas are considered to be relevant in providing a necessary foundation to the current study and in providing a clearer understanding of the need for more research with bulimic women.

Theories Explaining Eating Disorders

Various theories have been put forth to explain why individuals engage in dysfunctional eating behavior. Shainess (1979) takes a psychoanalytic approach and hypothesizes that compulsive eating is the expression of a need to continually retain food-as-mother oral incorporation. Not only is it an attempt to gain emotional security and a sense of being loved, but it contains a delusional element of maintaining the connecting umbilical cord out of a fear of dying. Food serves as the connector to the mother and with it the sense of being a good girl who is loved and
protected. The explanation for anorectic behavior is three fold: (1) it is assumed that the anorexic is afraid to grow up and accept the female role, (2) she is expressing a fear or desire for oral impregnation by starving and binging, and (3) the problem is the result of a faulty parent-child relationship (Boskind-Lodahl & White, 1978). This view of anorexia as representing a fear of oral impregnation has received little support in the literature (Szyrynske, 1973).

Boskind-Lodahl and White (1978) interpret the psychoanalytic theory as indicating a rejection of femininity on the part of the woman. Their theory is that women are not rejecting femininity but experience a desperate need to fit the self into a stereotyped feminine role by pursuing thinness and assuming a passive, accommodating, helpless approach to life (Boskind-Lodahl, 1976). These researchers find the most vulnerable group to be from the teen years to middle age, to be white, middle class adolescents and women in their twenties with a strong orientation toward academic achievement and a traditional life style, including marriage (Boskind-White & White, 1983, p. 33). These women, they feel, are highly intelligent, attractive, and capable of handling successful careers, but they are characterized by low self-esteem, desire for protection, experience a sense of loneliness and isolation, and are obsessed with food.

Orbach (1978a, 1978b, 1982) feels that the social-psychological factors are the most important ones in determining why compulsive eaters develop in our society. She outlines several
social dimensions that are related to the oppression of women and thus to the development of eating disorders. She feels that fat is an expression of rebellion against women's powerlessness in a patriarchal society and represents a way of avoiding the stereotyped female role. Compulsive eating represents a rebellion against the ideal female image put forth by the media—to be attractive, you must be thin. It also is a way to nurture the self, which may be necessary for most women because men are not socialized to be nurturers. Overfeeding can also represent a rejection of her mother's role while at the same time reproaching the mother for inadequate nurturing or retaining a sense of identity with the mother. She feels that this social relationship between mother and daughter may incorporate much ambivalence and hostility and thereby become a mechanism for distortion and rebellion. Orbach feels that anorexia nervosa is the other side of the coin of compulsive eating. Even though the anorexic avoids food, she is responding to the same oppressive conditions as the compulsive eater.

Peele (1975) speaks of bulimia as being an addiction. His theory states that people's choice of what they become addicted to is the result of ethnic and social background and circle of acquaintances. Why people become addicted is due to situational and personal variables. He characterizes the experience of an addiction as providing structure and eliminating temporarily unpleasant and negative feelings the individual has such as pain, guilt, and anxiety. This temporary solution to problems may artificially raise self-esteem and produce immediate gratification;
however, when problems are not dealt with, self-esteem drops creating a spiral toward more self-defeating behavior. A sense of well-being becomes dependent on an external source of support. In the case of the bulimic woman this support is food. Between binges an absence of well-being and sense of some terrible deficiency inside oneself is felt and therefore no resources are perceived to deal with the reality that was being avoided originally.

Bruch (1973) feels that individuals with eating disorders misuse the eating function in an effort to solve or disguise problems of living that either appear unsolvable or are too difficult to deal with. She feels that from birth on food becomes associated with interpersonal and emotional experiences, and its physiological function cannot be clearly differentiated from its psychological functions by the individual. In fact the awareness of bodily needs are not inherent in the organism but are the result of a reciprocal transactional relationship between the individual and the environment. She sees distorted hunger awareness as related to severe personality problems that handicap those individuals who then develop an eating disorder. These individuals are characterized as not feeling in control of their behavior, needs, and impulses, as not owning their own bodies. They feel directed and influenced by external forces and feel their body and behavior are the product of other people's influences and actions. Distorted hunger awareness is the result of inappropriate responses to the needs of the individual from very early experience on. Since appropriate responses to cues coming from the infant are necessary for the
development of self-awareness and self-effectiveness, the lack of such responses results in confusion. Bruch cites some corroborative experimental evidence for her theory that some people are not able to accurately perceive hunger or satiety (Coddington & Bruch, 1970; Silverstone & Russell, 1967).

Garfinkel and Garner (1982) feel that eating disorders cannot be traced back to one mechanism. They take a multidimensional approach that includes physiochemical, physiological, psychological, social, and cultural factors. They look at biology, the environment and the interaction between the two in order to understand the process.

There is strong evidence that eating disorders are influenced by socio-cultural factors. The fact that the incidence of anorexia nervosa is increasing in women but not men is indicative of cultural factors playing a role (Garfinkel & Garner, 1982). Pressures to achieve, to be successful and to be thin may be strong influences on those who look for external support to determine their self worth. The media has promoted the thin image and associated it with success and self-control. Garfinkel and Garner (1982) propose that perhaps the importance of thinness and success becomes greater in a society such as ours where external controls and standards of behavior have become more relaxed and individuals must then respond with greater self-control and discipline. Women can demonstrate self-control by dieting. It can become a security gesture.

Through studies with Playboy models and the Miss America Pageant, Garner et al. (1980) find support that the ideal preferred
shape for women has been shifting toward a thinner size over the past 20 years. It has also been demonstrated that according to the revised actuarial statistics (Build and Blood Pressure Study, 1979) the average female under 30 has become heavier over the past 20 years. This amounts to between five and six pounds for most women between the ages of 17 and 24. This represents an average weight increase of .3 pounds per year over the past 20 years. These findings demonstrate the possible tension women may feel between biological forces determining weight and the cultural ideal (Garfinkel & Garner, 1982). Garfinkel feels that this conflict can be seen by the emphasis our society puts on dieting.

Some theories are more behaviorally and symptomatically oriented as in the continuum hypothesis that puts people on a continuum according to weight and effort to maintain that weight. They see anorexia at one end, bulimarexia more in the middle and bulimia at the other extreme (Boskind-Lodahl & White, 1978; Fries, 1974).

Some investigators propose a purely biological explanation for compulsive eating, viewing eating disorders as the result of a neurological dysfunction. Anticonvulsant medication has been administered to binge eaters who were reported to have abnormal EEG's with successful results (Moore & Rakes, 1982; Green & Rau, 1974). However, in an experiment done by Wermuth et al. (1977) with 19 subjects and a double-blind cross over study, the effectiveness of anticonvulsant medication was uncertain. These researchers also report that the 14- and 6-per-second positive
spikes as abnormal EEG's are considered in the normal range by some electroencephalographers (Lombroso, Schwarts, & Clark, 1966; Long & Johnson, 1968).

These are some of the major theories explaining the causes of bulimia. Commonalities include the use of food as an external support, the conflict that may be felt by women concerning the stereotyped feminine role, societal expectations, biological characteristics, and a lack of identity or self-awareness that would allow the individual to look inward for support.

Anorexia Nervosa and Its Subtypes

In reviewing the literature on eating disorders, the study of anorexia nervosa and its subtypes seems to dominate the field. There has been much discussion as to whether anorexia nervosa is a homogeneous group or whether it is heterogeneous. As early as 1903, Janet (1903) made attempts to distinguish subtypes of anorexia nervosa in the form of hysterical types and obsessional types. His distinction was based on whether hunger was present or absent. He felt that the hysterical patient lost the desire to eat and often displayed hyperactivity, while the obsessive patient felt hunger but refused to give in to those feelings.

Later Dally (1969) devised a classification system for three subtypes of anorexia nervosa. He defined an obsessional group 0 that was characterized by the presence of hunger, frequently the presence of bulimia and vomiting and labile moods. He characterized the hysterical group H by the loss of hunger, an involuntary increase in activity and energy, and the absence of "mirror gaze."
He identified a third group M of mixed cause that reflected what is now termed secondary anorexia nervosa.

Both of these classification systems rely heavily on the presence or absence of hunger, but it has been shown (Garfinkel, 1974) that most anorexics maintain their feelings of hunger and it is only when starvation is severe that hunger becomes inhibited. This state is dependent on physiological characteristics of the starvation process and not on differences between individuals.

Beumont (1977) and Beumont, George, and Smart (1976) examined clinical differences between anorexics who restricted their food intake and lost weight by extreme dieting and those who vomited to keep their weight down. He observed a number of clinical differences between these two groups. The restricting anorexics were found to be more introverted on the Eysenck Personality Inventory while the vomiters and purgers were found to be more sexually active, to have histrionic personalities and to be more likely to have been obese premorbidly. Both groups were found to be highly obsessional on the Leighton Obsessional Inventory (Beumont, 1977).

In a study conducted by Garrow et al. (1975) one group was distinguished because of its similarity to the addiction phenomenon. This group chronically overate and vomited large quantities of food. They had an extreme fear of weight gain but at the same time a strong psychological craving for food. It was thought that this behavior was perpetuated by the metabolic consequences of vomiting and diarrhea that caused fluid and potassium depletion. This group also exhibited a tendency to use alcohol and other
drugs for the sedative effects and to promote weight loss. Smoking to excess was also noted. Data were not provided that would clearly distinguish this group from other anorexia nervosa patients, however.

Casper et al. (1980) studied 105 patients, 53% of whom had achieved weight loss by fasting and 47% periodically had episodes of bulimia. Here again, the criteria for anorexia nervosa had to be met for inclusion in the study. Their criteria were (1) age between 10 and 40 years with onset of illness between ages of 10 and 30 years; (2) loss of at least 25% of original body weight and/or 15% below normal weight for age and height; (3) a distorted attitude and behavior toward eating, food or weight; (4) at least one of the following: lanugo, bradycardia, hypothermia, episodes of bulimia, vomiting; (5) periods of over activity; (6) amenorrhea of at least three months duration; (7) no known medical illness that could account for the anorexia or weight loss; and (8) no other major psychiatric disorder. They divided this group into restrictors and bulimics and compared them on a variety of clinical, developmental, and psychosocial parameters.

Differences between the two groups were found in a number of areas. The bulimics were more likely to vomit, admitted to a stronger appetite, were more likely to engage in compulsive stealing, were more extroverted, were more interested in sex, and were more likely to have had some heterosexual experience, and on psychological tests displayed higher depression scores, higher obsessional scores related to food, and higher somatization scores. Bulimics also tended to be older, although the mean age at onset of the
illness did not differ between the two groups. Casper et al. (1980) and Halmi et al. (1979) feel that this last finding may indicate that bulimia found in the anorexic may be indicative of chronicity or a certain degree of maturation that is necessary for it to develop. The inpatient evaluation found bulimics to be more anxious, to express greater guilt than restricting anorexics, to perceive themselves as more sensitive in social situations, and to show more sleep disturbances. For those who binged daily the Minnesota Multiphasic Personality Inventory showed elevations on the schizophrenic, depression, psychopathic deviate, paranoia, and psychasthenia scales. These patients also were more likely to report a poor relationship with their fathers.

Casper et al. (1980) feel that bulimia is not just a disorder of appetite but a very complex symptom, a view also held by Bruch (1973). As Russell (1979) also found, these patients do not overeat to ease hunger feelings but to relieve distressing emotions. Casper et al. (1980) feel that depression, guilt, and anxiety are very closely interrelated with the occurrence of bulimia. In anorexia nervosa, bulimia may begin from a failure to control hunger feelings but may be experienced later as emotionally soothing and as a mechanism for relief from distressing emotions and thoughts. Then they postulate that feeling states such as frustration, tension, emptiness, and boredom induce a craving for food as does the hunger feeling itself. Why normal eating does not suffice to relieve these feeling states they do not say. It appears that binge eating does, however, at least temporarily.
Garfinkel et al. (1980) view bulimia as a distinct subgroup of anorexia nervosa. Subjects used in this study met the modified criteria of Feighner et al. (1972) for anorexia nervosa and included 73 restrictors and 68 bulimics. Here again, only subjects who were anorexic were studied. The bulimic group again was found to have a history of weighing more and were more commonly pre-morbidly obese. This group was also found to be more impulsive, used alcohol and drugs more often, engaged in stealing, and had more suicide attempts and self-mutilation behaviors than the restricting group. Lastly, they found a high frequency of maternal obesity in the bulimic group.

In a study of the personality factors involved with eating disorders, Strober (1980) focused on young anorexic females admitted for a first episode of illness. He divided this group into restrictors and binge-vomiters, containing 8 and 14 respectively. Using the California Psychological Inventory (Gough, 1957), he found more commonality than divergence between these groups, but did find that bingers tended to demonstrate less adequate self-control, had a more participative social temperament, were more psychologically minded, and had a greater degree of adaptability and flexibility in their thinking and social behavior. These findings complement those found by Beumont (1977), Russell (1979), Casper et al. (1979), and Beumont et al. (1976).

In a study conducted by Hood, Moore, and Garner (1982) the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974) was used as a measure of ineffectiveness in anorexia nervosa.
They divided a group of 54 anorexic patients according to their score on this scale. They found that externality was associated with an increase of age, depression, neuroticism, and introversion. They also found bulimia to be associated with externals as did Beumont, George, and Smart (1976). In addition they found that external subjects suffer from greater weight fluctuation, loss of control, feelings of guilt, and a greater degree of emotional instability as measured by the 16 PF Questionnaire.

**Bulimia**

The previous studies all deal with binge eating behavior seen in subjects who meet the criteria for anorexia nervosa. Russell (1979) reported on a study of 30 patients who met two criteria: (1) An irresistible urge to overeat followed by self-induced vomiting or purging and (2) a morbid fear of becoming fat. The majority of his patients had a history of true or cryptic anorexia but unlike true anorexia nervosa, these patients tended to be heavier, more sexually active, more likely to menstruate regularly and remain fertile, and have severe depressive symptoms. Russell called this syndrome bulimia nervosa. He also observed differences due to the physical complications of self-induced vomiting or purging. These complications include potassium depletion, urinary infections and renal failure, epileptic seizures, tetany, swollen salivary glands, and loss of weight. Psychopathology of this group included preoccupations with food; preoccupations with weight and body size; depression—the most prominent feature of these patients' mental state—characterized by subjective feelings of
gloom and recurrent suicidal thoughts, impaired ability to concentrate, and irritability; and hysterical features. Hysterical features included such defense mechanisms as evasion or denial of the importance of such acts as binging and vomiting or purging.

In an attempt to investigate premorbid personality, Russell used informant's reports. He found a relative frequency of anxiety, especially in social relationships or school work, depression, difficult personal relationships with parents or school, marked dependence on parents, antisocial behavior such as drug abuse, stealing or promiscuity with no particular cluster of these traits. The group as a whole showed a high level of achievement generally.

In summarizing the psychological aspects of bulimia nervosa, Russell noted that overeating was associated with preoccupations of food and not necessarily with hunger but with an attempt to meet an unfilled emotional need. He found the frequency of binge-purge behavior depended on the setting, usually planned by the individual and by the number of times she had engaged in this behavior previously.

Russell (1979) suggests that even though this group shared a number of symptoms, this was not indicative of a separate syndrome or a common pathway to bulimia. He feels that bulimia nervosa may be reached by a number of pathways, one of which is anorexia nervosa.

Many studies dealing with bulimia have chosen only those patients who presented with anorexia nervosa or a cryptic form of anorexia nervosa. Russell suggests that bulimia nervosa may be
very common among normal young women at American universities. It is not really known how many bulimics have had episodes of anorexia nervosa.

Boskind-Lodahl and White (1978) define bulimarexia as a cyclical eating disorder characterized by binge-purge behavior followed by guilt and abnormally low self-esteem. Bulimarexics are obsessed with not getting fat and their self-esteem is based on how they perceive they look. This definition is similar to Russell's (1979) definition for bulimia nervosa of an irresistible urge to eat accompanied by a morbid fear of becoming fat and followed by vomiting or purging behavior. Both of these researchers distinguish it from classic anorexia nervosa by the binge behavior as opposed to the self-starvation. Russell uses his term bulimia nervosa to describe those individuals who have bulimia associated with anorectic psychopathology. Bulimarexia is distinguished from bulimia by the compulsion to rid the body of the ingested food. While this purge behavior may also be present in bulimia, Boskind-Lodahl and White make it a necessary criteria for bulimarexia.

Boskind-Lodahl and White feel that through the learned binge-purge behavior, the woman is pursuing thinness as an expression of perfectionistic strivings toward an ideal of femininity which gains the approval of others and validates her self-worth. This striving for a sex-role identity seems to be based on interview data from patients they have seen in treatment. There appears to be little research done on the sex-role identity or sex-role conflict experienced by bulimic women, even though this aspect of
experience is incorporated into both Orbach's (1978) theory as well as Boskind-White and White (1983). The following study of compulsive eaters attempts to assess this issue of striving for an idealized feminine identity (Dunn & Ondercin, 1981).

Binge eating or bulimia has also been called compulsive eating in the literature (Ondercin, 1979; Dunn & Ondercin, 1981). Ondercin (1979) defines compulsive eating as uncontrolled over eating that is not related to hunger. She describes a behavior pattern of consuming large quantities of food, usually late in the day or evening, several times a week, and followed by feelings of guilt, shame, or remorse. She has observed this behavior in an increasing number of college women who tended to be overweight although not usually obese. She also concluded that it is not the binge per se that defines compulsive eating, but the binge associated with unpleasant affect and a calming effect obtained by eating that defines the syndrome. She sees it as a means of coping with stress temporarily, but causing distress later.

Dunn and Ondercin (1981) conducted a study to examine personality variables of compulsive eaters. Using the Compulsive Eating Scale (Ondercin, 1979) as a screening device, they identified 23 women as compulsive eaters. These were women who fell in the upper quartile range of the distribution obtained from giving the test to 252 students. They were compared to 24 "low compulsive females" from the same sample.

Results indicated that those in the high compulsive group were less emotionally stable, less in control, more prone to guilt,
more suspicious, had more inner tension, and were less shrewd. The high group also were found to be more externally oriented on Rotter's Locus of Control Scale (1966) than the low group.

