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PREVALENCE OF BULIMIA WITHIN A UNIVERSITY FEMALE STUDENT POPULATION

A THESIS

Presented to

The Graduate Faculty

University of Wisconsin-La Crosse

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science in Education

College Student Personnel

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by

Janis L. Peterson

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This paper is dedicated to my parents, Pete and Squeak, for their unending love and support, for steering me straight when I needed it, and for teaching me to believe in myself.

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ABSTRACT

Peterson, Janis L. Prevalence of Bulimia Within a University Female Student Population. M.S.Ed. in College Student Personnel, 1984, P. 152. (Dr. Tom L. Hood)

The purpose of this study was to determine the prevalence of bulimia within a specific university population; and, to identify the presence of existing relationships among varying degrees of bulimic behavior and selected demographic factors. A 36-item questionnaire, based upon diagnostic criteria as outlined in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III), was administered to a random sample of 407 University of Wisconsin-La Crosse female students (ten percent from each of the four class levels) possessing fulltime status. Demographic factors, and eating behaviors and attitudes were identified and analyzed using nonparametric methods of chi-square analysis, Kruskal-Wallis One-way Analysis of Variance, and the Mann-Whitney U Test, ($p \leq .05$).

Results identified 17.2% of the respondents as bulimic, 17.6% as possibly bulimic, and 65.2% as not bulimic. Analysis produced no significant difference of bulimia prevalence between the sub-groups of the freshman, sophomore, junior, and senior academic levels. Analyses of demographic data produced no statistically significant relationship of bulimia prevalence with age, living accommodations, meal accommodations, grade point average, family income, and number of sisters. A relationship of bulimia prevalence with the number of brothers was identified.

This research has indicated a substantial prevalence of bulimia within the female student population at the University of Wisconsin-La Crosse. The findings are supportive of results of other studies previously conducted. In light of the potentially devastating physical and psychological effects of bulimia on an individual, this research identifies a problem which must be regarded as serious.

CHAPTER I

INTRODUCTION

STATEMENT OF THE PROBLEM

The purpose of this study is to determine the prevalence of bulimia within a specific university population; and, to identify the presence of existing relationships among prevalence categories and selected demographic factors. Through extensive examination of related research, and data gathered through use of a survey administered to a randomly selected representative group of female university students, this study addressed the question:

> "What is the prevalence of bulimia within a female student population at a state university?"

IMPORTANCE OF THE STUDY

Based upon three findings which were distilled from extensive review of current research, the importance of this study is projected:

1. The prevalence of bulimia within our society is increasing;

2. There is a lack of documented research which comprehensively surveys the prevalence of bulimia within a

university student population; and

3. Research previously conducted indicates potentially serious implications/effects of bulimia on an individual's personal well-being, and social and academic success.

Bulimia, an out-of-control cycle of binge-eating and purging, has rapidly become widespread. The extent of the problem is unknown, yet Brody (1983) estimates that 15% to 30% of young women occasionally binge and purge, while 1% to 4% do it all the time. Other studies, including those led by Hawkins and Clement (1980), Richard Pyle (1981), and Katherine Halmi (1981) support these findings.

Research results further indicate potentially serious implications regarding the effects bulimia may have on an individual's personal well-being. In the college setting, the negative impact of these implications upon the individual's social and academic success are recognized. When the educational development and personal satisfaction of a student is disrupted via such implications, it then becomes a concern not only for the individual, but for the institution as well.

In light of these indications, the need for well-documented research investigating the prevalence* and effects of bulimia in a university's student population is a necessary step in defining and addressing the problem. Though studies have been conducted in an effort to determine the prevalence and effects of bulimia, most research has been

*In current literature, the terms "incidence" and "prevalence" are found to be synonomous. Though this study will use the term "prevalence", "incidence" will appear throughout the document when citing specific research in which the term was used.

limited in scope to either very broad or very narrow and select populations. Emphasis of this study was directed toward recognition of a growing need for more comprehensive research of bulimia within the university setting; research which would provide a more complete picture of the development and implications of the disorder within the four-year college experience.

The prevalence of bulimia within a state university female student population as established by the results of this study may imply a distinctive need for universities to provide counseling services designed specifically to identify, educate, and support those individuals suffering from bulimia. Further responsibility may lie in the education of faculty, staff, administration and the broad university community in the enhancement of awareness, understanding, and sensitivity to the disorder.

RELATED LITERATURE

INTRODUCTION

Our society is being challenged by a new cultural obsession: the never-ending pursuit of thinness. It is an age of preoccupation with food and body. In 1978, a Nielson survey revealed that 45% of all United States households included someone who was on a diet during the course of the year. In separate research, it was determined that 56% of

all women between the ages of 24 years and 54 years diet, and of these women, 76% do so for cosmetic rather than health reasons (Schwartz, Donald M., Thompson, Michael G., Johnson, Craig L., 1981). It is little wonder that the 1980s have seen an alarming increase in women suffering from eating disorders.

Stunkard (1959) first recognized a specific eating disorder which was characterized by the ingestion of large amounts of food followed by severe discomfort and self-condemnation (Matter, Darryl E., Matter, Roxana M., 1980). Bulimia, which means "insatiable appetite", is a term given this syndrome by the American Psychiatric Association (APA). According to the APA's definition, bulimia refers to a "relatively unknown eating disorder that primarily affects young women, and that is characterized by compulsive eating and habitual vomiting" (Banaszynski, Jacqui, 1981). Officially recognized by the APA only since 1980 (Mitchell, James E., Pyle, Richard L., 1982; Squire, Susan, 1981) bulimia, which is Greek for "ox hunger" (Banaszynski, 1981) currently has many synonyms, including compulsive or binge-eating, bulimia nervosa, the gorge-purge or binge-purge syndrome, bulimarexia, and the dietary chaos syndrome (Johnson, Ramona E., Sinnott, Susan K., 1981). Although these terms refer to the same gorge-purge behavior, caution is recommended in using them interchangeably. Marlene Boskind-White and her husband William C. White, Jr., originators of the term "bulimarexia", see binge-vomiting as

"a habit that can be broken through a few days' intensive therapy." Other therapists, however, see the pattern as a psychiatric disorder which requires long-term therapy (Cauwels, Janice M., 1983). This study bases its findings on criteria which views the disorder as falling into the second category; hence, the phenomenon will herein be referred to as bulimia. Recognition of the habitual or addictive nature of the disorder is noted, however.

BULIMIA, AN EATING DISORDER

The following paragraphs will serve two major functions: 1) To describe bulimia and provide a basis for an understanding of the eating disorder. Aspects to be discussed include: (a) Definition, (b) Characteristics and traits common to bulimic individuals, (c) Relationship to anorexia nervosa, (d) The binge-purge cycle, and (e) Physical and psychological consequences. 2) To address the theme of prevalence, which is central to the mission of this study.

Definition

Bulimia was once described by Jane E. Brody as a binge-purge phenomenon lying between the literal translation of the term (insatiable appetite) and the anorectic's abnormal rejection of food (Brody, 1983). It is a syndrome characterized by a pattern of episodic binge-eating (Mitchell et al, 1982) which is exhibited by women who alternately

binge (on food) and then purge themselves. The distinguishing feature of bulimia is the regular binge-eating, followed by guilt and a compulsion to rid oneself of the ingested food. This deviant behavior thereby becomes a continued routine of gorging and purging (Boskind-Lodahl, Marlene; White, William, 1978).

The disorder rarely begins as a full-blown cycle. In fact, most bulimics go through a phase where only occasionally are they dieting and perhaps purging through self-induced vomiting. Yet, they are still in control. This period is short-lived, however, as the individuals come to believe they have discovered the miracle of weight control through purging (Boskind-White, Marlene; White, William C., 1983).

Diagnostic criteria for bulimia is outlined in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) (American Psychiatric Association, 1980). Though criticized as being perhaps too broad (Pyle, Richard L., Mitchell, James E., Eckert, Eike D., Halvorson, Patricia A., Neuman, Patricia A., Goff, Gretchen M., 1982), it remains the most widely accepted definition of bulimia and provides a much needed reference point:

A. Recurrent episodes of binge-eating (rapid consumption of a large amount of food in a discreet period of time, usually less than two hours);

B. 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 such eating episodes by abdominal pain, sleep, social interruption,

or self-induced vomiting
4. Repeated attempts to lose weight by severely restrictive diets, self-induced vomiting or use of diurectics
5. Frequent weight fluctuations greater than 10 pounds due to alternating binges and fasts;

C. Awareness that the eating pattern is abnormal and fear of not being able to stop eating voluntarily;

D. Depressed mood and self-deprecating thoughts following eating binges;

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

Kathryn Lance (1981) expanded on the DSM-III criteria by including symptoms indicative of individuals prone to bulimia. Though a person may not exhibit overt bulimic behavior, s/he may still be suspect should the following symptoms be exhibited: 1) Excessive concern about weight; 2) Use of self-induced vomiting, laxatives, or diuretics to lose weight; 3) Frequently overeats when depressed, lonely, or anxious; 4) Binges alone; 5) Alternates between binging and fasting; 6) Frequently plans binges; 7) Eats high caloric foods during a binge; and 8) Feels guilty or secretive about the binge (Goli, Margaret H., 1983). Cauwels (1983) adds to this a need to recognize behavior such as vomiting up every few mouthfuls, chewing food and spitting it out, fasting, abusing amphetamines or exercising obsessively.

Bulimia is an eating disorder. It has also been labeled an appetite disorder. The debate over how bulimia should be characterized and defined remains. Whether it be habit or learned behavior, an addiction, a compulsion or other form of

substance abuse, an emotional disorder, or an illness (Brody, 1983), the term has also been used to describe both a symptom (the binge) and a syndrome (Mitchell, et al, 1982). Clearly much confusion remains concerning this newly recognized disorder.

Characteristics and Traits Common to Bulimic Individuals

In defining a profile common to individuals suffering from bulimia, a word of caution is offered. Though there is an unquestionable trend of traits and characteristics that typically tend to emerge among bulimics, investigators are finding that bulimic victims "represent a cross section of American womanhood" (Cauwels, 1983). In a view shared by Michael Stober of the Neuropsychiatric Institute at UCLA, the notion of bulimics as typically being oriented toward social recognition, academic achievement and appearance represents a stereotype which refers to a segment of the bulimic population, and a description which many bulimics do not fit. In a series of consultations with two hundred eating disorders patients, Strober found "a very broad spectrum of personality types and socioeconomic and occupational backgrounds". Other therapists agree as their findings reveal a wide range of intelligence, wealth, attractiveness, and ability to function well in life (Cauwels, 1983).

Bearing this in mind, there are several characteristics which many bulimics tend to share. Predictably, and most basically, there exists an obsession with food and body size.

Unlike the emaciated anorectic, a bulimic's weight may fall well within normal weight ranges, with marked fluctuations in weight due to frequent binges alternating with periods of purging or self-imposed starvation (Boskind-White & White, 1983; Cauwels, 1983; Langway, et al, 1981; Mitchell, et al, 1981; Pyle, et al, 1981; Pyle, et al, 1982). The disorder is most common among women; a very small percentage of identified bulimics are men (Chapin, Joanna, 1964). Researchers estimate that two to five percent of the total male population are bulimic (Brody, 1980; Chapin, 1964; Squire, Susan, 1981). Typically, bulimic women are well-educated, successful achievers, and come from a suburban middle-class family (Banaszynski, 1981; Boskind-Lodahl & Sirlin, 1977; Boskind-White & White, 1983; Brenner, Marie, 1980). Many possess a desire for perfection and set for themselves high expectations which tend to be rigid and unrelenting (Banaszynski, 1981; Boskind-White & White, 1983; Brenner, 1980; Kubistant, Tom, 1982; Langway et al, 1981).

These expectations may be focused on a wide variety of aspects within the person's life. The preoccupation with weight and body size inevitably can lead to feelings of failure where being thin is never thin enough and body proportions are never right. Many lack a clear "sense of self" and possess a low level of self-esteem, typically relying on others for the establishment of self-worth, and punishing themselves when they do not measure up to the unrealistic standards they have set (Banaszynski, 1981;

Cauwels, 1983; Kubistant, 1982).

Family Relationships

There is much speculation concerning the origin of the bulimic's overwhelming need to achieve and unrealistic desire for perfection. One factor which research appears to identify is that of family upbringing and the relationship of the individual to her* parents and siblings. Boskind-Lodahl and Sirlin (1977) describe the typical bulimic as the daughter of parents who are very conscious of beauty and success. The research of Cauwels supports this: "The perfectionistic bulimic usually comes from a family that emphasized the importance of looks and achievement" (Cauwels, 1983). Not surprisingly, much of the individual's motivation for achievement orientation is rooted in a need to be accepted and loved by the parents, especially the father (Brenner, 1980; Kubistant, 1982).

The father-daughter relationship of a bulimic is one receiving much attention by researchers. A bulimic typically sees her father as powerful and somewhat distant, both physically (i.e., preoccupied with work outside the home) and emotionally (Boskind-White & White, 1983; Kubistant, 1982). In attempting to have her love and acceptance needs met, she wants to please him, to "be a good girl" (Brenner, 1980). Hence, the need for achievement and perfection is established and continually reinforced.

*Because bulimia is considered to be largely a disorder of women, bulimics will herein be collectively referred to in a female context.

The mother-daughter relationship can be equally detrimental. Mothers of bulimics are characteristically overinvolved in their daughter's lives, yet even as this involvement is resented, the individual craves the attention and support. This approach-avoidance conflict was examined in a study conducted at Cornell University in which, of the first 120 Cornell bulimic coeds polled, 40% claimed ambivalence; they both loved and hated their mothers. The students respected their mothers for their ability to juggle multiple roles, and admired the physical beauty or social competence so often found to be present, yet mothers were scorned for human weaknesses, feelings of anger, and/or breakdown. Significantly, and not surprisingly, some then felt guilty for having these feelings toward their mothers (Boskind-White & White, 1983).

Parental and child roles in these families typically lack clarity and autonomy. Family competition may be fierce and sibling rivalry is not uncommon (Boskind-White & White, 1983). Members of the family are oftentimes extremely involved and dependent on one another (Ceasar, Martin, 1982). This emotional tie may contribute to a feeling of fear as a bulimic sees her withdrawal from the family network as a threat to its stability. Thus, she attempts to assume the responsibility of a keystone figure in her family (Goli, 1983).

The college years

In light of the preceding paragraphs, it is not surprising that the break from high school to the college experience is often one of conflict and emotional upheaval. Wanting to live up to a well-established set of expectations for achievement and success as dictated by the parents, the bulimic individual is caught between a fear of separation and a fear of failure. The individual, perhaps on her own for the first time, is faced with her "big chance" to prove herself in grades, achievement, social adjustments and relationships. Boskind-White and White note that there is often an increased push toward academic success to compensate for feelings of social inadequacy and self-doubt. Expectations reach an unrealistic level and thus, the individual sets herself up for failure, the very thing she is working so diligently to avoid (Boskind-White & White, 1983).

Societal Influence

Parental preoccupation with appearance and social attractiveness is reinforced by similar societal messages. Until recently, it was thought that a woman could be fulfilled only as wife and mother. Susie Orbach (1979) once stated "To get a man, a woman has to learn to regard herself as an item, a commodity, a sex object. Much of her experience and identity depends on how she and others see her." She attempts to conform to what "others will find

pleasing and attractive" and also to what she perceives them to consider pleasing and attractive. The ideal woman, as presented in newspaper advertisements, in magazines, and on television, becomes the ideal to which she ascribes (Boskind-White & White, 1983).

Though the feminine ideal itself has not remained constant throughout the ages, in recent times, the exhortation has been for women to be thin. It is not difficult to find evidence which supports a view shared by Kubistant (1982):

> "Modern society has been nearly schizophrenic in its values of attractiveness and eating. Our society has valued and emulated such slender female role models as the flappers of the roaring twenties, Audrey Hepburn in the 50's, Twiggy in the 60's, Cher in the 70's and ballet dancers and marathon runners in the 80's."

A careful examination of the fashions, advertisements, and top models over the years will show an ideal that has become more and more emaciated, and has reached a level approaching anorexia (Boskind-White & White, 1983).

Yet, conflicting with these common and powerful messages that emphasize a slender figure, Banaszynski (1981) noted that we are also a food-oriented society. For individuals who have been raised with a message of "clean your plate, there are starving people in China", the difficulty experienced in combining the two views is understandable (Kubistant, 1982).

Heterosexual relationships

As the bulimic is confronted with conflicting pressures to adjust socially and fit the mold dictated by family and society, she may also be faced with another pressure. Kubistant (1982) noted that heterosexual relationships are often exaggerated and idealized by bulimics, creating stress in their lives due to the high degree of importance placed on the relationship. Boskind-Lodahl and Sirlin (1977) describe this heightened importance as stemming from the lack of love and acceptance needs being met by the family. The characteristic lack of intimacy between daughter and parents, especially with the father figure, may be carried into the heterosexual relationships of a bulimic individual. Cauwel's research (1983) revealed few bulimics as having healthy heterosexual relationships. Bulimic individuals were described as tending to be irresponsible, afraid of commitments, alienated and isolated, and avoiding of people and emotional intimacy. Contempt, anger, fear and longing were all a part of the bulimic's attitude toward men (Cauwels, 1983). Findings of Boskind-Lodahl and Sirlin, (1977) were similar and indicated many bulimics as never having had a loving or lasting relationship.

The research of Boskind-Lodahl and Sirlin (1977) further found a prevalent fear, not only of emotional intimacy, but also of sexual contact; not because of possible pregnancy, but because of possible rejection. It was discovered that nearly every woman treated for bulimia indicated a rejection,

either real or imagined, as the event which triggered her first diet and subsequent binge. Lodahl-White and Sirlin purported that bulimics perceive a thin body as the key to physical attractiveness, which would result in the male acceptance they seek.

Summary

Recognizing the potential dangers in labeling, categorizing and defining, a profile of the "typical" bulimic nonetheless emerges. The identified characteristics and traits commonly shared by bulimic individuals (relating to self-concept, family relationships, the college experience, societal influence, and heterosexual relationships) indicate the impact of external forces as they operate on an individual engaging in bulimic behaviors.

Relationship to Anorexia Nervosa

Much disagreement remains as to the relationship of bulimia to anorexia nervosa. Levenkron (1982) identified three eating disorders:

1. Intake limiting - 300-600 calories consumed per day, low liquid intake and an unrealistic fear of overeating.

2. Anorexia/bulimia - alternating bouts of starving and overeating, varying cycle lengths and a preference for foods high in sugar and carbohydrates.

3. Bulimarexia - consumption of up to 15,000 calories per day with vomiting of nearly all to avoid weight gain, and attachment or addiction to vomiting behavior (Goli, 1983).

Most researchers agree that bulimia is characterized by binge-eating, while anorexia nervosa is identified by self-induced starvation (Boskind-Lodahl & Sirlin, 1977; Chapin, 1981; Young, 1979). New terms of "bulimarexia" and "bulimia nervosa" have been introduced and refer to a synthesis of the two extremes of bulimia and anorexia nervosa (Boskind-Lodahl & White, 1978; Mitchell, et al, 1981).

One conceptualization of the relationships of anorexia nervosa, bulimarexia and bulimia may be seen as a continuum (Table 1), where anorexia nervosa and bulimia occupy the extremes, and bulimarexia falls between the two. Characteristics of each disorder are identified, with fasting or vomiting tendencies distinguishing bulimarexia from anorexia nervosa and bulimia (Goli, 1983).

Though useful as a visual basis of understanding, the continuum offers little attention to the question of habit versus psychiatric disorder. Although general agreement exists as to the psychiatric nature of anorexia nervosa, bulimia and bulimarexia are not so easily defined. In 1980, the American Psychiatric Association redefined bulimia according to newer findings and established the DSM-III as "criteria by which a psychiatrist or psychologist could diagnose the syndrome as a bona fide psychiatric illness" (Cauwels, 1983). Marlene Boskind-White does not see bulimarexia as an illness, but rather a habit stating that "it may be a very serious habit, but still it's a habit." The apparent confusion stems from the perplexing

Table 1
Characteristics of Anorexia, Bulimarexia, and Bulimia

ANOREXIA	BULIMAREXIA		BULIMIA
	Fasting Tendencies	Vomiting Tendencies	
- Reject feminine role (8)	- Better able to deny or ignore hunger pains (2)*	- Impulsive behavior more prevalent (alcohol, drugs, kleptomania, suicide) (5)+	- Tries hard to fulfill feminine role, be "ideal female" (8)
- Obsession with starvation and thinness (3) (6)	- Being able to do so gives sense of mastery (2)	- High frequency of obesity in mothers	- Obsession with binge-ing (1)
- View turning away from food as solution to problems (8) (9)		- Function within confines of daily life (5)+	- View turning to food as solution to problems (8) (9)
- Rebellious nature (8)			- Conforming nature, extroverted (2) (8)
- Usually not involved with a man (8)			- Usually involved with a man or want to be (8)
- Don't recognize existence of disorder (4)			- Regular binges (2)
- Extremely underweight (2)			- More chemical, alcohol abuse, lessened impulse control (2) (5)
- Loss of at least 25% of body fat (10)			- Longer duration of illness (2)
- Don't mind cooking (2)			- Repeated hospitalization (2)
- Display little psychic distress (2)			- Not hospitalized as often (1)
			- In favor of hospitalization (2)
			- Stronger appetite (2)
			- More somatic complaints (2)
			- Don't like to cook (2)
			- Usually older (7)
			- Near normal weight (7)
			- Realize they are ill (7)
			- Distressed by recognition of illness (4)
			- Fear of fat (6)

KEY TO REFERENCES

(1) Boskind-Lodahl & Sirlin, 1977
(2) Casper, Eckert, Halmi, Goldberg & Davis, 1980
(3) Chaplin, 1981
(4) Fairburn & Cooper, 1982
(5) Garfinkel, Moldofsky & Garner, 1980
(6) Lance, 1981
(7) Langway, Maier & Prout, 1981
(8) Young, 1979
(9) Brenner, 1980
(10) Squire, 1981

* indicates characteristic is similar to anorexia
\+ indicates characteristic is similar to bulimia

nature of the disorder, the lack of "cut and dry" boundaries and definitions, and a game of semantics (Cauwels, 1983).

It is recognized that bulimics turn toward food for a variety of reasons while the anorectic individual turns away. Despite this obvious and basic difference, Cauwels (1983) noted many similarities in attitudes and various personality traits between anorectic and bulimic individuals. Most obvious is a preoccupation with food, weight, and body image. Both exhibit abnormal eating patterns, are fearful and anxious about losing control over eating and thereby becoming fat, and hold distorted body images which obviously differ in degree. Medically speaking, neither recognize the dangerous consequences which can possibly result from their behaviors.

Cauwels (1983) additionally described a low sense of self-esteem, feelings of ineffectiveness, a lack of inner control or direction in life, and poor assertion skills in both the anorectic and bulimic individual. Also prevalent was the belief of having to live up to high expectations, a need to achieve, and confusion over emotions and identities.

A number of authors have noticed a presence of bulimic behavior in individuals suffering from anorexia nervosa. Casper, et al (1980) found bulimic behaviors present in 47% of a series of 105 (Casper, Regina C., Eckert, Elke D., Halmi, Katherine A., Golberg, Soloman C., and Davis, John M., 1980). Hsu, Crisp and Harding (1979) cited a report conducted by Russell in which 24 of the 30 patients in his series suffered from anorexia nervosa in addition to bulimia. This

shift in perspective was carried further in 1982 by Fairburn and Cooper. Their study stated that, out of 620 women who admitted to self-induced vomiting, only 19 could be diagnosed as anorectic while 499 were identified as bulimic. However, the questionable reliability of self-reporting methodology was also recognized (Fairburn, Christopher G., and Cooper, Peter J., 1982).

Cauwels (1983) stated that approximately one-half of anorectic individuals will move toward bulimic behavior: "Anorectics can become bulimic, and bulimics can become anorectic." Kubistant (1982) agreed to a point, suggesting that relatively few bulimics regress into anorectic behavior, with evidence suggesting the opposite trend to be a more common occurrence.

