Personality characteristics of bulimic behavior in college women analyzed with the Myers-Briggs Type Indicator

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Abstract

PERSONALITY CHARACTERISTICS OF BULIMIC BEHAVIOR IN COLLEGE WOMEN ANALYZED WITH THE MYERS-BRIGGS TYPE INDICATOR

by Lori Lyn Anderson

Eating disorders are a growing phenomenon in today’s society, and adolescent women are prime candidates for this disorder. The present research study is designed to analyze bulimic behavior in college age women by administrating the Eating Disorder Inventory-2 (Garner, 1991), specifically focusing on the bulimia subscale of this self-reported inventory. The purpose of the study is to measure specialized temperamental characteristics of persons demonstrating bulimic behavior as analyzed using the Myers-Briggs Type Indicator (Myers-Briggs & McCaulley, 1986). The researcher surveyed 221 women from psychology classes at a private Midwest university, and each woman completed both the Eating Disorder Inventory-2 and the Myers-Briggs Type Indicator. The researcher focused specifically on the Sensing and Judging functions of the Myers-Briggs Type Indicator. The researcher hypothesized that the Myers-Briggs type function of Sensing and Judging would be represented with greater frequency among women who scored high on measures of bulimia, and the hypotheses were disconfirmed. The researcher found personality to be a relatively stable factor as opposed to a changing factor when predicting bulimic behavior in college age women.
DEDICATION

Dedicated to Connie Ann Anderson, the woman I admire more than any other woman in the world. Mom, you have been a beautiful picture of a woman who selflessly loves others. I have been blessed by God as I have been the recipient of your consistent love and support throughout the span of my life. My identity as a grown woman has been shaped greatly by your incredible example. Thank you for your love and support, Mom. I consider it an honor to call you "Mom" and my dearest friend in the world. Thank you for being the woman I long to become.
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CHAPTER I: INTRODUCTION

Introduction to the Problem:

Eating disorders are a growing phenomenon in today's society, and women are the primary candidates for this emotional and mental problem (Keel, Crow, Davis, & Mitchell, 2002) that permeates our university campuses. Eating disorders often occur in adolescent girls due to the many changes undergone through puberty (Dorman, 1984; Stice, Hayward, Cameron, Killen, & Taylor, 2000). The prevalence of eating disorders with adolescent girls is due in part to the convergence of physical changes and psychosocial challenges with family and peers; therefore, adolescent girls who are vulnerable due to low self-esteem or high stress environments may respond to these developmental challenges with maladaptive eating behaviors (Attie, Brooks-Gunn, & Peterson, 1990). Symptoms of eating disorders are often endorsed by the pervasive college culture that is characterized by the promotion of distorted attitudes toward body image, exercise and diet (Boskind-White & White, 1983; King, 1994). Among college students, researchers have established a strong correlation between low self-esteem and unhealthy eating behaviors (Holston & Cashwell, 2000).

Adolescence is a stage of life when dieting and body image concerns continue to escalate. Over fifteen years ago, one study (Gray & Ford, 1985) noted that approximately
13% of female undergraduate students met the DSM-III criteria for bulimia based on their responses to a questionnaire designed for the purpose of statistically recording bulimic symptomology. During this time frame, an overall estimate regarding the prevalence of bulimia among undergraduate women appeared to be between 5% and 10% (Nevo, 1985). College-age women are adolescents in transition, and this life stage is a developmental period for the emergence of body dissatisfaction, dieting, and eating problems (Rosen & Gross, 1987). Dieting occurs in 50-70% of North American adolescents, with even greater numbers reporting body dissatisfaction and an intense desire to be thin (Wardle & Marsland, 1990). Such data is alarming when considering the potential implications regarding college women and the development of eating disorder behaviors, such as that of bulimia.