Subjects in this study were also given the Bem Sex-Role Inventory (Bem, 1974) to assess the level of idealized femininity among those compulsive eaters. The inventory was administered twice, once for a measure of self-concept related to sex role and again for self-ideal sex role. Results from this inventory showed no differences between groups on the self-concept scales for femininity or masculinity or on the feminine self-ideal scale. Differences were found between groups on the masculinity self-ideal scale in the direction of a higher self-ideal for the higher group of compulsive eaters. These researchers interpret these findings as a discrepancy between perfectionistic needs to achieve masculine ideals such as independence and active striving, and the underlying feelings of anxiety, inadequacy, and helplessness.

This study indicates that there may be meaningful personality differences between those individuals who engage in compulsive binge eating and those who do not. However, one limitation of the study was the means used for choosing subjects. It is not known how many subjects in the high compulsive group actually met the criteria for bulimia set forth in DSM III (1980). Therefore, it is not known how generalizable these results are to college women with bulimia. Sample size was also very small which throws into question the generalizability of the results.
In a study done by Ondercin (1979) compulsive eating among college women was studied. Compulsive eating was defined as uncontrolled overeating that is not related to hunger. Out of a sample of 279 college women, three groups were formed on the basis of the subjects' answer to the question, "Would you label yourself a compulsive eater?" Of this group 18% said definitely, 15% said sometimes, and 30% said no. Again subjects in the high group do not necessarily meet the criteria set forth in DSM III for bulimia; therefore, the results may not be generalizable to the bulimic population as defined by that diagnostic category. However, her results did indicate that compulsive eating appears to be associated with tension-reducing or pleasure-giving qualities, and that in this sample it is particularly related to anxiety and depression. Boredom, loneliness, and anger were also associated with the frequency of eating. Compulsive eaters used food as a coping mechanism for unpleasant affect, particularly anxiety and depression.

In a very recent study Garner, Garfinkel and O'Shaughnessy (1983) directly compared restricting anorexics, bulimic anorexics and a group of normal weight bulimic women. Their position is that bulimic women and bulimic anorexics have similar clinical features that set them apart from restricting anorexics. Their results indicate that on demographic, clinical, and psychometric variables, the bulimic anorexic more closely resembled the normal weight bulimic group than they did the restricting anorexic group. The clinical variables were associated with poor impulse control. Other psychometric variables included the subscales of the Family
Assessment Measure. Even though these researchers found similarities between the group of normal weight bulimics and bulimic anorexics, they caution that these groups were heterogeneous in many areas of psychologic functioning and oversimplifications should not be made.

Binge eating has been studied to some extent by examining the eating patterns of obese subjects and by making comparisons between obese and normal weight subjects (Gormally et al., 1982; Loro & Orleans, 1981; O'Neil et al., 1981; Doell & Hawkins, 1982). Gormally et al. (1982) conducted an assessment of the binge eating severity among obese persons. They constructed the Binge Eating Assessment Scale based on the criteria for bulimia from DSM III (1980) that assessed both behavioral manifestations of binge eating as well as the feelings/cognitions surrounding a binge. They found that severe bingers tended to set up unrealistic diets and expectations for themselves and had low expectations of meeting these restrictions. They also found that the severe binge eaters experienced a lack of self-control of their eating urges which after binging resulted in extreme guilt and self-hate. Bingers who set such high standards attribute their loss of control to a lack of will power. Therefore, when a diet slip up occurs, low self-efficacy and self-deprecating thoughts lead to a binge. Implications for treatment dealing with weight control was also discussed.

Fairburn (1980) describes four cases of patients who engage in self-induced vomiting. Three of his cases support Russell's
(1979) contention that bulimia nervosa patients need not have had a history of anorexia. Fairburn found that marked emotional lability was the most characteristic mood disturbance of his patients with self-induced vomiting behavior. He suggests that these patients may have less difficulty with relationships than anorexia nervosa patients, but no means was used to compare these subjects to normal controls. In all four of his cases self-induced vomiting followed unsuccessful dieting attempts. When vomiting was experienced as an effective means of weight reduction, individuals engaged in more extreme binge eating, creating the cyclic pattern of binge-purge behavior. Fairburn (1981) proposes a cognitive behavioral approach to the treatment of bulimia with an emphasis on increasing self-control, identifying the circumstances under which loss of control occurs, and teaching more adaptive ways of coping by problem-solving training using the approach of Goldfried and Goldfried (1975).

Some researchers have attempted to examine the psychosomatic hypothesis (Kaplan & Kaplan, 1957) as a means of explaining binge behavior. This hypothesis states that binge eating is a learned coping response associated with anxiety reduction as opposed to hunger. Research that supports this hypothesis include Conrad (1970), Leon and Chamberlain (1973), Rowland and Antelman (1976), and Ondercin (1979). Other studies do not support this position (Abramson & Wunderlich, 1972; McKenna, 1972; Schacter, Goldman, & Gordon, 1968; Herman & Polivy, 1975). A study completed by Jeffrey and Katz (1977) indicated that food and eating can acquire
the power to reduce stress in overweight individuals. Binge eating may also provide relief from boredom (Abramson & Stinson, 1977).

Further research on the emotions and feelings surrounding binge behavior is needed to more fully understand and resolve the issue of food as a coping mechanism and why normal food intake won't satisfy the individual while a binge is much more appealing.

Through many of these studies the dimension of locus of control has been examined. Hood, Moore, and Garner (1982) found bulimia to be associated with externality in their sample of anorexics. Dunn and Ondercin (1981) found compulsive eaters to be correlated with externality. In a study focusing on sex-role stereotyping and locus of control, Minnigerode (1976) found that sex-role stereotyped individuals scored more external than those not sex-role stereotyped. While this is evidence that sex-role stereotyped identity may imply an external locus of control, this does not necessarily mean that externality implies sex-role stereotyped orientation. It is an interesting issue and one requiring further research to better understand bulimia and its relationship to sex-role identity.

Role of the Family

Research dealing with family characteristics of eating disordered women has mostly centered around the anorexic woman with bulimia being studied only as it relates to bulimic anorexics. Most of this research has relied on reports from people being treated in an inpatient setting or from informal observations of
the family. Therefore, it is difficult to draw conclusions about family characteristics of bulimic women.

There are conflicting views regarding what role the family does play. Andersen (1979) feels that it is doubtful that families are primarily responsible for the disorder, while Boskind-White and White (1983) have developed a theory of the role of the family based on their treatment of women with bulimia. They feel that the mother of the bulimic woman tends to be overprotective toward her children and subservient to her husband, while the father tends to be emotionally rejecting. Daughters tend to develop approach-avoidance conflicts with their mothers. Many feel their mother is their only source of support in a closed nuclear family and may be overtly hostile toward their fathers. Sibling rivalry also tends to create stress resulting in eating disorders.

Boskind-White and White (1983) feel that the bulimic woman learns to gain approval through conformity with her parent's expectations while getting no support for self-expression. The binge-purge behavior is then a valve to alleviate the pressure from trying to meet the expectations of the parents. These women have come to rely on external support which carries over to external social support for self-validation. Boskind-White describes a family that places a high value on beauty and success and teaches that acceptance depends on appearance.

Casper et al. (1980) report that bulimic women tend to come from higher socioeconomic levels and have fathers who tend to be highly educated. However, this sample consisted of bulimic anorexics and restricting anorexics.
Humphrey (1983) conducted research on two intact family triads, one with an anorexic daughter and the other with a bulimic daughter. Her results were consistent with the separation-individuation hypothesis proposed by Bruch (1973). Both families seemed to be struggling with conflicts over control and autonomy. Parents in both families tended to be controlling and restricting toward their daughters while at the same time giving a message of supporting autonomy. This type of communication has been called the double-bind.

Significant differences were not found between these families; however, the family with the bulimic daughter showed slightly more hostility than the anorectc family. Also noteworthy was the dearth of direct communication between parents in both families.

In Cauwels' recent book on bulimia (1983) she describes patterns in bulimic families with noticeable incidences of alcoholism, depression, and weight problems. She draws many of her conclusions on research conducted by Michael Strober who compared restricting anorexics to bulimic anorexics. He found families of restricting anorexics to be more conforming and conventional while families of bulimic anorexics were more conflict ridden, lacking in mutual support and concern. There was more marital disharmony, unrest, and separation in these families when compared to restricting anorexics. Bulimics were found to be more distant from both parents, especially the father, than the restrictors were. Fathers of bulimics tend to be more maladjusted, immature, impulsive, and hostile while mothers tend to be more preoccupied with their bodies
and more depressed. Psychiatric disturbances in mood and impulse control were more prevalent in parents of bulimic anorexics when compared to the parents of restricting anorexics.

Cauwels (1983) also reports that the incidence of depression in other relatives of bulimic anorexics was more than twice that of the general population. Relatives of bulimic anorexics also had a higher incidence of alcoholism and drug abuse than did the relatives of restrictors.

In a recent study Garner, Garfinkel and O'Shaughnessy (1983) compared a group of restricting anorexics, bulimic anorexics and normal weight bulimics. The Family Assessment Measure (Skinner et al., in press) was given to assess the respondent's perception of several dimensions of family functioning. Results indicated that significant family pathology as perceived by the subject exists for the bulimic anorexic and the normal weight bulimic but less pathology was perceived by the restricting anorexic. Typically, however, restricting anorexics tend to initially see their families as reasonable and comfortable but as psychotherapy proceeds, dissatisfactions begin to emerge and level of pathology in the family begins to emerge (Garner et al., 1983).

It is not clear how generalizable these findings regarding bulimic anorexics and their families are to bulimics and their families. More research with bulimic daughters and their families and normal controls are needed to answer these questions.
Summary of Findings

In summary then differences can be found between patients with anorexia nervosa and those with bulimia nervosa. Those with anorexia nervosa tend to show the following characteristics (Andersen, 1981):

1) no vomiting or diuretic/laxative abuse
2) severe weight loss
3) slightly younger
4) more introverted
5) denies hunger
6) eating behavior ego-syntonic
7) less sexually active
8) obsessional features predominate
9) death from starvation
10) amenorrhea
11) more favorable prognosis
12) rare behavioral abnormalities

Individuals with bulimia nervosa may have the following characteristics (Andersen, 1981):

1) vomiting or diuretic/laxative abuse
2) milder weight loss
3) slightly older
4) more extraverted
5) experience hunger
6) eating behavior ego-dystonic
7) more sexually active
8) more hysterical features mixed with obsessional features
9) death from hypokalemia or suicide
10) menses may be present or irregular
11) less favorable prognosis
12) kleptomania, drug or alcohol abuse, self-mutilation

In addition for the bulimic Russell (1979) and Casper et al. (1980) found:

1) a preoccupation with food and weight
2) depression
3) difficulty in personal relationships
4) dependence on parents
5) high level of achievement
6) eating to meet an emotional need, relieve tension
7) higher somatization scores
8) more anxious
9) feelings of guilt

Strober (1980) also found these individuals to be more social, more psychologically minded, and more adaptable and flexible in their thinking and social behavior when compared to restrictors.

Andersen (1981) states that bulimia nervosa patients can be thought of as belonging to two groups: those who meet the criteria for anorexia nervosa and are therefore a subgroup within anorexia nervosa and those who do not meet this criteria. Unfortunately, those who do not meet the criteria for anorexia nervosa do not often get included in the studies in a controlled way. Although
some studies have been conducted on the compulsive eater, the number of studies focusing on bulimia per se are very rare.

Studies comparing compulsive eaters to those who do not engage in this behavior indicate that compulsive eaters have the following characteristics (Dunn & Ondercin, 1981):

1) less emotionally stable
2) less in control
3) more prone to guilt
4) more suspicious
5) more inner tension
6) less shrewd
7) external locus of control

Both Dunn and Ondercin (1981) and Ondercin (1979) concluded that compulsive eaters eat to reduce tension and anxiety and eat out of boredom, loneliness, or anger. Binge eating appears to be a coping mechanism as proposed by Bruch (1973). As pointed out earlier, these studies have not systematically included the criteria for bulimia as described in DSM III (1980). Further, methodological problems in the Dunn and Ondercin (1981) study make the conclusions regarding eating as a coping mechanism questionable since subjects were selected on that basis.

In summarizing some of the pitfalls of research on bulimia the use of subjects who meet the diagnostic criteria for anorexia nervosa, a focus on the most severe of eating disorders in hospital populations, and the infrequent use of normal control groups are frequently found.
Review of Instruments Used

Instruments used in the study of eating disorders vary greatly. However, the instruments used in this study have not been chosen with great frequency nor have they been used with a clearly defined bulimic population. The following is a short review of these instruments and the reason they were chosen for this research.

Some of the major theories explaining eating disorders and specifically bulimia incorporate the notion of either a rejection of femininity, a striving for femininity or at least some conflict felt by the individual related to how she sees herself in relation to sexual stereotypes and expectations in this culture. However, studies attempting to measure sex role identity are extremely rare. One such study was conducted by Dunn and Ondercin (1981). They attempted to assess this dimension in their study of the compulsive eater using the Bem Sex-Role Inventory (1974).

Because this was an important dimension to research further, the Bem Sex-Role Inventory was chosen to be used in the present study. It has received the most experimental attention and validation and is based on sound test construction and theory. The Bem Sex-Role Inventory was based on two theoretical assumptions:

1. The culture has clustered a collection of attributes into two mutually exclusive categories, each considered more characteristic of and more desirable for one or the other of the two sexes.
2. Individuals differ in how they choose to utilize these cultural definitions as standardized behavior for femininity and
masculinity. Sex-typed individuals are highly tuned to these sex differences and are motivated to behave in a manner consistent with them while the androgynous individual is motivated to move away from these limits and behave in a less restricted fashion. The Bem Sex-Role Inventory was thus constructed to assess the extent to which the culture's definitions of desirable female and male attributes are reflected in an individual's self-description (Bem, 1979).

There has been some criticism in the literature regarding the theory behind the Bem Sex-Role Inventory, its construction, its scoring procedure, and the use of the concept androgyny. Pedhazur and Tetenbaum (1979) criticize the inventory by claiming it is atheoretical. They object to Bem's empirical approach for finding a cultural definition for masculinity and femininity. In defense, Bem states that hers is a theory of process, not content, and that the culture will define what its expectations are and these definitions will vary from culture to culture. Therefore, it is not atheoretical and its assumptions are as presented above.

Pedhazur and Tetenbaum (1979) also criticize the use of item by item t-tests as a basis for item selection. Multiple t-tests can lead to chance findings; however, the initial list of 200 personality characteristics from which the final items were chosen was rated by four independent judges and all had to agree on the inclusion of each item. As Bem states, the probability for this occurring for any item is 1/160,000. The items have also been
cross validated and 37 out of the 40 items were confirmed (Walkup & Abbott, 1978).

Factor analysis of the items on the Bem Sex-Role Inventory yield four factors that account for 75% of the variance. These factors include a single feminine factor, two masculine factors defined by such items as 'dominance' and 'aggressive' and for the other, 'independent' and 'self sufficient,' and the third factor correlating with gender and defined by the items 'masculine' and 'feminine.' Bem feels that these factors support the validity of the instrument since the domains of masculinity and femininity are not unidimensional. In developing the short Bem Sex-Role Inventory these factors were taken into consideration and the items 'masculine' and 'feminine' were eliminated along with a group of low social desirability items that did not correlate highly with the Femininity score or load on the femininity factor. As a result, the short form of the Bem Sex-Role Inventory consists of items that represent the most desirable personality characteristics for a given sex.

The scoring procedure was revised since the criticisms appeared (Pedhazur & Tetenbaum, 1979). Scoring is based on a median split of the normative sample or the investigator's sample if it is representative. Subjects are divided into four groups: Feminine, Masculine, Androgynous, or Undifferentiated.

Locksley and Colten (1979) criticize the Bem Sex-Role Inventory for its use of cultural stereotypes to measure individual differences. They propose a more cognitive approach. Further research is needed to determine if this criticism is valid. They
also question the concept of androgyny itself as being arbitrary. They feel that perhaps it is the masculine traits as opposed to a mixture of traits from both sexes that make for a better adaptation and adjustment. Further they feel that freedom from sex-related social effects on personality and behavior implied in the concept of androgyny is arbitrary. However, Bem (1979) is not saying that androgyny is freedom from sex-related behavior but merely that individuals may differ in the way gender serves as a cognitive schema for processing information and determining behavior.

The use of this instrument in the present study seems appropriate because it is these sex stereotypes in this culture that are felt to be the source of some of the conflicts experienced by bulimic women. For this reason it was chosen for use in this study.

The California Psychological Inventory (Gough, 1957) has been used with an anorexic sample by Strober (1980) and with a bulimic sample by White and Boskind-White (1981). However, with the bulimic study, it was used to examine changes in the sample as a result of a treatment approach instead of examining the personality characteristics of the bulimic sample itself before treatment. The only findings reported in this regard were that subjects initially characterized themselves as feeling dependent, helpless and inadequate, demonstrating stereotypical thinking, a myopic outlook, and restricted interest patterns (1981). This study did not incorporate a control group; therefore, it is unclear how this bulimic group would have appeared if such a comparison would have been made.
The Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1974, 1974) has been used by Hood, Moore and Garner (1982) with a sample of anorexia nervosa subjects and by Garner, Garfinkel, and O'Shaughnessy (1983) with a sample of restricting anorexics, bulimic anorexics, and normal weight bulimic women. It was chosen for this study because of its three subscales, particularly its self-control scale. Because of the particular behavior being studied in this research, not only was it important to get a general measure of locus of control, but it was also important to examine the specific self-control factor which may have little or no association with the fatalism or social system control factor in this instrument and in Rotter's scale (1966) as well, making it a valuable assessment device for eating disorders, particularly bulimia.

Summary

This chapter presented a review of the literature and instruments used in this study. Chapter III contains a description of the research methodology. Chapter IV presents the results of the Binge Eating Questionnaire and the results of the statistical analyses by hypotheses. Last, Chapter V contains a summary, conclusions, and recommendations for future research.
CHAPTER III
RESEARCH METHODOLOGY

Introduction

This chapter describes the research setting, the population from which the sample was chosen, the instruments used, and the procedure followed for collecting data. The research design is also described along with the statistical procedures that were employed.