In summary, similarities in attitudes toward food and in various personality traits of bulimics and anorectics have been proposed. Cauwels (1983) labeled the two disorders "sister ailments". It is not known to what extent bulimia and anorexia nervosa are related. However, psychiatrists and psychologists known for their research on anorexia recognize that the relationship does exist and may be very powerful (Cauwels, 1983).

The Binge/purge Cycle

As stated earlier, bulimia rarely begins as a full-blown disorder. The bulimic behavior pattern has two distinct components: the initial binging phase, followed by purging

behavior. Thus, it has been referred to as the binge/purge cycle (Boskind-Lodahl & Sirlin, 1977; Langway, et al, 1981)

Researchers describe the binging phase as a period of uncontrolled ingestion of large amounts of food (Pyle, et al, 1981). Caloric intake may range from 1,200 to 11,500, with one study reporting a consumption of as many as 50,000 calories in a single day (Mitchell, et al, 1981). In the studies of Dr. James E. Mitchell and his associates, the duration of the average binge was found to be approximately one hour, but may reach as long as eight consecutive hours. Most bulimic individuals included in Mitchell's studies binged at least several times a week. Within a range of one to 46 episodes per week, the mean reported frequency in one series was 11.7 episodes (Pyle, et al, 1981). Wermuth, Davis, and Hollister (1977) estimated the number to be three to four episodes per week. Chapin (1964) supported this, but added that in extreme cases, binges may occur as often as 20 times a day. To be sure, the work of many authors revealed frequencies whereby binges occurred on a daily basis (Fairburn and Cooper, 1982; Langway, et al, 1981; Pyle, et al, 1981).

According to the research of Mitchell, et al (1981) and Pyle, et al (1981), the most common binging pattern involved a binge taking place in the evening or late afternoon when returning from work or school. Often, a trip to the bakery or a stop at the supermarket would be incorporated into the binge. In some cases, bulimics have reported getting up

during the night to binge eat. One explanation as to the time of day may stem from the secretive nature of the disorder and the enormous fear of discovery shared by the bulimic individual. The majority of bulimics prefer to binge alone (Pyle, et al, 1981), and often, late afternoon and evening hours provide the only opportunity where roommates, family members, spouses or friends are not present.

The type of foods consumed during a binge episode are those typically high in calories and easily ingested (Mitchell, et al, 1981; Pyle, et al, 1981). These foods tend to be rich in carbohydrates, fats, and simple sugars (Brody, 1983; Mitchell, et al, 1981; Pyle, et al, 1981; Squire, 1981). Marlene Boskind-White notes that flavor and taste may not be of importance and as time goes by, the bulimic becomes less discriminant. In the words of one bulimic, "Imagine putting whipped cream on dog food when that is all that is around" (Bissonette, Pete, 1983). Brody (1983) described a typical binge as consuming two packages of cookies, a loaf of bread, a gallon of milk and half a gallon of ice cream, followed by a basket of fried chicken and fistfuls of candy and pastries". She finds a prevalent emphasis on the "forbidden foods". Pyle (1981), in a study of 40 bulimic individuals, revealed a similar preference, with ice cream, bread and toast, candy, doughnuts, soft drinks, salads or sandwiches, and cookies, popcorn, milk, cheese, or cereal as being those foods most preferred.

There is much speculation as to what causes an

individual to binge. Brenner (1980) stated that binges may result from feelings of boredom, fatigue, anger, loneliness, even being happy. She noted that initially, the binge may be a source of pleasure or comfort. Some bulimics describe it as "a marvelous, albeit transient, release -- a frenzied high leading to a relaxed state". To the bulimic, there appears a certain level of ecstacy involved in relinquishing control and surrendering to food (Brenner, 1980).

Brenner (1980) provided further explanation in identifying four main reasons which may lead to a binge episode. According to Brenner, an individual may binge:

1. As a way of avoiding failure (i.e., "I failed because I binged last night, not because I didn't study")
2. As a method of handling stress involved in new activities, especially social encounters
3. As a way to postpone sexual relations (i.e. "I'm too stuffed to want sex" or "No one would want me, I'm too fat")
4. As a means of eliciting attention and revenge (i.e., "You made me binge", thus avoiding responsibility for behavior).

Rejection, confrontation, disappointment, anxiety, insecurity, inability to assert oneself in a direct way -- all have been found to be possible reasons associated with a binging behavior.

Casper, et al (1980) observed that a bulimic will typically continue to binge until her stomach is hard, she experiences abdominal pain, falls asleep, or is interrupted. Mitchell, et al (1981) added that the binge may also be terminated by self-induced vomiting. Hence, the binging

behavior is joined by the second component of the bulimic cycle -- the purge.

The most frequently used method of purging is by self-induced vomiting (Cauwels, 1983; Pyle, et al, 1981). Cauwels (1983) estimated that approximately 90% of bulimics that purge do so by vomiting, though many of these use more than one method. In addition to being the most common, Brenner (1980) stated that forced vomiting is the most dramatic, the most immediate. The issue of immediacy is a key element; an individual is able to get rid of the consumed calories before they have had a chance to take effect. Furthermore, vomiting provides instant relief for painfully overstuffed stomachs (Brenner, 1980).

Other methods of purging include the use/abuse of laxatives, diuretics, enemas, excessive exercise, and fasting (Boskind-White & White, 1983). In a study of 85 bulimics, Mitchell, et al (1981) found 41.2% used laxatives, 15% used diuretics and 7.1% used enemas. Another study of 499 bulimics revealed a frequency of 61.3% using exercise and 18.8% abusing laxatives or diuretics (Fairburn & Cooper, 1982).

The primary reason for the purge may stem from a desire to be thin and to control one's weight. The binge/purge cycle seemingly offers the ideal solution to a dieter's dilemma of a love of food and a desire to be thin. The purge enables an individual to "have her cake and eat it too", to satisfy her desires and maintain a normal weight (Brenner,

1980). Ironically, this "foolproof" method of weight control may backfire. As Kubistant (1982) explained, when food is ingested, digestion begins. Suddenly the food is vomited. When the body does finally have a chance to digest food, it usually places a great proportion of the nutrients into long-term storage (i.e., fat). This is nature's built-in system of protection against famine. Hence, instead of combating and decreasing body fat, a bulimic is unwittingly contributing to the maintenance of, and even increasing, the fat content of the body.

Though the cycle may start as a diet, the weight issue eventually becomes secondary to the power of the binge/purge cycle. Some psychoanalysts see these cycles as symbolic of psychic imbalances. For example, the binge may be seen as a symbolic impregnation, that is, a substutite gratification for the needs not met in a relationship. The purge may represent a symbolic purification of self-hate, insecurity, inferiority, anger or frustration (Johnson & Sinnott, 1981). Dr. Craig Johnson agreed, noting that during a binge, there is a feeling of lost control, anger, inadequacy, and guilt. The purge serves to re-establish the sense of control and adequacy, dissipate the anger, and enhance alertness (Brody, 1983).

Though some researchers attach unconscious symbolic significance to the binging behavior, recent studies are beginning to recognize the purge as the motivation for the binge. Cauwels (1983) quoted Dr. Craig Johnson:

> "For a long time we formulated that these women vomit in order to binge, but our research shows a whole group of women who binge so they can vomit. Through some transformation, the binge becomes only a means to the purge, which is more important to them."

Cauwels (1983) agreed, citing many women who claim that they actually enjoy the vomiting.

The power of the physical and emotional rewards should not be underestimated. The behavior of a bulimic has been compared to the compulsive behaviors of the alcoholic and the drug abuser. Cauwels (1983) found that recovered alcoholics and drug abusers unanomously claim that it was far more difficult for them to overcome their simultaneous addiction to binging and vomiting. Unlike alcohol or drugs, the bulimic cannot abstain or escape from food, it being necessary for human survival. In addition, the social pressures emphasizing thinness are often perceived as being greater than those advocating the use of drugs or alcohol: "the enjoyment of both food and slimness creates a more powerful psychological and physiological cycle than other addictions" (Cauwels, 1983).

A final point of discussion concerns itself with the possibility of bulimia occurring as a result of an individual's natural response to biochemical reactions to specific foods. For example, Judith J. Wurtman and her colleagues speculated that the ingestion of carbohydrates accelerates the synthesis of brain serotin, a neurotransmitter. The carbohydrate craving may reflect a body's need to produce more serotin (Cauwels, 1983). Along

similar lines, another theory proposes that eating disorders serve as methods of self-medication against depression, anxiety, and other similar distressors. According to the Endorphin Theory, self-imposed starvation triggers the release of endorphins, a group of hormones that act as the body's natural painkillers and are part of its system for coping with physical and psychological stress (a coping effect similar to that produced by drugs or exercise, both recognized as triggers of endorphins) (Cauwels, 1983).

Effects of Bulimia

The consequences of the binge-purging behavior depend on the eating patterns, the amount and type of food retained, the frequency of the binges and purges, and the activity and constitution of the individual. Although not all bulimics become ill, the possible effects of bulimic behavior can be devastating, and it is not known whether the body can restore itself to normal once the bulimic overcomes her problem (Cauwels, 1983).

Physical complications

A variety of short-term and long-term physical effects have been noted. Dr. L.M. Vincent (1979) reported that vomiting may lead to dehydration, and body mineral and pH disturbances from loss of acid and stomach secretions. The bulimic may develop a raspy or gravel-type voice, a sore throat, blisters on the roof of the mouth, and difficulty in

swallowing (Boskind-Lodahl & Sirlin, 1977; Brenner, 1980; Kubistant, 1979; Mitchell, et al, 1981). Cauwels (1983) added to this list stomach cramps, ulcers, digestive problems, dizziness, weakness and tremors. Skin may appear grayish and blotchy, the face may become bloated, and broken blood vessels may appear under the eyes and in the neck. Many suffer from headaches (Brenner, 1980; Cauwels, 1983).

Also noted is the enlargement and infection of the parotid glands (Levine, et al, 1980; Mitchell, et al, 1982; Pyle, et el, 1981) as well as the erosion of dental enamel resulting in cavities; gum disease and tooth loss (Boskind-White & White, 1983; Cauwels, 1983; Kubistant, 1982; Langway, et al, 1981; Levin, et al, 1980; Pyle, et al, 1981). Not surprisingly, these conditions are most prevalent in cases where self-induced vomiting is the employed purging method. Severe tearing and bleeding in and around the esophagus, hiatal hernias (where the stomach pushes through the diaphragm creating a sensation of choking), and inflammation of the stomach lining (peritonitis) are other consequences widely seen (Brenner, 1980; Cauwels, 1983; Vincent, 1979).

The use/abuse of laxatives and diuretics compounds the dangers, contributing to the increased possibility of kidney damage, dependency resulting in water retention once the diuretic use is stopped, chemical upsets with accompanying pain, urinary tract infections, and bowel disorders and tumors (Cauwels, 1983; Russell, 1979). Prolonged laxative

use may also enhance the loss of potassium through the gastrointestinal tract which can result in increased dehydration, chemical disturbances, and electrolyte imbalances (Boskind-White & White, 1983).

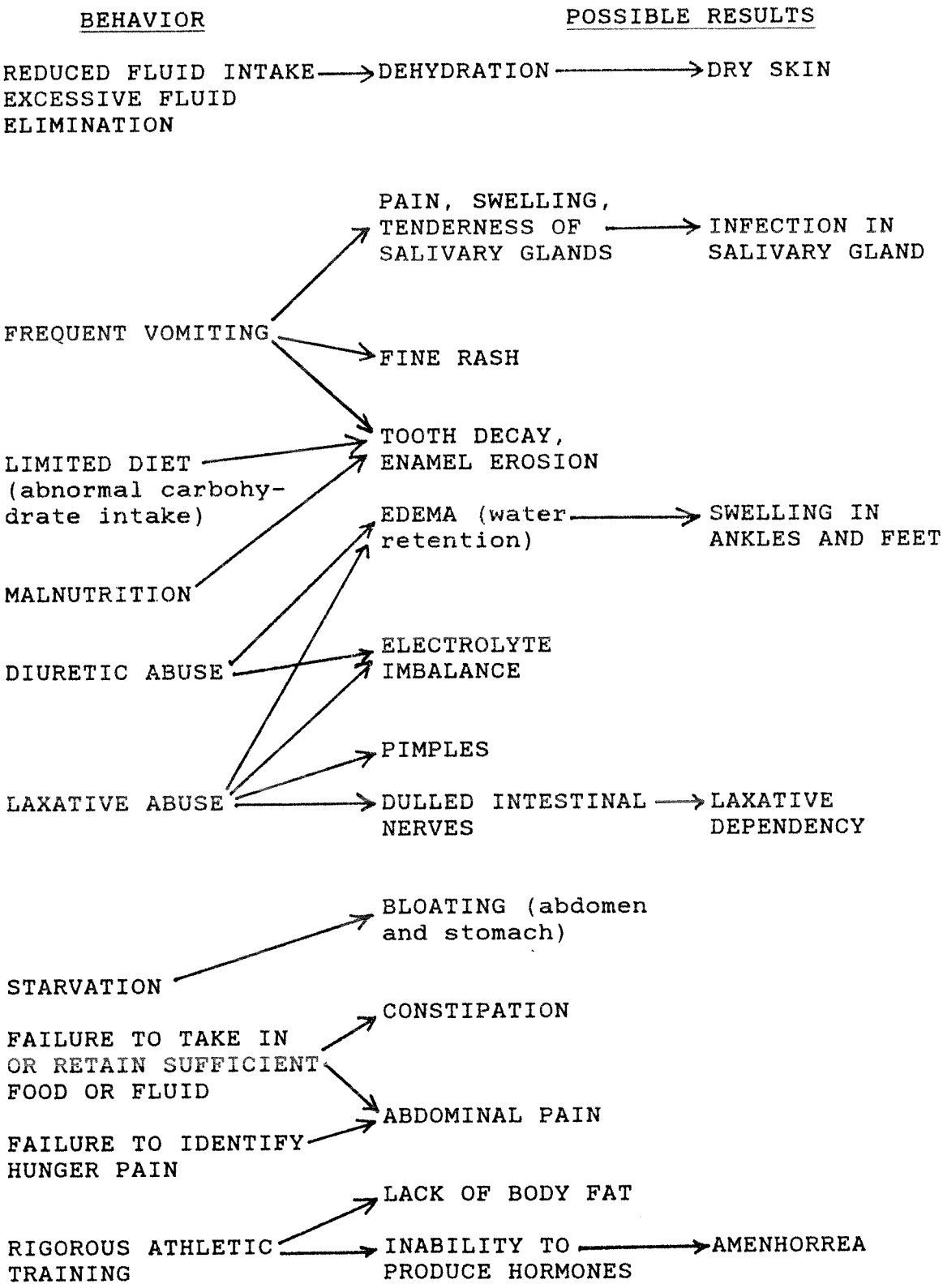
Abnormal electrolytes as well as an unusually low level of potassium concentration in the blood (hypokalemia) is widespread among bulimics (Cauwels, 1983; Mitchell, et al, 1981; Pyle, et al, 1981; Strangler, R.S., & Printz, A.M., 1980; Stunkdard, 1959). When present in this combination, the bulimic may face a variety of neuromuscular problems ranging from weakness to paralysis, irregular heart rhythms, gastrointestinal disorders, and kidney disease (Boskind-White & White, 1983; Cauwels, 1983). In severe cases, the results may prove fatal (Boskind-White & White, 1983; Brody, 1983; Langway, et al, 1981).

Table 2, derived from a publication distributed by the Association of Anorexia Nervosa and Associated Disorders, a volunteer organization, provides an overview of various physical complications which may occur as a result of bulimic behavior. In the left-hand column are those specific behaviors commonly associated with bulimia; on the right are the resulting complications. Note that the table is considered to be presented in a progressive fashion (Goli, 1983).

Psychological complications

Marlene Boskind-White observed that anxiety and depression are common among bulimic individuals. One

TABLE 2
Possible Physical Complications



explanation points to a depletion of protein and water caused by fasting and starvation through purging behavior. As a result of this depletion, the metabolic rate slows, resulting in weakness and lethargy. Boskind-White noted that such a state of mind will in time foster pessimism and inactivity -- "common precursors to depression" (Boskind-White & White, 1983). Research conducted by Dr. Craig Johnson found the presence of more "down" moods (i.e. irritability, sadness, and loneliness, especially the last two) (Squire, 1981). Cauwel's studies revealed similar findings of confusion, paranoia, hallucinations, mood swings, depression and alterations in personality as being present (Cauwels, 1983). The physical stresses on the body, the physical and psychological pressures of "addiction" to the cycle, and anxieties created by astronomical food bills, lying, stealing, and hiding were recognized as contributing to the depression (Boskind-White & White, 1983; Cauwels, 1983).

Prevalence

There remains widespread speculation as to the prevalence of bulimia. Though not a new practice, the incidence* seems to be increasing. Cauwels (1983) suggested this may in part be a result of recent recognition and publicity given to the disorder by psychiatrists, psychologists, magazine editors, and talk show hosts. Whatever the reason, other reseachers possess similar views.

*See page 2 footnote

Dr. Craig Johnson stated that "a lot more women have bulimia than we think" and adds "not a lot more than we know, a lot more than we think." Dr. Katz agreed: "I'm not sure about the general population, but I think there's no doubt that among college-age women the incidence of bulimia is quite substantial" (Cauwels, 1983).

Though studies have been conducted in an effort to determine the prevalence of bulimia, the secretive nature of the disorder and the guilt surrounding the binge-eating behavior have made this difficult (Boskind-White & White, 1983; Cauwels, 1983; Halmi, Katherine A., Falk, James R., Schwartz, Estelle, 1981). Experts are often forced to rely on instincts and rumors, which are often more impressive than study results. To illustrate: the Association of Anorexia Nervosa and Associated Disorders in Illinois reported receiving about five hundred letters a week, most of which were from bulimics; in Minneapolis, Minnesota, a news program about bulimia resulted in two thousand calls within two days; over a period of eighteen months, the American Anorexia Nervosa Association in New Jersey received contact from five to seven thousand women (Cauwels, 1983).

Despite the problems encountered as a result of the secretive nature of the disorder, several studies have been conducted which serve to lay the groundwork in identifying a level of incidence. Halmi, et al (1981) reported the responses of 355 summer school students to a questionnaire designed to study eating behaviors. The results of this

study indicated that 13% of those responding (19% of the females and 5% of the males) reported having experienced all major symptoms as outlined in DSM-III. Purging through vomiting or laxative abuse occurred in 10% of the respondents. Of the bulimics identified through the survey, 87% were women and 13% were men. Although the incidence for men appears high in relation to other findings, 13% is close to that determined in a study conducted by Dr. Ronnie S. Stangler and Adolph M. Printz (1980). These researchers reported that 3.8% of 500 consecutive students seen for emotional problems at the University of Washington Health Service met the DSM-III criteria for bulimia. Eighty-nine percent of these individuals were women and 10.5% were men (Cauwels, 1983). Furthermore, of the non-bulimic students in Halmi's study, 41% of the males and 57.4% of the females admitted to binge-eating episodes and 34.6% including 47% of the women, admitted to having attempted specific weight control methods (Halmi, et al, 1981).

In other research, Hawkins and Clements (1980) administered a questionnaire to a sample of 247 psychology students. Their findings revealed that, of those having responded, 79% of the females and 49% of the males admitted to having had binge-eating episodes (Hawkins, Raymond C., II, and Clement, Pamela F., 1980). Research conducted by psychiatrists at the University of Minnesota yielded somewhat similar results. Their surveys of college campuses indicated that 50% of college students occasionally binge-eat, of

whom 6% have tried vomiting, and 8% who have used laxatives at least once. Singling out the female college population, the percentages were slightly higher; 60% go on occasional binge-eating episodes, 7% have vomited, and 10% have taken laxatives. The research also revealed 1.2% of the surveyed college freshmen had both the characteristics of bulimia and a history of binging and purging at least weekly. Eight percent of these women (4% of all the students) responded in a manner similar to a bulimic and could possess tendencies toward or symptoms of the disorder (Banasynski, 1981; Cauwels, 1983).

Pyle, et al (1982) conducted a study of incidence of bulimia in freshman college students attending a midwestern university. Of the 1355 students receiving the survey, 98.3% responded. A group of 37 bulimic out-patients were also administered the survey and the responses were compared. Based on DSM-III criteria, 4.1% (7.8% of females and 1.4% of males) met inclusion criteria for bulimia. In addition, of the non-bulimic students, 41% of the males and 57.4% of the females admitted to binge-eating episodes and over one-third (34.6%), including nearly one-half of the women (47%), claimed to have attempted specific methods of weight control. Of the total student population, 2.1% (4.5% females and 0.4% males) met DSM-III criteria and the additional criteria of weekly binges (Pyle, et al, 1982).

According to Wermuth, (1977), the most common estimates indicate anywhere from 5% to 25% of all young women (18-35

years) engage in some consistent form of binge-eating and purging behavior. Brody (1983) reported estimates of 15% to 30% of young women occasionally binge and purge while 1% to 4% do it all the time. In the words of Marlene Boskind-White, there are "tens of thousands of women in all strata of contemporary society who routinely suffer from bulimia" (Brenner, 1980). Clearly, research suggests a high prevalence of this problem in young women.

ASSUMPTIONS

Based upon review of the related literature, four assumptions were delineated which provided direction for this research. The assumptions are:

1. Bulimia is a potentially harmful and destructive behavior, affecting an individual's feelings of well-being.

2. Feelings of well-being have impact upon an individual's ability to perform at a level equal to his/her social and academic potential.

3. Bulimic women are typically well-educated, success-oriented achievers.

4. Diagnostic criteria for bulimia as outlined in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III)(American Psychiatric Association, 1980) provides a sound basis on which to identify the presence of abnormal eating behavior within an individual. Modification of the DSM-III criteria to include quantitative

parameters were made based upon recommendations specified in the incidence study of bulimia in freshman college students (Pyle, et al, 1982):

> "The results of this study indicate that DSM-III criteria as we have translated them, are not effective criteria for identifying a group of people who closely resemble the patients we have evaluated and diagnosed as bulimic. The use of more stringent criteria such as a history of binge-eating and self-induced vomiting and/or laxative use on at least a weekly basis identified by the DSM-III-based inclusion criteria used in this study, suggesting that the DSM-III criteria are perhaps too broad. The essential criteria describe the behaviors which are quite common in young women.
>
> Modification of the criteria by the addition of quantitative parameters may improve their usefulness."

HYPOTHESES

In order to define the limits of this research, three hypotheses were formulated based on review of literature. The hypotheses are:

1. The prevalence of bulimia within a specific state university student population will not exceed 15%.

2. There will be no significant difference of bulimia prevalence in between-group analyses of the freshman, sophomore, junior, and senior academic levels.

3. There will be no statistically significant relationship between bulimia prevalence and the demographic factors of (1) Age, (2) Living accommodations, (3) Meal accommodations, (4) Grade point average, (5) Family income, (6) Number of brothers, or (7) Number of sisters.

DEFINITION OF TERMS

Bulimia: an eating disorder characterized by a pattern of episodic binge-eating followed by a compulsion to rid oneself of the ingested food through forced vomiting, laxative or diuretic use/abuse, or severe fasting.

Eating disorder: psychological disturbance recognized by obsessive/compulsive eating behavior

Full-time academic status: enrollment in 12 or more credit hours of academic coursework

Academic levels:

1. Freshmen: accumulation of less than 30 credit hours of academic coursework
2. Sophomore: accumulation of 30 to 59 credit hours of academic coursework
3. Junior: accumulation of 60 to 89 credit hours of acaedemic coursework
4. Senior: accumulation of 90 or more credit hours of academic coursework.

CHAPTER II

METHOD

INTRODUCTION

The following paragraphs provide a comprehensive overview of the methodology employed in conducting this study. Included are the following subdivisions: 1) Setting, 2) Research Design, 3) Sample, 4) Instrumentation, 5) Procedure, 6) Data Analyses, and 7) Delimitations.