The incidence of eating-disorder behavior in the United States has incremented in epidemic proportions, particularly among women in college (Klemchuk, Huthinson, & Frank, 1990; Whitaker & Davis, 1989). Past research estimated approximately 65% of women in their first year of college displayed some behavioral and psychological characteristics of eating-disordered behavior (Mintz & Betz, 1988). However, when stricter criteria are used, such as requiring binge eating, coupled with self-induced vomiting or laxative abuse at a minimum frequency of two times a week for three months (operationally, the DSM-IV-TR purging-type of bulimia nervosa), the prevalence
rates drop to around 1%-2% of high school and college age women. This makes the
diagnosis of bulimia nervosa a very common disorder, but nowhere near the "epidemic"
that some purported (Fairburn & Beglin, 1990).

Dieting behaviors and eating disorders are typically characteristic of women more
so than men. Reviews of eating disorder prevalence rates indicate that 9 out of 10 cases
of eating disorders occur in women (American Psychiatric Association, 2000), while
dieting behaviors are also more likely to occur in women (Wertheim, Mee, & Paxton,
1992; Worsley, Worsley, McCommon, & Silva, 1990). Similarly, adolescent girls and
young adult females, in comparison to their male counterparts, are more inclined to
assume an ideal body size smaller than their existing size (Fallon & Rozin, 1985;

**Purpose of the Study:**

Because the majority of eating-disordered behavior is characteristic of adolescent
women, the researcher focused this study on women who were in college. The purpose
of this study is to measure specialized temperamental characteristics of bulimic
individuals as analyzed using the Myers-Briggs Type Indicator (Myers Briggs &
McCaulley, 1986). The researcher patterned the study similar to research conducted by
Barresi-Devore (1987) in addressing the question of whether or not the psychological
type represented by the Sensing and Judging combination of preferences as scored on the Myers-Briggs Type Indicator was correlated with bulimic behavior as measured by the Eating Disorder Inventory-2.

The research literature to date describes mostly bulimic behaviors. A key missing element seemed to relate to personality characteristics, as little has been reported on this aspect of the disorder (Bulik, Sullivan, Joyce, Carter, & McIntosh, 1998). There were two dissertations that inspired the researcher to update prior research studies related to bulimic behavior and the Myers-Briggs Type Indicator. These studies were conducted by Schmidt-Levy (1988) and Barresi-Devore (1987). The present research advances the findings in these studies by disconfirming the correlation between personality traits and bulimic behavior.

**Hypotheses:**

The researcher's hypotheses are as follows:

**H1:** The Myers-Briggs type function SJ is represented with greater frequency among women who score high on measures of bulimic behavior.

**H2:** There is a greater representation of the Myers-Briggs Type Indicator Sensing preference among college women who score high on measures of bulimic behavior.
H3: There is a greater representation of the Myers-Briggs Type Indicator Judging preference among college women who score high on measures of bulimic behavior.

The null hypotheses are as follows:

H1: The Myers-Briggs type function SJ is not represented with greater frequency among women who score high on measures of bulimic behavior.

H2: There is not a greater representation of the Myers-Briggs Type Indicator Sensing preference among college women who score high on measures of bulimic behavior.

H3: There is not a greater representation of the Myers-Briggs Type Indicator Judging preference among college women who score high on measures of bulimic behavior.

The researcher chose a $p$ value of .05 because this particular $p$ value is most commonly used in the social sciences and is sufficiently stringent to safeguard against accepting too many insignificant results as significant, while also not being too difficult to achieve (Newton & Rudestam, 1999). The researcher believes there is a relatively low likelihood of negative consequences occurring to potential bulimics should a Type I error occur as a result of the present study. Therefore, the researcher was willing to enhance statistical power at the .05 level as a trade off to more conservative options such as .01.
Definition of Terms:

The following terms are defined conceptually and operationally. Unless otherwise indicated, definitions relating to Myers-Briggs characteristics were adapted from Briggs-Myers and McCaulley (1986).

Anorexia Nervosa: The APA (2000) denotes the criteria for Anorexia Nervosa in the DSM-IV-TR as follows:

A. Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).

B. Intense fear of gaining weight or becoming fat, even though underweight.

C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.