Research Setting

The research setting for this study was the metropolitan area of Columbus, Ohio. Columbus is a midwestern city and the capital of the State of Ohio. This metropolitan area has a population of approximately one million people. Columbus is also the home of The Ohio State University.

Columbus is an area where awareness of eating disorders has been increasing during the last five years. Workshops throughout the area are offered annually, treatment centers are on the increase and professionals in the field are becoming more aware of the seriousness of the disorder and seeking more effective ways of treating it. Newly formed treatment centers include the Bridge Foundation's Center for the Treatment of Eating Disorders, the Eating Disorders Program offered through The Ohio State University.
Hospitals, and an eating disorders program at Talbot Hall, a facility connected with St. Anthony's Hospital.

The Ohio State University has an enrollment of approximately 49,000 students on the Columbus campus. It also has an administrative and professional staff of 5,086 and a class civil service staff of 6,847. The number of faculty members is approximately 4,212. This university is the major comprehensive university in the state of Ohio, offering programs in a wide variety of areas and offering graduate programs in liberal arts, sciences, agriculture, and various professional areas.

The newspaper of The Ohio State University is The Lantern. It is published daily Monday through Friday during Fall, Winter and Spring Quarters. During Summer Quarter, it is published Tuesday and Friday. It is circulated throughout the campus area free of charge.

Population

The population from which this sample was drawn was women in the metropolitan area of Columbus, Ohio, and particularly The Ohio State University. The control group was chosen from this population on the basis that they had no self-reported history of any eating disorder and were not currently in counseling. Women for the bulimic group were chosen if they met the criteria for bulimia as set forth by DSM III (1980). The majority of subjects were chosen from the population of The Ohio State University, utilizing both students and staff. Other subjects for the bulimic group were referred by various counselors in private practice and in
agencies throughout the city. Students comprised 76% of the bulimic group and 67% of the control group.

**Subjects**

Forty-two subjects for the bulimic group were recruited from either counselors in private practice or counselors in an agency setting near The Ohio State University area and from advertisements placed in *The Lantern*, the newspaper of The Ohio State University, requesting voluntary participation in research on eating disorders, specifically bulimia. Advertisements were the main source of subjects for both the bulimic group and the control group. The ad used to recruit bulimic subjects read as follows:

Female Volunteers Needed between 18 and 45 years of age to participate in graduate research project on eating disorders, specifically bulimia. Participation involves completing a coded personality questionnaire. Responses anonymous & confidential. $5.00 for your time and cooperation. Please contact Pat Child at...

Women for the bulimic group were screened individually to determine if they met the criteria listed in DSM III (1980).

The control group of 42 women was chosen in the same way as was the bulimic sample. The advertisement placed in *The Lantern* for this group read as follows:

Female Volunteers Needed between ages 18 and 45 for control group in graduate research project. Need women with no history of eating disorders. Participation involves completing a coded personality questionnaire. Responses anonymous & confidential. $5.00 for your time and cooperation. Please contact Pat Child at...
Those who responded to the advertisement were also screened individually to determine eating patterns, history of any type of eating disorder and any current weight problems. Those who were currently receiving counseling for any type of problem or psychological disorder were excluded from participation.

In the bulimic sample 50 packets were distributed to subjects and 6 were not returned. This is a return rate of 88%. Of the total packets distributed, 41 were distributed to subjects who answered the ad placed in The Lantern. Of this group 35 returned the completed questionnaires and 6 did not. The remaining 9 packets were distributed to clients being seen by counselors who were either in private practice or in an agency. Of these 9, 7 were included in the study. One of these subjects was eliminated because she was receiving inpatient treatment and the other was eliminated to even out the sample in terms of age.

In summary, the bulimic sample contained 35 (83.3%) subjects who answered the ad and 7 (16.7%) from other sources. Of this sample 17 (40%) reported they were currently receiving counseling. Six of the bulimic sample were not paid.

In the control group 55 questionnaire packets were distributed. Of this sample, 46 were sent in response to the ad in The Lantern and 4 were not returned. This is a return rate of 92.7%. Nine subjects were contacted through other means in order to balance the sample in terms of occupation and age. Of the 42 subjects who returned their questionnaires, 7 were not used because their responses on the Binge Eating Questionnaire indicated that
they may have some sort of eating problem. Of the nine contacted through other sources, one was not included in order to balance the sample in terms of occupation and age, and one was eliminated because she was currently in counseling.

In summary, the final sample of controls contained 35 (83.3%) subjects who answered the ad and 7 (16.7%) from other sources. Of this sample, 7 were not paid for their participation.

Subjects in the bulimic sample ranged in age from 18 to 39 with a mean age of 22.86. Subjects in the control group ranged in age from 18 to 37 with a mean age of 23.05.

All subjects were fully informed regarding the purpose of the research project and the time commitment involved. This information was given verbally and in written form to each subject. A copy of this form letter is contained in Appendix B. All Human Subject Program Guidelines of The Ohio State University were followed.

Instruments

Instruments used to collect data for the study include the Binge Eating Questionnaire, Reid-Ware Three Factor Internal-External Scale, the California Psychological Inventory and the Bem Sex-Role Inventory. These instruments are described in the following paragraphs.

Binge Eating Questionnaire: The 23 item Binge Eating Questionnaire represents a slightly modified version of the questionnaire that was developed by Halmi, Falk, and Schwartz (1981). It is structured to obtain information regarding age, occupation, weight,
height, weight history as well as weight change in the past year. It also assesses the use of diet aids as well as the behavioral symptoms of bulimia as outlined in DSM III (1980).

The Binge Eating Questionnaire was given to all subjects in order to act as a further screening device and to determine the presence and pattern of binge eating as well as methods used to control weight. Results of this questionnaire were used to describe the composition of each group in terms of age, occupation, weight, perceived weight, weight control methods, and behavior symptoms of bulimia. A copy is contained in Appendix A.

California Psychological Inventory: All subjects were given the California Psychological Inventory (Gough, 1957). This inventory was chosen because it provides a description and analysis of personality in everyday life and in social interaction. It is intended for the evaluation of individuals with emphasis on interpersonal behavior and dispositions relevant to social interaction (Gough, 1968). Sample items are provided in Appendix A.

The California Psychological Inventory is a well validated inventory containing 480 true-false items printed in an 11 page booklet. The inventory has 18 scales; each scale is designed to predict what the individual will do in a specified context or to identify individuals who may be described in a certain way. Each scale reflects to a maximum degree some theme or aspect of interpersonal behavior. The subscales on this inventory are described as follows:
1) Dominance (Do): This 46-item scale identifies those individuals who behave in a dominant, ascendant manner. They are seen as forceful, self-confident, and capable of influencing others and in interpersonal situations take the initiative and tend to lead. Females who score high on this scale are seen as strong, likely to be coercive, aggressive, confident, impatient, talkative, and quick.

2) Capacity for Status (Cs): This 32-item scale measures the degree to which the individual feels self-confident and anticipates success both presently and in the future. It describes individuals who have a somewhat detached view of ordinary constraints on behavior and feel able to meet stress and unforeseen circumstances without anxiety or self doubt. Females who score high may be described as alert, clear-thinking, forceful, individualistic, ingenious, insightful, intelligent, logical, and versatile.

3) Sociability (Sy): This 36-item scale measures the degree to which the individual has an outgoing, participative temperament and enjoys social encounter. Females who score low tend to avoid involvement and dislike social visibility. This scale assesses the degree of healthy interest in life and the degree of resourcefulness and confidence sufficient to maintain a high level of interpersonal activity.

4) Social Presence (Sp): The purpose of this 56-item scale is to identify individuals who will manifest spontaneity,
wit, social poise, and self-confidence in personal and social interaction.

5) Self-Acceptance (Sa): This 34-item scale measures the degree to which the individual feels secure about himself/herself whether active or inactive in social behavior. It is a measure of personal worth. High scores (standard score of 70 or above) suggest egotism, manipulative behavior toward others and narcissism. A moderate elevation of this scale suggests a beneficial level of self-satisfaction and internal harmony.

6) Sense of Well-Being (Wb): This 44-item scale attempts to identify individuals who try to fake or exaggerate anxiety and personal distress or problems. Scores below 29 are suggestive of some overemphasis upon worries and personal problems. Elevated scores indicate a sense of good health and competence to handle problems in everyday social living, whereas low scores suggest one who has low energy and an unwillingness to face interpersonal demands.

7) Responsibility (Re): This 42-item scale is designed to identify those individuals who are articulate about rule and order and who tend to use reason to govern their lives. Females who score low are seen as lazy, careless, and likely to behave in an impulsive or improper way.

8) Socialization (So): This 54-item scale attempts to identify individuals on a continuum from those who have an asocial, delinquent disposition to those who are highly
socialized and respect the rules of society. Those who score high are seen as reliable, honest, trustworthy, and adaptable. Those who score low can be seen as defensive, fickle, foolish, impulsive, pleasure-seeking, and uninhibited.

9) Self-Control (Sc): This 50-item scale is designed to assess how the individual manages impulse and how he/she controls hostility. The high and low scorers differ in their strategy of control, with the high scoring female behaving in a more overcontrolled and restraining fashion while the low scoring female tends to be more impulsive, aggressive, and rebellious. High scoring females are described as calm, conservative, gentle, moderate, patient, and self-controlled. Low scoring females are described as adventurous, aggressive, arrogant, excitable, impulsive, temperamental, rebellious and uninhibited.

10) Tolerance (To): This 32-item scale was constructed as a measure of the authoritarian personality and attempts to identify persons with permissive, accepting and non-judgmental social beliefs. Females who score high on this scale reflect characteristics such as progressive, humanitarian, insightful, mature, self-controlled, and unselfish; while those who score low reflect feelings of hostility and estrangement and tend to be described as arrogant, autocratic, bitter, defensive, distrustful, hard-headed, infantile, and sarcastic.
11) Good Impression (Gi): The purpose of this 40-item scale is twofold. First, it is designed to identify individuals who are trying to fake good; that is, present themselves in a very favorable manner. Raw scores of 32 or above may indicate an invalid profile. Second, this scale attempts to assess social desirability under normal circumstances. Those who rank high on the scale (moderate elevations) tend to be concerned about making a good impression and can be described as calm, conservative, modest, patient, trusting, and understanding. Those who score low present themselves in a more nonconforming way and seek acceptance on their own terms in an aggressive or corrosive manner. Females who score low may be described as changeable, cynical, moody, pessimistic, and shrewd.

12) Communality (Cm): This 28-item scale also serves two functions. First, it identifies individuals who respond in a random, senseless fashion. Scores below 18 raise the possibility of an invalid profile. Second, the scale attempts to identify those individuals who perceive and respond to their environment in the way that most people do. Females who score high can be described as clear-thinking, confident, rational, realistic, and practical. Females who score low tend to be more individualistic, less stereotyped and have been described as appreciative, artistic, awkward, forgetful, forgiving, irresponsible, and undependable.
13) Achievement via Conformance (Ac): This 38-item scale attempts to identify those individuals who have a strong need to achieve coupled with an appreciation of structure and organization. Females who score high tend to exhibit diligent, responsible dedication while pursuing worthwhile goals. The woman who scores low can be described as careless, rebellious, unconventional, uninhibited, sarcastic, and zany.

14) Achievement via Independence (Ai): This 32-item scale is designed to identify individuals who have a high need achievement and channel it along independent and self-actualizing lines. Females who score high are described as calm, capable, intelligent, logical, mature, original and rational. Females who score low tend to be described as immature, lacking in self-insight, restless, unstable, and unrealistic.

15) Intellectual Efficiency (Ie): This 52-item scale is constructed to measure intelligence and correlates with direct measures of ability on the average of .50. It also attempts to assess the efficiency with which the individual is able to direct his/her effort and apply his/her abilities. Females who score high are described as capable, clear-thinking, confident, efficient, logical, and rational. Females who score low are described as
absent-minded, awkward, nervous, pessimistic, slow, tense, and withdrawn.

16) Psychological-mindedness (Py): This 22-item scale is designed to identify individuals who are psychologically oriented and insightful of others. Females who score high tend to be incisive and discerning, but not necessarily warm and nurturant. They may be seen as capable, independent, logical, and self-confident while the low scoring female may be seen as conventional, honest, kind, trusting, warm, and unassuming.

17) Flexibility (Fx): The purpose of this 22-item scale is to identify people who are flexible, adaptable, and changeable in temperament. The scores on this scale represent a continuum of flexibility from high (18-19 and above) indicating a very volatile temperament and an element of instability to a low score representing one who may be seen as rigid, prudish, defensive, conservative, cautious, and self-punishing.

18) Femininity (Fe): This is a 38-item scale that is an attempt to differentiate between males and females and to define a continuum with femininity at one end and masculinity at the other. High scoring females are defined as feminine in accord with the theory of femininity as maintaining a nurturing disposition. Low scoring females may be described as coarse, dissatisfied, masculine, pleasure-seeking, and restless.
Reliability studies are reported in the manual (Gough, 1975) using the test-retest method. Correlations between individual and group administrations were found to be as high as those generally found in personality measurement. Correlations based on a prison sample of 200 (Gough, 1975) ranged from +.49 to +.87 with a mode of +.80. Interval between testing was from 7 days to 21 days.

The Manual reports the results of several cross-validation studies of the inventory for each scale presenting considerable evidence for the validity of the California Psychological Inventory. Many of the studies correlated judges' ratings with sample scores and found differences between high scorers and low scorers on each subscale to be significant at the .01 level of confidence.

**Reid-Ware Three Factor Internal-External Scale:** The Reid-Ware Three Factor Internal-External Scale is a 45 item forced choice locus of control questionnaire and is a modified version of Rotter's scale (1966). It has been cross-validated and factor analyzed by Reid and Ware (1973, 1974), yielding three factors in addition to a total score. The Fatalism Factor (12 items) measures the degree to which the subject perceives luck or fate as controlling life events. The Social Systems Control Factor (12 items) measures perceived personal versus sociopolitical control over the environment. The Self-Control Factor (8 items) measures the degree of control the individual feels over his/her impulses, desires, and emotions. The remaining 13 items are filler items.

The norm for this scale consists of a Canadian population of undergraduates with samples of males, females, and a mixed group.
Dr. Reid (personal communication, September 17, 1983) felt that an American sample from the general population is likely to be very similar to a sample taken from a general population of Canadians. Regional differences within a population will exist as is true within any culture, but he feels the Canadian norms are quite comparable with an American sample.

Much research has been done with locus of control using it as a unidimensional construct. However, many researchers now feel it is a multidimensional construct (Hersch & Schiebe, 1967; Mirels, 1970; Levenson, 1972; Sanger & Alker, 1972) and will be so used in this study. Research on the differential validity of the factors contained in the Reid-Ware scale has been conducted with significant results (Reid, 1972; Reid & Ware, 1974; Abramowitz, 1973; Hood, Moore, & Garner, 1982). Reid and Ware (1974) report a test-retest reliability of .76 for their locus of control scale with similar reliability across factors.

The Reid-Ware Three Factor Internal-External Scale was chosen because it was felt that self-control may have little or no association with fatalism or social system control, particularly with the behavior being examined in the present study—binge behavior. Rotter's scale (1966) measures more directly the dimensions of fatalism and social system control (Reid & Ware, 1974; Mirels, 1970). In research dealing with issues of self-control, Rutner (1967) and Keutzer (1968) found no relationship between scores on Rotter's locus of control scale and changes in smoking behavior thus indicating self-control to be a dimension possibly different than
feeling control in one's environment. Hood, Moore, and Garner (1982) feel that this locus of control scale is a valuable assessment device in research on eating disorders. A copy of the instrument is contained in Appendix A.

**Bem Sex-Role Inventory:** The Bem Sex-Role Inventory (Bem, 1974) consists of 60 adjectives and phrases in its original form and 30 in the short form and is based on the hypothesis that nonandrogynous individuals restrict their behavior in accordance with cultural definitions of what is desirable behavior for males and females in this society more than do androgynous individuals. The short form takes about 10 minutes to complete. The items on this inventory consist of 20 personality characteristics that are stereotypically feminine, 20 which are stereotypically masculine, and 20 filler items. Subjects are asked to respond on a 7-point scale which of the characteristics best describe themselves. The scale ranges from "never" to "always." Subjects receive feminine and masculine scores which are converted to standard T-scores. The difference between these two T-scores is the androgyny score. Subjects may then be classified into four distinct subgroups: Feminine, Masculine, Androgynous, and Undifferentiated. Each feminine and masculine score is obtained by finding the average of the subjects' ratings on each scale. Items from the short form are contained in Table 10 on page 82 of Chapter 4.

By using the median split method of classification (Bem, 1981), subjects are classified into one of the four groups by comparing their mean score on each scale to the median of the normative sample for each scale. If one of the means of one of
the scales equals or is greater than the median for that scale, then that subject is classified either masculine or feminine depending on which scale it is. If both means on both scales are equal to or greater than the medians for the normative sample, then the subject is classified as androgynous. If both means on both scales are below the medians of the normative sample, then the subject is classified undifferentiated.

To determine internal consistency, coefficient alpha was computed separately for males and females for each of the three scores. All three scores were highly reliable, in the .75 to .89 range. The masculinity and femininity scores were found to be logically independent.

Test-retest reliability was examined using a 1973 Stanford sample with four weeks between testing. Product-moment correlations were computed for both the original and short forms. All three scores were found to be highly reliable with the lowest coefficient being .76 and the highest being .94.

The original and short forms were found to be highly correlated (.85 to .94) according to the Manual (Bem, 1981). The short form tends to be more internally consistent than the long form and was chosen for use in this study.

Validity studies have been conducted to determine if a non-androgynous sex-role restricts the range of behavior available to an individual from situation to situation. Bem and Lenny (1976) confirmed this hypothesis in their study. They found that sex-typed subjects were significantly more likely than androgynous or
cross-sex-typed subjects to prefer sex-appropriate activity and resist sex-inappropriate activity. They also found greater psychological discomfort and negative feelings toward self for those individuals who engaged in cross-sex behavior. Other studies examining the validity of the inventory have been completed with supportive findings (Bem, 1975; Bem, Martyna, & Watson, 1976).

In order to measure conflict between self-report personality characteristics and the way the subject would like to be, subjects were asked to complete the short form twice, once with the instructions "as you see yourself" for a self-concept measure and again for a self-ideal measure, "as you would like to be."