SETTING

This study was conducted at the University of Wisconsin-La Crosse during the fall semester of 1983. UW-La Crosse is located in a residential section of La Crosse, Wisconsin, a community with a population of approximately 80,000 people in the metropolitan area. The city is located on the east bank of the Mississippi River in Southwestern Wisconsin, approximately 20 miles north of the Wisconsin/Iowa border. Prominent industries include those in the fields of medicine, transportation, milling, brewing, power generation, food marketing, air conditioning and

refrigeration. In addition to the university, two other institutions of higher education are located in the community: 1) Western Wisconsin Technical Institute, a technical school with an enrollment of 4,500, and 2) Viterbo College, a private Catholic liberal arts college with an enrollment of 1,113.*

The University of Wisconsin-La Crosse is one of 26 institutions in the Wisconsin State University System. Founded in 1909, the University is an institution for liberal arts, health, teacher education, business administration, and graduate school. Approximately 50 undergraduate majors, as well as master's degrees in 17 disciplines are offered. The campus encompasses a 67-acre area, with 27 major buildings including 11 residence halls, ten of which are co-educational. The student population represents 29 foreign countries, 30 states, and all Wisconsin counties, but one. Family backgrounds are primarily of Scandinavian or German descent, and socially and economically fall within the middle to upper class range. The mean grade point average for male and female students combined is 2.72 and has remained steady for five years. The mean grade point average of the female student population is slightly higher, at 2.83.

Enrollment at the time of this research was 8,585 students (8,084 undergraduate students and 501 graduate students). The male/female enrollment was 3,861 men and 4,724 women. The breakdown of these figures by academic

*All figures presented in Chapter II are current as of September, 1983

class is seen in Table 3.

Of the 8,585 students enrolled at UW-La Crosse, 2,818 students (1,126 men and 1,692 women) resided in the residence halls on campus. Table 4 illustrates residence hall figures according to gender and academic class.

Residence halls vary in size from 200 students to 370 students, with two individuals per room. Each on-campus resident is required to participate in one of two university meal plans: A) 19 meals per week (three meals Monday through Friday and two meals on Saturday and Sunday), or B) 14 meals per week (two meals per day, seven days per week). Meals are served in a building separate from the residence halls. However, kitchen facilities are located in all halls and every room is equipped with a small refrigerator. Thus, students are able to prepare meals and snacks in addition to their university-provided meals.

RESEARCH DESIGN

The design of this study provided for both descriptive analysis (including cross-tabulations), and analyses of statistical significance. Primary analysis of data gathered through use of a survey resulted in the determination of a prevalence level of bulimia among female students at UW-La Crosse. This data was examined, both on an overall perspective, and according to the subgroups of class level. All differences between the classes were

TABLE 3

UW-L Student Enrollment - Fall, 1983

Class Level	Gender		Total
	Male	Female	
Freshman	1,285	1,568	2,853
Sophomore	787	946	1,733
Junior	704	855	1,559
Senior	871	1,048	1,919
Graduate	241	287	501
TOTAL	3,861	4,724	3,585

TABLE 4

UW-L Students Living on Campus - Fall, 1983

Class Level	Gender		Total
	Male	Female	
Freshman	641	950	1,591
Sophomore	322	488	810
Junior	99	157	256
Senior	58	93	151
Graduate	6	4	10
TOTAL	1,126	1,692	2,818

tested for significance.

The results of the primary analysis were then compared using a cross-tabulation method to determine the existence of relationships among the demographic variables of age, living accommodations, meal accommodations, grade point average, family income, number of brothers, and number of sisters. Statistical significance of these relationships was determined, results of secondary analysis were summarized, and conclusions were drawn.

SAMPLE

This study was delimited to female University of Wisconsin-La Crosse students who satisfied the requirements of 1) full-time academic status, and 2) completed credit accummulation which placed them at the freshman, sophomore, junior, or senior class level. Of the total enrollment, 4,070 students met the inclusion criteria. From this target population, a representative random sample of 407 students (ten percent of each of the four class levels) was drawn: 151 freshman, 87 sophomore, 79 junior, and 90 senior students. Results of this study are based upon information provided by this sample group.

INSTRUMENTATION

A 36-item survey was constructed with the intent of gathering information which would reveal demographic characteristics and eating patterns of the target population. The content of the instrument was based upon review of current research and literature, as well as on existing questionnaires and surveys used in the studies of Goli (1983), Julie Gross (1983), Hawkins and Clement (1980), and Dr. Gloria Leon (1979) (See Appendix A).

Because this study was directed not only at determining the prevalence of bulimia, but also at identifying existing relationships between prevalence and selected demographic factors, the survey was theoretically divided into two parts: 1) Demographic information (survey items 1-12), and 2) Behaviors and attitudes regarding eating and food (survey items 13 - 26) (See Appendix B). Demographic factors to be studied were chosen based upon characteristics and traits common to bulimic individuals as discussed in Chapter I. These included: 1) Age, 2) Living accommodations, 3) Meal accommodations, 4) Grade point average, 5) Family income, 6) Number of brothers, and 7) Number of sisters.

The DSM-III (Table 5) provided the primary basis for the inclusion of those questions identifying eating behavior and attitudes. Table 6 illustrates the direct relationship of these questions to their corresponding DSM-III criteria.

TABLE 5
Diagnostic Criteria for Bulimia (DSM-III)

A. Recurrent episodes of binge-eating (rapid consumption of a large amount of food in a discrete period of time, usually less than 2 hours)

B. At least 3 of the following:

(1) consumption of high caloric, easily ingested food during a binge
(2) inconspicuous eating during a binge
(3) termination of such eating episodes by abdominal pain, sleep, social interruption, or self-induced vomiting
(4) repeated attempts to lose weight by severely restrictive diets, self-induced vomiting, or use of cathartics and/or duiretics
(5) frequent weight fluctuations greater than 10 pounds due to alternating binges and fasts

C. Awareness that the eating pattern is abnormal and fear of not being able to stop eating voluntarily

D. Depressed mood and self-deprecating thoughts following eating binges

E. Bulimic episodes are not due to anorexia nervosa or any known physical disorder

TABLE 6
Relationship of Survey to DSM - III

DSM-III A: Recurrent episodes of binge-eating (rapid consumption of a large amount of food in a discrete period of time, usually less than 2 hours)

SURVEY: (Survey items reflecting DSM-III criteria):
Items: 18 - 21

DSM-III B: At least 3 of the following five:

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

SURVEY: Item 23

2) Inconspicuous eating during a binge

SURVEY: Item 17, Item 18

3) Termination of such eating episodes by abdominal pain, sleep, social interruption, or self-induced vomiting

SURVEY: Item 22

4) Repeated attempts to lose weight by severely restrictive diets*, self-induced vomiting, or use of cathartics and/or duiretics*

SURVEY: Item 13, Item 14, Item 16, Items 24-27, Items 28-31

5) Frequent weight fluctuations greater than 10 pounds due to alternating binges and fasts

SURVEY: Item 15

DSM-III C: Awareness that the eating pattern is abnormal and fear of not being able to stop eating voluntarily

SURVEY: Item 32, Item 35

DSM-III D: Depressed mood and self-deprecating thoughts following eating binges

SURVEY: Item 33, Item 34

DSM-III E: Bulimic episodes are not due to anorexia nervosa or any known physical disorder

SURVEY: Item 36*

*Severely restrictive diets, duiretic use/abuse, and anorexia nervosa and other physical disorders were not considered in the final analysis.

The survey did not deal with the use/abuse of diuretics, (as identified in DSM-III, item B.4), since research indicates that, of the purging methods mentioned, diuretic use is the least common. Consideration of this, and concern over possible effects of excess survey length on the return rate, led to the elimination of an item addressing diuretic use. Similarly, factor E of the DSM-III was not addressed.

In consideration of the delicate and secretive nature of bulimia, great care was given to the wording of questions, the choices of responses provided, the order in which items appeared on the survey, and to what extent each DSM-III criteria was addressed. The survey was purposely designed to begin with demographic factors which were predicted by the researcher to be relatively less threatening. Due to the turmoil often experienced by individuals suffering from bulimia, the intent was to ease the respondent gradually toward more sensitive subject matter and thus, encourage the respondent to complete the survey. Directions were written as clearly and concisely as possible, and the majority of questions provided response options, thus minimizing the danger of ambiguity and misinterpretation. Questions addressing attitudes and feelings were constructed using a Likert scale in a forced-choice structure, eliminating lengthy descriptions and implied meanings as applied by the researcher interpreting the responses. Questions allowing for personal comment and additional description were restricted to easily defined subject matter (i.e., "what

methods of weight control...?", "what reasons make you stop eating...?", "if more than two years, how long...?") and were not used in direct response to the three research hypotheses.

Scoring of the returned surveys was aided by computer tabulation. Each response included in the survey was assigned a number, with the exception of responses to questions allowing for personal comment and additional description. This information was collated and analyzed by computer. Personal comments and additional descriptions were collated manually.

The reliability and validity of the DSM-III is not known. The reliability and validity studies which have been conducted have not examined the DSM-III in the realm of eating disorders, but rather have dealt with differential diagnosis of schizophrenia and other psychotic disorders, children's categories, and response to treatment and prognosis (Rosenzweig, Mark R., Porter, Lyman W., 1983). Because bulimia is such a recently recognized phenomenon (1980), reliable and valid measures regarding its diagnosis are still in their infancy. At this time, the DSM-III for bulimia remains the most widely accepted tool psychologists and psychiatristshave in identifying the disorder (Cauwels, 1983).

Limitations in using the mail questionnaire method of gathering data are well-known. Return rates are generally low, with returns of less than 40 or 50 percent being quite common (Kerlinger, Fred M., 1964). To enhance the rate of

return in this study, the length of the survey and time required in responding were kept to a minimum, and a postage prepaid return envelope was provided. A carefully constructed cover letter (Appendix B) accompanied each survey which emphasized the vital role which the survey played in the study. Each respondent was offered a summary of the research results upon completion of the project. Confidentiality of each respondent was ensured through use of a coding system, and the eventual destruction of the survey. Because each individual was made aware of these measures, they were encouraged to be as careful and honest in their responses as possible. Finally, the name and telephone number of the researcher were included and subjects were invited to call if they had a question or concern.

PROCEDURE

The study was conducted by a University of Wisconsin-La Crosse graduate student and assisted by a committee of three University of Wisconsin-La Crosse professors. Committee members were chosen on the basis of knowledge of eating disorders, familiarization with the target population, experience and expertise in research, and amount of personal and professional investment. The members included the director of the UW-La Crosse Counseling and Testing Center, a counseling psychologist active in both university and community practice, and a professor of Community Health

Education at UW-La Crosse.

Preparation began with extensive review of current research. From this, three hypotheses were formulated and a target population was identified. Consideration was given to the usefulness of the information to be gathered, available resources, and the overall feasibility of the study. The design of the study was determined and the method of data collection identified.

The surveys and accompaning cover letters were sent via First Class mail during the fourth week of the fall semester (September 26, 1983). Several factors influenced this timing: 1) By the fourth week, freshman students would have had sufficient time to become somewhat accustomed to campus life, 2) Surveys would be received three to four weeks prior to midterm examinations, allowing students time to complete and return the surveys before becoming heavily involved in preparation for these exams, 3) The surveys would precede an annual "Oktoberfest", a six-day celebration in which both students and community actively participate, and 4) Early distribution of the surveys would allow sufficient time for a follow-up survey, a generous return period, and adequate time for analysis and summary.

Two weeks after the initial survey was mailed (October 10, 1983), a second questionnaire (identical to the first) was sent only to those individuals from whom a completed survey had not been received. An accompanying letter (Appendix B) again stressed the importance of each

individual's participation, and also included a deadline for return.

Following a grace period of 21 days, the completed surveys were then coded, compiled, and analyzed using cross-tabulation (for descriptive purposes), chi-square analysis, Kruskal-Wallis analysis of variance, and the Mann-Whitney U test.

Several factors influenced the selection of these methods of analyses: the manner in which the sample was drawn, the nature of the population from which the sample was drawn, and the kind of scaling which was employed in the operational definitions of the variables involved. The study was a one-sample case in which the distribution was not normal. Non-parametric analysis was required. The data was primarily nominal. Chi-square analysis provided a suitable method of analysis, given these conditions. The technique is of the goodness-of-fit type in that it may be used to test whether a significant difference exists between an observed number of responses falling into specified categories and an expected number based on the null-hypothesis. The Kruskal-Wallis one way analysis of variance and the Mann Whitney U test are suitable for analysis of ordinal data. Responses to two of the survey items appeared as ranks rather than scores. The Kruskal-Wallis analysis of variance is designed for ranked data and allows the researcher to determine whether differences among samples or responses signify genuine population differences or whether they represent chance

variation such as are to be expected among samples from the same population. The Mann Whitney U test was utilized as a post hoc analysis. Results of these analyses were applied to the pre-determined research hypotheses, consclusions were drawn, and recommendations were made.

DATA ANALYSES

The statistical procedures employed in analyzing the obtained data included both descriptive and statistical non-parametric analyses. In addressing the three hypotheses, it was first necessary to establish categories of bulimia prevalence, and to identify those questions reflective of DSM-III criteria which would serve as inclusion criteria for each of the categories.

Three categories of prevalence were established: 1) Bulimic, 2) Possibly bulimic, and 3) Non-bulimic. Table 6 illustrates the direct relationship of survey items 13 - 36 to DSM-III criteria for diagnosis of bulimia. Item B.4 (diuretic use) and item E (bulimic episodes not due to anorexia nervosa or any known physical disorder) were not included in criteria leading to inclusion into one of the three bulimia prevalence categories. Thus, the four major criteria (DSM-III A, DSM-III B excluding that portion of B.4 addressing diuretic use, DSM-III C, and DSM-III D) were utilized as the diagnostic tool in this study.

Table 7 identifies those survey responses necessary to

TABLE 7
RELATIONSHIP OF SURVEY INCLUSION CRITERIA TO DSM-III

DSM-III A: Recurrent episodes of binge-eating (rapid consumption of a large amount of food in a discreet period of time, usually less than 2 hours)

SURVEY: (Survey response satisfying DSM-III criteria): Affirmative response to survey item 18: "Do you ever consume a large amount of food in a short period of time in a way that, if others saw you, you would be embarrassed?"

and

Any response (excluding zero) to survey item 19: "If yes, write in the average number of days in one month..."

DSM-III B: At least three of the following five:

#1: Consumption of high caloric, easily ingested food during a binge

SURVEY: Any three of survey item 23 (1), (2), (3), (4), and (5) as being ranked in the top five choices of type of foods preferred during a binge.

#2: Inconspicuous eating during a binge

SURVEY: Affirmative response to survey item 18: "...in a way that, if others saw you, you would feel embarrassed?"

#3: Termination of such eating episodes by abdominal pain, sleep, social interruption, of self-induced vomiting

SURVEY: Any one of the following responses to survey item 22: (1) stomach pain; (2) sleep; (4) vomiting; or (5) interrupted by someone

#4: Repeated attempts to lose weight by severely restricted diets, self-induced vomiting, or use of cathartics and/or diuretics

SURVEY: Any two of the following:
a) A response to survey item 13 ("In the past year, how many times have you attempted to control your weight?") of (3) twice; (4) three times; (5) four times; (6) five times; (7) continually on and off

b) Affirmative response to survey item 24: "Do you intentionally vomit following eating?"

c) Affirmative response to survey item 28: "Do you take laxatives following eating?"

#5: Frequent weight fluctuations greater than 10 pounds due to alternating binges and fasts

SURVEY: A response of "10" or more to survey item 15 (1) number of pounds gained; or 15 (2) number of pounds lost

and

Affirmative response to survey item 18 (Do you ever binge...?" item 24 ("Do you intentionally vomit..."), or item 28 ("Do you take laxatives...?")

DSM-III C: Awareness that the eating pattern is abnormal and fear of not being able to stop

SURVEY: Survey items 32 ("When you eat, do you feel as though you cannot stop?") and 35 ("Do you feel your eating patterns are abnormal?") address this criteria. In each of these questions, points were assigned to corresponding response choices (i.e. a response of "(1) never/almost never" was assigned one point, "(2) seldom" received two points, "(3) sometimes" received three points, and so on. A total of five or more points in any combination satisfied this DSM-III criterion. For example, a student choosing "(2) seldom" in survey item 32 (two points) and "(2) seldom" in survey item 35 (two points) receives four points and consequently would not satisfy the requirement of five or more points. Likewise, a student choosing "(2) seldom" in item 32 (two points) and "(3) sometimes" in item 35 (three points) receives a total of five points and would satisfy requirements for this criterion.

DSM-III D: Depressed mood and self-deprecating thoughts following eating binges

SURVEY: As in the case of DSM-III C, any combination of responses to survey item 33 ("Do you feel guilty...?") and 34 ("Do you feel depressed...?") which yields a total of five or more points.

satisfy each of the DSM-III criteria. Requirements constituting inclusion into each of the three bulimia prevalence categories are as follows:

1) Bulimic - Individuals satisfying all diagnostic criteria (DSM-III A, B, C, and D)

2) Possibly bulimic - Individuals satisfying two or three of the diagnostic criteria, one of which must be DSM-III A or DSM-III B

3) Non-bulimic - Individuals satisfying any one criterion or no criteria at all

In accordance with these guidelines, it was then possible to assign each respondent to one of the three categories. Level of prevalence of bulimia (identified as category 1) was established and hypothesis 1 - "The prevalence of bulimia within a specific state university student population will not exceed 15%" - was addressed.

Attention was then directed to hypothesis 2: "There will be no significant difference of prevalence in between-group analyses of the freshman, sophomore, junior and senior academic levels." To address this question, the number of freshman, sophomore, junior, and senior students falling into each of the three prevalence categories of bulimia was tabulated. These figures were compared using cross-tabulation and chi-square analysis at the $p \leq .05$ level of significance (Figure 1).

FIGURE 1
BULIMIA PREVALENCE CATEGORIES
ACCORDING TO CLASS LEVEL

Prevalence Categories	Class Level				
	Freshman	Sophomore	Junior	Senior	Total
Bulimic					
Possibly Bulimic					
Non-Bulimic					

The third and final hypothesis predicted "There will be no statistically significant relationship between prevalence of bulimia and the demographic factors of (1) Age, (2) Living accommodations, (3) Meal accommodations, (4) Grade point average, (5) Family income, (6) Number of brothers, and (7) Number of sisters." A cross-tabulation method was again employed: each of the above-mentioned demographic factors were compared against each of the three prevalence categories as initially established (devoid of class divisions within each category). Figure 2 presents an example of this comparison, using the demographic factors of age:

FIGURE 2
BULIMIA PREVALENCE ACCORDING TO AGE

Prevalence Categories	Age in years									
	17	18	19	20	21	22	23	24	25	Total
Bulimic										
Possibly Bulimic										
Non-Bulimic										

Chi-square analysis was conducted on those tables addressing age, living accommodations, meal accommodations, number of brothers, and number of sisters. In analysis of the data relating to the grade point average and family income, a different method was employed. In these two cases, the responses appeared as ranks rather than scores. Though this may not be readily apparent, note that in survey item 8, for example, a response of (2) 1.10 - 1.59 indicated a GPA falling within a range or a rank and not the specific GPA itself. The Kruskal-Wallis one way analysis of variance is designed specifically for use with ranked data. Each of the response choices in survey items 8 and 10 were assigned a rank (ranks of 1 - 7 in question 8, and ranks of 1 - 8 in question 10). These are presented in Table 8.

The sum of each series was determined and these results were tested for genuine population differences at the $p \leq .05$ level of significance. The Mann-Whitney U Test was employed as a post hoc analysis in determining where significant differences occurred (Siegal, 1956).

Results obtained through use of chi-square and the Kruskal-Wallis methods of analyses provided the basis for rejection or support of each factor included in hypothesis 3.

TABLE 8
Rank Assignments

Grade point average - Question 8

Response	Rank
less than 1.09	1
1.10 - 1.59	2
1.60 - 2.09	3
2.10 - 2.59	4
2.60 - 3.09	5
3.10 - 3.59	6
greater than 3.60	7

Family income - Question 10

Response	Rank
less than $6,000	1
$6,000 - $11,999	2
$12,000 - $17,999	3
$18,000 - $23,999	4
$24,000 - $29,999	5
$30,000 - $35,999	6
$36,000 - $40,000	7
greater than $40,000	8

DELIMITATIONS

In the process of developing the design and methodology of this study, several necessary decisions were made which have impact on the results:

1. This research was delimited to the assessment of bulimic behavior of a specific university student population of females enrolled full-time (12 or more credits).

2. The study was delimited to survey students at the freshman, sophomore, junior, and senior class levels.

3. Prevalence of the disorder, and the possible significant relationship of prevalence with selected demographic factors, were the only aspects of bulimia to be studied.

4. Demographic factors included in the research project were delimited based on current research and in consideration of accuracy of interpretation, and data manageability.

CHAPTER III

RESULTS AND DISCUSSION

INTRODUCTION

Presented in this chapter is discussion of the research findings. The content is divided into three sections: 1) Results of descriptive analyses related to demographic factors, and eating behaviors and attitudes, and results of statistical analyses related to the three research hypotheses, 2) Discussion of the results, including conclusions, implications, and recommendations, and 3) Limitations.

RESULTS

Of the 407 surveys mailed, 319 or 78.4% were completed and returned. Of the returns, 126 surveys (39.5%) were returned by freshmen, 71 surveys (22.2%) by sophomores, 51 surveys (16%) by juniors, and 71 surveys (22.2%) by seniors. These figures represent an 83.4% return rate for freshman students, 81.6% for sophomore students, 64.6% for junior students, and 78.9% return rate for senior students.

The following section presents a descriptive analyses of

the demographic factors, and eating behaviors and attitudes. These findings are then applied to the three research hypotheses.

DEMOGRAPHIC DATA

Age (Table 9) Individuals were divided by each of nine age categories, with the majority (295 students, 92.6%) between the ages of 18 to 22 years. The mean age was 19.7 years.

Living accommodations (Table 10) Two hundred forty-eight students (77.7%) indicated that they had lived in a residence hall, 69 students (21.6%) had not lived in a residence hall, and two students (0.6%) did not respond to this item. Of the 248 students who had at one time lived on-campus, 153 (61.7%) indicated that they were currently living in a residence hall, while 166 (67%) had done so in the past. Ninety-one of the on-campus students (59.5%) were freshman, 36 students (23.5%) were sophomores, 18 students (11.8%) were juniors, and 9 students (5.2%) were seniors.

Of the 319 respondents, 174 (54.5%) were living with one other person, 140 students (43.9%) indicated more than one room/housemate, three students (0.9%) lived alone, and two students (0.6%) did not respond to this item.

Meal accommodations (Table 11) One hundred twenty-eight students (40.1%) indicated participation in the university meal plan, while 163 students (51.1%) prepared their own

TABLE 9

Demographic Data
Age
Total Number of Students Surveyed (N) = 319

Class Level	Years									
	17	18	19	20	21	22	23	24	25	T
Freshman	5	85	26	3	1	1	0	0	5	126
%F*	(4.0)	(14.3)	(20.6)	(2.4)	(0.8)	(0.8)			(4.0)	(100.0)
%N**	(1.6)	(26.6)	(8.2)	(0.9)	(0.3)	(0.3)			(1.6)	(39.5)
Sophomore	0	5	49	12	3	1	0	0	1	71
%So*		(7.0)	(69.0)	(16.9)	(4.2)	(1.4)			(1.4)	(100.00)
%N**		(1.6)	(15.4)	(3.8)	(0.9)	(0.3)			(0.3)	(22.25)
Junior	0	1	3	29	12	5	0	0	1	51
%J*		(2.0)	(5.9)	(56.9)	(23.5)	(9.8)			(2.0)	(100.0)
%N**		(0.3)	(0.9)	(9.1)	(3.8)	(1.6)			(0.3)	(16.0)
Senior	0	0	0	5	34	20	4	5	3	71
%Se*				(7.0)	(47.9)	(28.2)	(5.6)	(7.0)	(4.2)	(100.00)
%N**				(1.6)	(10.7)	(6.3)	(1.3)	(1.6)	(0.9)	(22.25)
Total	5	91	78	49	50	27	4	5	10	319
%N	(1.6)	(28.5)	(24.5)	(15.4)	(15.7)	(8.5)	(1.3)	(1.6)	(3.1)	(100.0)

Number of Freshman students surveyed (N/F) = 126
Number of Sophomore students surveyed (N/So) = 71
Number of Junior students surveyed (N/J) = 51
Number of Senior students surveyed (N/Se) = 71

* %F, %So, %J, and %Se refer to the percent of the number of freshman, sophomore, junior, or senior students surveyed.