D. In postmenarcheal females, amenorrhea, i.e., the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration.)
Restricting Type: during the current episode of Anorexia Nervosa, the person has regularly engaged in binge-eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

Binge-Eating/Purging Type: during the current episode of Anorexia Nervosa, the person has regularly engaged in binge-eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

(APA, 2000)

Attitudes: Extroversion and Introversion in Jung’s theory.

Auxillary function or process: The function or process that is second in importance and that provides balance between perception and judgment and between extroversion and introversion.

Bulimarexia: identical to bulimia nervosa, except the person needs not to have been anorexic or very thin. Binging and purging occur together along with several psychological aspects of anorexia nervosa: preoccupation with food and body size, perfectionism, social withdrawal, and low self-esteem (Costin, 1997).

Bulimia Anorexia: Meets the DSM-IV criteria for anorexia nervosa and bulimia simultaneously (Costin, 1997).

Bulimia Nervosa: The APA (2000) denotes the criteria for bulimia nervosa according to the DSM-IV-TR as follows:
A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

1) eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances

2) a sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating)

B. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.

C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for three months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not occur exclusively during the episodes of Anorexia Nervosa.

_Purging Type:_ during the current episode of Bulimia Nervosa, the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.
Nonpurging Type: during the current episode of Bulimia Nervosa, the person has used other inappropriate compensatory behaviors, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas. (APA, 2000)

Bulimic Behavior: For the purpose of this study, bulimic symptoms are used to describe eating-disordered behavior that does not necessarily denote a diagnosis of bulimia nervosa according to the DSM-IV-TR (APA, 2000). The bulimic behaviors may include one or more of the following: binging, self-induced vomiting, misuse of laxatives, diuretics, enemas, or other medications, fasting, or excessive exercise.

Dominant function or process: The function or process that is assumed to be first developed, most conscious and differentiated, and which becomes the governing force in one's life.

Eating Disorder: This term is used interchangeably with the terms anorexia nervosa and bulimia nervosa (Woodka, 1999).

Extroversion: The attitude that orients attention and energy to the outer world.

Feeling: One of the two judging functions that makes decisions by ordering choices in terms of personal values.
**Functions:** The four basic mental processes or powers of Sensing, Intuition, Thinking and Feeling.

**Inferior function:** The opposite of the dominant function; also called the fourth function.

**Introversion:** The attitude that orients attention and energy to the inner world.

**Intuition:** One of the two perceptive functions that attend to meaning, relationships, symbols and possibilities.

**Judgment:** A term that refers to the two Judging functions: Thinking and Feeling.

**Normal-weight Bulimia:** Meets the DSM-IV-TR criteria for bulimia but was not formerly anorexic or very thin. The person may have been formerly overweight, but is currently within the normal range of weight-for-height (Costin, 1997).

**Perception:** A term that refers to the two Perceptive functions: Sensing and Intuition.

**Preference:** One of the four basic dichotomies that, in the type theory, form the individual's personality.

**Process:** Synonymous with function.

**Psychological Type:** The characteristic preference shown by individuals for a certain behavior or “function” which “types” the individual (Keirsey & Bates, 1984).

**Sensing:** One of the two perceptive functions that attends to experiences available to the senses.
Thinking: One of the two judging functions that makes decisions by ordering choices in terms of cause-effect or impersonal analysis.

Significance of the Study:

The frequency of eating disorders has been rapidly escalating (Maxmen & Ward, 1995) and is a growing problem specifically in adolescent females (Eme & Danielak, 1995; Lieberman, et al., 2001). This study is dedicated to the furtherance of research findings regarding bulimic tendencies based on specific personality characteristics utilizing the Myers-Briggs Type Indicator (MBTI) personality inventory. Eating disorders are always life-damaging and potentially fatal (Aronson, 1993; Kaplan & Garfinkel, 1993; Lucas et al., 1991; Minuchin et al., 1978).