**Procedures**

Those subjects who met the criteria for bulimia set forth in DSM III (1980) were contacted through advertisements as well as counselors in private practice and in agencies and were asked to participate in the study. Once screened through an interview process they were asked to complete the four questionnaires contained in a questionnaire packet which took approximately 1½ hours to complete. These instruments were arranged in random order to control for instrumentation effects. All questionnaires were coded so that when the data were collected, all identifying information linking the subject with the data were destroyed. As subjects were contacted, they were given in person or mailed a questionnaire packet. The packet included the four questionnaires, two consent forms (one copy for the subject), a written summary of the research, and a letter explaining the purpose and the procedures.
to follow for participation. Copies of the uncopyrighted instruments are included in Appendix A and copies of the forms are included in Appendix B. When the questionnaires were complete, subjects returned them either by mail or to their counselor who mailed them to the researcher. Only four were received via the latter route. When completed questionnaires were received, subjects were then mailed a check for $5.00 for their time and cooperation. Six subjects from the bulimic group and seven from the control group were contacted before it was decided to pay participants $5.00 for their time and therefore did not receive the $5.00.

Subjects for the control group were tested in the same manner and were chosen concurrently with the bulimic sample in order to obtain a similar group for comparison that differed only in terms of the eating disorder. The Binge Eating Questionnaire and a personal interview were used as a screening device for both groups and anyone who did not meet the criteria for one of the two groups was excluded from the study. All completed questionnaires were mailed directly to the researcher.

**Statistical Analysis**

Demographic data were analyzed to determine the range of the age of all subjects in each group and the mean age of each group. Other information from the Binge Eating Questionnaire was used to determine how many subjects from each group engaged in vomiting behavior, took laxatives and/or diuretics, and dieted to control weight. Subject's perception of being underweight, average, or overweight was also compared to self-reported weight. Self-reported weight
was determined to be underweight, average, or overweight by using the revised tables of the Metropolitan Life Insurance Company (Appendix D).

The Reid-Ware Three Factor Internal-External Scale scores (Reid & Ware, 1973, 1974) were analyzed using the total score as a measure of externality and using the subscales of Fatalism, Social Systems Control, and Self-Control. Means were determined for each group and comparisons were made between groups to determine the significance level. The t-test (Minium, 1978) was employed for this comparison between groups, and alpha level was predetermined at the .05 level of significance.

The Bem Sex-Role Inventory (Bem, 1974) yielded two scores, one for Femininity and one for Masculinity. Mean scores from each scale were compared via the t-test (Minium, 1978) to mean scores from the control group to determine if there were significant differences at the .05 level in sex-role identity between groups. Next the same comparison was conducted using the two scores obtained from self-ideal reports. A within group comparison was also employed between self-concept and self-ideal scores on each scale to determine if any significant discrepancy existed for those in the bulimic group when compared to the difference found in the control group. For this comparison the t-test for paired samples was used with significance predetermined at the .05 level.

The median split method of classification as outlined in the Bem Sex-Role Inventory Professional Manual (Bem, 1981) was employed and each group was classified into one of four groups: Masculine,
Feminine, Androgynous, or Undifferentiated. Each subject was also classified into one of these four groups using the same median split method. The median from the normative sample was used for this classification. Subjects were classified using self-concept scores and again using self-ideal scores. Percentages were then compared regarding how many changed classifications.

In order to determine which personality variables of the 18 scales from the California Psychological Inventory (Gough, 1957) discriminated between women identified as bulimic and those who were not eating disordered, discriminant analysis was used (Tatsuoka, 1970). Discriminant analysis was chosen because it provides a method of determining the 'best' set of variables that discriminate between these two groups. The 18 scales of the California Psychological Inventory were subjected to a stepwise discriminant analysis in order to arrive at a linear combination of variables which most efficiently maximized the differences between the two groups.

**Summary**

This chapter presents the research methodology employed in conducting the study. Chapter IV presents the results of the analyses, and Chapter V contains the summary of the results as well as conclusions and recommendations for future research.
CHAPTER IV

RESULTS

In this chapter the data from the Binge Eating Questionnaire and the results by hypotheses are presented. The Binge Eating Questionnaire results provide information on age, self-reported weight, perceived weight, and methods used to control weight. The second section contains the results by the five hypotheses which focus on whether there are significant differences between women who were defined bulimic and women who had no eating disorder along the dimensions of locus of control, sex-role stereotyping, and selected personality variables.

Results Based on the Binge Eating Questionnaire

Data on the age of subjects within each group are summarized in Table 1 and Table 2. Table 1 contains the mean age and standard deviation of each group and Table 2 contains the frequency of subjects by group and age level. In addition this table contains the relative frequency and cumulative frequency expressed as a percentage by age and by group. As Table 2 indicates, for the bulimic group 52.4% of the subjects were 18, 19, and 21 years of age, while the rest were between the ages of 22 and 39 inclusive. For the control group 59.5% of the subjects were 18, 19, 20, and 21 years of age, while the remainder were between the ages of 22 and 37 inclusive.

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Table 1

Means and Standard Deviations of Age of Subjects by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulimic</td>
<td>22.857</td>
<td>5.187</td>
</tr>
<tr>
<td>Control</td>
<td>23.048</td>
<td>5.365</td>
</tr>
</tbody>
</table>

Data on weight, height, and perceived weight were obtained from the Binge Eating Questionnaire and were used to determine the frequency of subjects within categories of underweight, average, or overweight. Table 3 provides a summary of the frequency within these categories according to height and weight range based on the small frame scale of the tables of the Metropolitan Life Insurance Company (Appendix D).

Table 4 contains a summary of the number of subjects in each category from each group and indicates that in the bulimic group 9 subjects were underweight, 18 were average, and 15 were overweight. Of the control group 6 were underweight, 28 were average, and 8 were overweight. Of the controls that were overweight 2 were overweight by over 10 pounds using the small frame scale of the weight tables. Of the bulimic sample 11 were overweight by more than 10 pounds using the small frame scale of the same table.

Each subject was asked whether she perceived herself to be underweight, average, or overweight. Results to this question are also found in Table 4. Of the bulimic sample 18 (43%) perceived
Table 2
Age of Subjects by Group, Frequency, and Percent

<table>
<thead>
<tr>
<th>Age</th>
<th>Absolute Frequency</th>
<th>Relative Frequency (%)</th>
<th>Cumulative Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bulimic</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>3</td>
<td>7.1</td>
<td>7.1</td>
</tr>
<tr>
<td>19</td>
<td>12</td>
<td>28.6</td>
<td>35.7</td>
</tr>
<tr>
<td>21</td>
<td>7</td>
<td>16.7</td>
<td>52.4</td>
</tr>
<tr>
<td>22</td>
<td>5</td>
<td>11.9</td>
<td>64.3</td>
</tr>
<tr>
<td>23</td>
<td>4</td>
<td>9.5</td>
<td>73.8</td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>2.4</td>
<td>76.2</td>
</tr>
<tr>
<td>25</td>
<td>2</td>
<td>4.8</td>
<td>81.0</td>
</tr>
<tr>
<td>27</td>
<td>2</td>
<td>4.8</td>
<td>85.7</td>
</tr>
<tr>
<td>28</td>
<td>2</td>
<td>4.8</td>
<td>90.5</td>
</tr>
<tr>
<td>35</td>
<td>2</td>
<td>4.8</td>
<td>95.2</td>
</tr>
<tr>
<td>36</td>
<td>1</td>
<td>2.4</td>
<td>97.6</td>
</tr>
<tr>
<td>39</td>
<td>1</td>
<td>2.4</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>42</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>7</td>
<td>16.7</td>
<td>16.7</td>
</tr>
<tr>
<td>19</td>
<td>4</td>
<td>9.5</td>
<td>26.2</td>
</tr>
<tr>
<td>20</td>
<td>7</td>
<td>16.7</td>
<td>42.9</td>
</tr>
<tr>
<td>21</td>
<td>7</td>
<td>16.7</td>
<td>59.5</td>
</tr>
<tr>
<td>22</td>
<td>2</td>
<td>4.8</td>
<td>64.3</td>
</tr>
<tr>
<td>23</td>
<td>3</td>
<td>7.1</td>
<td>71.4</td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>2.4</td>
<td>73.8</td>
</tr>
<tr>
<td>26</td>
<td>1</td>
<td>2.4</td>
<td>76.2</td>
</tr>
<tr>
<td>27</td>
<td>1</td>
<td>2.4</td>
<td>78.6</td>
</tr>
<tr>
<td>28</td>
<td>1</td>
<td>2.4</td>
<td>81.0</td>
</tr>
<tr>
<td>29</td>
<td>1</td>
<td>2.4</td>
<td>83.3</td>
</tr>
<tr>
<td>30</td>
<td>1</td>
<td>2.4</td>
<td>85.7</td>
</tr>
<tr>
<td>31</td>
<td>1</td>
<td>2.4</td>
<td>88.1</td>
</tr>
<tr>
<td>32</td>
<td>2</td>
<td>4.8</td>
<td>92.9</td>
</tr>
<tr>
<td>34</td>
<td>1</td>
<td>2.4</td>
<td>95.2</td>
</tr>
<tr>
<td>36</td>
<td>1</td>
<td>2.4</td>
<td>97.6</td>
</tr>
<tr>
<td>27</td>
<td>1</td>
<td>2.4</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>42</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Table 3
Frequency of Self-reported Weights Within Groups
By Height According to the Metropolitan Life Insurance Company*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4'10&quot;</td>
<td>102-111</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4'11&quot;</td>
<td>103-113</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5'0&quot;</td>
<td>104-115</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5'1&quot;</td>
<td>106-118</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5'2&quot;</td>
<td>108-121</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5'3&quot;</td>
<td>111-124</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5'4&quot;</td>
<td>114-127</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>5'5&quot;</td>
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<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5'6&quot;</td>
<td>120-133</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5'7&quot;</td>
<td>123-136</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>5'8&quot;</td>
<td>126-139</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5'9&quot;</td>
<td>129-142</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5'10&quot;</td>
<td>132-145</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5'11&quot;</td>
<td>135-148</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6'0&quot;</td>
<td>138-151</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td>18</td>
<td>28</td>
<td>9</td>
<td>6</td>
<td>15</td>
<td>8</td>
</tr>
</tbody>
</table>

*Table contained in Appendix D.
Table 4

Frequency and Percentage Within Groups By Weight and Perceived Weight Utilizing the Tables of The Metropolitan Life Insurance Company*

<table>
<thead>
<tr>
<th>Weight Category</th>
<th>Bulimic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>f</td>
</tr>
<tr>
<td>Underweight</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Perception same</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Perception average</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Perception overweight</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>18</td>
<td>28</td>
</tr>
<tr>
<td>Perception same</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>Perception under</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Perception overweight</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Overweight</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Perception same</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Perception average</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>TOTALS</td>
<td>42</td>
<td>42</td>
</tr>
</tbody>
</table>

Percent that perceived themselves differently 43% 14%

*Table contained in Appendix D.
themselves differently than the norms provided in the Metropolitan Life Insurance Company tables indicated they should be for their height and weight. Four of the underweight women perceived themselves to be overweight. Of the control group 6 (14%) perceived themselves differently than the norms provided in the Metropolitan Life Insurance Company tables indicated. The bulimic sample contained 29% more women with a distorted body image than did the control group.

Table 5 provides a summary by occupation of subjects within groups. Seventy-six percent of the bulimic sample and 66.7% of the control group were students at The Ohio State University with a diverse range of majors. Table 6 contains a summary of these majors for each group.

Subjects were asked if they ever vomited, took diet pills, diuretics, or laxatives to control their weight and how often they engaged in these behaviors. Table 7 indicates the self-reported frequency with which subjects used these methods. A scale of from never to more than once daily was used. Of the 29 who reported vomiting as a means of controlling weight gain, 20 (48% of total bulimic sample) reported they engaged in it more than once a week. The most frequent report was 10 times a day. Of the 22 who reported the use of diet pills, 13 (31% of bulimic sample) took them more than once a week. Of the 19 who reported some use of laxatives, 7 (17% of bulimic sample) took them more than once a week. Last of the 18 who reported the use of diuretics, 3 (7% of bulimic sample) took them more than once a week.
Table 5
Frequency of Subjects Within Groups by Occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Bulimic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hairdresser</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cosmetologist</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cashier</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Order Processor</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Research Assistant</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Nurse</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Word Processor/Programmer</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Teacher</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Counselor</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Technician</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Secretary</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Customer Service Representative</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Food Server</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Dental Hygienist</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>32</td>
<td>28</td>
</tr>
</tbody>
</table>

**TOTAL**                                 | 42      | 42      |
<table>
<thead>
<tr>
<th>Majors</th>
<th>Bulimic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Law</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Law</td>
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<td></td>
</tr>
<tr>
<td>Communications</td>
<td>3</td>
<td></td>
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<tr>
<td>Marketing</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Nursing</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Speech &amp; Hearing</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Family Relations</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Administrative Science</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Public Relations</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Pre Med.</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Computer Science</td>
<td>1</td>
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</tr>
<tr>
<td>Chemical Engineering</td>
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</tr>
<tr>
<td>Geology</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Dentistry</td>
<td></td>
<td>1</td>
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<tr>
<td>Vet. Med.</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Psychology</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Criminal Justice</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Journalism</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>English</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Design</td>
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<tr>
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<tr>
<td>Home Economics</td>
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<tr>
<td>Accounting</td>
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<tr>
<td>University College</td>
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<td></td>
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<tr>
<td>Undecided</td>
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<td>4</td>
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<tr>
<td><strong>TOTALS</strong></td>
<td><strong>32</strong></td>
<td><strong>28</strong></td>
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</table>
Table 7

Purging and Dieting Methods Reported by Bulimic Group by Frequency and Percent

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Vomiting</th>
<th>Diet Pills</th>
<th>Laxative</th>
<th>Diuretics</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Never</td>
<td>13</td>
<td>31</td>
<td>20</td>
<td>47.6</td>
</tr>
<tr>
<td>Less than once a month</td>
<td>4</td>
<td>9.5</td>
<td>6</td>
<td>14.3</td>
</tr>
<tr>
<td>1 to 3 times every 4 weeks</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Once every week</td>
<td>3</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 to 6 times every week</td>
<td>9</td>
<td>21.4</td>
<td>7</td>
<td>16.7</td>
</tr>
<tr>
<td>Once every day</td>
<td>5</td>
<td>12</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>More than once a day</td>
<td>6</td>
<td>14.3</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>TOTAL ENGAGING IN THIS BEHAVIOR:</td>
<td>29</td>
<td>69</td>
<td>22</td>
<td>52.4</td>
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</tbody>
</table>
Twenty-six subjects (62%) reported engaging in more than one method. Table 8 contains the number of subjects that engaged in these various methods. In the bulimic sample 29 (69%) women were vomiters. Of those who reported vomiting as a means of controlling weight, eight (19% of bulimic sample) indicated they used vomiting only, seven (16.7%) indicated vomiting plus one other method, eight (19% of bulimic sample) indicated vomiting and two other methods, and six (14.3% of bulimic sample) indicated vomiting, pills, diuretics, and laxatives. Of those who did not report vomiting as a means of controlling weight, four (9.5%) were strictly binge fast, four (9.5%) used one other method, one (2.4%) took diet pills plus diuretics, and four (9.5%) took pills, diuretics, and laxatives.

Of the control group five (12%) reported using some method to control weight. These self-reports indicated that two took diet pills less than once a month, two took them several times a week, and one took diuretics once a week. These women did not report episodes of binge eating, however, as determined through the interview and the Binge Eating Questionnaire.

**Results by Hypotheses**

The first three hypotheses were examined using a t-test (Minium, 1978) to determine significance at the .05 level between the two groups. The fourth hypothesis was examined using the paired t-test with significance determined at the .05 level and by applying a t-test to computed difference between self-concept
Table 8

Self-Reported Methods Used to Control Weight by Frequency and Percent

<table>
<thead>
<tr>
<th>Method</th>
<th>Bulimic</th>
<th></th>
<th></th>
<th>Control</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td></td>
<td>f</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Vomit only</td>
<td>8</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomit plus one other method</td>
<td>7</td>
<td>16.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomit plus two other methods</td>
<td>8</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomit plus three other methods</td>
<td>6</td>
<td>14.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL VOMITERS</td>
<td>29</td>
<td>69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fast only</td>
<td>4</td>
<td>9.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pills only</td>
<td>1</td>
<td>2.4</td>
<td>4</td>
<td>9.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laxatives only</td>
<td>2</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diuretics only</td>
<td>1</td>
<td>2.4</td>
<td>1</td>
<td>2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pills plus diuretics</td>
<td>1</td>
<td>2.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pills, Laxatives, and Diuretics</td>
<td>4</td>
<td>9.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL NONVOMITERS</td>
<td>13</td>
<td>31</td>
<td>5</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
and self-ideal for each group. The fifth hypothesis was tested using a stepwise discriminant analysis (Tatsuoka, 1970).

Hypothesis 1:

Women defined as bulimic exhibit a significantly greater external locus of control than non-bulimic women as assessed by the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974).

To examine this hypothesis a t-test was performed using the means derived from the total external score for each group on the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974). The results are summarized in Table 9. A significant difference between the two groups with \( t = 5.58 \) was found at the \( p < 0.0005 \) level with the bulimic sample being high in the external direction and the control group being low in the internal direction. This indicates that members of the bulimic group have a significantly greater external locus of control than do members of the control group. Hypothesis one stating that women defined as bulimic exhibit a significantly greater external locus of control than non-bulimic women was accepted.

Hypothesis 2:

Women defined as bulimic obtain significantly higher scores on the Self-Control subscale of the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974) than do non-bulimic women.