** %N refers to the percent of the total number of students surveyed.

Table 10

Demographic Data
Living Accommodations
N=319

Class Level	Has lived in dorm	Has not lived in dorm	Currently on campus	Currently off campus	Lived in current accommodations for: Less than 1 semester	1-2 semesters	3-4 semesters	More than 4 semesters	Living with how many: Alone	1	More than 1
	Accommodation Factors										
Freshman	93	32	91	35	98	5	10	13	0	91	34
%F	(73.8)	(25.4)	(72.2)	(27.8)	(77.8)	(4.0)	(7.9)	(10.3)		(72.2)	(27.0)
%N	(29.2)	(10.0)	(28.5)	(11.0)	(30.7)	(1.6)	(3.1)	(4.1)		(28.5)	(10.7)
Sophomore	64	17	36	35	25	9	29	8	0	38	32
%So	(90.1)	(24.0)	(50.7)	(49.3)	(35.2)	(12.7)	(40.8)	(11.3)		(53.5)	(45.1)
%N	(20.1)	(5.3)	(11.3)	(11.0	(7.8)	(2.8)	(9.1)	(2.5)		(12.0)	(10.0)
Junior	40	10	18	33	19	3	10	19	2	20	29
%J	(78.4)	(19.6)	(35.3)	(64.7)	(37.3)	(5.9)	(19.6)	(37.3)	(3.9)	(39.2)	(56.9)
%N	(12.5)	(3.1)	(5.6)	(10.3)	(6.0)	(0.9)	(3.1)	(6.0)	(0.6)	(6.3)	(9.1)
Senior	61	10	8	63	18	5	24	23	1	25	45
%Se	(85.9)	(14.1)	(11.3)	(88.7)	(25.4)	(7.0)	(33.8)	(32.4)	(1.4)	(35.2)	(63.4)
%N	(19.1)	(3.1)	(2.5)	(19.7)	(5.6)	(1.6)	(7.5)	(7.2)	(0.3)	(7.8)	(14.1)
Total	248	69	153	166	160	22	73	63	3	174	140
%N	(77.7)	(21.6)	(50.0)	(52.0)	(50.2)	(6.9)	(22.9)	(19.7)	(0.9)	(54.5)	(43.9)

N/F=126 N/So=71 N/J=51 N/Se=71

TABLE 11

Demographic Data
Meal Accommodations
(N=319)

Class Level	Accommodation Factors					
	Participate in Meal Plan	Prepare Own Meals	Other	Prefer to: Eat Alone	Prefer to: With Another	No Preference
Freshman	92	35	12	3	82	41
%F	(73.0)	(27.8)	(9.5)	(2.4)	(65.1)	(32.5)
%N	(28.8)	(11.0)	(3.8)	(0.9)	(25.7)	(12.9)
Sophomore	35	34	3	2	38	31
%So	(49.3)	(47.9)	(4.2)	(2.8)	(53.5)	(43.7)
%N	(11.0)	(10.7)	(0.9)	(0.6)	(12.0)	(9.2)
Junior	10	40	2	2	23	26
%J	(19.6)	(78.4)	(3.9)	(3.9)	(45.1)	(51.0)
%N	(3.1)	(12.5)	(0.6)	(0.6)	(7.2)	(8.2)
Senior	1	67	4	1	32	37
%Se	(1.4)	(94.4)	(5.6)	(1.4)	(45.1)	(52.1)
%N	(0.3)	(21.0)	(1.3)	(0.3)	(10.0)	(11.6)
Total	138	176	21	8	175	135
%N	(43.3)	(55.2)	(6.6)	(2.5)	(54.9)	(42.3)

N/F = 126
N/So = 71
N/J = 51
N/Se = 71

meals. Thirteen students (4.1%) indicated a variety of other arrangements, including meals prepared by the family, eating at restaurants, or a combination of the previously mentioned choices. One hundred seventy-five students (54.9%) preferred to eat with others, eight students (2.5%) preferred to eat alone, and 135 students (42.3%) indicated no preference. One student did not respond to this item.

Grade point average (GPA)(Table 12) Three of the 319 students did not respond to this item. Of the remaining 317 students, 133 individuals (42%) indicated a GPA equal to or greater than 3.10. Another 107 students (33.8%) expressed a GPA of 2.60 - 3.09, 58 students (18.3%) maintained averages of 2.10 - 2.59 and 17 students (5.4%) had grade point averages of 1.09 - 2.09. Only one individual indicated a GPA less than 1.09.

Family income (Table 13) Two hundred and eighty-four students responded to this survey item. Responses were distributed fairly evenly over the eight income categories. One hundred and thirty-three students (47%) indicated family incomes equal to or greater than $30,000, with 58 of these individuals (20.4%) claiming family incomes in excess of $40,000. Another 85 students (29.9%) expressed incomes of $18,000 - $29,999, and the remainder fell below this amount. The mean family income range of the students responding to this item was $24,000 - $29,999.

TABLE 12

Demographic Data
Grade Point Average
N=319

Class Level	Grade Point Average							
	Less Than 1.09	1.10-1.59	1.60-2.09	2.10-2.59	2.60-3.09	3.10-3.59	Greater Than 3.59	T
Freshman	0	2	5	22	36	38	21	124*
%F		(1.6)	(4.0)	(17.5)	(28.6)	(30.2)	(16.7)	
%N		(0.6)	(1.6)	(6.9)	(11.3)	(11.9)	(0.6)	
Sophomore	0	0	9	15	24	17	6	71
%So			(12.7)	(21.1)	(33.8)	(24.0)	(8.5)	
%N			(2.8)	(4.7)	(7.5)	(5.3)	(1.9)	
Junior	1	0	1	14	18	10	6	50*
%J	(2.0)		(2.0)	(27.5)	(35.3)	(19.6)	(11.8)	
%N	(0.3)		(0.3)	(4.4)	(5.6)	(3.1)	(1.9)	
Senior	0	0	0	7	29	23	12	71
%Se				(9.9)	(40.8)	(32.4)	(16.9)	
%N				(2.2)	(9.1)	(7.2)	(3.8)	
Total	1	2	15	58	107	88	45	317
%N	(0.3)	(0.6)	(4.7)	(18.2)	(33.5)	(27.6)	(14.1)	(99.4)

N/F = 126
N/So = 71
N/J = 51
N/Se = 71

* Because not all students surveyed responded to each question, discrepancies may appear between the figures indicated and the number of students from these classes that were surveyed.

TABLE 13

Demographic Data
Family Income
(N=319)

Class Level	Family Income								
	Less Than $6,000	$6,000-$11,999	$12,000-$17,999	$18,000-$23,999	$24,000-$29,999	$30,000-$35,999	$36,000-$40,000	Greater than $40,000	T
Freshman	2	8	14	18	17	16	10	23	108
%F	(1.6)	(6.3)	(11.1)	(14.3)	(13.5)	(12.7)	(7.9)	(18.3)	(85.7)
%N	(0.6)	(2.5)	(4.4)	(5.6)	(5.3)	(5.0)	(3.1)	(7.2)	(33.9)
Sophomore	1	7	13	9	6	10	9	13	68
%So	(1.4)	(9.9)	(18.3)	(12.7)	(8.5)	(14.1)	(12.7)	(18.3)	(95.8)
%N	(0.3)	(2.2)	(4.1)	(2.8)	(1.9)	(3.1)	(2.8)	(4.1)	(21.3)
Junior	2	3	4	9	6	6	5	11	46
%J	(3.9)	(5.9)	(7.8)	(17.6)	(11.8)	(11.8)	(9.8)	(21.6)	(90.2)
%N	(0.6)	(0.9)	(1.3)	(2.8)	(1.9)	(1.9)	(1.6)	(3.4)	(14.2)
Senior	0	6	6	10	10	11	8	11	62
%Se		(8.5)	(8.5)	(14.1)	(14.1)	(15.5)	(11.3)	(15.5)	(87.3)
%N		(1.9)	(1.9)	(3.1)	(3.1)	(3.4)	(2.5)	(3.4)	(19.4)
Total	5	24	37	46	39	43	32	58	285
%N	(1.6)	(7.5)	(11.6)	(14.4)	(12.2)	(13.5)	(10.0)	(18.2)	(89.3)

N/F = 126
N/So = 71
N/J = 51
N/Se = 71

Siblings (Tables 14 & 15) Two hundred fifty-eight students (80.9%) indicated having at least one brother and 247 students (77.4%) claimed to have at least one sister. The mean number of brothers and sisters was equal, at two. Sixty-one students (19.1%) had no brothers, and 72 respondents (22.6%) had no sisters.

The data as just presented provides a demographic profile of the respondents of this study. At this point, attention is directed toward behaviors and attitudes relating to eating.

EATING BEHAVIORS AND ATTITUDES

The following section describes the eating behaviors and attitudes of the respondents. Included are the following divisions: 1) Diet/weight control, 2) Eating patterns, 3) Binging behavior (including frequency, food preference, and terminating factors), 4) Purging behavior (including vomiting and frequency of vomiting, and laxative use/abuse and frequency of laxative use), 5) Self-control, (6) Guilt and depression, 7) Self-perception of eating habits, and (8) Previous treatment. Accompanying tables (Tables 16 through 24) provide further illustration of this data. The three prevalence categories of bulimia are then identified and hypotheses 1 and 2 are addressed. Finally, the relationship of demographic factors with bulimia prevalence are identified, and hypothesis 3 factors are accepted/rejected.

TABLE 14

Demographic Data
Brothers
(N=319)

Class Level	Number of Brothers									
	0	1	2	3	4	5	6	7	8	T
Freshman	31	43	32	12	4	2	0	1	1	126
%F	(24.6)	(34.1)	(25.4)	(9.5)	(3.2)	(1.6)		(0.8)	(0.8)	(100.0)
%N	(9.7)	(13.5)	(10.0)	(3.8)	(1.3)	(0.6)		(0.3)	(0.3)	(39.5)
Sophomore	9	23	23	11	2	1	1	1	0	71
%So	(12.7)	(32.4)	(32.4)	(15.5)	(2.8)	(1.4)	(1.4)	(1.4)		(100.00)
%N	(2.8)	(7.2)	(7.2)	(3.4)	(0.6)	(0.3)	(0.3)	(0.3)		(22.25)
Junior	12	12	18	3	2	3	0	1	0	51
%J	(23.5)	(23.5)	(35.3)	(5.9)	(3.9)	(5.9)		(2.0)		(100.0)
%N	(3.8)	(3.8)	(5.6)	(0.9)	(0.6)	(0.9)		(0.3)		(16.0)
Senior	9	28	22	6	4	0	2	0	0	71
%Se	(12.7)	(39.4)	(31.0)	(8.5)	(5.6)		(2.8)			(100.00)
%N	(2.8)	(8.8)	(6.9)	(1.9)	(1.3)		(0.6)			(22.25)
Total	61	106	95	32	12	6	3	3	1	319
%N	(19.1)	(33.2)	(29.8)	(10.0)	(3.8)	(1.9)	(0.9)	(0.9)	(0.3)	(100.0)

N/F = 126
N/So = 71
N/J - 51
N/Se = 71

TABLE 15

Demographic Data
Sisters
(N=319)

Class Level	Number of Sisters										
	0	1	2	3	4	5	6	7	8	9	T
Freshman	32	41	32	13	3	2	1	0	1	1	126
%F	(25.4)	(32.5)	(25.4)	(10.3)	(2.4)	(1.6)	(0.8)		(0.8)	(0.8)	(100.0)
%N	(10.0	(12.9)	(10.0)	(4.1)	(0.9)	(0.6)	(0.3)		(0.3)	(0.3)	(39.5)
Sophomore	16	22	19	6	3	4	0	1	0	0	71
%So	(22.5)	(31.0)	(26.8)	(8.5)	(4.2)	(5.6)		(1.4)			(100.00)
%N	(5.0)	(6.9)	(6.0)	(1.9)	(0.9)	(1.3)		(0.3)			(22.25)
Junior	12	12	8	13	1	4	1	0	0	0	51
%J	(23.5)	(23.5)	(15.7)	(25.5)	(2.0)	(7.8)	(2.0)				(100.0)
%N	(3.8)	(3.8)	(25.1)	(4.1)	(0.3)	(1.3)	(0.3)				(16.0)
Senior	12	20	24	7	7	1	0	0	0	0	71
%Se	(16.9)	(28.2)	(33.8)	(9.9)	(9.9)	(1.4)					(100.00)
%N	(3.8)	(6.3)	(7.5)	(2.2)	(2.2)	(0.3)					(22.25)
Total	72	95	83	39	14	11	2	1	1	1	319
%N	(22.6)	(29.8)	(26.0)	(12.2)	(4.4)	(3.4)	(0.6)	(0.3)	(0.3)	(0.3)	(100.0)

N/F = 126
N/So = 71
N/J = 51
N/Se = 71

Diet/weight control (Table 16) Survey item 13 asked students to identify the number of times they have attempted to control their weight. Three hundred and sixteen students responded to this item. Of these, approximately two thirds (203 students, 64.2%) indicated that they were continually on and off a diet. Another 76 students (24%) had attempted to control their weight at least once, and only 37 students (11.7%) indicated that they had never attempted to control their weight.

Methods of weight control (Table 17) were varied. Most popular were diet (96 students, 34.4%) and exercise (134 students, 48%). Other responses included "less eating" (85 students, 30.5%), food selection (31 students, 11.1%), fasting or starvation (14 students, 5.0%), or diet pills (10 students, 3.6%). Two students indicated bulimia and/or anorexia nervosa as their method(s) of weight control.

Weight fluctuations (Table 18) were common. A weight gain was indicated by 181 individuals (56.7%), with 81 of these students (25.8%) expressing a gain of 10 or more pounds. Two hundred sixteen respondents (67.7%) expressed a weight loss, with 116 students (53.4%) losing 10 or more pounds. The mean number of pounds gained by the respondents was 8.2 pounds. Mean loss was 9.9 pounds.

Eating patterns (Table 19) When asked to rank eating behavior (i.e., two meals per day with some snacking, two meals per day with no snacking, one meal with snacking, one meal with no snacking, and so on), several students gave only

TABLE 16

Eating Behaviors & Attitudes
Weight Control
N=319

Class Level	Times Attempted to Control Weight							
	Never	1	2	3	4	5	Continually	T
Freshman	17	6	8	8	4	3	79	125
%F	(13.5)	(6.3)	(6.3)	(6.3)	(3.2)	(2.4)	(62.7)	(99.2)
%N	(5.3)	(2.5)	(2.5)	(2.5)	(1.3)	(0.9)	(24.8)	(39.2)
Sophomore	9	2	9	3	1	2	44	70
%So	(12.7)	(2.8)	(12.7)	(4.2)	(1.4)	(2.8)	(62.0)	(98.6)
%N	(2.8)	(0.6)	(2.8)	(0.9)	(0.3)	(0.6)	(13.8)	(21.9)
Junior	4	1	3	4	1	0	38	51
%J	(7.8)	(2.0)	(5.9)	(7.8)	(2.0)		(74.5)	(100.0)
%N	(1.3)	(0.3)	(0.9)	(1.3)	(0.3)		(11.9)	(16.0)
Senior	7	5	8	5	2	1	42	70
%Se	(9.9)	(7.0)	(11.3)	(7.0)	(2.8)	(1.4)	(59.2)	(98.6)
%N	(2.2)	(1.6)	(2.5)	(1.6)	(0.6)	(0.3)	(13.2)	(21.9)
Total	37	14	28	20	8	6	203	316
%N	(11.6)	(4.4)	(8.8)	(6.3)	(2.5)	(2.5)	(63.6)	(99.1)

N/F = 126
N/So = 71
N/J = 51
N/Se =71

TABLE 17

Eating Behaviors & Attitudes
Weight Control Methods
(N=319)

Method	Class Level: Freshman		Sophomore		Junior		Senior		Total	
	N	%N	N	%N	N	%N	N	%N	N	%N
Diet	33	(10.3)	27	(8.5)	15	(4.7)	21	(6.6)	96	(30.0)
Exercise	40	(12.5)	29	(9.1)	26	(8.2)	39	(12.2)	134	(42.0)
Less Eating	26	(8.2)	14	(4.4)	18	(5.6)	27	(8.5)	85	(26.6)
Positive Attitude	1	(0.3)	0		0		0		1	(0.3)
Weight Watchers/Over-eaters Anonymous	0		0		0		2	(0.6)	2	(0.6)
Record What is Eaten and Decrease	0		1	(0.3)	0		0		1	(0.3)
Bulimia/Anorexia Nervosa	1	(0.3)	0		1	(0.3)	0		2	(0.6)
Eating Modification	1	(0.3)	1	(0.3)	0		0		2	(0.6)
Try to Gain	0		0		1	(0.3)	0		1	(0.3)
Food Selection	10	(3.1)	11	(3.4)	3	(0.9)	6	(1.9)	30	(9.4)
Food Awareness	4	(1.3)	0		0		3	(0.9)	7	(2.2)
Less or No Snacking	9	(2.8)	5	(1.6)	2	(0.6)	1	(0.3)	17	(5.3)
Skip Meals	5	(1.6)	0		1	(0.3)	1	(0.3)	7	(2.2)
One Meal/Some Snacking	0		1	(0.3)	0		0		1	(0.3)
Good Eating Habits	6	(1.9)	0		1	(0.3)	2	(0.6)	9	(2.8)
Less Junk Food	5	(1.6)	0		4	(1.3)	5	(1.6)	14	(4.4)
Books, Prayer, Counseling	0		0		1	(0.3)	1	(0.3)	2	(0.6)
Balanced Meals	1	(0.3)	0		3	(0.9)	1	(0.3)	5	(1.6)
Dancing/Weight Training	0		1	(0.3)	0		0		1	(0.3)
Don't Eat to Excess	1	(0.3)	1	(0.3)	1	(0.3)	0		3	(0.9)
No Desserts	1	(0.3)	1	(0.3)	0		0		2	(0.6)
Count Calories	2	(0.6)	1	(0.3)	4	(1.3)	5	(1.6)	12	(3.8)
Portion Size	1	(0.3)	1	(0.3)	2	(0.6)	3	(0.9)	7	(2.2)
Fasting/Starvation	9	(2.8)	1	(0.3)	1	(0.3)	3	(0.9)	14	(4.4)
Diet Pills	4	(1.3)	4	(1.3)	2	(0.6)	0		10	(3.1)
Laxatives	0		0		0		1	(0.3)	1	(0.3)
Many Small Meals	0		1	(0.3)	0		0		1	(0.3)

Table 18

Eating Behaviors & Attitudes
Weight Gain/Loss
N=319

Class Level	Pounds Gained							Pounds Lost							
	0	1-5	6-10	11-15	16-20	21-25	26-30	0	1-5	6-10	11-15	16-20	21-25	26-30	>30
Freshman	52	25	40	6	2	0	1	48	17	38	16	4	1	0	1
%F	(41.3)	(19.8)	(31.7)	(4.8)	(1.6)		(0.8)	(38.1)	(13.5)	(30.2)	(12.7)	(3.2)	(0.8)		(0.8)
%N	(16.3)	(7.8)	(12.5)	(1.9)	(0.6)		(0.3)	(15.0)	(5.3)	(11.9)	(5.0)	(1.3)	(0.3)		(0.3)
Sophomore	29	22	15	4	1	0	0	25	16	17	11	1	1	0	0
%So	(40.8)	(31.0)	(21.1)	(5.6)	(1.4)			(35.2)	(22.5)	(24.0)	(15.5)	(1.4)	(1.4)		
%N	(9.1)	(6.9)	(4.7)	(1.3)	(0.3)			(7.8)	(5.0)	(5.3)	(3.4)	(0.3)	(0.3)		
Junior	25	11	8	5	2	0	0	9	8	24	6	3	1	0	0
%J	(49.0)	(21.6)	(15.7)	(9.8)	(3.9)			(17.6)	(15.7)	(47.1)	(11.8)	(5.9)	(2.0)		
%N	(7.8)	(3.4)	(2.5)	(1.6)	(0.6)			(2.8)	(2.5)	(7.5)	(1.9)	(0.9)	(0.3)		
Senior	32	19	16	2	0	1	1	21	21	19	5	3	1	1	0
%Se	(45.1)	(26.8)	(22.5)	(2.8)		(1.4)	(1.4)	(29.6)	(29.6)	(26.8)	(7.0)	(4.2)	(1.4)	(1.4)	
%N	(10.0)	(6.0)	(5.0)	(0.6)		(0.3)	(0.3)	(6.6)	(6.6)	(6.0)	(1.6)	(0.9)	(0.3)	(0.3)	
Total	138	77	79	17	5	1	2	103	62	98	38	11	4	1	1
%N	(43.3)	(24.1)	(24.8)	(5.3)	(1.6)	(0.3)	(0.6)	(32.3)	(19.4)	(30.7)	(11.9)	(3.4)	(1.3)	(0.3)	(0.3)

N/F=126 N/So=71 N/J=51 N/Se=71

TABLE 19

Eating Behaviors & Attitudes
Eating Pattern
N=319

Meal Pattern	Number of Students Assigning "1" and "7" Ranks			
	"1" (Most Preferred)		"7" (Least Preferred)	
		(%N)		(%N)
3 Meals per day	30	(9.4%)	22	(6.9%)
3 Meals with some snacking	51	(16.0%)	43	(13.5%)
2 Meals per day	33	(10.3%)	2	(0.6%)
2 meals with some snacking	140	(43.9%)	7	(2.2%)
1 Meal per day	13	(4.1%)	16	(5.0%)
1 Meal with some snacking	41	(12.9%)	5	(1.6%)
No Meals, continual snacking	11	(3.4%)	115	(36.1%)
Total	319	(100.0%)	210	(65.8%)

their first choices and did not arrange choices in an order of preference. Others rated the choices, giving a "1" rating to those patterns most preferred, a "4" to those choices somewhat preferred, and a "7" to patterns least preferred. Thus, all students identified a first choice pattern of eating, but beyond this, it was difficult to identify specific ranking patterns of preference.

In combining all first-choice responses, an overall ranking of preferred patterns was identified. The pattern most popular among the respondents was "2 meals a day with some snacking" (140 students, 43.9%), followed by "3 meals a day with some snacking" (51 students, 16%). "2 meals a day with no snacking" and "3 meals a day with no snacking" emerged as third and fourth choices respectively (33 students, 10.3% and 30 students, 9.4%). Least preferred of all eating patterns was that of "no meals, frequent snacking throughout the day." Only 11 students (3.4%) identified this as the way they were most likely to eat.

Binging behavior (Table 20) Of the 319 respondents, 122 individuals (38.2%) admitted to binging behavior. Eighty-six of these students (70.5%) claimed to have been engaging in this behavior for a year or longer, with 43 students (35.2%) identifying a period of time exceeding two years. The longest period of time identified was seven years (1 student, 0.8%). Three students who admitted to binging behavior did not indicate how long they had been engaging in binging behavior.

Table 20

Eating Behaviors & Attitudes
Binging Behavior
N=319

Class Level	Number who binge	Avg. days/ month $\bar{n}$ days	Avg times/ day $\bar{n}$ times	For how long $\bar{n}$ range	Binging Factors: Terminating Factors: Sleep	Guilt	Vomiting	Interrupted	Stomach Pain	Other
Freshman	46	5.6	1.5	6 Months-	4	23	2	7	12	16
%F	(36.5)			11 Months	(3.2)	(18.3)	(1.6)	(5.6)	(9.5)	(12.7)
%N	(14.4)				(1.3)	(7.2)	(0.6)	(2.2)	(3.8)	(5.0)
Sophomore	26	3.8	1.5	4 Months-	2	14	1	2	9	10
%So	(36.6)			5 Months	(2.8)	(19.7)	(1.4)	(2.8)	(12.7)	(14.1)
%N	(8.2)				(0.6)	(4.4)	(0.3)	(0.6)	(2.8)	(3.1)
Junior	20	4.3	1.4	18 Months-	1	12	1	5	10	6
%J	(39.2)			2 Years	(2.0)	(23.5)	(2.0)	(9.8)	(19.6)	(11.8)
%N	(6.3)				(0.3)	(3.8)	(0.3)	(1.6)	(3.1)	(1.9)
Senior	30	5	1.4	1 Year-	1	24	3	4	8	8
%Se	(42.3)			17 Months	(1.4)	(33.8)	(4.2)	(5.6)	(11.3)	(11.3)
%N	(9.4)				(0.3)	(7.5)	(0.9)	(1.3)	(2.5)	(2.5)
Total	122				8	73	7	18	39	40
%N	(38.2)				(2.5)	(22.9)	(2.2)	(5.6)	(12.2)	(12.5)

N/F=126 N/So=71 N/J=51 N/Se=71

Frequency of binges (Table 20) The average number of days per month in which binging behavior was engaged varied from one day (14 students, 11.5%) to 30 days (1 student, 0.8%). Seventy-four individuals (60.7%) binged fewer than five times per month, and 37 students (30.3%) binged an average of 5 - 10 times in one month. The mean number of days per month was 4.9 days. Two of the 122 students admitting to binging behavior did not respond to this survey item.