To examine the second hypothesis, the t-test was performed for each subscale of the Reid-Ware Three Factor Internal-External Scale. Results are also contained in Table 9 and indicate a
Table 9
Means, Standard Deviations, and t-ratio of the Total External Scale Score and Each Subscale from the Reid-Ware Three Factor Internal-External Scale By Group

<table>
<thead>
<tr>
<th>Scale and Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimic</td>
<td>42</td>
<td>18.50</td>
<td>5.46</td>
<td>5.58**</td>
</tr>
<tr>
<td>Control</td>
<td>42</td>
<td>11.55</td>
<td>5.95</td>
<td></td>
</tr>
<tr>
<td><strong>Fatalism</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimic</td>
<td>42</td>
<td>5.52</td>
<td>3.42</td>
<td>3.1*</td>
</tr>
<tr>
<td>Control</td>
<td>42</td>
<td>3.50</td>
<td>2.50</td>
<td></td>
</tr>
<tr>
<td><strong>Social System</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimic</td>
<td>42</td>
<td>6.90</td>
<td>2.41</td>
<td>3.94**</td>
</tr>
<tr>
<td>Control</td>
<td>42</td>
<td>4.57</td>
<td>2.99</td>
<td></td>
</tr>
<tr>
<td><strong>Self-Control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimic</td>
<td>42</td>
<td>6.07</td>
<td>1.40</td>
<td>6.35**</td>
</tr>
<tr>
<td>Control</td>
<td>42</td>
<td>3.48</td>
<td>2.24</td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.003
**p < 0.0005
significant difference between groups on each subscale. Not only was the bulimic group significantly higher on the Self-Control Scale with $t = 6.35$ ($p < .0005$) as compared to the control group, but the bulimic sample was also significantly higher than the control group on the Fatalism Scale with $t = 3.1$ ($p < .003$) and the Social Systems Control Scale with $t = 3.94$ ($p < .0005$). The higher scores here indicate feeling less in control of one's life. The lower the score the more control one feels over self and surrounding environment. Hypothesis two which states that women defined as bulimic obtain significantly higher scores on the Self-Control subscale of the Reid-Ware Three Factor Internal-External Scale than do nonbulimic women was accepted.

**Hypothesis 3:**

Women defined as bulimic are significantly more sex-role stereotyped in their attitudes as measured on the Bem Sex-Role Inventory (Bem, 1974) when compared to women who are not bulimic.

Each scale of the Bem Sex-Role Inventory (Bem, 1974) is designed to measure positive, socially desirable, and sex-appropriate personality characteristics either "for a man" or "for a woman" from the perspective of the culture at large. Items contained on each scale are found in Table 10. The items on the Femininity Scale can be associated with an affective concern for the welfare of others, nurturance, and a love for children. Items on the Masculinity Scale can be associated with a concern for one's own needs and a willingness to
express these concerns through assertiveness, dominance, and aggressiveness.

Table 10

Items Contained on the Masculinity and Femininity Scales of the Short Form of the Bem Sex-Role Inventory

<table>
<thead>
<tr>
<th>Masculinity Scale</th>
<th>Femininity Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has leadership abilities</td>
<td>Gentle</td>
</tr>
<tr>
<td>Assertive</td>
<td>Tender</td>
</tr>
<tr>
<td>Dominant</td>
<td>Compassionate</td>
</tr>
<tr>
<td>Strong Personality</td>
<td>Warm</td>
</tr>
<tr>
<td>Forceful</td>
<td>Sympathetic</td>
</tr>
<tr>
<td>Aggressive</td>
<td>Sensitive to the needs of others</td>
</tr>
<tr>
<td>Willing to take a stand</td>
<td>Eager to soothe hurt feelings</td>
</tr>
<tr>
<td>Independent</td>
<td>Understanding</td>
</tr>
<tr>
<td>Defends own beliefs</td>
<td>Affectionate</td>
</tr>
<tr>
<td>Willing to take risks</td>
<td>Loves children</td>
</tr>
</tbody>
</table>

The third hypothesis was examined first by using the t-test to determine if the two groups differed significantly on the Masculinity and Femininity Scales of the Bem Sex-Role Inventory and then by classifying each group into one of four groups: Masculine, Feminine, Androgynous, and Undifferentiated. Table 11 contains the means, standard deviations, and t ratios
for each group on each scale both for the self-concept measure and the self-ideal measure—how they would like to be. Table 12 contains the means, medians, and standard deviations of the normative sample for each Bem Sex Role Inventory scale for sexes combined as well as for females and males only.

The results show that there is a significant difference between groups on the Masculinity Scale with \( t = -3.91 \) and that this level of significance is \( p < .0005 \). No other significant differences were found between group means on the Femininity Scale for self-concept or each scale on the self-ideal measure. These results indicate that the control group tends to identify more with masculine characteristics than does the bulimic group and that both groups tend to identify in a similar way with feminine characteristics.

The median split method of classification can be used to place the bulimic and control groups into one of four groups: Masculine, Feminine, Androgynous, or Undifferentiated. This median split method of classification is outlined in the Bem Sex-Role Inventory Professional Manual (Bem, 1981). Classification is done on the basis of the mean scores on each scale. If both mean scores are above the median of the normative sample, then the subject is classified as androgynous. If the mean score of only one scale is above the median for that scale, then that subject is classified as either Masculine or Feminine depending on which scale is above the median. If both scores are below the median, then the subject is classified undifferentiated.
Table 11

Means, Standard Deviations, and t-ratio of the Masculinity and Femininity Scales of the Bem Sex-Role Inventory By Group for Self-Concept and Self-Ideal

<table>
<thead>
<tr>
<th>Scale and Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self Concept</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculinity Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimic</td>
<td>42</td>
<td>4.30</td>
<td>.96</td>
<td>-3.91*</td>
</tr>
<tr>
<td>Control</td>
<td>42</td>
<td>5.13</td>
<td>.98</td>
<td></td>
</tr>
<tr>
<td>Femininity Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimic</td>
<td>42</td>
<td>5.64</td>
<td>.97</td>
<td>-0.35</td>
</tr>
<tr>
<td>Control</td>
<td>42</td>
<td>5.71</td>
<td>.85</td>
<td></td>
</tr>
<tr>
<td><strong>Self Ideal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculinity Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimic</td>
<td>42</td>
<td>5.47</td>
<td>.66</td>
<td>-1.37</td>
</tr>
<tr>
<td>Control</td>
<td>42</td>
<td>5.69</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>Femininity Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimic</td>
<td>42</td>
<td>6.35</td>
<td>.59</td>
<td>-0.25</td>
</tr>
<tr>
<td>Control</td>
<td>42</td>
<td>6.38</td>
<td>.66</td>
<td></td>
</tr>
</tbody>
</table>

*p < .0005

Table 12

Raw Score Means, Medians, and Standard Deviations from the Normative Sample for the Femininity and Masculinity Scale of the Bem Sex-Role Inventory

<table>
<thead>
<tr>
<th>Scale</th>
<th>Females (n=340)</th>
<th>Males (n=476)</th>
<th>Sexes Combined</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Femininity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>5.57</td>
<td>5.19</td>
<td>5.38</td>
<td>6.78**</td>
</tr>
<tr>
<td>Median</td>
<td>5.70</td>
<td>5.30</td>
<td>5.50</td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td>.79</td>
<td>.76</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>Masculinity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.78</td>
<td>4.88</td>
<td>4.83</td>
<td>1.82*</td>
</tr>
<tr>
<td>Median</td>
<td>4.80</td>
<td>4.90</td>
<td>4.80</td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td>.81</td>
<td>.79</td>
<td>.80</td>
<td></td>
</tr>
</tbody>
</table>

*p < .10

**p < .001
The norms for the Bem Sex-Role Inventory are contained in Table 12. The means, medians, and standard deviations for females, males, and both sexes combined are included. It is a matter of judgment which norms to use to classify subjects in this sample. If the sexes combined norms are used, this sample is compared to the rest of the population--people in general. If the female norms from the normative sample are used, this sample is compared to females in the general population.

When the means of each group (see Table 11) were compared with the medians of females only from the normative sample, the bulimic sample was classified as undifferentiated and the control group was classified as androgynous. This is so because the mean of the bulimic sample on the Femininity Scale was 5.64, while the median from the females only normative sample was 5.7. In addition the mean on the Masculinity Scale of the bulimic group was 4.3, while the median from the females only normative sample was 4.8.

If these means from each group on each scale are compared to the sexes combined normative sample, the medians being compared become 5.5 on the Femininity Scale and 4.8 on the Masculinity Scale. Using this method of classification, the bulimic sample was classified as Feminine sex-role stereotyped and the control group was classified as Androgynous.

The Femininity Scale scores of the normative sample make the difference in the classification procedure. As can be seen from Table 12, there was a significant difference (p < .001)
between males and females on this scale but no significance between males and females on the Masculinity Scale. Therefore females in the general population tend to identify more with feminine sex role stereotypes than males do but both sexes identify in a similar way to masculine sex-role stereotypes. As a result of this difference, the median of the sexes combined norms on the Femininity Scale is lower than the median of the females only population.

For the major purposes of this research the norms from the females only normative sample were used for comparison purposes and classification of subjects. Therefore, since this method classifies bulimic subjects as Undifferentiated and control subjects as Androgynous, hypothesis three which states that women defined as bulimic are significantly more sex-role stereotyped in their attitudes as measured on the Bem Sex-Role Inventory when compared to women who are not bulimic was rejected. A further discussion of findings from analyses using sexes combined norms is found in the conclusions of the study.

Hypothesis 4:

Women defined as bulimic show more conflict than nonbulimic women between self-concept and self-ideal personality characteristics as measured on the Bem Sex-Role Inventory (Bem, 1974).

The fourth hypothesis was examined in two ways. First a paired t-test within groups between self-concept and self-ideal scores on the Masculine and Feminine Scales was used to examine differences or conflicts experienced for subjects in each group. Second, a
difference score was computed between self-concept and self-ideal for each group on each scale and this difference within groups was tested for significance between groups.

The results of the paired t-test are presented in Table 13. The results indicate that there was a significant difference in means (p < .0005) between self-concept and self-ideal scores on the Masculinity Scale (t = -7.37) and Femininity Scale (t = -6.50) for the bulimic group and a significant difference in means (p < .0005) between self-concept and self-ideal scores on the Masculinity Scale with t = -4.84 and on the Femininity Scale with t = -7.79 for the control group. However, to understand the importance of this result, a second t-test was performed on the computed difference between self-concept and self-ideal for each group on each scale.

Table 13

Within Group Differences of Means, Standard Deviations, and t-ratios Between Self-Concept and Self-Ideal Scores on Masculinity and Femininity Scales of the Bem Sex-Role Inventory

<table>
<thead>
<tr>
<th>Scale and Group</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulimic Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculine Self-Concept</td>
<td>4.30</td>
<td>.96</td>
<td>-7.37*</td>
</tr>
<tr>
<td>Masculine Self-Ideal</td>
<td>5.47</td>
<td>.66</td>
<td></td>
</tr>
<tr>
<td>Feminine Self-Concept</td>
<td>5.64</td>
<td>.97</td>
<td>-6.50*</td>
</tr>
<tr>
<td>Feminine Self-Ideal</td>
<td>6.35</td>
<td>.59</td>
<td></td>
</tr>
<tr>
<td>Control Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculine Self-Concept</td>
<td>5.13</td>
<td>.98</td>
<td>-4.84*</td>
</tr>
<tr>
<td>Masculine Self-Ideal</td>
<td>5.69</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>Feminine Self-Concept</td>
<td>5.71</td>
<td>.85</td>
<td>-7.79*</td>
</tr>
<tr>
<td>Feminine Self-Ideal</td>
<td>6.38</td>
<td>.66</td>
<td></td>
</tr>
</tbody>
</table>

*p < .0005
Table 14 contains the masculine difference for each group and the feminine difference for each group. As can be seen in Table 14, the difference in the two masculine means was significant at $p < .003$ with $t = 3.10$, while the difference in the two feminine means when compared between groups was not significant. This result indicates that even though each group taken separately had significantly different scores between their self-concept and self-ideal scores, the bulimic group experienced a significantly greater difference between masculine self-concept and masculine self-ideal scores than did the control group.

Table 14

Average Difference, Standard Deviations and t-ratios Between Self-Concept and Self-Ideal Scores on the Bem Sex-Role Inventory by Group

<table>
<thead>
<tr>
<th>Scale and Group</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masculine Difference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimic</td>
<td>1.17</td>
<td>1.03</td>
<td>3.10*</td>
</tr>
<tr>
<td>Control</td>
<td>0.56</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>Feminine Difference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimic</td>
<td>0.71</td>
<td>0.71</td>
<td>0.26</td>
</tr>
<tr>
<td>Control</td>
<td>0.67</td>
<td>0.56</td>
<td></td>
</tr>
</tbody>
</table>

*p < .003

To further examine the conflict experienced between self-concept and self-ideal for each group, subjects were classified into one of the four groups based on the median split method of classification explained previously for hypothesis three. Results of the classification using the medians from the females only normative sample are
contained in Table 15, while the results of the classification process using the medians from the sexes combined normative sample are contained in Table 16. As can be seen from Table 15, 35.7% of the bulimic sample was classified as feminine, while 40.5% of the control group was classified as androgynous. For the self-ideal measure, the majority of subjects in each group were classified as androgynous (76%). In the bulimic sample 74% were classified differently on the self-ideal measure than they were in the self-concept measure, while only 48% of the control group changed classification.

Results of the classification using the medians from the sexes combined normative sample (Table 16) indicate that 35.7% of the bulimic sample was classified as feminine, while 47.6% of the control group was classified as androgynous. For the self-ideal measure the majority of subjects in each group again were classified as androgynous with 76% from the bulimic group and 81% from the control group. In the bulimic group 71% of the sample was classified differently on the self-ideal measure than they were on the self-concept measure, while only 45% of the control group changed classification. No matter which method of classification is used, a conflict between self-concept and self-ideal is more evident in the bulimic sample than in the control sample.

Hypothesis four which states that women defined as bulimic show more conflict than nonbulimic women between self-concept and self-ideal personality characteristics as measured on the Bem Sex-Role Inventory was accepted as a result of the statistical analysis performed and by examining how each group was classified, regardless of which norms were used.
Table 15

Classification of Bulimic and Control Subjects Based on Frequency and Percent Into Groups Using the Females Only Normative Median Split Method

<table>
<thead>
<tr>
<th>Scale</th>
<th>Bulimic</th>
<th></th>
<th>Control</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td><strong>Self-Concept</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculine</td>
<td>4</td>
<td>9.5</td>
<td>11</td>
<td>26.2</td>
</tr>
<tr>
<td>Feminine</td>
<td>15</td>
<td>35.7</td>
<td>9</td>
<td>21.4</td>
</tr>
<tr>
<td>Androgynous</td>
<td>10</td>
<td>23.8</td>
<td>17</td>
<td>40.5</td>
</tr>
<tr>
<td>Undifferentiated</td>
<td>13</td>
<td>31.0</td>
<td>5</td>
<td>11.9</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>42</td>
<td>100.0</td>
<td>42</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Self-Ideal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculine</td>
<td>4</td>
<td>10.0</td>
<td>6</td>
<td>14.0</td>
</tr>
<tr>
<td>Feminine</td>
<td>6</td>
<td>14.0</td>
<td>4</td>
<td>10.0</td>
</tr>
<tr>
<td>Androgynous</td>
<td>32</td>
<td>76.0</td>
<td>32</td>
<td>76.0</td>
</tr>
<tr>
<td>Undifferentiated</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>42</td>
<td>100.0</td>
<td>42</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Number of Subjects Classified Differently Between Self-Concept and Self Ideal: 31 74.0 20 48.0
Table 16

Classification of Bulimic and Control Subjects Based on Frequency and Percent Into Groups Using Sexes Combined Normative Median Split Method

<table>
<thead>
<tr>
<th>Scale</th>
<th>Bulimic</th>
<th></th>
<th>Control</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Self-Concept</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculine</td>
<td>3</td>
<td>7.1</td>
<td>8</td>
<td>19.1</td>
</tr>
<tr>
<td>Feminine</td>
<td>15</td>
<td>35.7</td>
<td>10</td>
<td>23.8</td>
</tr>
<tr>
<td>Androgynous</td>
<td>12</td>
<td>28.6</td>
<td>20</td>
<td>47.6</td>
</tr>
<tr>
<td>Undifferentiated</td>
<td>12</td>
<td>28.6</td>
<td>4</td>
<td>9.5</td>
</tr>
<tr>
<td>TOTALS</td>
<td>42</td>
<td>100.0</td>
<td>42</td>
<td>100.0</td>
</tr>
<tr>
<td>Self-Ideal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculine</td>
<td>3</td>
<td>7.1</td>
<td>4</td>
<td>9.5</td>
</tr>
<tr>
<td>Feminine</td>
<td>7</td>
<td>16.7</td>
<td>4</td>
<td>9.5</td>
</tr>
<tr>
<td>Androgynous</td>
<td>32</td>
<td>76.0</td>
<td>34</td>
<td>81.0</td>
</tr>
<tr>
<td>Undifferentiated</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTALS</td>
<td>42</td>
<td>100.0</td>
<td>42</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Number of subjects classified differently between self-concept and self-ideal: 30 71 19 45
Hypothesis 5:

Women defined as bulimic exhibit significant differences among some of the selected personality variables (Dominance, Capacity for Status, Sociability, Social Presence, Self-Acceptance, Sense of Well-Being, Responsibility, Socialization, Self-Control, Tolerance, Good Impression, Communality, Achievement Via Conformance, Achievement Via Independence, Intellectual Efficiency, Psychological Mindedness, Flexibility, and Femininity) as measured by the California Psychological Inventory (Gough, 1957) when compared to women who have no eating disorder.

The fifth hypothesis was tested using discriminant analysis. The discriminant analysis program is performed in two stages. The first stage is the analysis stage and the second is the classification stage. In the analysis stage, using the stepwise option, the program selects the single best discriminating variable from all 18 scales. Each step thereafter similarly selects variables, combining them with those already selected to find the set that best discriminates between the two groups. Selection stops when the remaining variables no longer contribute to further discrimination. This procedure provides the discriminant functions and other related statistics.

The classification stage uses the discriminant functions derived in the first stage to classify each subject into one of the research groups and then measures the goodness of fit provided by the derived discriminant equations. Through this classification process, the probability of group membership for each research subject is estimated. The accuracy of the discriminant function is therefore determined by how many research subjects are correctly classified.
This analysis was carried out using SPSS Subprogram Discriminant. The stepwise option was employed along with Wilks' Lambda variable as a method of selection. Wilks' Lambda is an inverse measure of the discriminating power in the original variables which have not yet been removed by the discriminating functions. The larger Lambda is, the less information remaining. Therefore, the selection rule was to minimize Wilks' Lambda while maximizing the overall F ratio. All variables were eligible for the stepwise procedure provided their partial F ratio was greater than or equal to 1.00. This F ratio represents the amount of centroid separation added by the variable above and beyond the separation already provided by the previous variables selected. Therefore at each step all variables were accepted into the analysis provided their partial F ratio was greater than or equal to 1.00 and the minimum tolerance level—a measure of significance—was greater than or equal to 0.001.

In performing this stepwise analysis, the discriminant program completed eight steps and selected six variables. Table 17 summarizes the variables entered at each step, the F value, and Wilks' Lambda at each step. The six variables selected were Flexibility, Social Presence, Self-Control, Capacity for Status, Self-Acceptance, and Dominance.

The variable Well-Being was entered in the first step and removed in the fifth step leaving the six variables at the end of the stepwise procedure. This variable was removed because it no longer provided any discriminatory power separate from the other
Table 17
Results of Stepwise Discriminant Analysis by Step and Variable

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable Entered &amp; Removed</th>
<th>F</th>
<th>Wilks' Lambda</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Well-Being</td>
<td>30.04</td>
<td>.732</td>
</tr>
<tr>
<td>2</td>
<td>Flexibility</td>
<td>17.002</td>
<td>.704</td>
</tr>
<tr>
<td>3</td>
<td>Social Presence</td>
<td>12.144</td>
<td>.687</td>
</tr>
<tr>
<td>4</td>
<td>Self-Control</td>
<td>10.256</td>
<td>.658</td>
</tr>
<tr>
<td>5</td>
<td>Well-Being</td>
<td>.405</td>
<td>.662</td>
</tr>
<tr>
<td>6</td>
<td>Capacity for Status</td>
<td>11.019</td>
<td>.642</td>
</tr>
<tr>
<td>7</td>
<td>Self-Acceptance</td>
<td>9.260</td>
<td>.628</td>
</tr>
<tr>
<td>8</td>
<td>Dominance</td>
<td>7.901</td>
<td>.619</td>
</tr>
</tbody>
</table>

variables. This result indicates that the variable Well-Being was the most significant among all the variables in its ability to discriminate between groups. However, when examining the combination of variables Flexibility, Social Presence, and Self-Control, it no longer discriminated sufficiently to be included. The properties of Well-Being are therefore included in these three variables.

The final Wilks' Lambda of .619 approximates a chi-square value of 37.9 (p < .00005) with 6 degrees of freedom. This indicates that the discrimination between groups is statistically significant when this discriminant function is utilized.

Since there were only two groups in the analysis, only one discriminant function exists. In Table 18 the eigenvalue, a measure of the relative importance of the discriminant function, reflects
Table 18
Derivation of Discriminant Function

<table>
<thead>
<tr>
<th>Discriminant Function</th>
<th>Eigenvalue</th>
<th>Canonical Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.616</td>
<td>.617</td>
</tr>
</tbody>
</table>


The table above provides the derivation of the discriminant function. The total variance existing in the discriminating variables. The square of the canonical correlation .617 reflects the proportion of variance in the discriminant function explained by the groups. Therefore, the percentage of variance explained by the discriminant function was 38%.

Table 19 contains a listing of the standardized discriminant function coefficients that represent the loading of each discriminating variable obtained from the stepwise procedure. The absolute value of each coefficient can be compared to determine the relative importance of its discriminating power.

An examination of these coefficients indicates that in the order of largest to smallest loadings, the discriminant function was associated with high Self-Control, high Social Presence, low Capacity for Status, high Self-Acceptance, low Flexibility, and high Dominance.

To determine how these coefficients relate to the two groups, it was necessary to examine the group centroids. The group centroid represents the average of all the discriminant scores for a single group. It is the most typical location of a case from
Table 19

Standardized Discriminant Function Coefficients by Variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Function Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity for Status</td>
<td>-0.51645</td>
</tr>
<tr>
<td>Social Presence</td>
<td>0.70505</td>
</tr>
<tr>
<td>Self-Acceptance</td>
<td>0.33958</td>
</tr>
<tr>
<td>Self-Control</td>
<td>0.81147</td>
</tr>
<tr>
<td>Dominance</td>
<td>0.19641</td>
</tr>
<tr>
<td>Flexibility</td>
<td>-0.31861</td>
</tr>
</tbody>
</table>

that group in the domain of the discriminant function. The group centroids, therefore, tell how far apart the two groups are on the given function. The group centroids for this study are provided in Table 20. The data in Table 20 indicate the control group is most like the characteristics associated with the discriminant function and the bulimic group is unlike these characteristics.

Table 20

Centroids by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Centroid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulimic</td>
<td>-0.77524</td>
</tr>
<tr>
<td>Control</td>
<td>0.77524</td>
</tr>
</tbody>
</table>
These results indicate that the bulimic group is characterized as being low on Self-Control, indicating tendencies to be impulsive, rebellious, and temperamental. Lower Social Presence implies a lack of self-confidence in personal and social interaction. High Capacity for Status indicates ambition and confidence in present and future happenings with perhaps a lack of awareness on ordinary constraints. High Flexibility indicates a tendency to be volatile, temperamental, and flexible. Low Self-Acceptance is a measure of personal worth and indicates insecurity. Low Dominance indicates tendencies to be less forceful, less self-confident and to be less likely to take the initiative and lead in social situations.

The classification stage of the program placed each subject into the most likely group by use of the discriminant function. Table 21 presents the results of this classification. The percentage of cases correctly classified were 76.19%. The discriminant function correctly classified 31 subjects from the bulimic sample and 33 subjects from the control group.

Table 21

Predicted and Actual Group Membership for Sample

<table>
<thead>
<tr>
<th>Actual Group</th>
<th>n</th>
<th>f</th>
<th>%</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulimic</td>
<td>42</td>
<td>31</td>
<td>73.8</td>
<td>11</td>
<td>26.2</td>
</tr>
<tr>
<td>Control</td>
<td>42</td>
<td>9</td>
<td>21.4</td>
<td>33</td>
<td>78.6</td>
</tr>
<tr>
<td><strong>Percentage of cases correctly classified:</strong></td>
<td>76.19%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In summary, the results of the discriminant analysis indicated that six variables, Flexibility, Social Presence, Self-Control, Capacity for Status, Self-Acceptance, and Dominance, were found to discriminate between women defined as bulimic and women who had no eating disorder. Hypothesis five which states that women defined as bulimic exhibit significant differences among some of the selected personality variables as measured by the California Psychological Inventory when compared to women who have no eating disorder was accepted.

Table 22 contains the means and standard deviations of each of the 18 scales on the California Psychological Inventory (Gough, 1957). These are raw score means. Figure 1 illustrates the conversion of these raw score means to standard scores with a mean of 50 and a standard deviation of 10. As the profile indicates, the bulimic group consistently scored below the control group on all scales except Flexibility and Femininity.

Summary of Results

Hypothesis 1: Women defined as bulimic exhibit a significantly greater external locus of control than nonbulimic women as assessed by the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974).

This hypothesis was examined using the t-test to test for significance between the difference in the total scores on the Reid-Ware Three Factor Internal-External Scale obtained by each group. The results indicated that a significant difference between groups with $t = 5.58$ was found at the $p < 0.0005$ level with the bulimic
Table 22
Means and Standard Deviations of Scales of the California Psychological Inventory By Group

<table>
<thead>
<tr>
<th>Scale</th>
<th>Bulimic Mean</th>
<th>Bulimic SD</th>
<th>Control Mean</th>
<th>Control SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominance</td>
<td>24.76</td>
<td>5.40</td>
<td>29.29</td>
<td>6.82</td>
</tr>
<tr>
<td>Capacity for Status</td>
<td>19.48</td>
<td>3.78</td>
<td>20.95</td>
<td>4.14</td>
</tr>
<tr>
<td>Sociability</td>
<td>23.19</td>
<td>4.86</td>
<td>26.62</td>
<td>4.94</td>
</tr>
<tr>
<td>Social Presence</td>
<td>33.36</td>
<td>6.83</td>
<td>38.62</td>
<td>5.86</td>
</tr>
<tr>
<td>Self-Acceptance</td>
<td>21.57</td>
<td>3.87</td>
<td>23.83</td>
<td>3.44</td>
</tr>
<tr>
<td>Well-Being</td>
<td>26.50</td>
<td>7.92</td>
<td>34.60</td>
<td>5.38</td>
</tr>
<tr>
<td>Responsibility</td>
<td>25.64</td>
<td>4.41</td>
<td>28.45</td>
<td>4.44</td>
</tr>
<tr>
<td>Socialization</td>
<td>31.64</td>
<td>6.29</td>
<td>36.69</td>
<td>4.71</td>
</tr>
<tr>
<td>Self-Control</td>
<td>20.67</td>
<td>7.33</td>
<td>27.43</td>
<td>7.01</td>
</tr>
<tr>
<td>Tolerance</td>
<td>17.24</td>
<td>5.77</td>
<td>21.36</td>
<td>4.90</td>
</tr>
<tr>
<td>Good Impression</td>
<td>11.21</td>
<td>5.28</td>
<td>15.79</td>
<td>5.60</td>
</tr>
<tr>
<td>Communality</td>
<td>24.67</td>
<td>3.61</td>
<td>26.07</td>
<td>1.98</td>
</tr>
<tr>
<td>Achievement via Conformance</td>
<td>23.17</td>
<td>4.18</td>
<td>27.64</td>
<td>4.28</td>
</tr>
<tr>
<td>Achievement via Independence</td>
<td>18.91</td>
<td>4.00</td>
<td>20.31</td>
<td>3.81</td>
</tr>
<tr>
<td>Intellectual Efficiency</td>
<td>32.88</td>
<td>6.43</td>
<td>38.57</td>
<td>5.58</td>
</tr>
<tr>
<td>Psychological Mindedness</td>
<td>9.95</td>
<td>2.98</td>
<td>11.31</td>
<td>2.58</td>
</tr>
<tr>
<td>Flexibility</td>
<td>10.55</td>
<td>3.98</td>
<td>9.48</td>
<td>3.57</td>
</tr>
<tr>
<td>Femininity</td>
<td>23.45</td>
<td>2.52</td>
<td>22.52</td>
<td>4.36</td>
</tr>
</tbody>
</table>
Figure 1. Profile of Standard Scores of the California Psychological Inventory by Group
group being high in the external direction. The hypothesis was therefore accepted.

Hypothesis 2: Women defined as bulimic obtain significantly higher scores on the self-control subscale of the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974) than do nonbulimic women.

The second hypothesis was tested with the t-test on differences between the subscales, Fatalism, Social Systems Control, and Self-Control, of the Reid-Ware Three Factor Internal-External Scale. Results showed a significant difference between groups on the Fatalism subscale with $t = 3.1$ and $p < 0.003$, on the Social Systems Control scale with $t = 3.94$ and $p < 0.0005$ and on the Self-Control Scale with $t = 6.35$ and $p < 0.0005$. Hypothesis two was therefore accepted.

Hypothesis 3: Women defined as bulimic are significantly more sex-role stereotyped in their attitudes as measured on the Bem Sex-Role Inventory (Bem, 1974) when compared to women who are not bulimic.

A significant difference with $t = -3.91$ and $p < 0.0005$ was found on the Masculinity Scale for self-concept between groups, however, no difference was found on the Femininity Scale between groups. This result indicates that the control group identifies more with masculine sex-role stereotypes than does the bulimic group, but both groups identify in a similar way with feminine sex-role stereotypes. When each group was classified using the median split method and females only norms, the control group was classified as Androgynous and the bulimic group was classified as Undifferentiated. Hypothesis three which states that women defined as bulimic are significantly more sex-role stereotyped in their attitudes as
measured on the Bem Sex-Role Inventory than women who are not
bulimic was rejected.

Hypothesis 4: Women defined as bulimic show more
conflict than nonbulimic women between self-concept
and self-ideal personality characteristics as
measured on the Bem Sex-Role Inventory (Bem, 1974).

While both groups showed a significant difference between
self-concept and self-ideal on both the Masculinity Scale and the
Femininity Scale, the difference on the Masculinity Scale between
self-concept and self-ideal was significantly greater between
groups with \( t = 3.10 \) and \( p < 0.003 \). These results indicate that
the bulimic group experienced more of a conflict around identifying
with masculine sex-role stereotypes than did the control group.

Hypothesis 5: Women defined as bulimic exhibit
significant differences among some of the selected
personality variables (Dominance, Capacity for
Status, Sociability, Social Presence, Self-Acceptance, Sense of Well-Being, Responsibility, Socialization, Self-Control, Tolerance, Good Impression, Communality, Achievement Via Conformance, Achievement Via Independence, Intellectual Efficiency, Psychological Mindedness, Flexibility, and Femininity) as measured by the California Psychological Inventory (Gough, 1957) when compared to
women who have no eating disorder.

Six variables were found to discriminate between women defined
as bulimic and women who had no eating disorder. These variables
were Flexibility, Social Presence, Self-Control, Capacity for
Status, Self-Acceptance, and Dominance. Hypothesis five was
therefore accepted.

In summary the results indicated that women who were defined
as bulimic had a more external locus of control than nonbulimic
women, and this externality was not only expressed in a lack of
self-control but was a general feeling of not being able to influence or control environmental events or what happens to the self. In addition women who were defined as bulimic identified with feminine sex-role stereotypes in a similar way that women who were not bulimic did, but bulimic women tended to restrict their behavior and attitudes to these feminine stereotypes while nonbulimic women were more flexible and considered masculine sex-role stereotypes as part of their self-concept also. As a result of the median split method of classification using the females only norms from the normative sample, women defined as bulimic were classified undifferentiated while women who had no eating disorder were classified Androgynous. Women defined as bulimic also experienced more of a conflict around these masculine sex-role stereotypes, demonstrating a greater difference between self-concept and self-ideal than did women who had no eating disorder.

Six personality variables were found to discriminate between women defined as bulimic and women who had no eating disorder. These personality variables were Flexibility, Social Presence, Self-Control, Capacity for Status, Self-Acceptance, and Dominance.

Summary

This chapter contains the results of the statistical analyses completed on the collected data. Chapter V presents a summary of the study, conclusions drawn, and recommendations for future research.
CHAPTER V
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents a summary of the findings of this study. In addition conclusions that can be drawn from the results, and recommendations for future research on bulimia are provided.

Summary

In the last 10 years research on eating disorders has increased substantially. Studies that focus on individuals who are diagnosed with anorexia nervosa and bulimia are now available in the literature. However, many of these studies are conducted with subjects who were hospitalized with anorexia nervosa or bulimia. Hospitalized bulimics are a small portion of the bulimic population. Those that are the most severely afflicted are more apt to be included in these studies. It is important to gather a more representative sample of women defined as bulimic to study this disorder.

Bulimia is often researched as a subtype of anorexia nervosa, studying the behavior instead of a diagnostic group separate from anorexia nervosa. Many studies divide anorexia nervosa subjects into restrictors and binge-purgers and in this way study the behavior of binge-purging within the context of anorexia nervosa. These findings are then generalized to those individuals diagnosed with bulimia. As set forth in DSM III (1980), one of the criteria
used for a diagnosis of bulimia is that the pattern of behavior is not due to anorexia nervosa. Therefore, before research findings can be generalized to individuals who are diagnosed as bulimic according to DSM III (1980), it is very important to determine on what basis subjects were chosen.

Another methodological problem of research in this area is the failure to use normal control groups. Typically researchers compare groups defined as anorexic to binge-purgers or compare women defined as bulimic to another group with another diagnosed psychological disorder. While it is important to know how those with bulimia differ from those who are diagnosed with depression, for example, it is equally important to know how those with bulimia differ from those who have no eating disorder or any other type of psychological disorder.

These methodological problems make future research on bulimia very important if a better understanding of the syndrome is to be achieved. Studies that include subjects who are not hospitalized, that employ specific criteria as set forth in DSM III (1980) to select subjects, and that include normal individuals in control groups are important considerations for future research.

Research on bulimia has included the study of personality variables, demographic information, eating patterns and weight fluctuation, body image perception, and family characteristics. But most of these studies are concerned with subtypes of anorexia nervosa, and again generalization to bulimia as defined in DSM III (1980) is questionable. Because most theories on bulimia utilize
the concept of locus of control and rely heavily on the influence of sex-role identity to explain conflict, these two dimensions are important areas to research. Much of the research on bulimia also relates to the social functioning of women with bulimia and comparisons are made with individuals who are defined as anorexic. It therefore becomes important to compare social and interpersonal functioning of a group of women defined as bulimic to a group of normal controls.

The purpose of this study was to examine selected personality variables contained in the California Psychological Inventory (Gough, 1957) (Dominance, Capacity for Status, Sociability, Social Presence, Self-Acceptance, Sense of Well-Being, Responsibility, Socialization, Self-Control, Tolerance, Good Impression, Communality, Achievement via Conformance, Achievement via Independence, Intellectual Efficiency, Psychological Mindedness, Flexibility, and Femininity) and to determine which of those variables would differentiate a group of women defined as bulimic from a group of normal controls. Further this study was designed to explore the constructs of locus of control and sex-role identity with women who met the criteria for bulimia as set forth in DSM III (1980) and compare this group to a group of women who have no eating disorder.

Subjects for the bulimic group were carefully screened to determine whether they met the criteria for bulimia as set forth in DSM III (1980). Subjects for the control group were also carefully screened to make certain they had no history of any type of eating disorder and were not presently in counseling for any type
of problem or psychological disorder. Each group contained 42 subjects.

All subjects received a questionnaire packet directly from her counselor or by first class mail which contained four questionnaires, two consent forms, a written summary, and a letter explaining the purpose of the research, time involved in participation, and procedures to follow. Questionnaires to be completed included the Binge Eating Questionnaire, Reid-Ware Three Factor Internal-External Scale, Bem Sex-Role Inventory, and the California Psychological Inventory. When the completed questionnaires were returned, subjects were mailed $5.00 for their time and cooperation. All but 13 participating subjects were paid.

Subjects for the study were between the ages of 18 and 39 with a total mean age of 22.95. Information obtained from the Binge Eating Questionnaire revealed that subjects were distributed evenly across groups with regard to age and that the proportion of students and employed subjects in each group was also comparable. The groups tended to be in the same weight range and were therefore assumed to be comparable in this way.