The average number of times per day that the individuals binged ranged from one to 12 times per day. On those days identified in the previous paragraph, 91 students (74.6%) claimed to binge only once, and 17 students (14%) binged twice. Mean number of binges per day was 1.5 times.

Food preference Difficulties similar to those which occurred in ranking the eating patterns most preferred were also present in ranking the foods most preferred during a binge. As before, many students did not go beyond assigning a "1" to that food most preferred, and others rated the foods rather than ranked them. Despite these problems, a pattern of foods most preferred did emerge.

Preference was distributed rather evenly over the nine food choices provided on the survey. Twenty-eight students (19.6%) indicated pastries and baked goods as their first choice. Chips, pretzels, popcorn, and similar snacks were chosen by 26 students (18.2%). Third most preferred was ice cream, with 21 individuals (14.7%) choosing this category. Fried or greasy foods were preferred by 20 students (14%).

Notably, the top food choices were high-carbohydrate, high--caloric foods. Only five students (3.5%) chose meat as their most preferred food.

Terminating factors (Table 20) The most frequently cited reason for terminating a binge was guilt feelings. Of the 185 individuals who responded to this survey question, 73 students (39.5%) expressed guilt as the reason that made them discontinue the binge. Stomach pain was the second most popular reason (39 students, 21%), followed by "interrupted by someone" (18 students, 9.7%), and "sleep" (8 students, 4.3%). Seven students (3.8%) gave vomiting as the reason they terminated the binge. Other reasons given included feeling full or bloated (26 students, 14.1%), boredom (2 students, 1.0%), running out of food (3 students, 1.6%), or feeling satisfied (3 students 1.6%). One student cited "running out of time" as a reason, and another gave "laxatives" as the terminating factor.

Purging behavior - vomiting (Table 21) Of the 319 returned surveys, three did not include a response to the survey question addressing self-induced vomiting. Of the remaining 316, 23 (7.3%) indicated vomiting behavior. Ten of these individuals (43.5%) had engaged in the behavior for a year or longer, including one student who indicated a three year period and one student who indicated a period of four years. One student who admitted to engaging in vomiting behavior did not indicate how long she had done so.

Table 21

Eating Behaviors & Attitudes
Purging Behavior
N=319

	Purging Factors							
Class Levels	Vomit	Avg. days/ month $\bar{n}$ days	Avg. times/ day $\bar{n}$ times	For how long $\bar{n}$ range	Laxative	Avg. days/ month $\bar{n}$ days	Avg. times/ day $\bar{n}$ times	For how long $\bar{n}$ range
Freshman	12	7	1.7	6 Months-	6	4.7	1.2	6 Months-
%F	(9.5)			11 Months	(4.8)			11 Months
%N	(3.8)				(1.9)			
Sophomore	5	4	1	2 Months-	3	2.3	1	2 Months-
%So	(7.0)			3 Months	(4.2)			3 Months
%N	(1.6)				(0.9)			
Junior	2	8.5	2	2 Months-	1	3	1	4 Months-
%J	(3.9)			3 Months	(2.0)			5 Months
%N	(0.6)				(0.3)			
Senior	4	4.8	1.8	6 Months-	2	7	1	2 Months-
%Se	(5.6)			11 Months	(2.8)			3 Months
%N	(1.3)				(0.6)			
Totals	23				12			
%N	(7.2)				(3.8)			

N/F=126 N/So=71 N/J=51 N/Se=71

Frequency of vomiting behavior (Table 21) The average number of days per month on which the individuals purged through self-induced vomiting ranged from one to 30 days per month. Five of the 23 students (21.7%) admitting to vomiting behavior did so on the average of one day per month. Six students (26%) indicated two days as their average. Two students (8.7%) claimed five days and two others indicated they vomited 15 days out of the month. One student vomited daily. Though the mean number of days is 6.7, the majority of the students (14 students, 60.9%) vomited five or less days out of the month.

The average number of times per day that individuals induced vomiting varied from one to three times per day. Eleven of the 23 students (47.8%) intentionally vomited once on chosen days, seven students (30.4%) indicated a two-times-per-day frequency, and three students (13%) purged three times on those chosen days. The mean number of times per day was 1.6. Two of the 23 students did not provide information.

Purging behavior - laxative use/abuse (Table 21) Twelve students (3.8%) admitted to using laxatives following eating. Of these 12, eight students (67%) had been doing so for less than one year, and two students (17%) indicated a period of one year to 17 months. Both of the remaining two individuals had used laxatives for more than two years, with one student indicating a four-year time period.

Frequency of laxative use (Table 21) Eleven of the 12 individuals admitting to laxative use responded to these survey items. The majority of these students (8 students, 72.7%) used laxatives, on the average, two or three days per month. Of the remaining three, one (9.1%) used laxatives four days per month, one used laxatives seven days out of the month, and one student indicated a 14-day-per-month frequency.

Of the 12 laxative users, 11 (91.7%) indicated that they used the laxatives only once on those days discussed in the previous paragraph. The remaining student reported a two-times-per-day usage.

Self-control (Table 22) Students were asked to rate their feelings of control using a Likert scale of five choices: 1) never/almost never, 2) seldom, 3) sometimes, 4) often, or 5) almost always/always. When they ate, 121 students (37.9%) indicated that they "never/almost never" felt as though they could not stop. Another 80 students (25.1%) "seldom" felt as though they lost control, and 91 students (28.5%) admitted they "sometimes" felt out of control when they ate. Only 26 students (8.1%) indicated a frequent feeling of not being able to stop eating, nine of which (2.8%) "almost always/always" had this feeling.

Guilt and depression (Table 22) The Likert scale was also applied to questions addressing feelings about eating habits. The greatest number of respondents expressed that they "sometimes" felt guilty as a result of their eating habits (115 students, 36.1%). One hundred twenty-four

Table 22

Eating Behaviors & Attitudes
Eating Attitudes
N=319

Class Level	Attitudes & Perceptions														
	Feel as though cannot stop					Feel Guilty					Feel Depressed				
	1 (Never/ Almost Never)	2	3	4	5 (Almost Always/Always)	1 (N/AN)	2	3	4	5 (AA/A)	1 (N/AN)	2	3	4	5 (AA/A)
Freshman	49	35	28	7	7	25	22	48	19	12	40	19	33	22	12
%F	(38.9)	(27.8)	(22.2)	(5.6)	(5.6)	(19.8)	(17.5)	(38.1)	(15.1)	(9.5)	(31.7)	(15.1)	(26.2)	(17.5)	(9.5)
%N	(15.4)	(11.0)	(8.8)	(2.2)	(2.2)	(7.8)	(6.9)	(15.0)	(6.0)	(3.8)	(12.5)	(6.0)	(10.3)	(6.9)	(3.8)
Sophomore	26	17	24	4	0	15	14	22	15	5	22	18	17	14	0
%So	(36.6)	(24.0)	(33.8)	(5.6)		(21.1)	(19.7)	(31.0)	(21.1)	(7.0)	(31.0)	(25.4)	(24.0)	(19.7)	
%N	(8.2)	(5.3)	(7.5)	(1.3)		(4.7)	(4.4)	(6.9)	(4.7)	(1.6)	(6.9)	(5.6)	(5.3)	(4.4)	
Junior	19	14	15	3	0	13	10	18	8	2	17	9	18	5	2
%J	(37.3)	(27.5)	(29.4)	(5.9)		(25.5)	(19.6)	(35.3)	(15.7)	(3.9)	(33.3)	(17.6)	(35.3)	(9.8)	(3.9)
%N	(6.0)	(4.4)	(4.7)	(0.9)		(4.1)	(3.1)	(5.6)	(2.5)	(0.6)	(5.3)	(2.8)	(5.6)	(1.6)	(0.6)
Senior	27	14	24	4	2	12	13	27	16	3	16	21	21	8	4
%Se	(38.2)	(19.7)	(33.8)	(5.6)	(2.8)	(16.9)	(18.3)	(38.2)	(22.5)	(4.2)	(22.5)	(29.6)	(29.6)	(11.3)	(5.6)
%N	(8.5)	(4.4)	(7.5)	(1.3)	(0.6)	(3.8)	(4.1)	(8.5)	(5.0)	(0.9)	(5.0)	(6.6)	(6.6)	(2.5)	(1.3)
Total	121	80	91	18	9	65	59	115	58	22	95	67	89	49	18
%N	(37.9)	(25.1)	(28.5)	(5.6)	(2.8)	(20.4)	(18.5)	(36.1)	(18.2)	(6.9)	(29.8)	(21.0)	(27.9)	(15.4)	(5.6)

N/F=126 N/So=71 N/J=51 N/Se=71

students (39.4%) reported seldom or never feeling guilty, while 80 students (25%) reported frequently feeling guilty. Twenty-two students (6.9%) "almost always/always" experienced guilt feelings as a result of their eating habits.

Depression was common to many of the respondents. Though 162 students (50.8%) "seldom" or "almost never/never" felt depressed about their eating habits, 156 students (48.9%) did experience depression to some degree. Eighty-nine students "sometimes" felt depressed, 49 individuals (15.4%) "often" felt depressed, and 18 students (5.6%) "almost always/always" had feelings of depression as a result of their eating habits.

Self-perception of eating habits (Table 23) Eleven students (3.4%) "almost always/always" perceived their eating patterns as abnormal and 25 students (7.8%) often had this perception. Ninety-nine students (31%) indicated occasional feelings of eating abnormality, while 184 individuals (57.7%) rarely, if ever, felt their eating habits were not normal.

Previous treatment (Table 24) Ten students (3.1%) indicated participation -- past or present -- in an eating disorders program. The remainder responded negatively to this question.

The previous paragraphs have provided a summary of demographic characteristics and eating behaviors and attitudes as reported by the respondents in this research. With these results providing a basis for analysis, attention is now directed toward the three hypotheses of this study.

TABLE 23

Eating Behaviors and Attitudes
Self Perception
(N=319)

Class Level	See Eating Pattern As Abnormal					
	1 (Never/Almost Never)	2	3	4	5 (Almost Always/ Always)	T
Freshman	50	24	33	11	8	126
%F	(39.7)	(19.0)	(26.2)	(8.7)	(6.3)	(100.0)
%N	(15.7)	(7.5)	(10.3)	(3.4)	(2.5)	(39.5)
Sophomore	26	14	28	3	0	71
%So	(36.6)	(19.7)	(39.4)	(4.2)		(100.00)
%N	(8.2)	(4.4)	(8.8)	(0.9)		(22.25)
Junior	23	7	14	5	2	51
%J	(45.1)	(13.7)	(27.5)	(9.8)	(3.9)	(100.0)
%N	(7.2)	(2.2)	(4.4)	(1.6)	(0.6)	(16.0)
Senior	27	13	24	6	1	71
%Se	(38.2)	(18.3)	(33.8)	(8.5)	(1.4)	(100.00)
%N	(8.5)	(4.1)	(7.5)	(1.9)	(0.3)	(25.25)
Total	126	58	99	25	11	319
%N	(39.5)	(18.2)	(31.0)	(7.8)	(3.4)	(100.0)

N/F = 126
N/So = 71
N/J = 51
N/Se = 71

TABLE 24

Eating Behaviors and Attitudes
Past Treatment
(N=319)

Class Level	Ever Involved in Eating Disorders Program?		
	Yes	No	T
Freshman	4	122	126
%F	(3.2)	(96.8)	(100.0)
%N	(1.3)	(38.2)	(39.5)
Sophomore	4	67	71
%So	(5.6)	(94.4)	(100.00)
%N	(1.3)	(21.0)	(25.25)
Junior	1	50	51
%J	(2.0)	(98.0)	(100.0)
&N	(0.3)	(15.7)	(16.0)
Senior	1	70	71
%Se	(1.4)	(98.6)	(100.00)
%N	(0.3)	(21.9)	(22.25)
Total	10	309	319
%N	(3.1)	(96.9)	(100.0)

N/F = 126
N/So = 71
N/J = 51
N/Se = 71

BULIMIA PREVALENCE

In this section, the data, as presented in the previous sections addressing demographic factors and eating behaviors and attitudes, are now applied to the DSM-III inclusion criteria (Table 6 and Table 7). Requirements constituting inclusion into each of the three bulimia prevalence categories include:

1) Bulimic - Individuals satisfying all diagnostic criteria (DSM-III A, B, C, and D).

2) Possibly bulimic - Individuals satisfying two or three of the diagnostic criteria, one of which must be DSM-III A or DSM-III B.

3) Non-bulimic - Individuals satisfying any one criterion or no criteria at all.

The following discussion presents the results of this study as they relate to these issues. Based upon the findings of statistical analyses of descriptive data, the three hypotheses are then addressed.

The number of students satisfying each of the four DSM-III criterion is illustrated in Table 25.

Of the total 319 respondents, 90 students (28.2%) did not satisfy any of the inclusion criteria. Of the remaining students, 73 (22.9%) satisfied at least one inclusion criterion, 69 students (21.6%) met two criteria, 32 students (10%) satisfied three criteria, and 55 students (17.2%) met

TABLE 25

Number of UW-L Students Satisfying
DSM-III Inclusion Criteria - Fall, 1983

DSM-III Criteria	Class Level				Total
	Freshman	Sophomore	Junior	Senior	
A	45	25	19	30	119 (37.7% of respondents)
B	31	19	12	15	77 (24.1% of respondents)
C	53	33	22	32	140 (43.9% of respondents)
D	78	40	26	47	191 (59.9% of respondents)

all inclusion criteria. Based on these findings, assignment to one of the three prevalence categories was possible, and as such, bulimia prevalence is illustrated in Table 26.

Null-hypothesis One

Null-hypothesis one stated: "The prevalence of bulimia within a specific university student population will not exceed 15%." Results of this research (as illustrated in Table 10) indicate a prevalence of bulimia within the University of Wisconsin-La Crosse female student population of 17.2%. It is recognized that a statistical test of significance was not applied. The figure does compare to the findings reported in other research (Brody, 1981; Halmi, et al, 1981; Wermuth, et al, 1977). However, as the null-hypothesis is stated, results of this study lead to its rejection.

Null-hypothesis Two

Null-hypothesis two stated: "There will be no significant difference of bulimia prevalence in between-group analyses of the freshman, sophomore, junior, and senior academic levels." Table 26 reveals the bulimia prevalence according to class level. Of the freshman students, 15.9% were identified as bulimic. The sophomore percentage was slightly higher at 16.9%, followed by the senior class, with 18.3%. The junior class had the largest percentage of bulimic individuals, at 19.6%. In comparing these figures, results of the statistical analysis (chi-square analysis applied to 3 x 4 cross-tabulation as seen in table 26) revealed a

TABLE 26

Bulimia Prevalence
University of Wisconsin-La Crosse - Fall 1983

Prevalence Categories	Class Level				Total
	Freshman	Sophomore	Junior	Senior	
Bulimic	20 (15.9%)	12 (16.9%)	10 (19.6%)	13 (18.3%)	55 (17.2%)
Possibly Bulimic	21 (16.7%)	12 (16.9%)	7 (13.7%)	16 (22.5%)	56 (17.6%)
Non-Bulimic	85 (67.5%)	47 (66.2%)	34 (66.7%)	42 (59.2%)	208 (65.2%)
Total	126	71	51	71	319 (100.0%)

significance of 0.8815, with six degrees of freedom at $p \leq .05$. Based upon this finding, null-hypothesis 2 failed to be rejected (see also table 27).

Null-hypothesis Three

Null-hypothesis three stated: "There will be no statistically significant relationship between bulimia prevalence and the demographic factors of: (a) Age, (b) Living accommodations, (c) Meal accommodations, (d) Grade point average, (e) Family income, (f) Number of brothers, or (g) Number of sisters." For the purposes of organization and understanding, each factor is separately addressed.

In the analyses of possible demographic relationships, it was noted that many of the cells in the cross-tabulation were diluted, due to the wide range of possible responses. In order to strengthen the power of the chi-square and Kruskal-Wallis analyses, selected response categories within selected demographic factor categories were combined or eliminated. Further explanation of this is included in the following discussion of null-hypothesis three subfactors. Supplemental data is included in Tables 27, 28, and 29.

Factor (a) Age Categories as established in the inventory were collapsed to form four new age categories and eliminate cells with zero: 1) 17-18 years, 2) 19-20 years, 3) 21-22 years, and 4) 23-25 years. Comparison of the three bulimia prevalence categories to each of these categories (chi-square analysis as applied to 3 x 4

TABLE 27

Analysis of Demographic Factors/
Bulimia Prevalence Relationship - Chi-square

Demographic Factors	Statistical Data				
	Chi-Square	Degrees of of Freedom	Significance	Minimum Expected Frequency	Cells with Expected Frequency > 5
Class Level	2.38165	6	0.8815	8.79	None
Age	8.88678	6	0.1800	3.276	2 of 12 (16.7%)
Living Accommodations	1.82160	2	0.4022	26.379	None
Meal Accommodations	4.90939	4	0.2967	2.266	2 of 9 (22.2%)
Number of Brothers	12.63879	4	0.0132*	9.828	None
Number of Sisters	4.91603	4	0.2960	11.897	None

*Significant at $p \leq .05$

TABLE 28

Demographic Factor/Bulimia Prevalence
Kruskal-Wallis Analyses
(N=319)

Demographic Factor	Kruskal-Wallis Analyses						
	Mean Rank	Cases	Total Cases	Chi2	Significance	Corrected for Ties Chi2	Corrected for Ties Significance
Grade Point Average	156.89	205	315*	0.7932	0.6726	0.8596	0.6507
	168.20	56					
	154.63	55					
Family Income	142.40	184	284*	0.3229	0.8509	0.3517	0.8387
	147.16	52					
	137.83	48					

* Though 319 surveys were completed and returned, students may not have answered all 36 questions. Consequently, the total number of cases may not coincide with the figure shown and N.

TABLE 29

Demographic Factor/Bulimia Prevalence
Mann-Whitney U Analyses
(N=263)

Demographic Factor	Mann-Whitney U Analyses						
	Mean Rank	Cases**	Total* Cases	U	W	Corrected for ties Z	Z-tallied P
Grade Point Average	130.87	205	260	5561.0	7101.0	-0.1610	0.8721
	129.11	55					
Family Income	117.28	184	232	4273.0	5449.0	-0.3601	0.7187
	113.52	48					

*Though 319 surveys were completed and returned, students may not have answered all 36 questions. Consequently, the total number of cases may reflect a discrepancy between the figure shown and N.

**Analysis addressed the relationship of GPA and of Family Income to two of the three prevalence categories: 1) Bulimic and 2) Non-bulimic. The category of "Possibly bulimic" was eliminated from this analysis.

cross-tabulation) revealed 0.1800 significance at $p \leq .05$ with six degrees of freedom. Based upon this finding, factor (a) of null-hypothesis three was not rejected--no statistically significant relationship between bulimia prevalence and age was found.

Factor (b) Living accommodations Analysis of this demographic factor dealt with current living accommodations. The two existing categories of 1) On-campus, and 2) Off-campus were sufficient for analysis and the combining of categories was not necessary. Statistical analysis (chi-square analysis as applied to 2 x 3 cross-tabulation of categories of living accommodations and bulimia prevalence) reported a significance of 0.4022 at $p \leq .05$ with 2 degrees of freedom. Based upon this finding, factor (b) of null-hypothesis three was not rejected.

Factor (c) Meal accommodations Three categories of responses were included in the analysis: 1) Students participating in the university meal plan, 2) Students who prepared their own meals, and 3) Students with arrangements "other" than these previous two. The resulting significance (as revealed by chi-square analysis applied to 3 x 3 cross-tabulation of categories of meal accommodations and bulimia prevalence) was 0.2967 with four degrees of freedom at $p \leq .05$. Based upon this result, factor (c) of null-hypothesis three was not rejected.

Factor (d) Grade point average Inventory response choices addressing GPA were grouped as follows: responses of (1) less than 1.10, (2) 1.10-1.59, (3) 1.60-2.09, and (4) 2.10-2.59 were combined to form the one category of less than 2.60, (5) 2.60-3.09 formed the second, (6) 3.10-3.59 comprised the third, (7) greater than 3.59 became the fourth. In the relationships of these categories to bulimia prevalence, results (as revealed by Kruskal-Wallis analysis of variance) indicated an initial significance of 0.6726, and a significance of 0.6507 with correction for ties. Based upon these results, factor (d) of null-hypothesis three was not rejected.

Factor (e) Family income Once again, existing response choices were combined to form new categories. Survey responses (1) less than $6,000 and (2) $6,000-$11,999 became group 1 (less than $12,000), (3) $12,000-$17,999 and (4) $18,000-$23,999 formed group 2 ($12,000-$23,999), (5) $24,000-$29,999 and (6) $30,000-$25,999 comprised group 3 ($24,000-$25,999) and (7) $36,000-$40,000 and (8) over $40,000 became group 4 (greater than $25,999). Statistical analysis (Kruskal-Wallis analysis of variance) reported an initial significance of 0.8509, and a significance of 0.8387 with correction for ties. Based upon these results, factor (e) of null-hypothesis three was not rejected.

Factor (f) Number of brothers Based upon the distribution of responses to this survey question, three

categories were formed: 1) Students having no brothers, 2) Students having one or two brothers, and 3) Students having three or more brothers. Analysis of these categories (chi-square analysis as applied to 3 x 3 cross-tabulation of categories of number of brothers and bulimia prevalence) resulted in a significance of 0.0132 with four degrees of freedom at $p \leq .05$. This result led to the rejection of factor (f) of hypothesis three.

Factor (g) Number of sisters As in the analysis of the number of brothers, categories within this factor were: 1) Students having no sisters, 2) Students indicating one or two sisters, and 3) Students reporting three or more sisters. Results of analysis (chi-square analysis as applied to 3 x 3 cross-tabulation of categories of number of sisters and bulimia prevalence) yielded a significance of 0.2960 with four degrees of freedom at $p \leq .05$. Based upon this finding, factor (g) of null-hypothesis three was not rejected.

DISCUSSION

To reiterate, based upon the results of this research, it was found that: (a) The prevalence of bulimia within the female student population at the University of Wisconsin-La Crosse is comparable to levels reported in other studies, and exceeds the predicted level of 15% as set fourth in null-hypothesis one, (b) There is no significant difference

of bulimia prevalence in between-group analyses of the freshman, sophomore, junior, and senior academic levels, (c) There is no statistically significant relationship between bulimia prevalence and the demographic factors of age, living accommodations, meal accommodations, GPA, family income, or number of sisters, and (d) There may be a relationship of bulimia prevalence with the number of brothers a student has (this finding may have occurred by chance, as it is a somewhat isolated relationship of the demographic descriptions, and is thus accepted with caution). In reference to the review of current literature, these conclusions would appear to support the findings of other research, but to a limited extent. The following paragraphs provide added insight and understanding of the outcomes of this project. Discussion is presented in two sections: 1) Comparative analysis--eating behaviors, and 2) Comparative analysis--demographic profile. Supplemental data has been included for further clarification and discussion. Implications of the results are then identified, and limitations of the study, which may or may not have had effect on the project's validity, are defined.