The Binge Eating Questionnaire was selected because it gathered self report information regarding age, occupation, weight, height, perceived weight, and the behavioral criteria for bulimia as outlined in DSM III (1980). This questionnaire acted as a further screening device for both groups and provided information on various methods used to control weight as well as the frequency with which these methods were used by the individual. The question
of perceived weight provided a measure of body image as being underweight, average, or overweight. The discrepancy between actual weight and perceived weight could then be compared between groups.

The Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974) was chosen as a measure of locus of control. It was chosen over other instruments measuring this construct because it yields a multidimensional approach to the measurement of locus of control. It provides a total score for externality—the higher the score, the more external the individual. In addition it contains three subscales—Fatalism, Social Systems Control, and Self-Control. Because the literature has shown that locus of control contains these three dimensions and because the dimension of self-control was of particular interest in the current study, this instrument was chosen.

The Bem Sex-Role Inventory (Bem, 1974) was chosen because it provided a measure of the degree to which the individual identifies with sex-role stereotyped, personality characteristics in this culture. It was also chosen because it is based on the theory of androgyny as being the freedom to move away from sex-typed limitations so that the individual behaves in a less restricted fashion. The instrument provided a means of classifying subjects into one of four groups: Masculine, Feminine, Androgynous, and Undifferentiated. It was administered twice, first as a measure of self-concept and a second time as a measure of self-ideal—the way the individual would like to be. This provided a way to measure conflict experienced within and between groups between self-concept and self-ideal.
The California Psychological Inventory (Gough, 1957) was chosen because it yields a description of personality in everyday social life and interpersonal behavior through the use of selected personality variables. These personality variables are Dominance, Capacity for Status, Sociability, Social Presence, Self-Acceptance, Sense of Well-Being, Responsibility, Socialization, Self-Control, Tolerance, Good Impression, Communality, Achievement via Conformance, Achievement via Independence, Intellectual Efficiency, Psychological Mindedness, Flexibility, and Femininity. Through the use of discriminant analysis, variables were sought that would discriminate between women who were defined as bulimic and women who had no eating disorder.

The first three hypotheses were tested using a t-test to examine significance at the .05 level between groups. The fourth hypothesis was examined by use of a paired t-test within groups and a t-test between groups with significance again predetermined at the .05 level. The fifth hypothesis was tested by using a step-wise discriminant analysis. The results of these analyses are presented below by the five hypotheses.

Hypothesis 1: Women defined as bulimic exhibit a significantly greater external locus of control than nonbulimic women as assessed by the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974).

The result of the t-test indicated that women in the bulimic group were significantly more external than those in the control group. Significance was found with $t = 5.58$ and $p < .0005$. Hypothesis one was therefore accepted.
Hypothesis 2: Women defined as bulimic obtain significantly higher scores on the self-control subscale of the Reid-Ware Three Factor Internal-External Scale (Reid & Ware, 1973, 1974) than do nonbulimic women.

This hypothesis was examined by use of the t-test and was accepted with $t = 6.35$ and $p < .0005$. In addition to the subscale of Self-Control, the other subscales of Fatalism ($p < .003$) and Social Systems Control ($p < .0005$) were also found to be significantly different between groups, with the bulimic group scoring significantly higher (in the external direction) than the control group. The $t$ value for the Fatalism Scale was 3.1 and the $t$ value for the Social Systems Control Scale was 3.94. Hypothesis two was therefore accepted.

Hypothesis 3: Women defined as bulimic are significantly more sex-role stereotyped in their attitudes as measured on the Bem Sex-Role Inventory (Bem, 1974) when compared to women who are not bulimic.

The third hypothesis was also examined using the t-test to compare group differences on the Masculinity and Femininity Scales of the Bem Sex-Role Inventory (Bem, 1974). Significant differences were found between the women who were bulimic and the control group on the Masculinity Scale with $t = -3.91$ ($p < .0005$) and with the control group scoring higher than the bulimic group. No significant difference was found on the Femininity Scale between groups and on the self-ideal measure between groups. Using the mean scores on the Masculinity and Femininity Scales on the self-concept measure, the bulimic and control group
were classified into one of the four groups—Masculine, Feminine, Androgynous, and Undifferentiated—using the normative median split method, females only. As a result the bulimic group was classified Undifferentiated and the control group was classified Androgynous. Thus hypothesis three was rejected.

Hypothesis 4: Women defined as bulimic show more conflict than nonbulimic women between self-concept and self-ideal personality characteristics as measured on the Bem Sex-Role Inventory (Bem, 1974).

Hypothesis four was examined using the paired t-test within groups to test for a significant difference between self-concept and self-ideal on each scale. The results indicated that a significant difference (p < .0005) did exist within each group between self-concept and self-ideal on the Masculinity and Femininity Scale. For the bulimic group a t value of -7.37 was found between Masculine Self-Concept and Masculine Self-Ideal and a t value of -6.50 was found between Feminine Self-Concept and Feminine Self-Ideal. For the control group a t value of -4.84 was found between Masculine Self-Concept and Masculine Self-Ideal and a t value of -7.79 was found between Feminine Self-Concept and Feminine Self-Ideal. Therefore, both groups experienced a conflict between self-concept and self-ideal. To determine if the difference in conflict was significant, a second t-test was run on the difference score between self-concept and self-ideal on each scale and this difference was compared between groups. The results indicated that the bulimic group experienced significantly more conflict between Masculinity self-concept and Masculinity self-ideal than
did the control group with $t = 3.10$ ($p < .003$). There was no significant difference between groups on the amount of conflict between self-concept and self-ideal on the Femininity Scale. Conflict between self-concept and self-ideal in general was illustrated by the fact that 74% of the bulimic group changed classification groups from self-concept to self-ideal reports while 48% of the control group changed classification using the females only norms. Hypothesis four was accepted.

Hypothesis 5: Women defined as bulimic exhibit significant differences among some of the selected personality variables (Dominance, Capacity for Status, Sociability, Social Presence, Self-Acceptance, Sense of Well-Being, Responsibility, Socialization, Self-Control, Tolerance, Good Impression, Communality, Achievement via Conformance, Achievement via Independence, Intellectual Efficiency, Psychological Mindedness, Flexibility, and Femininity) as measured on the California Psychological Inventory (Gough, 1957) when compared to women who have no eating disorder.

This hypothesis was tested by using a stepwise discriminant analysis. The results indicated that six personality variables discriminated between groups. These variables included Capacity for Status, Social Presence, Self-Acceptance, Self-Control, Dominance, and Flexibility. The factor Sense of Well-Being was selected first and found to be the one variable that discriminated the most, but as the stepwise procedure progressed, it was eliminated at step five because combined with the variables already selected to that point, Flexibility, Social Presence, and Self-Control, it no longer provided discriminatory information. It was therefore dropped from the analysis. Factors which did not discriminate
significantly between groups or did not add any additional discriminatory information included Sociability, Responsibility, Socialization, Tolerance, Good Impression, Communality, Achievement via Conformance, Achievement via Independence, Intellectual Efficiency, Psychological Mindedness, and Femininity.

The bulimic group was characterized as being least like the above six discriminating personality variables (Capacity for Status, Social Presence, Self-Acceptance, Self-Control, Dominance, and Flexibility) as they are presented in the discriminant function. Therefore, the bulimic group is characterized as being low on self-control, indicating tendencies to be impulsive, rebellious, excitable, temperamental, arrogant, and uninhibited. They are characterized as being low on social presence indicating a lack of self-confidence in personal and social interaction. They are high in Capacity for status indicating that they are ambitious, feel relatively confident about present and future happenings, and tend to be alert, insightful, and intelligent. They are described as being higher on Flexibility indicating a tendency to be more volatile in temperament and flexible. They are described as lower on Self-Acceptance than the control group. This is a measure of personal worth and characterizes the bulimic group as being more insecure about self. The bulimic group is characterized as less dominant than the control group. Bulimic women are therefore seen as less forceful, less self-confident, and less likely to take the initiative and lead in social situations.
The control group, on the other hand, is characterized as being higher on self-control and may be described as being more calm, more conservative, more patient, and generally more self-controlled. They are seen as higher on Social Presence meaning they experience more poise and self-confidence in personal and social interaction. The control group was found to be lower on Capacity for Status meaning they tend to be more aware of ordinary constraints on behavior, tend to be less ambitious, and are less confident about success presently and in the future. The control group is lower on Flexibility which implies these women tend to be less volatile in temperament and more controlled. The control group tends to be more self-accepting indicating these women feel more secure about themselves in general. The control group tends to be more dominant than the bulimic group meaning that women who are not bulimic tend to be more forceful, self-confident, and capable of influencing others in interpersonal situations.

Conclusions

As mentioned in Chapter I, generalizability of the findings of this research is dependent on the composition of the bulimic group. Since the women in this group were between the ages of 18 and 39 with 90.5% being 28 years of age or younger and since the majority of subjects (76%) were students, these findings are generalizable to this population only. Further research is needed with a different population to determine if these findings are generalizable to a broader range of women.
The following conclusions can be drawn from the findings of this study. First, women who are defined bulimic tend to have an external locus of control. These individuals not only experience a lack of self-control in their lives but also experience most control in their lives as coming from outside themselves. They tend to attribute success to luck or fate and feel a lack of control in their political institutions and immediate environment as well as what happens to them personally. These women are said to be out of touch with their inner promptings, that is, they look to what is external for approval, acceptance, direction, and general self-worth.

On the other hand, women who have no eating disorder have a more internal locus of control. They are more aware of how they influence what happens to them, feel more self-control and control in their lives in general.

The second conclusion that can be drawn from the findings is that women who are bulimic associate themselves more with the feminine sex-role stereotypes of this culture and less with the masculine sex-role stereotypes. While women who do not have an eating disorder also associate themselves with feminine sex-role stereotypes, these women do not limit themselves to these characteristics but also identify with masculine sex-role stereotypes. Women who are not bulimic therefore, tend to be more androgynous while women defined as bulimic tend to limit their attitudes and behavior so as to be classified as Undifferentiated. These masculine personality characteristics tend to be associated with
assertiveness, independence, and an active striving for what is wanted. The feminine personality characteristics are associated with an affective concern for the welfare of others, nurturance, and a love of children.

Bem (1975, pp. 634-635) describes the androgynous individual as "able to remain sensitive to the changing constraints of the situation and engage in whatever behavior seems more effective at the moment." She also feels that the absolute number of responses covaries with the sex role diversity experienced by the individual who then becomes more flexible in engaging in a wider range of behaviors. However, individuals who restrict their self-definitions both with socially desirable masculine and feminine characteristics—the undifferentiated individual—would have few positively valued behavioral options in various situations. This may be the case for women defined as bulimic.

Whether the sexes combined or females only norms are used to classify subjects, the results indicate that women in the bulimic group have fewer positively valued behavioral options to choose from across situations than do women in the control group who were classified as androgynous. Even though women in the bulimic group were not classified as feminine sex role stereotyped using the females only norms, they still identified with female sex role stereotypes in a way that was not significant between groups.

This conclusion tends to support the theory proposed by Boskind-White and White (1983) that women who are defined as bulimic strive to attain the stereotyped feminine identity. It does not support
Orbach's theory (1978a, 1978b, 1982) that these women are rejecting the feminine stereotypes.

These two conclusions taken together, that women defined as bulimic have an external locus of control and tend to identify more with feminine sex role stereotypes, is supported by research done by Minnigerode (1976). He found a correlation between women who were sex-role stereotyped and women who had an external locus of control.

The third conclusion that can be drawn from the results is that bulimic women experience more of a conflict surrounding their identification with masculine sex-role stereotypes than do women who are not bulimic. On comparisons of self-concept and self-ideal measures of sex-role stereotyping, women defined as bulimic experience more conflict between how they see themselves and how they would like to be on masculine sex-role stereotypes than do women who are not bulimic. The difference between groups seems to be in the idealization of assertive, instrumental goals (Masculine Self-Ideal). The need to achieve masculine ideals of independence and active striving coupled with feelings of inadequacy, low self-esteem, and low self-confidence may create considerable stress and conflict for these women. If goals or means to those goals are interpreted as masculine and therefore unfeminine, there is a risk of disapproval from significant others. Yet failure to achieve may lead to more feelings of inadequacy and worthlessness. The stress these conflicts create may be dealt with by binging on food. As earlier research indicates eating allays emotional states for compulsive eaters (Ondercin, 1979).
The fourth conclusion that can be drawn from these findings is that personality variables do exist that discriminate between women who are bulimic and women who are not. These personality variables are Self-Control, Self-Acceptance, Social Presence, Capacity for Status, Flexibility, and Dominance. Women defined as bulimic were less like the characteristics described by the standardized coefficients of the discriminant function, while women who were not bulimic were more like these characteristics.

Generally, it can be stated from the results of this research that bulimic women when compared to those who are not bulimic tend to be:

1) More impulsive
2) More volatile in temperament
3) Less self-accepting and experience less self-worth
4) More excitable and prone to stress
5) Less aware of constraints on present and future happenings
6) More flexible
7) More insecure and lacking in self-confidence in personal and social interaction
8) More anxious and experience more personal distress in social relationships
9) Less forceful in social and interpersonal interaction
10) More ambitious
11) More externally controlled

The fifth conclusion that can be drawn from the results concerns the implications that can be made as a result of the findings. Women defined as bulimic can be described as identifying more with feminine sex-role stereotypes although they are classified as
undifferentiated. Contrary to the theory advocated by Orbach (1978a, 1978b, 1982) that while these women seem to be strongly influenced by social-psychological factors, they do not appear to be rebelling or avoiding the stereotyped female role. Instead their self-ideal responses suggest they appear to be striving toward a more androgynous identity but because they are so dependent on external controls for approval, acceptance, and direction and appear to be out of touch with their own power to determine what they need for themselves, they experience considerable conflict and stress (Boskind-White & White, 1983). This conflict can express itself interpersonally as well as intrapersonally. The lack of confidence and insecure feelings in social relationships could be the result of a need to conform to the expectations of others. However in society today the expectations for female roles is unclear and can vary from setting to setting.

The influence and desire of the family often come into conflict with the expectations of peers and society in general. Expectations for women seem to be somewhere between fulfilling the traditional female role of being attractive, thin, and marrying and raising children and fulfilling a career goal and being independent, self-supporting, assertive, and successful (Cauwels, 1983). Women who are defined bulimic seem to have a great deal of difficulty dealing with this stress and experience a lot of anxiety around these issues (Bruch, 1973).

The sixth conclusion involves the implications of the findings for treatment. The results of this study indicate that the important areas to be addressed in treatment include how women
give up their power and control, how they could be more assertive while maintaining femininity, and how to take responsibility for their own behavior. These issues can be presented in the group setting through role play, role reversal, and projection of the self on others. The goals here would be to decrease the feelings of isolation, increase camaraderie among women, improve communication, address issues of self-worth, and enhance feelings of self-assurance, interpersonal adequacy, and level of responsibility. The group also offers opportunities to explore alternatives to this passive, helpless orientation that bulimic women seem to have in common.

Boskind-White and White (1981) propose an experiential-behavioral approach to treatment. They emphasize the group modality to overcome feelings of isolation and shame and further propose a present-centered, action-oriented thrust emphasizing awareness, responsibility, and contingency contracting.

These conclusions regarding treatment are important. However, it is also recognized that a multifactorial approach that views this disorder as the outcome of a vulnerable premorbid personality, a stressful family situation, life in a society that emphasizes extreme slimness, and a chronic, self-sustaining pattern of binging and purging/dieting is the basis of treatment (Bruch, 1973; Garfinkel & Garner, 1982).

Recommendations

In order to improve research in the area of eating disorders, eight recommendations can be made.
1. The inclusion of normal individuals in control groups seems essential.

2. To gain a better understanding of how bulimia differs from other psychological disorders, the use of other groups such as individuals diagnosed with depression, personality disorders, and substance abusers is recommended. Since bulimia is the abuse of the substance food, comparing groups of women defined as bulimic to groups of other substance abusers would increase our understanding of this syndrome. This type of research has been conducted (Wooley & Wooley, 1981), however additional research is certainly needed along these lines.

Garrow et al. (1975) found that their sample of bulimic anorexics tended to abuse other drugs. Garfinkel et al. (1980) also found that bulimic anorexics tended to use alcohol and drugs more often than restricting anorexics. Russell (1979) found that in his bulimic sample the subjects tended to engage in antisocial behavior and drug abuse. Additional research that examines the commonalities and differences of these groups could shed more light on this syndrome. Longitudinal studies addressing such questions as the likelihood of switching from food to drugs at some point, the duration of bulimia for most women and the effectiveness of treatment are needed.

3. The use of subjects who are not hospitalized can provide a more valid picture of the syndrome. Since bulimia appears to be so widespread and since many women do not seek treatment, it is important to include these individuals in research designs.
4. Clear and consistent criteria for defining bulimia needs to be employed when screening subjects for research. Distinctions between anorexia nervosa and bulimia have not been clearly made in the literature or by professionals in the field. However, as was employed in this study using the criteria set forth in DSM III (1980) subjects can be screened and placed in categories for research purposes, and this careful screening process would increase knowledge of each of these syndromes so that a better understanding of each and the differences between them can be gained.

5. Recommendations in the research of sex-role stereotyping among women defined as bulimic should include replication studies to determine if indeed these women are Feminine sex-role stereotyped or undifferentiated. The results of this study generated the conclusion that women defined as bulimic are classified as undifferentiated when female norms are used. However, previous research in this area with the original form of the Bem Sex-Role Inventory did not yield this result (Dunn & Ondercin, 1981). Dunn and Ondercin (1981) found no significant difference between high compulsive eaters and low compulsive eaters on the self-concept measure on each scale.

In addition the use of the median split method of classification is problematic. Because classification is based on the median of the normative sample, two groups that do not differ significantly in their means on the same scale can be classified differently by either falling below the median cutoff or above it. This was the case in the present study. There was no significant difference in the means on the Femininity Scale between groups; however, this
nonsignificant difference resulted in a classification of undifferentiated for the bulimic group, while a nonsignificant different mean for the control group resulted in an androgynous classification. This median split method does not allow for standard error of measurement nor does it incorporate any tests of significance.

Therefore, the meaning of the median split method of classification remains unclear. Further research here with the issue of sex-role stereotyping and with the Bem Sex-Role Inventory or another instrument is recommended.

6. Further research on the issue of conflict with masculine personality characteristics is recommended. This study found a significant difference between self-concept Masculinity scores and self-ideal Masculinity scores in the direction of higher scores on the self-ideal measure. This result was also found by Dunn and Ondercin (1981). This study seems to indicate that women with an external locus of control, and therefore very sensitive to the approval of significant others and norms of society, feel conflicted between being seen as feminine and feeling pressure to achieve, being independent and being more actively assertive. The push in the last decade of the feminist movement seems to have left many women with an unclear concept of just what society expects of them. Binge eating may be one way of coping with this stress, however additional research is needed to clarify this issue.

7. Research to date seems to indicate that women defined as bulimic have more of a desire than anorexic women to develop social relationships, but in these relationships they experience
difficulties. This study indicated that women defined as bulimic do experience more interpersonal anxiety due to feelings of inadequacy, low self-esteem, lack of assertiveness, more volatility, and a need of approval from others. The California Psychological Inventory (Gough, 1957) was a useful instrument to study the interpersonal relationships of women, however due to its length and therefore time necessary to administer it, other instruments, such as the Eysenck Personality Inventory, which are designed to examine interpersonal as well as intrapersonal relations could be employed. This inventory takes 10 to 15 minutes to administer and yields three scores. The Tennessee Self-Concept Scale has also been given to women in general with results indicating that those who were low in sex-role stereotyping were significantly more assertive than men who were low in sex-role stereotyping (Tolor, Bryan, & Stebbins, 1976). Research utilizing this instrument with women defined as bulimic has potential to add more to the understanding of this syndrome.

8. It is also recommended that further research be conducted in the choice of a coping mechanism to deal with stress. Bulimic women turn to food to deal with stress. However, due to their strong need for approval from others, they cannot permit themselves to gain too much weight and therefore experience rejection. They, therefore, often get into the cycle of binge-purging, a cycle that is extremely difficult to break. Why a normal amount of food does not suffice for these people to alleviate distress is not really known.
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APPENDIX A

INSTRUMENTS USED IN COLLECTING DATA
Belief Survey

This questionnaire is a measure of personal belief: obviously there are no right or wrong answers. Each item consists of a pair of alternatives lettered (A) or (B). Please select the one statement of each pair (and only one) which you more strongly believe as far as you are concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true.

Please answer these items carefully, but do not spend too much time on any one item. Be sure to find an answer for every choice. Circle the letter of the statement (A or B) which you choose.

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

1. (A) Various sports activities in the community help increase solidarity amongst people in the community.
   (B) Various sports activities in the community can lead to rivalry detrimental to the solidarity of the community.

2. (A) War brings out the worst aspects of men.
   (B) Although war is terrible, it can have some value.

3. (A) There will always be wars no matter how hard people try to prevent them.
   (B) One of the major reasons why we have wars is because people do not take enough interest in politics.

4. (A) Even when there was nothing forcing me, I have found that I will sometimes do things I really did not want to do.
   (B) I always feel in control of what I am doing.

5. (A) There are institutions in our society that have considerable control over me.
   (B) Little in this world controls me, I usually can do what I decide to do.

6. (A) I would like to live in a small town or a rural environment.
   (B) I would like to live in a large city.

7. (A) For the average citizen becoming a success is a matter of hard work, luck has little or nothing to do with it.
   (B) For the average person getting a good job depends mainly on being in the right place at the right time.

8. (A) Patriotism demands that the citizens of a nation participate in any war.
   (B) To be a patriot for one's country does not necessarily mean he must go to war for his country.
9. (A) In my case getting what I want has little or nothing to do with luck.
   (B) It is not always wise for me to plan too far ahead because many things turn out
   to be a matter of good or bad fortune anyhow.

10. (A) Sometimes I impulsively do things which at other times I definitely would not let
    myself do.
    (B) I find that I can keep my impulses in control.

11. (A) In many situations what happens to people seems to be determined by fate.
    (B) People do not realize how much they personally determine their own outcomes.

12. (A) College students should be trained in times of peace to assume military duties.
    (B) The ills of war are greater than any possible benefits.

13. (A) Most people do not realize the extent to which their lives are controlled by
    accidental happenings.
    (B) For any person, there is no such thing as luck.

14. (A) If I put my mind to it I could have an important influence on what a politician
    does in office.
    (B) When I look at it carefully I realize it is impossible for me to have any really
    important influence over what politicians do.

15. (A) With fate the way it is, many times I feel that I have little influence over the
    things that happen to me.
    (B) It is impossible for me to believe that chance or luck plays an important role
    in my life.

16. (A) When I put my mind to it I can constrain my emotions.
    (B) There are moments when I cannot subdue my emotions and keep them in check.

17. (A) Every person should give some of his time for the good of his town or country.
    (B) People would be a lot better off if they could live far away from other people
    and never have to do anything for them.

18. (A) As far as the affairs of our country are concerned, most people are the victims
    of forces they do not control and frequently do not even understand.
    (B) By taking part in political and social events the people can directly control
    much of the country's affairs.

19. (A) People cannot always hold back their personal desires; they will behave out of
    impulse.
    (B) If they want to, people can always control their immediate wishes and not let
    these motives determine their total behavior.
20. (A) Many times I feel I might just as well decide what to do by flipping a coin.
(B) In most cases I do not depend on luck when I decide to do something.

21. (A) Our federal government should promote the mass production of low rental apartment buildings to reduce the housing shortage.
(B) The best way for our government to reduce the housing shortage is to make low interest mortgages available and to stimulate the building of low cost houses.

22. (A) I do not know why politicians make the decisions they do.
(B) It is easy for me to understand why politicians do the things they do.

23. (A) Although sometimes it is difficult, I can always willfully restrain my immediate behavior.
(B) Something I cannot do is have complete mastery over all my behavioral tendencies.

24. (A) In the long run people receive the respect and good outcomes they worked for.
(B) Unfortunately, because of misfortune or bad luck, the average person's worth often passes unrecognized no matter how hard he/she tries.

25. (A) With enough effort people can wipe out political corruption.
(B) It is difficult for people to have much control over the things politicians do in office.

26. (A) Letting your friends down is not so bad because you cannot do good all the time for everybody.
(B) I feel very bad when I have failed to finish a job I promised I would do.

27. (A) By active participation in the appropriate political organizations people can do a lot to keep the cost of living from going higher.
(B) There is very little people can do to keep the cost of living from going higher.

28. (A) It is possible for me to behave in a manner very different from the way I would want to behave.
(B) It would be very difficult for me to not have mastery over the way I behave.

29. (A) In this world I am affected by social forces which I neither control nor understand.
(B) It is easy for me to avoid and function independently of any social forces that may attempt to have control over me.

30. (A) It hurts more to lose money than to lose a friend.
(B) The people are the most important thing in this world of ours.

31. (A) What people get out of life is always a function of how much effort they put into it.
(B) Quite often one finds that what happens to people has no relation to what they do, what happens just happens.
32. (A) Generally speaking, my behavior is not governed by others.
   (B) My behavior is frequently determined by other influential people.

33. (A) People can and should do what they want to do both now and in the future.
   (B) There is no point in people planning their lives too far in advance because other groups of people in our society will invariably upset their plans.

34. (A) Happiness is having your own house and car.
   (B) Happiness to most people is having their own close friends.

35. (A) There is no such thing as luck, what happens to me is a result of my own behavior.
   (B) Sometimes I do not understand how I can have such poor luck.

36. (A) More emphasis should be placed on teaching the principles of Christianity in public school.
   (B) Christianity should not be included in a school curriculum; it can be taught in church.

37. (A) Many of the unhappy things in people's lives are at least partly due to bad luck.
   (B) People's misfortunes result from the mistakes they make.

38. (A) Self-regulation of one's behavior is always possible.
   (B) I frequently find that when certain things happen to me I cannot restrain my reaction.

39. (A) The average person can have an influence in government decisions.
   (B) This world is run by a few people in power and there is not much the little person can do about it.

40. (A) When I make up my mind, I can always resist temptation and keep control of my behavior.
   (B) Even if I try not to submit, I often find I cannot control myself from some of the enticements of life such as over-eating or drinking.

41. (A) My getting a good job or promotion in the future will depend a lot on my getting the right turn of fate.
   (B) When I get a good job, it is always a direct result of my own ability and/or motivation.

42. (A) Successful people are mostly honest and good.
   (B) One should not always associate achievement with integrity and honor.

43. (A) Most people do not understand why politicians behave the way they do.
   (B) In the long run people are responsible for bad government on a national as well as on a local level.
44. (A) I often realize that despite my best efforts some outcomes seem to happen as if fate planned it that way.

(B) The misfortunes and successes I have had were the direct result of my own behavior.

45. (A) Most people are kind and good.

(B) People will not help others unless circumstances force them to.
Binge Eating Questionnaire

1. Occupation ______________________________________
   If Student: Year _______ Major: _______
2. Sex: Male _______ Female _______
3. Date of Birth _______/_____/_____
4. Present age _________________________
5. Present weight ________________________lbs.
6. Height ________ ft. ________ in.
7. What is the lowest you've weighed since reaching your present height? ________ lbs.
8. What is the most you've weighed since reaching your present height? ________ lbs.
9. In your opinion, you are now very underweight _______(check one)
   underweight ______
   average _______
   overweight ______
   very overweight _______
10. What was the most you have weighed in the last year? ________ lbs.
11. What was the least you have weighed in the last year? ________ lbs.
12. Do you get uncontrollable urges to eat and eat until you feel physically ill? Yes______ No_____
13. Are there times when you are afraid that you cannot voluntarily stop eating? Yes______ No_____
14. Do you make yourself vomit after eating too much? Yes______ No_____
15. Do you feel miserable and annoyed with yourself after an eating binge? Yes______ No_____
16. Have you ever had an episode of eating an enormous amount of food in a short space of time (an eating binge)?
   Yes______ No_______
17. Do you consider yourself a binge eater?  
   Yes________  No________

18. In order to control your weight, do you use
   Diet pills?  
      ______ never
      ______ less than once every four weeks
      ______ 1 to 3 times every four weeks
      ______ once every week
      ______ 2 to 6 times every week
      ______ once every day
      ______ more than once a day
   Laxatives?  
      ______ never
      ______ less than once every four weeks
      ______ 1 to 3 times every four weeks
      ______ once every week
      ______ 2 to 6 times every week
      ______ once every day
      ______ more than once a day
   Diuretics or water pills?  
      ______ never
      ______ less than once every four weeks
      ______ 1 to 3 times every four weeks
      ______ once every week
      ______ 2 to 6 times every week
      ______ once every day
      ______ more than once a day

19. What is the average number of days between your episodes of binge eating?  
   (If never, leave blank) ________ days.

20. Have you ever vomited after eating?  Yes_______  No_______

21. How frequently do you vomit after eating?  

22. Do you have any other type of eating problem?  Yes_______  No_______
   (If yes, describe nature of the problem on the back.)

23. Are you currently receiving counseling for any problem or psychological disorder?  Yes_______  No_______
Sample Questions from the
California Psychological Inventory

1. I enjoy social gatherings just to be with people.
2. I get very nervous if I think that someone is watching me.
3. I get excited very easily.
4. I usually feel nervous and ill at ease at a formal dance or party.
5. I like to be the center of attention.
APPENDIX B

FORMS USED IN THE STUDY
THE OHIO STATE UNIVERSITY

CONSENT FOR PARTICIPATION IN
SOCIAL AND BEHAVIORAL RESEARCH

I consent to participating in research on the personality variables involved in the eating disorder known as bulimia. Patricia Child, student investigator, has explained the purpose of the study, the procedures to be followed, and the expected duration of my participation. Possible benefits of the study have been described.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Further, I understand that I am free to withdraw consent at any time and to discontinue participation in the study without prejudice to me. The information obtained from me will remain confidential unless I specifically agree otherwise by placing my initials here.

Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: __________________________ Signed: (Participant)

Signed: __________________________
(Principal Investigator) (Student Investigator)

Witness: __________________________
The purpose of this research project is to gain information about eating disorders, specifically bulimia. You will be asked to complete a personality questionnaire that will take approximately 1.5 hours. The privacy of all participants will be maintained and protected throughout the study. Both participation and collected data will be completely confidential. Questionnaires will be coded so that the identity of the participant remains anonymous. Participation is completely voluntary and you are free to withdraw at any time.

Written Summary

Date: ___________________________ Signed: ___________________________

Signed: ___________________________

(Witness)
In recent years there has been an increasing interest in understanding the eating disorders known as anorexia nervosa and bulimia. Ms. Child has designed a doctoral dissertation under the supervision of Dr. Wigtil in which a group of bulimic women between the ages of 18 and 45 will be studied to determine if they hold any personality variables in common that might distinguish them from women who do not have an eating disorder. It is hoped that through this research, we can gain a better understanding of those women who engage in this behavior.

We would like you to volunteer to be a participant in this study. Participation involves completing a series of four personality questionnaires which will take a total time of approximately 1½ hours to complete. The questionnaires can be taken home and completed there. You may then either mail them back to us or return them to the person you received them from.

Your participation and all information obtained in this study will be kept confidential. Questionnaires are coded so that responses are anonymous. You will not be identified in any data summaries or reports of the research. You are entirely free to withdraw participation at any time.

We hope that you will be interested in participating. If so, you will be given the questionnaire packet to take home and complete. Please sign the consent form enclosed in the packet and keep the participant copy for your records. On return of the completed questionnaire packet, you will be given the sum of $5.00 for your time and cooperation. This sum will be mailed to you.

We hope that you will choose to participate in this study. With your cooperation we are hopeful that we can gain a better understanding of bulimia and what part personality variables have in this eating disorder.

Sincerely,

James V. Wigtil
Professor

Patricia Child, M.A.
Graduate Student
In recent years there has been an increasing interest in understanding the eating disorders known as anorexia nervosa and bulimia. Dr. Child has designed a doctoral dissertation under the supervision of Dr. Wigtill in which a group of bulimic women between the ages of 10 and 45 will be studied to determine if they hold any personality variables in common that might distinguish them from women who do not have an eating disorder. It is hoped that through this research, we can gain a better understanding of those women who engage in this behavior.

We would like you to volunteer to be a participant in this study. Participation involves completing a series of four personality questionnaires which will take a total time of approximately 11/2 hours to complete. The questionnaires can be taken home and completed there. You may then either mail them back to us or return them to the person you received them from. Upon completion of the questionnaire, you will be mailed $5.00 for your time and cooperation.

Your participation and all information obtained in this study will be kept confidential. Questionnaires are coded so that responses are anonymous. You will not be identified in any data summaries or reports of the research. You are entirely free to withdraw participation at any time.

We hope that you will be interested in participating. If so, please contact Patricia Child at 451-4249 or 294-6337. Arrangements will then be made for you to receive the questionnaire packet. Any further questions you may have will also be answered at this time.

We hope that you will choose to participate in this study. With your cooperation we are hopeful that we can gain a better understanding of bulimia and what part personality variables have in this eating disorder.

Sincerely,

James V. Wigtill
Professor

Patricia Child, M.A.
Graduate Student

College of Education
In recent years there has been an increasing interest in understanding the eating disorders known as anorexia nervosa and bulimia. With the cooperation of the Eating Disorders Program at Upham Hall, Ms. Child has designed a doctoral dissertation under the supervision of Dr. Wiqtil in which a group of bulimic women between the ages of 18 and 45 will be studied to determine if they hold any personality variables in common that might distinguish them from women who do not have an eating disorder. It is hoped that through this research, we can gain a better understanding of those women who engage in this behavior.

We would like you to volunteer to be a participant in this study. Whether you decide to participate or not, your treatment in the Eating Disorders Program will not be affected in any way. Participation involves completing a series of four personality questionnaires which will take a total time of approximately 1.5 hours to complete. The questionnaires can be taken home and completed there. You may then either mail them back to us or bring them into the clinic on your next visit. Upon completion of the questionnaire, you will be mailed $5.00 for your time and cooperation.

Your participation and all information obtained in this study will be kept confidential. You will not be identified in any data summaries or reports of the research. You are entirely free to withdraw participation at any time.

We hope that you will be interested in participating. If so, read the attached consent form and, if you wish to participate, sign it. We will assume that your consent authorizes the staff at the Eating Disorders Program to give you the questionnaire packet. Please return the consent form in the enclosed stamped, self-addressed envelope or bring it in on your next visit to the clinic.

We hope that you will choose to participate in this study. With your cooperation we are hopeful that we can gain a better understanding of bulimia and what part personality variables have in this eating disorder.

Sincerely,

James V. Wiqtil
Professor

Patricia Child, M.A.
Graduate Student
With regard to the employment of human subjects in the proposed research entitled:

PERSONALITY VARIABLES, LOCUS OF CONTROL AND SEX-ROLE STEREOTYPING FOUND IN BULIMIC WOMEN

James V. Wigtil, Patricia A. Child is listed as the principal investigator.

SPECIAL SERVICES

THE SOCIAL AND BEHAVIORAL SCIENCES REVIEW COMMITTEE HAS TAKEN THE FOLLOWING ACTION:

- Approved
- Disapproved
- Approved with conditions *
- Waiver of Written Consent Granted

* Conditions stated by the Committee have been met by the investigator and, therefore the protocol is approved.

It is the responsibility of the principal investigator to retain a copy of each signed consent form for at least four (4) years beyond the termination of the subject's participation in the proposed activity. Should the principal investigator leave the University, signed consent forms are to be transferred to the Human Subject Review Committee for the required retention period.

This application has been approved for the period of one year. You are reminded that you must promptly report any problems to the Review Committee, and that no procedural changes may be made without prior review and approval. You are also reminded that the identity of the research participants must be kept confidential.

Date: AUG 12 1983
Signed: [Signature]
(Chairperson)

cc: Original - Investigator
File

HS-0258 (Rev. 5/81)
APPENDIX D

1983 METROPOLITAN LIFE INSURANCE COMPANY

WEIGHT TABLES BY HEIGHT
1983 METROPOLITAN LIFE INSURANCE COMPANY

WEIGHT TABLES BY HEIGHT

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