COMPARATIVE ANALYSIS--EATING BEHAVIORS

The combined subgroup results which describe the prevalence of bulimia at UW-L were very similar to the findings of other studies as presented in related literature. Halmi's research (1981) indicated 19% of the women

respondants as experiencing all major symptoms outlined in DSM-III; Pyle, et al (1982) reported an incidence of 7.8%. Wermuth, et al (1977) estimated 5 - 25%, Brody (1981) 15 - 30%. Clearly, the prevalence of 17.2%, as established by the results of this study, is not an unlikely figure.

Table 26 illustrates the prevalence of bulimia according to class levels. Literature reviewed suggested that the overall prevalence is increasing. Though impossible to draw longitudinal conclusions based on cross-sectional data, and with an awareness of the need for further substantive evidence, the following observations are nonetheless offered. In referring to Table 26, it is noted that the prevalence within each class level shows, not an increase, but a decrease, from the junior to sophomore to freshman levels. This clearly conflicts with the reports of current literature as just mentioned.

However, interpretation of data can be deceptive. Table 30 also illustrates the prevalence of bulimia according to class levels, but adds a new set of comparative data. Of 55 bulimics, 20 students (36.4%) were freshman, 12 students (21.8%) were sophomores, 10 students (18.2%) were juniors, and 13 individuals (23.6%) were seniors. Boskind-White and White (1983) noted that the break from high school to the college experience is often one of conflict and emotional upheaval, and suggested that such added stress may manifest itself through bulimic behavior. The data, as presented in Table 30 (data that was interpreted as conflicting

TABLE 30

Bulimia Prevalence
University of Wisconsin-La Crosse Fall, 1983
(N=319)

Class Level	Prevalence categories			
	Bulimic	Possibly Bulimic	Non-Bulimic	Total
	(%N)	(%N)	(%N)	(%N)
Freshman	20 (36.4)	21 (37.5)	85 (40.9)	126 (39.5)
Sophomore	12 (21.8)	12 (21.4)	47 (22.6)	71 (22.25)
Junior	10 (18.2)	7 (12.5)	34 (16.3)	51 (16.0)
Senior	13 (23.6)	16 (28.6)	42 (20.2)	71 (22.25)
Total	55 (100.0)	56 (100.0)	208 (100.0)	319 (100.00)

with current research) now appears supportive of, and congruent with current research.

Similarities are further illuminated in the examination of specific bulimic behaviors (See Tables 16-24). For example, results of this study indicated 7.3% of the respondents as engaging in vomiting behavior, and 3.8% as using laxatives (Table 21). These compare to the findings reported by the University of Minnesota where 7% vomited and 10% used laxatives (Banasynski, 1981; Cauwels, 1983). Continual weight control (Table 16) was attempted by 64.2% of the respondents in this study. Similarly, Halmi, et al (1981) reported 47%, as did Pyle, et al (1982).

Not all findings were as supportive of other research as these, however. A notable discrepancy was seen in the number of respondents who admitted to binging behavior (Table 20). The results of this study (38.2%) were far less than the findings of 57.4% by Halmi, et al (1981), 57.4% by Pyle, et al (1982), 60% by the University of Minnesota (Cauwels, 1983), and 79% by Hawkins and Clement (1980). A possible explanation of this may lie in the respondents' varying individual interpretations of the definition of a binge, the honesty of responses, and differences in questionnaire construction.

Similarly, an examination of the binging and purging behavior of those individuals in this study identified as bulimic reveals results which fall far short of figures as indicated in other research. For example, Wermuth, et al (1977) reported average frequencies of three to four episodes

per week. Likewise, most bulimics in Mitchell's studies binged at least several times a week (Pyle, et al, 1981). Of the 55 identified bulimics in this study, the frequency of binging episodes was much less, averaging 6.3 days per month, 1.7 times per each of those days (Table 31). Vomiting behavior (Table 32), indicated by 15 of the 55 individuals, occurred an average of 8.7 days per month, 1.7 times per each of those days. Laxative use, reported by eight of the 55 bulimics, occurred an average of 3.3 days per month, 1.1 times on those days. The discrepancy of these results to other research is clearly evident.

In addition, the percentage of bulimics engaging in the varying purging methods differed from figures reported in current literature. Cauwels (1983) estimated that approximately 90% of bulimics that purge do so by vomiting. Results of this study reported 30.9% of the identified bulimics as purging through self-induced vomiting. Likewise, a study of 85 bulimics (Mitchell, et al, 1981) found that 41.2% used laxatives. Only 14.5% of the bulimics in this study indicated laxative use.

In comparing food preferences of the bulimic individuals of this research to those of other studies, results were strikingly similar. Current research indicates the type of foods consumed during a binge are typically high in calories and easily digested (Mitchell, et al, 1981; Pyle, et al, 1981). In one study of 40 bulimics, Pyle, et al (1981) found ice cream, bread and toast, candy, doughnuts, soft drinks,

Table 31

Eating Behaviors & Attitudes
Binging Behavior
N=319

Prevalence Category	Number who binge	Avg. days/ month $\bar{n}$ days	Avg times/ day $\bar{n}$ times	For how long $\bar{n}$ range	Binging Factors: Terminating Factors: Sleep	Guilt	Vomiting	Interrupted	Stomach Pain	Other
Bulimic	55	6.3	1.8	1 Year-	6	40	7	12	22	14
%B	(100.0)			17 Months	(10.9)	(72.7)	(12.7)	(21.8)	(40.0)	(25.5)
%N	(17.2)				(1.9)	(12.5)	(2.2)	(3.8)	(6.9)	(4.4)
Possibly Bulimic	56	3.6	1.3	6 Months-	1	30	0	6	16	20
%PB	(100.0)			11 Months	(1.8)	(53.6)		(10.7)	(28.6)	(35.7)
%N	(17.6)				(0.3)	(9.4)		(1.9)	(5.0)	(6.3)
Non-Bulimic	11	4	1.1	1 Year-	1	3	0	1	1	6
%NB	(5.3)			17 Months	(0.5)	(1.4)		(0.5)	(0.5)	(2.9)
%N	(3.4)				(0.3)	(0.9)		(0.3)	(0.3)	(1.9)
Total	122				8	73	7	19	39	50
%N	(38.2)				(2.5)	(22.9)	(2.2)	(6.0)	(12.2)	(15.7)

N/B=55 N/PB=56 N/NB=208

Table 32

Eating Behaviors & Attitudes
Purging Behavior
N=319

	Purging Factors							
Prevalence Category	Vomit	Avg. days/ month $\bar{n}$ days	Avg. times/ day $\bar{n}$ times	For how long $\bar{n}$ range	Laxative	Avg. days/ month $\bar{n}$ days	Avg. times/ day $\bar{n}$ times	For how long $\bar{n}$ range
Bulimic	17	8.7	1.7	6 Months-	8	3.3	1.1	4 Months-
%B	(30.9)			11 Months	(14.5)			5 Months
%N	(5.3)				(2.5)			
Possibly Bulimic	2	1.5	1.5	4 Months-	0	0	0	0
%PB	(3.6)			5 Months				
%N	(0.6)							
Non-Bulimic	4	1.8	1.0	6 Months-	4	2.3	1.0	4 Months-
%NB	(1.9)			11 Months	(1.9)			5 Months
%N	(1.3)				(1.3)			
Totals	23				12			
%N	(7.2)				(3.8)			

salads or sandwiches, and cookies, popcorn, milk, cheese, or cereal as being those foods most preferred. Results of this study indicate a sequence of similar preference: ice cream, fried or greasy foods, chips, pretzels, and popcorn, pastries and baked goods, candy, bread and cereal were identified as foods most preferred over fruits or vegetables, meat, and milk and cheese. As Brody (1983) described, the emphasis was on the "forbidden foods".

A profile of eating behaviors as revealed by the bulimic individuals of this study is summarized in Supplemental Findings/Discussion which immediately follows the next section. Also included are data concerning attitudes and self-perception of their eating behaviors. It is not surprising that not a single bulimic individual felt completely free of guilt or depression, nor did any individual perceive her eating behavior as unquestionably normal.

COMPARATIVE ANALYSIS--DEMOGRAPHIC PROFILE

In examining the results of demographic analysis as they compare to current research findings, bulimics were said to typically be well-educated, success-oriented achievers, coming from a suburban middle class family -- a family that is often confusing, controlled, and competitive, both among parents as well as siblings. The ages of bulimics were found to range from adolescence to middle age, with women

in their twenties as tending to be most vulnerable (Boskind-White & White, 1983). Though the results of this research do not support a statistically significant relationship of bulimic prevalence to demographic factors reflective of the above description, closer examination reveals a similar profile.

This should not be surprising, in light of the "built in" characteristics of the target population. The very fact that this study was delimited to a university student population suggests a certain level of attained education and success. Similarly, the cost incurred in pursuing a college degree is substantial, suggesting a stable financial backing. In addition, traditionally, the ages of individuals attending college has been predominantly 17 or 18 years of age to 22 or 23 years of age. Thus, the majority of the respondents receiving the survey, as dictated by the delimitation of fulltime status in the freshman through senior class levels, would be expected to fall within the above mentioned age range, making if difficult, if not impossible, to draw conclusions concerning the relationship of age to bulimia prevalence.

Observations can be made, however. Academic success was apparent among the identified bulimics in this research, as evidenced in the reported grade point averages. Of the 55 bulimic individuals, 76.4% (42 students) indicated GPA's of 2.60 or greater, on a four point scale. Twenty-two of these individuals (40%) carried GPA's equal to or greater than

3.10. These results clearly support the suggestion of success and achievement found to be common among bulimics.

Furthermore, family incomes were reflective of middle-class backgrounds. Of the 48 bulimic students responding to this survey item, 13 individuals (27.1%) reported a family income of $12,000-$23,999, with another 28 students (58.3%) reporting incomes of $24,000-$35,999. Fifteen of the 48 individuals indicated family incomes of greater than $36,000.

Forty-three of the identified bulimics (78.2%) reported having at least one brother, 39 students (70.9%) indicated having at least one sister. In considering the notion of sibling rivalry as often prevalent in the families of bulimics, this data might lead to speculation, but speculation only. It is impossible to draw concrete conclusions without further research.

Final observations are made regarding living accommodations. Several aspects of this factor were addressed in the survey, the responses of which are summarized in Table 33 and Table 34.

In referring to these tables, bulimic behaviors appear more common among individuals who have experienced residence hall living than among those who have never lived on campus. Of the 122 individuals who indicated binging behavior, 98 students (80.3%) had experienced residence hall living. Similarly, of 23 students, reporting vomiting behavior, 18 individuals (78.3%) had experienced on-campus living. Laxative

Table 33

Living Accommodations/
Bulimic Behavior Relationships
N=319

Bulimic Behaviors	Accommodation Factors										
	Has lived in dorm	Has not lived in dorm	Currently on campus	Currently off campus	Lived in current accommodations for:				Living with how many:		
					Less than 1 semester	1-2 semesters	3-4 semesters	More than 4 semesters	Alone	1	More than 1
Binge	98	23	56	66	60	9	31	22	1	69	50
%B	(80.3)	(18.9)	(46.0)	(54.1)	(49.2)	(7.4)	(25.4)	(18.0)	(0.8)	(56.6)	(41.0)
%N	(30.7)	(7.2)	(17.6)	(20.7)	(18.8)	(2.8)	(9.7)	(6.9)	(0.3)	(21.6)	(15.7)
Vomit	18	4	13	10	15	0	4	4	0	15	8
%V	(78.3)	(17.4)	(56.5)	(43.5)	(65.2)		(17.4)	(17.4)		(65.2)	(34.8)
%N	(5.6)	(1.3)	(4.1)	(3.1)	(4.7)		(1.3)	(1.3)		(4.7)	(2.5)
Laxative	8	3	7	5	6	2	2	2	0	8	4
%L	(66.7)	(25.0)	(58.3)	(41.7)	(50.0)	(16.7)	(16.7)	(16.7)		(66.7)	(33.3)
%N	(2.5)	(0.9)	(2.2)	(1.6)	(1.9)	(0.6)	(0.6)	(0.6)		(2.5)	(1.3)
Total	124	30	76	81	81	11	37	28	1	92	62
%N	(38.9)	(9.4)	(23.8)	(25.4)	(25.4)	(3.4)	(11.6)	(8.8)	(0.3)	(28.8)	(19.4)

N/Binge=122 N/Vomit=23 N/Laxative=12

Table 34

Living Accommodations/
Bulimic Prevalence Relationships
N=319

Prevalence Categories	Accommodation Factors: Has lived in dorm	Has not lived in dorm	Currently on campus	Currently off campus	Lived in current accommodations for: Less than 1 semester	1-2 semesters	3-4 semesters	More than 4 semesters	Living with how many: Alone	1	More than 1
Bulimic	43	11	22	33	27	5	11	12	0	28	26
%B	(78.2)	(20.0)	(40.0)	(60.0)	(49.1)	(9.1)	(20.0)	(21.8)		(50.9)	(47.3)
%N	(13.5)	(3.4)	(6.9)	(10.3)	(8.5)	(1.6)	(3.4)	(3.8)		(8.8)	(8.2)
Possibly Bulimic	49	7	29	27	28	3	17	8	0	35	21
%PB	(87.5)	(12.5)	(51.8)	(48.2)	(50.0)	(5.4)	(30.4)	(14.3)		(62.5)	(37.5)
%N	(15.4)	(2.2)	(9.0)	(8.5)	(8.8)	(0.9)	(5.3)	(2.5)		(11.0)	(6.6)
Non-Bulimic	156	51	102	106	105	14	45	43	3	111	93
%NB	(75.0)	(24.5)	(49.0)	(51.0)	(50.5)	(6.7)	(21.6)	(20.7)	(1.4)	(53.4)	(44.7)
%N	(48.9)	(24.5)	(32.0)	(33.2)	(33.0)	(4.4)	(14.1)	(13.5)	(0.9)	(34.8)	(29.2)
Total	248	69	153	166	160	22	73	63	3	174	140
%N	(77.7)	(21.6)	(48.0)	(52.0)	(50.2)	(6.9)	(22.9)	(19.7)	(0.9)	(54.5)	(43.9)

N/B=55 N/PB=56 N/NB=203

use, reported by 12 individuals, was likewise, more prevalent among those respondents who reported experience with dormitory life (8 students, 66.7%).

In relating the three prevalence categories to living accommodations, again, it appears that bulimia is more prevalent among individuals who, though they may not currently be living on campus, have experienced residence hall living at some time. Of 55 bulimics, 43 students (78.2%) reported on-campus experience. Similarly, of individuals considered possibly bulimic, 87.5% (49 of 56 individuals) had lived on campus at one time.

These observations may suggest the impact of environmental stress and peer pressure on the prevalence of bulimic behaviors. This suggestion could be disputed, however. In referring to the data in Tables 33 and 34 concerning current accommodations, the same ratios are found. Rather, a relatively even split is present in virtually every category as it relates to current accommodations, suggesting that bulimic behaviors are as prevalent, if not more so, among individuals who currently live off campus. However, the fact that many of these individuals did, at one time, live in a residence hall, lends itself to support of the initial suggestion; behaviors learned or magnified while living in a residence hall would remain with an individual as she moved off campus. Obviously, this is only speculation, and further research is required before concrete conclusions can be made.

SUPPLEMENTAL FINDINGS/DISCUSSION

The focus of the preceding discussion has been directed to the results of this study as they related to the three research hypotheses. Tables were incorporated throughout the section which illustrated the points being made, as well as provided additional information. Similar tables are presented in the following paragraphs. Here, data addressing eating behaviors and attitudes are related, not to class level, but to prevalence categories, yielding a new set of results and a new perspective on the thrust of this study.

Table 35 illustrates the number of times individuals within the three bulimia prevalence categories attempted to control their weight. In referring to Table 35, it is interesting to note the similarity between the "bulimic" and "possibly bulimic" groups in the number of times weight control was attempted, and the difference of these two groups to the "non-bulimic" category. The concern over weight is obvious among the individuals possessing bulimic tendencies.

Pounds gained or lost is illustrated in Table 36. Most notable of these results is the weight fluctuations of the three groups. Proportionately, more members of the bulimic group indicated a gain or loss than did the members of the remaining two groups. In examining weight gain, 67.3% of the bulimic group gained more than five pounds, as compared to 32.3% of the possibly bulimic group, and 23.5% of the

TABLE 35

Eating Behaviors and Attitudes
Weight Control
(N=319)

Prevalence Category	Times Attempted to Control Weight: Never	1	2	3	4	5	Continually	T
Bulimic	0	2	2	3	2	1	45	55
%B		(3.6)	(3.6)	(5.5)	(3.6)	(1.8)	(81.8)	(100.0)
%N		(0.6)	(0.6)	(0.9)	(0.6)	(0.3)	(14.1)	(17.2)
Possibly Bulimic	0	2	2	3	1	2	45	55
%PB		(3.6)	(3.6)	(5.4)	(1.8)	(3.6)	(80.4)	(98.2)
%N		(0.6)	(0.6)	(0.9)	(0.3)	(0.6)	(14.1)	(17.2)
Non-Bulimic	37	10	24	14	5	3	113	206
%NB	(17.8)	(4.8)	(11.5)	(6.7)	(2.4)	(1.4)	(54.3)	(99.0)
%N	(11.6)	(3.1)	(7.5)	(4.4)	(1.6)	(0.9)	(35.4)	(64.6)
Total	37	14	28	20	8	6	203	317
	(11.6)	(4.4)	(8.8)	(6.3)	(2.5)	(1.9)	(63.6)	(99.4)

Bulimic = N/55
Possibly Bulimic = N/56
Non-Bulimic = N/208

Table 36

Eating Behaviors & Attitudes
Weight Gain/Loss
N=319

Prevalence Category	Pounds Gained							Pounds Lost							
	0	1-5	6-10	11-15	16-20	21-25	26-30	0	1-5	6-10	11-15	16-20	21-25	26-30	>30
Bulimic	12	6	24	7	3	1	2	10	11	20	11	1	0	1	1
%B	(21.8)	(10.9)	(43.6)	(12.7)	(5.5)	(1.8)	(3.6)	(18.2)	(20.0)	(36.4)	(20.0)	(1.8)		(1.8)	(1.8)
%N	(3.8)	(1.9)	(7.5)	(2.2)	(0.9)	(0.3)	(0.6)	(3.1)	(3.4)	(6.3)	(3.4)	(0.3)		(0.3)	(0.3)
Possibly Bulimic	20	18	16	2	0	0	0	21	12	14	8	1	3	0	0
%PB	(35.7)	(32.1)	(28.6)	(3.6)				(37.5)	(21.4)	(25.0)	(14.3)	(1.8)	(5.4)		
%N	(6.3)	(5.6)	(5.0)	(0.6)				(6.6)	(3.8)	(4.4)	(2.5)	(0.3)	(0.9)		
Non-Bulimic	106	53	39	8	2	0	0	72	39	64	19	10	0	0	1
%NB	(51.0)	(25.5)	(18.8)	(3.8)	(1.0)			(34.6)	(18.8)	(30.8)	(9.1)	(4.8)			(0.5)
%N	(33.2)	(16.6)	(12.2)	(2.5)	(0.6)			(22.6)	(12.2)	(20.1)	(6.0)	(3.1)			(0.3)
Total	138	77	79	17	5	1	2	103	62	98	38	12	3	1	2
%N	(43.3)	(24.1)	(24.8)	(5.3)	(1.6)	(0.3)	(0.6)	(32.3)	(19.4)	(30.7)	(11.9)	(3.8)	(0.9)	(0.3)	(0.6)

N/B=55 N/PB=56 N/NB=208

non-bulimic group. A similar pattern occurs in weight loss: 61.8% of the bulimics lost more than five pounds as compared to 41.1% of the possibly bulimic group, and 46.6% of the non-bulimic group. These observations reflect a bulimic characteristic included in the DSM-III: frequent weight fluctuations of 10 pounds or more.

Table 37 describes the eating patterns most preferred by the bulimic and the non-bulimic groups. The differing sequence of choices between the two groups is notable, especially in the top choices of each. For example, the bulimic group's most preferred way of eating (one meal per day with some snacking, 45.5% of the "1" rankings assigned) was identified by the non-bulimic group as its next to least preferred pattern (4.3% of "1" rankings assigned). The bulimic group also ranked "One meal per day" as a top choice (18.2%), where the non-bulimic group reported little preference for this pattern (4.8%). The bulimic individuals in this study clearly demonstrate a preference for eating patterns which reflect a deviation from what might be considered a "normal" or nutritionally recognized eating lifestyle, as reflected in the choices of the non-bulimic group. Also, the binge-starve syndrome may be showing itself in the bulimic's preferred patterns.

Several other observations are made in reference to the binging and purging behavior of the three prevalence groups. Table 31 (page 100) illustrates binging behavior and includes the number of students who binge, the frequency of the binging

Table 37

Eating Behaviors and Attitudes
Eating Pattern
(N=319)

	Bulimic Ranking			Non-Bulimic Ranking		
Most Preferred (Receiving Most Number of "1" Rankings)						
↑	1 Meal with some snacking	25	(45.5%)	2 Meals with some snacking	96	(46.2%)
	2 Meals with some snacking	24	(43.6%)	3 Meals with some snacking	37	(17.8%)
	1 Meal per day	10	(18.2%)	2 Meals per day	19	(9.1%)
	2 Meals per day	6	(10.9%)	3 Meals per day	18	(8.7%)
	3 Meals with some snacking	6	(10.9%)	1 Meal per day	10	(4.8%)
	3 Meals per day	3	(5.5%)	1 Meal with some snacking	9	(4.3%)
	No Meals, continual snacking	1	(1.8%)	No Meals, continual snacking	4	(1.9%)
↓						
Least Preferred (Receiving Least Number of "1" Rankings)						

episodes, and terminating factors. The differences between the three groups are readily apparent. Only 11 of 208 individuals classified as non-bulimic (5.3%) reported binging behavior. This compares with 100% of each of the remaining two prevalence groups reporting binging behavior. Differences are also seen in the frequency of the binging episodes. Bulimics binged more frequently than individuals in the other two prevalence categories. The non-bulimics who reported binging behavior did so more frequently than those in the possible bulimic group. This is incongruent with what might be expected, and may be due to chance. Great differences can be seen in the terminating factors identified. Guilt was reported by 72.7% of the 55 bulimics who binged and 53.6% of the 56 possibly bulimics who binged, but only 27.3% of the binging non-bulimics (3 of 11 students). Stomach pain and interruption were two additional factors reported in a similar fashion. Table 38 expands upon the aspect of subject attitudes and perceptions.

Feelings of guilt and depression were much more marked among the members of the bulimic group as compared with the non-bulimic category. In fact, there is almost a reversal of feelings between the two groups. The results as depicted in Table 38 further substantiate reports of other research concerning the emotional anxiety, stress, and turmoil so often associatd with bulimia.

Purging behaviors as they related to the three prevalence categories is illustrated in Table 32 (Page 101).

Table 38

Eating Behaviors & Attitudes
Eating Attitudes
N=319

Prevalence Category	Attitudes & Perceptions														
	Feel as though cannot stop					Feel Guilty					Feel Depressed				
	1 (Never/ Almost Never)	2	3	4	5 (Almost Always/Always)	1 (N/AN)	2	3	4	5 (AA/A)	1 (N/AN)	2	3	4	5 (AA/A)
Bulimic	0	9	29	11	6	0	0	17	21	17	0	2	16	22	15
%B		(16.4)	(52.7)	(20.0)	(10.9)			(30.9)	(38.2)	(30.9)		(3.6)	(29.1)	(40.0)	(27.3)
%N		(2.8)	(9.1)	(3.4)	(1.9)			(5.3)	(6.6)	(5.3)		(0.6)	(5.0)	(6.9)	(4.7)
Possibly Bulimic	16	18	19	2	1	5	7	25	16	3	10	10	23	11	2
%PB	(28.6)	(32.1)	(33.9)	(3.6)	(1.8)	(8.9)	(12.5)	(44.6)	(28.6)	(5.4)	(17.9)	(17.9)	(41.1)	(19.6)	(3.6)
%N	(5.0)	(5.6)	(6.0)	(0.6)	(0.3)	(1.6)	(2.2)	(7.8)	(5.0)	(0.9)	(3.1)	(3.1)	(7.2)	(3.4)	(0.6)
Non-Bulimic	105	53	43	5	2	60	52	73	21	2	85	55	50	16	1
%NB	(50.5)	(25.5)	(20.8)	(2.4)	(1.0)	(28.8)	(25.0)	(35.1)	(10.1)	(1.0)	(40.9)	(26.4)	(24.0)	(7.7)	(0.5)
%N	(32.9)	(16.6)	(13.5)	(1.6)	(0.6)	(18.8)	(16.3)	(22.9)	(6.6)	(0.6)	(26.6)	(17.2)	(15.7)	(5.0)	(0.3)
Total	121	80	91	18	9	65	59	115	58	22	95	67	89	49	18
%N	(37.9)	(25.1)	(28.5)	(5.6)	(2.8)	(20.4)	(18.5)	(36.1)	(18.2)	(6.9)	(29.8)	(21.0)	(27.9)	(15.4)	(5.6)

N/B=55 N/PB=56 N/NB=208

The responses provided by members of the possibly bulimic group were somewhat surprising and unexpected. Few individuals in this category reported vomiting behavior or laxative use. In fact, the number of individuals in the non-bulimic category who reported these purging behaviors exceeded the possibly bulimic group. This is similar to the comparison previously mentioned regarding the binging behavior of these two groups (see Table 31). Again, it is impossible to offer any concrete explanation; the results may be a matter of chance.

Table 39 describes the self-perception of the respondents concerning their eating patterns. Again, the results are not surprising. Negative perceptions were reported to some extent by every member of the bulimic group. This is noticeably different from perceptions of the non-bulimic group, who, with the exception of a very small percentage, reported feeling more comfortable with their eating behaviors.

Table 40 includes information as to the number of respondents who indicated having participated in an eating disorders program. The number of individuals reporting participation was evenly distributed among the three prevalence categories. Proportionately, the largest percentage came from the bulimic group.

In summary, the above observations tend to further support the findings of current research (Banasynski, 1981; Brody, 1983; Cauwels, 1983; Halmi, et al, 1981; Hawkins & Clement, 1980, Pyle, et al, 1982; Strangler & Printz, 1980;

TABLE 39

Eating Behaviors and Attitudes
Self Perception
(N=319)

Prevalence Category	See Eating Pattern As Abnormal					
	1 (Never/Almost Never)	2	3	4	5 (Almost Always/ Always)	T
Bulimic	0	6	27	15	7	55
%B		(10.9)	(49.1)	(27.3)	(12.7)	(100.0)
%N		(1.9)	(8.5)	(4.7)	(2.2)	(17.2)
Possibly Bulimic	17	10	25	4	0	56
%PB	(30.4)	(17.9)	(44.6)	(7.1)		(100.0)
%N	(5.3)	(3.1)	(7.8)	(1.3)		(17.6)
Non-Bulimic	109	42	47	6	4	208
%NB	(52.4)	(20.2)	(22.6)	(2.9)	(1.9)	(100.0)
%N	(34.2)	(13.2)	(14.7)	(1.9)	(1.3)	(65.2)
Total	126	58	99	25	11	319
%N	(39.5)	(18.2)	(31.0)	(7.8)	(3.4)	(100.0)

Bulimic = N/55
Possibly Bulimic = N/56
Non-Bulimic = n/208

TABLE 40

Eating Behaviors and Attitudes
Past Treatment
(N=319)

Prevalence Category	Ever Involved in Eating Disorders Program?		
	Yes	No	T
Bulimic	4	51	55
%B	(7.3)	(92.7)	(100.0)
%N	(1.3)	(16.0)	(17.2)
Possibly Bulimic	3	53	56
%PB	(5.4)	(94.6)	(100.0)
%N	(0.9)	(16.6)	(17.6)
Non-Bulimic	3	205	208
%NB	(1.4)	(98.6)	(100.0)
&N	(0.9)	(64.3)	(65.2)
Total	10	309	319
%N	(3.1)	(96.9)	(100.0)

Bulimic = N/55
Possibly Bulimic = N/56
Non-Bulimic = N/208

Wermuth, 1977). Within these limits, the following sections provide an overview of the implications of bulimia, and identify recommendations that have evolved from the strengths and shortcomings of this research.

IMPLICATIONS

The focus of this study did not explore the effects of bulimia on the individual, but rather, was delimited to the issue of prevalence within a university student population. According to research as presented in the review of related literature (Chapter I), experts agree that bulimia may have devastating physical and psychological effects on an individual. The presence of the disorder within a given population must, consequently, be regarded as serious.

The results of this research have indicated a substantial prevalence of bulimia within the female student population at the University of Wisconsin-La Crosse. In consideration of the previous comments, these results define a problem which cannot be ignored. The need for further research is a vital step in examining and confronting the problem. With this would come a better understanding of the disorder, its causes, potential preventive measures, and cures. In light of these observations, the following recommendations are offered.

RECOMMENDATIONS

1. The need for further research investigating the prevalence and effects of bulimia is recognized and thus, recommended.

2. With the recognition of the prevalence of bulimia within the university student population comes the need for universities to provide counseling services designed specifically to identify, educate, and support those individuals suffering from the disorder. It is recommended that colleges and universities continue in their efforts to meet student needs by establishing and developing such programs.

3. Further responsibility may lie in the education of faculty, staff, administration, and students regarding the enhancement of awareness, understanding, prevention, and sensitivity to bulimia. The development of workshops and seminars, use of campus-wide publications, television, and radio media, and the establishment of an "open-door" policy, which would encourage and invite individuals to explore the various university and community programs available, are recommended as possible steps in facilitating this educational goal.

4. Finally, in a attempt to confront the increasing problem of eating disorders, a united effort between professionals within the university community and those working in clinics, hospitals, and treatment centers, and so

on, is recommended. Cooperation in educational workshops, and open communication in designing and implementing effective referral procedures and treatment programs are possible steps toward realizing this goal.

LIMITATIONS

Though every effort was made to insure the validity of this study, there remained several factors beyond the control of the researchers which may have influenced the project's validity. These factors are as follows:

1. Bulimia is a recently recognized eating disorder, thus limiting current literature and well-documented reference material.

2. Due to the recent recognition of bulimia, the extent of prevalence, as well as its relationship to various demographic characteristics, remain somewhat speculative.

3. The target population was college females possessing full-time academic status enrolled at the freshman through senior academic levels, results of this study are limited to the characteristics of such.

4. The availability of accurate and effective diagnostic tools for the purpose of identifying and assessing the prevalence of bulimia is limited.

5. The accuracy of the data gathered from the survey responses is limited to the extent to which responses were honest, complete, accurate, and specific.

6. Results of the project were limited to the percentage of returned surveys.

7. This study was conducted at the University of Wisconsin-La Crosse, and was limited to the characteristics of such (i.e., location, campus size, enrollment, surrounding community, and so on).

CHAPTER IV

SUMMARY

The purpose of this study was to determine the prevalence of bulimia within a specific university population, and to identify the presence of existing relationships among prevalence categories and selected demographic factors.

Three null-hypotheses were generated, based upon extensive review of current literature. They were as follows:

1. The prevalence of bulimia within a specific state university student population will not exceed 15%.

2. There will be no significant difference of bulimia prevalence in between-group analyses of the freshman, sophomore, junior, and senior academic levels.

3. There will be no statistically significant relationship between bulimia prevalence and the demographic factors of: (a) Age, (b) Living accommodations, (c) Meal accommodations, (d) Grade point average, (e) Family income, (f) Number of brothers, or (g) Number of sisters.

The study was conducted at the University of Wisconsin-La Crosse. Its research design provided for

descriptive analysis (including cross-tabulations), and analyses of statistical significance. Collation and primary analysis of data gathered through use of a survey resulted in the determination of a prevalence level of bulimia among female students with full-time status, at the freshman through senior class levels. This data was viewed from an overall perspective, as well as according to class level. All differences between the classes were tested for significance.

The results of the primary analysis were then compared in a secondary analysis whereby a cross-tabulation method was employed to determine the existence of relationships among the demographic variables of age, living accommodations, meal accommodations, grade point average, family income, number of brothers, and number of sisters. Statistical significance of these relationships were then determined.

The results of this research indentified the prevalence of bulimia as 17.2% (null-hypothesis one was rejected). No statistically significant differences of prevalence between the freshman, sophomore, junior, or senior class levels were found to exist (null-hypothesis two failed to be rejected). Examination of the relationship of bulimia prevalence with the demographic factors, as previously identified, revealed no statistically significant relationships, with the exception of the number of brothers an individual has (null-hypothesis three, factors (a), (b), (c), (d), (e), and (g), were failed to be rejected, and factor (f) was rejected). This finding

(factor (f)) is contradictory to findings of current research, and is thus accepted with caution.

The prevalence level of bulimia within the female student population at UW-La Crosse, as identified by the results of this research, is substantial. In light of the potentially devastating effects bulimia may have on an individual's physical and psychological well-being, these results define a problem which must be regarded as serious. Further research investigating the prevalence, relationships, and effects of bulimia within a university student population, and in the general population, is both vital and necessary in defining and addressing the problem. Such research will provide a firm foundation on which to build a better understanding of bulimia and other eating disorders, their causes, potential preventive measures, and cures.

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Appendix A

Forms A-D

Form A: Goli, Margaret H. Unpublished Survey used in study of area high schools, La Crosse, WI, 1983.

Form B: Gross, Julie M. Unpublished survey, course project, 1983.

Form C: Hawkins, R.C. II, & Clement, P.F. Binge Scale Questionnaire, 1980.

Form D: Leon, G., Kolotkin, R., & Korgeski, G. Eating Patterns Questionnaire - B., 1979.

FORM A

Date: _____

Class rank: Senior Junior Sophomore Freshman

Sex: female male

Instructions: Please respond to the following questions.

1. Do you consume breads or cereals daily? a) yes b) no

2. Do you consume fruits or vegetables daily? a) yes b) no

3. Do you consume dairy products daily? a) yes b) no

4. Do you consume meats daily? a) yes b) no

5. How often do you think about food?
_____times per hour _____times per day _____times per week

6. Do thoughts of food/weight interfere in your life? a)yes b)no

7. How often do you think of yourself as restricting what you eat (eat less than what you want)? a) always b) often c) sometimes d) seldom e) never

8. Do you ever starve yourself (restrict yourself from eating when hungry, eat less than 500-600 calories a day)? a) yes b) no

9. Over what length of time do you starve yourself (number of hours, days, weeks)?

10. How frequently do you starve yourself?
_____times per day _____times per week ____times per month

11. Do you eat breakfast daily? a) yes b) no

12. Do you sometimes feel like you can't stop eating? a) yes b) no

13. Do you sometimes consume large quantities of food in a short period of time (15 minutes to 1 or 2 hours), therefore, binge eat? a) yes b) no *if your response was "no," go on to question #19

14. How often do you binge eat?
_____times per day _____times per week _____times per month

15. How long have you been binge eating (number of days, weeks months, years)?

16. Please describe, stating as accurately as possible, the specific foods and amounts of each you eat when binge eating:

17. When on a binge, do you stop eating because (circle one or more):
    a) your stomach hurts
    b) it is enough to make yourself vomit
    c) you are tired, fall asleep
    d) you feel too guilty to keep eating
    e) other, please specify _____

18. Do you feel depressed after a binge eating episode?
    a) yes b) no

19. Do you sometimes induce vomiting after eating? a) yes
    b) no
    *if your response was "no," go to question #22

20. How often do you induce vomiting after eating?
    _____times per day _____times per week _____times per month

21. How long have you been inducing vomiting after eating (number of weeks, months, years)?

22. Do you sometimes take laxatives after eating? a) yes b) no
    *if your response was "no," go to question #25

23. How often do you take laxatives?
    _____times per day _____times per week _____times per month

24. How long have you been taking laxatives (number of days, weeks, months, years)?

25. If you have responded "yes" to questions #6, 8, 13, 19, or 22, please indicate your extracurricular activities (interests, hobbies, sports, etc.):

26. Have you ever sought professional assistance for an eating/weight related concern? a) yes b) no
    If "yes," please describe assistance received:

FORM B

Eating Behaviors Questionnaire

1. What is your current age? __18,__19,__20,__21,__22 or older

2. What is your academic standing? __Freshman, __Sophomore, __Junior, __Senior, __Graduate

3. Do you live __on campus; __off campus.

4. Do you live __alone, __with one other person, __more than one other person.

5. Are you from a family of __one child, __2 to 4 children, __4 to 6 children, __greater than 6 children.

6. What is your sibling/birth order? __Oldest, __Middle, __Youngest, __Only child.

7. How often do you think about food? __Always, __Often, __Sometimes, __Rarely, __Never.

8. Do you enjoy eating? __Always, __Often, __Sometimes, __Rarely, __Never.

9. How many times per day do you eat? __less than or equal to 1, __2, __3, __4, __Greater than or equal to 5.

10. Describe your eating behavior.
__3 regular meals a day.
__3 meals a day and some snacking.
__2 meals a day.
__2 meals a day and some snacking.
__1 meal a day.
__1 meal a day and some snacking.
__eat continually through the day.
__eat a large amount and then starve myself.
__ other - describe _____

11. Rate your diet according to how you perceive its nutritional adequacy.
Adequate 1 2 3 4 5 Inadequate

12. Do you prefer to eat ____Alone. _____With others.

13. In the past five years, how many times have you attempted to lose weight? ___Never, ___Less than or equal to 1, ___2, ___3, ___4, ___Greater than or equal to 5.

14. How often are you on a diet? __Always, __Often, __Sometimes __Rarely, __Never.

15. Have you ever attempted to control your weight by:
Self-Induced Vomiting: __Always, __Often, __Sometimes __Rarely, __Never. Laxative Use: __Always, __Often __Sometimes, __Rarely, __Never. Fasting: __Always, __Often, __Sometimes, __Rarely, __Never.

16. Have you ever rapidly consumed a large amount of food during a short duration of time (less than 2 hours) in a way that if others saw you, you would feel embarrassed?
a.__Yes, __No b. How many calories? __800 - 1000, __1000 - 2000, __2000 - 3000, __3000 - 4000, __Greater than 4000.

17. Do you frequently eat until:
Your stomach hurts; __Always, __Often, __Sometimes, __Rarely, __Never.
You fall asleep; __Always, __Often, __Sometimes, __Rarely, __Never.
You are interrupted by others; __Always, __Often, __Sometimes, __Rarely, __Never.
You vomit; __Always, __Often, __Sometimes, __Rarely, __Never.

18. Do you feel guilty or depressed as a result of your eating habits? __Always, __Often, __Sometimes, __Rarely, __Never.

19. Do you ever feel your eating patterns are abnormal? __Always __Often, __Sometimes, __Rarely, __Never.

20. Do you ever feel that you are unable to control your eating habits or stop eating voluntarily? __Always, __Often, __Sometimes, __Rarely, __Never.

21. Have you ever been diagnosed from a doctor as suffering from an eating disorder? __Yes __No
If yes, what disorder? __Anorexia, __Bulimia, __Compulsive Overeating, __Other_____

22. Have you thought of seeking help for your eating behavior? __Yes, __No

23. Have you ever been involved in a weight control/eating disorders program? __Yes, __No

24. Does your University or College offer any type of eating behavior/weight control or eating disorders program? __Yes, __No, __Don't Know

25. Do you think programming in the areas of eating behavior, weight control, and nutrition counseling should be available on college and unversity campuses? __Yes, strongly agree; __Yes, agree; __No opinion; __No, disagree; __No, strongly disagree.

Thank you for your time.

Signed: _____

FORM C

Height (w/o shoes)_____ Number_____
Weight_____ Sex_____ Age_____

INSTRUCTIONS: This questionnaire is designed to gather information about binge eating. Binge eating involves periods of uncontrolled, excessive eating. If you respond no to the first item "Do you ever binge eat?", please answer only items 10, 13, and 14. If you respond yes to item 1, please answer all questions. For each item, circle only one answer unless otherwise specified. This questionnaire is confidential. Do not put your name on it but please make sure the number of the questionnaire is the same as the number on the other materials.

1. Do you ever binge eat? yes no

2. How often do you binge eat?
   a. seldom;
   b. once or twice a month;
   c. once a week;
   d. almost every day.

3. What is the average length of a binge eating episode?
   a. less than 15 minutes;
   b. 15 minutes to one hour;
   c. one hour to four hours;
   d. more than four hours:
      estimate how long:_____

4. Which of the following statements best applies to your binge eating?
   a. I eat until I have had enough to satisfy me;
   b. I eat until my stomach feels full
   c. I eat until my stomach is painfully full;
   d. I eat until I can't eat anymore.

5. Do you ever vomit after a binge?
   a. never;
   b. sometimes;
   c. usually;
   d. always.

6. Which one of the following best applies to your eating behavior when binging?
   a. I eat more slowly than usual;
   b. I eat about the same as I usually do;
   c. I eat very rapidly.

7. When you binge, which statement best describes your choice of food?
   a. I crave a particular food or type of food (If so, what food or type of food do you usually

choose?_____)
b. I don't crave any particular food or type of food but I eat high calorie foods that I wouldn't otherwise eat.
c. I eat any type of food that's handy.

8. How much are you concerned about your binge eating?
a. not bothered at all;
b. bothers me a little;
c. moderately concerned;
d. a major concern

9. Which best describes your feelings during a binge?
a. I feel that I could control the eating if I chose;
b. I feel that I have at least some control;
c. I feel completely out of control.

10. How often are you bothered by unwanted thoughts of food or eating?
a. never;
b. occasionally;
c. frequently;
d. almost constantly.

11. Which of the following best describes your feelings after a binge?
a. I feel fairly neutral, not too concerned;
b. I am moderately upset;
c. I just hate myself.

12. Which best describes your binge eating behavior?
a. I will binge eat if other people are around;
b. I will binge eat only if I am alone;
c. I make sure no one knows I have been binge eating.

13. When you look at yourself without clothes in the mirror, what is your reaction?
a. I feel that I look pretty good;
b. I am slightly dissatisfied with the way I look;
c. I am very dissatisfied with the way I look;
d. I am really disgusted with the way I look;
e. I never look at myself in the mirror because I'm too self-conscious.

14. How often are you on a diet?
a. rarely;
b. sometimes;
c. usually;
d. always.

15. How often is binge eating associated with each of the following? (check all that apply)
a. pressure from school or work;
b. going off a strict diet;

c. problems in personal relationships;
d. can't say--doesn't really seem to be connected to anything.

16. Which most accurately describes your feelings after a binge?
a. not depressed at all;
b. mildly depressed;
c. moderately depressed;
d. very depressed.

17. At what age did you begin binge eating?
a. younger than 10 years;
b. 15 to 20 years;
c. 20 or older.

18. To which of the following places would you go to binge eat?
a. home;
b. in the car;
c. a restaurant;
d. all of these;
e. no particular places.

19. Which best describes your frame of mind while binge eating?
a. really enjoy the experience;
b. don't really enjoy the food--don't know why I do it;
c. no particular thoughts or attitudes;
d. other (please describe).

FORM D

EATING-PATTERNS QUESTIONNAIRE - B

Subject No. ___ ___ ___ ___ ___ 1-5

Age ___ ___ 6-7

Sex ___ 8

Height ___ ___ 9-10

Weight ___ ___ ___ 11-13

Highest weight since age 18 ___ ___ ___ 14-15

Lowest weight since age 18 ___ ___ ___ 17-19

1. Have you ever been diagnosed as suffering from anorexia nervosa? Yes ___ 1 20
   No ___ 2

   (Those who have not been considered anorexic, please go on to Question 8.)

2. Are you anorexic at the present time? Yes ___ 1
   No ___ 2 21
   Unsure ___ 3

3. If you have been diganosed as anorexic in the past or at the present time, describe the circumstances:
   a. Your age at the time, or ages if there were several times this diagnosis was made:_____ ___ ___ 22-23
   b. Your weight(s) when this diagnosis was made. ___ ___ ___ 24-26
   c. Who made this diagnosis?_____ ___ 27
   d. What kind of treatment, if any, you received in the past for anorexia?

Individual outpatient therapy	Yes ___	1	No ___	2	28
Family Therapy	Yes ___	1	No ___	2	29
Inpatient treatment	Yes ___	1	No ___	2	30
No treatment	Yes ___	1	No ___	2	31
Other	Yes ___	1	No ___	2	32

   Please explain _____

   _____

   e. Are you in any program at the present time for treatment of anorexia?

Individual therapy	Yes ___	1	No ___	2	33
Family therapy	Yes ___	1	No ___	2	34
Inpatient treatment	Yes ___	1	No ___	1	35
No treatment	Yes ___	1	No ___	2	36
Other	Yes ___	1	No ___	2	37

   Please explain_____

   _____

4. If you have been considered anorexic, how do you maintain your weight <u>at the present time</u>?
   Regularly eating moderate quantities of food,
   i.e., between 2,000-3,500 calories per day. Yes ___ 1 No ___ 2 38

Regularly eating large quantities of food, i.e., over 3,5000 calories per day. Yes ___ 1 No ___ 2 39

Eating (of any quantity) followed by vomiting approximately once a week. Yes ___ 1 No ___ 2 40

Eating (of any quantity) followed by vomiting between once a week and once a month. Yes ___ 1 No ___ 2 41

Eating (of any quantity) followed by vomiting between two or three times a week. Yes ___ 1 No ___ 2 42

Eating (of any quantity) followed by vomiting at least once a day. Yes ___ 1 No ___ 2 43

Eating (of any quantity) followed by vomiting more than once a day. Yes ___ 1 No ___ 2 44

Occasional periods of not eating at all or eating very little food, i.e., 500-600 calories a day or less. Yes ___ 1 No ___ 2 45

5. Have you ever cycled between periods of continuous eating (i.e., consuming 4,000 calories or more in a period of one to two hours or less and periods in which you ate very little, i.e., 500-600 calories in a day or less)?
   Yes ___ 1
   No ___ 2 46

6. If your answer to Question 5 is "yes," please indicate:
   a. How many months or years this pattern has occurred. ___ ___ 47-48
   b. How long (hours or days) the eating binges generally last. ___ ___ ___ 49-51
   c. How long (hours or days) the food restriction usually lasts. ___ ___ ___ 52-54
   d. Are you engaging in this pattern at the present time?
      Yes ___ 1
      No ___ 2 55
   e. Not applicable. ___ 56

7. Are these binging or gorging periods followed by vomiting?
   Yes ___ 1
   No ___ 2 57
   Occasionally ___ 3
   Not applicable ___ 4
   (Please go on to Question 9)

   If occasionally, specify how often per week or month. ___ 58

8. Have you ever experienced occasions over the past few years when you have engaged in gorging or eating excessive quantities of food, i.e., consuming 4,000 calories or more in a period of one or two hours or less?
   Yes ___ 1
   No ___ 2 59

   If your answer is "no," please go on to Question 30.

9. Describe the <u>type</u> and <u>quantity</u> of food that you generally consume on an eating binge.

<u>Type</u>	<u>Quantity</u>		
_____	_____	___ ___	60-61
_____	_____	___ ___	62-63
_____	_____	___ ___	64-65

10. Are there any particular foods that you have cravings for during a binge? Yes ___ 1

No ___ 2 66
Not applicable ___ 3

11. If your answer to Question 10 is "yes," please list the food(s) that you particularly crave.
_____ ___ 67
_____ ___ 68
Not applicable _____ ___ 69

12. Approximately how long does this food binging period last?
Several hours ___ 1
One day ___ 2
More than a day; Specify_____ ___ 3 70
It varies; If so, please explain_____ ___ 4
Not applicable ___ 5

13. How often do you experience these eating binge episodes?
Approximately once a month ___ 1
Between once a week and once a month ___ 2
Approximately once a week ___ 3
Between two times a week and once a week ___ 4 71
Approximately every day ___ 5
Several times a day ___ 6
It varies. (If so, please explain_____) ___ 7
Not applicable ___ 8

14. At what age did you begin food binging? ___ ___ 72-73

15. Were there any special events or circumstances that stand out in your mind at this time? Yes ___ 1 No ___ 2 74
If yes, please explain _____ ___ 75
___ 80
___ ___ 1-2

16. How do you feel <u>during</u> a food eating binge?
Driven to eat as much as possible Yes ___ 1 No ___ 2 3
Anxious Yes ___ 1 No ___ 2 4
Depressed Yes ___ 1 No ___ 2 5
Angry Yes ___ 1 No ___ 2 6
Happy Yes ___ 1 No ___ 2 7
Disgusted with myself Yes ___ 1 No ___ 2 8
Guilty Yes ___ 1 No ___ 2 9
Other, please explain_____ Yes ___ 1 No ___ 2 10

17. How do you feel <u>before</u> the start of a food eating binge?
Driven to eat as much as possible Yes ___ 1 No ___ 2 11
Anxious Yes ___ 1 No ___ 2 12
Depressed Yes ___ 1 No ___ 2 13
Angry Yes ___ 1 No ___ 2 14
Happy Yes ___ 1 No ___ 2 15
Disgusted with myself Yes ___ 1 No ___ 2 16
Guilty Yes ___ 1 No ___ 2 17
Other, please explain_____ Yes ___ 1 No ___ 2 18

18. How do you feel <u>after</u> a food eating binge is over with?

Driven to eat as much as possible	Yes ___	1	No ___	2	19
Anxious	Yes ___	1	No ___	2	20
Depressed	Yes ___	1	No ___	2	21
Angry	Yes ___	1	No ___	2	22
Happy	Yes ___	1	No ___	2	23
Disgusted with myself	Yes ___	1	No ___	2	24
Guilty	Yes ___	1	No ___	2	25
Other, please explain_____	Yes ___	1	No ___	2	26

19 Are there any particular circumstances that seem to trigger a binging episode? Yes ___ 1 No ___ 2 27

If yes, please explain_____ ___ 28

20. Can you predict when you are going to go on a binge episode?

Yes ___ 1
No ___ 2 29
Sometimes ___ 3

If sometimes, please explain_____ 30

21. If you can predict that you are going to go on a binge, generally how far ahead of time can you make that prediction

One hour	___	1
Several Hours	___	2
One day	___	3
More than one day	___	4
It varies, please explain_____	___	5
_____	___	32

22. Do these binges generally occur at certain times of the day? Yes ___ 1 No ___ 2 33

If yes, please explain._____ ___ 34

23. Do you feel that certain people "promote" or trigger these binges? Yes ___ 1 No ___ 2 35

24. If your answer to Question 23 is "yes," who is/are this person(s)?

Father	Yes ___	1	No ___	2	36
Mother	Yes ___	1	No ___	2	37
Husband	Yes ___	1	No ___	2	38
Wife	Yes ___	1	No ___	2	39
Sister	Yes ___	1	No ___	2	40
Brother	Yes ___	1	No ___	2	41
Friend	Yes ___	1	No ___	2	42
Child	Yes ___	1	No ___	2	43
Other	Yes ___	1	No ___	2	44
Not applicable	Yes ___	1	No ___	2	45

25. Do you drink anything along with eating during a binge?

Yes ___ 1
No ___ 2 46
Sometimes ___ 3

26. If your answer to Question 25 is "yes," list the liquids that you generally drink:

Water	Yes ___	1	No ___	2	47
Beer, wine, or whiskey	Yes ___	1	No ___	2	48
Soft drinks	Yes ___	1	No ___	2	49
Coffee or tea	Yes ___	1	No ___	2	50
Juice	Yes ___	1	No ___	2	51

Other	Yes ___	1	No ___	2	52
List _____				___	53
Not applicable_____				___	54

27. Describe your eating behavior between binges:

Moderate eating habits, i.e., a three meal a day pattern with some snacking between meals	Yes ___	1	No ___	2	55
A tendency to snack a good deal	Yes ___	1	No ___	2	56
Excessive eating although not as much as on a binge	Yes ___	1	No ___	2	57
Very restricted food intake at meals	Yes ___	1	No ___	2	58
A tendency to skip meals and eat irregularly	Yes ___	1	No ___	2	59
Almost no snacking between meals	Yes ___	1	No ___	2	60
I tend to vomit after food intake no matter what I eat	Yes ___	1	No ___	2	61
It varies	Yes ___	1	No ___	2	62

28. How often is a binge episode followed or ended by vomiting?

Always	___	1
Usually	___	2
Occasionally	___	3
Never	___	4

63

29. Is this vomiting self-induced?

Yes	___	1
No	___	2
Sometimes	___	3

64

30. Do you ever engage in self-induced vomiting even when eating small or moderate amounts of food?

Only two or three times a year	___	1
Approximately once a month	___	2
Between once a week and once a month	___	3
Approximately once a week	___	4
Between two or three times a week to once a week	___	5
Once a day	___	6
More than once a day	___	7
Not applicable	___	8

65

31. Would you describe your eating-vomiting pattern as one of:

Eating moderate although occasionally excessive amounts of food followed by self-induced vomiting	Yes ___	1	No ___	2	66
Vomiting only after eating small amounts of food	Yes ___	1	No ___	2	67
Eating relatively small amounts of food followed by self-induced vomiting	Yes ___	1	No ___	2	68
Other. Please explain_____	Yes ___	1	No ___	2	69
Not applicable	Yes ___	1	No ___	2	70

32. At the present time, do you experience a pleasurable feeling or a "high" feeling while in the process of or immediately after vomiting?

Yes	___	1
No	___	2
Often	___	3
Occasionally	___	4
Not applicable	___	5

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33. In the past did you experience a pleasurable feeling or a "high" feeling while in the process of or immediately after vomiting?

Yes ___ 1

No	___	2	
Often	___	3	72
Occasionally	___	4	
Not applicable	___	5	

34. Do you think that the binging or eating-vomiting pattern hurts your body?

Yes	___	1	
No	___	2	73
Uncertain	___	3	
Not applicable	___	4	

35. Do you think that the vomiting pattern controls your weight?

Yes	___	1	
No	___	2	
Uncertain	___	3	74
Not applicable	___	4	

36. Do you see any changes in your body as a result of the binging and/or vomiting pattern?

Yes	___	1	
No	___	2	
Uncertain	___	3	75
Not applicable	___	4	

37. If your answer to Question 36 is "yes," please specify what these changes are

_____ ___ ___ ___ ___ ___ 76-80

_____ ___ ___ 1-2

38. How often do you weigh yourself?

Every day	___	1	
Several times a day	___	2	
Every few days	___	3	
Once a week	___	4	3
Less often than once a week	___	5	
Never	___	6	
It varies, please explain_____	___	7	

39. Approximately how much money do you spend on food during a single binge episode?

$10 or less	___	1	
$11-30	___	2	
$31-50	___	3	4
$51-60	___	4	
More than $60	___	5	
Not applicable	___	6	

40. Approximately how much money do you spend on food just for yourself during a one week period?

$30 or less	___	1	
$31-50	___	2	
$51-70	___	3	
$71-90	___	4	5
$91-110	___	5	
$111-130	___	6	
Over $130	___	7	

41. Have you ever engaged in shoplifting or specifically in stealing food? Yes ___ 1 No ___ 2 6

42. Have you ever used laxatives Yes ___ 1 No ___ 2 7

If "no," please go on to question 48.

43. Do you presently use laxatives? Yes ___ 1 No ___ 2 8

44. How often did you/do you take laxatives?

Tried once or twice but didn't continue to use them	___	1
Approximately once a month	___	2
Between once a week and once a month	___	3
Approximately once a week	___	4
Between two times a week and once a week	___	5 9
More than twice a week but less than everyday	___	6
Approximately every day	___	7
Several times a day	___	8
It varies	___	9
If so, please explain_____	___	10

45. Under what circumstances did you begin to use laxatives?_____ 11

46. Did you/do you use laxatives in conjunction with binging episode? Yes ___ 1 No ___ 2 12
If so, please explain_____ 13

47. For what other purpose(s) did you/do you take laxatives _____ ___ ___ 14-15

48. Are there any members of your family that have had problems with or are presently having problems related to obesity, anorexia, or binge eating?

1. Father	Yes ___ 1	No ___ 2	16
2. If "yes," specify problem_____	___	17
3. Mother	Yes ___ 1	No ___ 2	18
4. If "yes," specify problem_____	___	19
5. Husband	Yes ___ 1	No ___ 2	20
6. If "yes," specify problem_____	___	21
7. Wife	Yes ___ 1	No ___ 2	22
8. If "yes," specify problem_____	___	23
9. Child	Yes ___ 1	No ___ 2	24
10. If "yes," specify problem_____	___	25
11. Sister	Yes ___ 1	No ___ 2	26
12. If "yes," specify problem_____	___	27
13. Brother	Yes ___ 1	No ___ 2	28
14. If "yes," specify problem_____	___	29

49. Do you or have you ever engaged in the excessive use of alcohol? Yes ___ 1 No __ 2 30

50. Approximately how much alcohol do you drink?

One or two drinks a day	___	1
Several drinks a week	___	2
3-5 drinks a day	___	3 31
More than 5 drinks a day	___	4
I don't drink	___	5

51. Are there any members of your family that have had problems with or are presently having problems with excessive alcohol or drug use?

Father	Yes ___ 1	No ___ 2	32
Mother	Yes ___ 1	No ___ 2	33
Husband	Yes ___ 1	No ___ 2	34
Wife	Yes ___ 1	No ___ 2	35
Child	Yes ___ 1	No ___ 2	36

	Sister	Yes ___	1	No ___	2	37
	Brother	Yes ___	1	No ___	2	38

52. Has any family member with alcohol or drug use problems been diagnosed by a health professional as chemically dependent?

Father	Yes ___	1	No ___	2	39
Mother	Yes ___	1	No ___	2	40
Husband	Yes ___	1	No ___	2	41
Wife	Yes ___	1	No ___	2	42
Child	Yes ___	1	No ___	2	43
Sister	Yes ___	1	No ___	2	44
Brother	Yes ___	1	No ___	2	45
Other	Yes ___	1	No ___	2	46

53. Are you using any drugs (other than laxatives) at the present time? Yes ___ 1 No ___ 2 47

If yes, which drugs_____ ___ 48

If your answer to Question 53 is yes, how often do you presently use these drugs?

More than once a day	___ 1	
Once a day	___ 2	
Three to six times a week	___ 3	49
Once or twice a week	___ 4	
Once or twice a month	___ 5	

54. Did you ever engage in excessive use of drugs (other than laxatives) in the past

Yes ___ 1 No ___ 2 50

If yes, please list which drugs_____ ___ 51

55. Approximately how often did you use drugs?

More than once a day	___ 1	
Once a day	___ 2	
Three to six times a week	___ 3	
Once or twice a week	___ 4	52
Once or twice a month	___ 5	
Not applicable	___ 6	

56. Have you ever been diagnosed by a health professional as chemically dependent?

Yes ___ 1 No ___ 2 53

If yes, when_____ ___ 54

57. Do you feel that you have adequate control over yourself or your life?

Yes ___ 1 No ___ 2 55

58. In what areas of your personality or behavior would you like to have better control over yourself (list).

_____ ___ ___ ___ 56-58

59. In what areas of your life do you feel that you have the best control?

_____ ___ ___ ___ 59-61

60. Do you feel that your problems with eating and weight have interfered with other aspects of your life?

A great deal	___ 1	
Somewhat	___ 2	
Not at all	___ 3	62
Uncertain	___ 4	

Not applicable ___ 5

61. What aspects of your life have been affected?

Social relationships	Yes ___	1	No ___	2	63
Family relationships	Yes ___	1	No ___	2	64
School/work	Yes ___	1	No ___	2	65
Personality and attitudes	Yes ___	1	No ___	2	66
Sleep pattern	Yes ___	1	No ___	2	67
None of the above	Yes ___	1	No ___	2	68

62. What are your current living arrangements?

Live with parents (or legal guardian)	___	1
Live with husband (or significant other)	___	2
Live alone	___	3 69
Live with friend	___	4
Other please specify _____	___	5

63. Please indicate whether or not you think each of the following statements describes your mother

Strong or dominant	Yes ___	1	No ___	2	70
Weak or passive	Yes ___	1	No ___	2	71
Independent	Yes ___	1	No ___	2	72
Dependent	Yes ___	1	No ___	2	73
In control of her life	Yes ___	1	No ___	2	74
Not in control of her life	Yes ___	1	No ___	2	75
Likes to control other people	Yes ___	1	No ___	2	76
Does not like to control other people	Yes ___	1	No ___	2	77
Warm and outgoing	Yes ___	1	No ___	2	78
Quiet and reserved	Yes ___	1	No ___	2	79
			___		80
		___	___		1-2

64. Please indicate whether or not you think each of the following statements describes your father.

Strong or dominant	Yes ___	1	No ___	2	3
Weak of passive	Yes ___	1	No ___	2	4
Independent	Yes ___	1	No ___	2	5
Dependent	Yes ___	1	No ___	2	6
In control of his life	Yes ___	1	No ___	2	7
Not in control of his life	Yes ___	1	No ___	2	8
Likes to control other people	Yes ___	1	No ___	2	9
Does not like to control other people	Yes ___	1	No ___	2	10
Warm and outgoing	Yes ___	1	No ___	2	11
Quiet and reserved	Yes ___	1	No ___	2	12

65. Do you have any children? Yes ___ 1 No ___ 2 13

66. Do you feel you have a good relationship with your children?

Yes	___	1
No	___	2 14
Not applicable	___	3

67. If you are married or involved with a significant other, are you satisfied with your present relationship?

Yes	___	1
No	___	2 15
Not applicable	___	3

68. Did/do you get along with your parents while you were/are living at home? Yes ___ 1 No ___ 2 16

69. At the present time, what do you think your ideal weight is?

Present weight	___	1
Lower weight; list weight _____	___	2
Higher weight	___	3
List weight _____	___ ___ ___	18-20

70. Are any of the following reasons why that particular ideal weight is attractive to you?

I think that it is physically attractive	Yes ___ 1 No ___ 2	21
It would show that I have good will power	Yes ___ 1 No ___ 2	22
It would make my parents concerned about me	Yes ___ 1 No ___ 2	23
It would make my friends concerned about me	Yes ___ 1 No ___ 2	24
It would make other people wish they could look like me	Yes ___ 1 No ___ 2	25

71. When you look in the mirror now, how do you look to yourself?

Fat	___	1
Just right	___	2
Thin	___	3 26
Uncertain	___	4

72. In general, do you think that the American society or culture promotes the attitude that the most physically attractive female is one who is:

Plump	___	1
Medium weight	___	2
In between medium weight and thin	___	3 27
Thin	___	4

73. In general, do you think that the American society or culture promotes the attitude that the most physically attractive male is one who is:

Plump	___	1
Medium weight	___	2
In between medium weight and thin	___	3 28
Thin	___	4

74. Please indicate whether or not you personally feel that it is permissible to have sexual intercourse under each of the following circumstances:

With someone you really love and who really loves you	Yes ___ 1 No ___ 2	29
With someone you love and are planning to marry	Yes ___ 1 No ___ 2	30
With someone you find attractive	Yes ___ 1 No ___ 2	31
Only with your husband/wife on your wedding night	Yes ___ 1 No ___ 2	32

75. Please indicate whether or not each of the following statements describes your attitude at the present time about sexual relationships.

The idea scares me	Yes ___	1	No ___	2	33
The ideas does not interest me	Yes ___	1	No ___	2	34
The idea interests and attracts me	Yes ___	1	No ___	2	35
The idea interests but disgusts me	Yes ___	1	No ___	2	36

76. Do you feel that our society's standards at the present time about sexual behavior are:

Too strict	Yes ___	1	No ___	2	37
Too permissive	Yes ___	1	No ___	2	38
Just right	Yes ___	1	No ___	2	39
Confused about teaching people what is right and what is wrong	Yes ___	1	No ___	2	40

Appendix B

Forms A - C

FORM A: Cover Letter

FORM B: Follow-up letter

FORM C: 36-item survey

University of Wisconsin - La Crosse

La Crosse, Wisconsin 54601 (608) 785-8000

September 26, 1983

Dear

Important to you and others of the University of Wisconsin-La Crosse are the various support services which are available. In an effort to provide the best services possible, it is vital that student needs are continually assessed and understood.

Enclosed is a survey to which you are asked to respond as completely and honestly as possible. Some of the questions may be personal and sensitive. Our research shows that this information is both vital and necessary. PLEASE REST ASSURED THAT CONFIDENTIALITY IS GUARANTEED.

Time required in answering the questions has been carefully kept to a minimum (approximately 5 minutes). A postage prepaid envelope has been enclosed for your convenience. Once completed, just drop the survey in the mail.

Thank you for your cooperation in contributing to the success of this study; your time and effort are truly appreciated.

Sincerely,

Jan Peterson

Jan Peterson
Counseling and Testing Center

*If you would like a report of the results of this study, a summary of the findings may be obtained at the Counseling and Testing Center (located on the first floor of Wilder Hall) after January 15, 1984.

University of Wisconsin - La Crosse

La Crosse, Wisconsin 54601 (608) 785-8000

October 10, 1983

Dear

Several days ago, a letter was sent to you asking for your cooperation in responding to a series of questions relating to eating patterns. As previously explained, the survey is designed to assess student needs in an effort to provide UW-L students with the best support services possible.

Cooperation thus far has been excellent; completed surveys continue to arrive daily. Despite this positive outlook, there remains yet several students who have not responded. Because those receiving the survey are of a select group of approximately 400 members (total university population is over 9000 students), the participation and information of each chosen individual is of vital importance to the validity and success of this study.

Enclosed is a copy of the survey which you received several days ago. I am once again asking for your help in responding to each item as completely and honestly as possible. Please be reminded that CONFIDENTIALITY IS GUARANTEED. A postage prepaid envelope has been enclosed for your convenience. Once completed, just drop the survey in the mail. I am asking that all surveys be returned by Friday, October 21.

Once again, thank you for your cooperation in contributing to the success of this study; your time and effort are truly appreciated.

Sincerely,

Jan Peterson

Jan Peterson
Counseling and Testing Center

CONFIDENTIALITY OF YOUR RESPONSES IS GUARANTEED; Each survey has been numbered at the top corner of this page and names will not be associated in the project.

The following questions concerning eating behaviors will be used to determine the presence of eating disorders at UW-L. Your careful and honest responses are essential. If you have any questions as to the general nature of this study or the items contained in the survey, please contact Jan Peterson at 785-8073 or 785-8062. Thank you for your time and cooperation in contributing to the success of this study.

1. Check your age: (1)___ 17 years or less (4)____20 (7)____23
(2)___ 18 (5)____21 (8)____24
(3)___ 19 (6)____22 (9)____25

2. Check your class standing: (1)____Freshman (2)____Sophomore (3)____Junior (4)____Senior

3. What is your major (if undecided, please indicate so)_____

4. Have you ever lived in a residence hall? (1)____yes (2)____no

5. Check your current living accommodations: (1)____on campus (2)____off campus

6. For how long have you lived in the accommodations indicated in question 5?
(1)____ less than 1 semester (3)____3-4 semesters
(2)____1-2 semesters (4)____more than 4 semesters

7. Do you live (1)____alone (2)____with one other person (3)____with more than one other person

8. Check the category which best describes your G.P.A. (if you are a Freshman, please use your high school G.P.A. upon graduation):
(1) less than 1.09 (3)____1.60 - 2.09 (5)____2.60 - 3.09 (7)____greater than 3.59
(2) 1.10 - 1.59 (4)____2.10 - 2.59 (6)____3.10 - 3.59

9. How many brothers do you have (if no brothers, please write "0")?____

10. How many sisters do you have (if no sisters, please write "0")?____

11. In your best estimation, check your parents' total gross income:
(1) less than $6000 (3)____$12,000-$17,999 (5)____$24,000-$29,999 (7)____$36,000-$40,000
(2) $6,000-$11,999 (4)____$18,000-$23,999 (6)____$30,000-$35,999 (8)____over $40,000

12. What is your eating plan (check all that apply)?
(1)___participate in the university meal plan (3)____other; please explain _____
(2)____prepare own meals

13. In the past year, how many times have you attempted to control your weight?
(1)____never (3)____twice (5)____four times (7)____continually on and off
(2)____once (4)____three times (6)____five times

14. Please describe how you have attempted to control your weight (if your response to question 13 was "never", please write "0"): _____

15. In the last year, what is the greatest amount that your weight has changed? Write in the number of pounds (if your weight has not changed, write "0"):
(1)____pounds gained and/or (2)____pounds lost

16. Please rank your presenting eating behavior using 1 - 7 according to the way you are most likely to eat (1) to the way you are least likely to eat (7):
(1)____3 meals a day (of average or normal portions) (5)____1 meal a day
(2)____3 meals and some snacking (6)____1 meal and some snacking
(3)____2 meals a day (7)____no meals, frequent snacking throughout the day
(4)____2 meals and some snacking

17. Do you prefer to eat: (1)____alone (2)____with others (3)____no preference

18. Do you ever consume a large amount of food in a short period of time in a way that, if others saw you, you would feel embarrassed? (1)____yes (2)____no

19. If yes, please write in the average number of days in one month that you eat in the manner described in question 18 (if your response to question 18 was "no", please write "0" and go to question 24): ____days in one month

20. On those days indicated in question 19, what is the average number of times per day that you eat in the manner previously described? ____times per day

21. How long have you been eating in the manner previously described?
(1)___less than one week (4)___2 months - 3 months (7)___1 year - 17 months
(2)___1 - 3 weeks (5)___4 - 5 months (8)___18 months - 2 years
(3)___1 month - 7 weeks (6)___6 - 11 months (9)___more than 2 years; please specify _____

22. During these periods of eating as described in question 18, please check the reason(s) that make you stop:
(1) ___ stomach pain
(2) ___ sleep
(3) ___ feelings of guilt
(4) ___ vomiting
(5) ___ interrupted by someone
(6) ___ other; please specify_____

23. When eating in a manner described in question 18, what type of foods do you prefer to eat? Rank the following using 1 - 9 according to the foods that you most prefer (1) to the foods that you least prefer (9):
___ fried foods or greasy foods (french fries, pizza, etc.)
___ chips, pretzels, popcorn, similar snacks
___ pastries, baked goods
___ candy
___ ice cream
___ fruits or vegetables
___ meat
___ bread, cereal
___ milk, cheese

24. Do you intentionally vomit following eating? (1) ___ yes (2) ___ no

25. If yes, please write in the average number of days in one month that you intentionally vomit following eating (if your response to question 25 was "no", please write "0" and go to question 28):
___ days in one month

26. On those days indicated in question 25 what is the average number of times per day that you intentionally vomit following eating? ___ times per day

27. How long have you been intentionally vomiting following eating (check one)?
(1) ___ less than one week
(2) ___ 1 - 3 weeks
(3) ___ 1 month - 7 weeks
(4) ___ 2 months - 3 months
(5) ___ 4 - 5 months
(6) ___ 6 - 11 months
(7) ___ 1 year - 17 months
(8) ___ 18 months - 2 years
(9) ___ more than 2 years; please specify_____

28. Do you take laxatives following eating? (1) ___ yes (2) ___ no

29. If yes, please write in the average number of days in one month that you take laxatives following eating (if your response to question 28 was "no", please write "0" and go to question 32) ___ days a month

30. On those days indicated in question 29, what is the average number of times per day that you take laxatives following eating? ___ times per day

31. How long have you been taking laxatives following eating?
(1) ___ less than one week
(2) ___ 1 - 3 weeks
(3) ___ 1 month - 7 weeks
(4) ___ 2 months - 3 months
(5) ___ 4 - 5 months
(6) ___ 6 - 11 months
(7) ___ 1 year - 17 months
(8) ___ 18 months - 2 years
(9) ___ more than 2 years; please specify_____

32. When you eat, do you feel as though you cannot stop (circle one)?
never/ almost never (1) seldom (2) sometimes (3) often (4) almost always/ always (5)

33. Do you feel guilty as a result of your eating habits (circle one)?
never/ almost never (1) seldom (2) sometimes (3) often (4) almost always/ always (5)

34. Do you feel depressed as a result of your eating habits (circle one)?
never/ almost never (1) seldom (2) sometimes (3) often (4) almost always/ always (5)

35. Do you feel your eating patterns are abnormal?
never/ almost never (1) seldom (2) sometimes (3) often (4) almost always/ always (5)

36. In the last year, have you been involved in an eating disorders program? (1) ___ yes (2) ___ no

This study has asked you personal and sensitive questions that are of vital interest in our programming of services. Please know that your willingness to participate is sincerely appreciated.