While the growing prevalence rates of eating disorder behaviors are well established (Lieberman, et al., 2001), little is known about personality characteristics of individuals suffering from these problems. The long-term and short-term consequences of engaging in eating disorder behaviors can be serious and even life-threatening in some instances (Aronson, 1993). Consequently, it is imperative for counselors to understand the dynamics of women suffering from this problem. That is, the better the problem is understood, the more help the counselor can potentially be to bulimic clients.
Personality is a broad construct, obviously, and the present research study cannot assess all or even many of the facets of this human dynamic. The present researcher selected the MBTI as one particular element of personality measure due to its popularity and perceived usefulness among professional counselors. Based on Jung’s theory of psychological types, the system assumes that development is a lifelong process of increasing consciousness, differentiation, and direction of one’s processes (Myers-Briggs & McCaulley, 1986). As such, the present researcher believes that studying the connection between psychological types and eating disorder behavior will enhance counselors’ understanding of clients as counselors diagnose and generate treatment plans for them.

One previous dissertation (Barresi-Devore, 1987) investigated the nature of personality characteristics as they related to eating disorder behaviors. The researcher studied one specific personality profile according to the MBTI to see if bulimic behavior was prevalent for that particular personality type. The results showed that the ISFJ personality profile did not show a correlation with high levels of bulimic behavior, but the Sensing factor, when measured separately, was found to be statistically significant. The present study advances the findings of this study in two ways: First, fifteen years have lapsed since this study was conducted, which is practically an early generation of young teens today. Updating the findings of the previous research is salient for
knowledge advancement in this counseling domain. Second, the present research study differed slightly from the previous one, adding new insights to the inquiry. The researcher of this present study chose to analyze a two-letter combination as opposed to a four-letter combination utilizing the Myers-Briggs Type Indicator in hopes of adding statistical power to the study and focusing the research hypotheses in a more prescribed direction. The SJ combination was chosen based on the perfectionistic tendencies often common with eating disorder behaviors.

Assumptions and Limitations:

Limitations of this study primarily involve the size of the sample attained in studying women who have both the same MBTI profile while concurrently demonstrating some form of bulimic behavior. The sample size affects both statistical power in the present study as well as external validity. The MBTI personality test profile (SJ) as well as the self-reported indicators of bulimic behavior according to the EDI-2 were relied upon to obtain data for this research study. Since the MBTI and the EDI-2 are self-report tests, a limitation exists in that some women may have failed to report fully their symptoms of bulimia (Lacey & Phil, 1982).

Additionally, participants in the present study consisted of all females and were recruited from a particular educational setting in rural Midwestern America. They are,
therefore, most likely representative of similar socioeconomic backgrounds and may not necessarily reflect the population at large. The researcher chose to study the female gender exclusively due to the significantly higher prevalence of eating disorders among women compared to men. The sampling occurred in psychology classes, which also affects the study's external validity.

Lastly, a limitation of this study concerns the generalization regarding the severity of the reported bulimic symptoms. The subjects chosen were not clinically diagnosed with bulimia nervosa. Rather, the researcher operationally assessed bulimic behavior based on cut-off scores of the Bulimia subscale from the EDI-2.
CHAPTER 2: REVIEW OF THE LITERATURE

The following is a review of the literature and related research on the subject of eating disorders, specifically addressing the dynamics of bulimia nervosa. It includes information relative to the etiology of eating disorders, distinctive characteristics of bulimic behavior, cognitions and moods involved with eating disorders, family functions of the bulimic patient, psychosocial components affecting women who struggle with eating disorders, and personality variables of eating-disordered individuals.

Etiology of Eating Disorders:

As common with various psychological illnesses, there are numerous research models offering potential explanations for the etiology of given mental disorders. Eating disorders are complex problems which appear to be composite with several underlying factors (Schmidt-Levy, 1988). Some predisposing elements include individual characteristics, family environments, and cultural pressures. Garfinkel and Garner (1982) propose the existence of two sets of distinct factors in relation to the etiology of eating disorders: a) those that serve to predispose the individual to the eating disorder, and b) those that serve to maintain the behavior.
Research related to bulimia's etiology indicates that binge-purge cycles of eating begin with dysfunctional psychological mechanisms causing the individual to reject her normal, healthy body weight (Russell, 1979). Similarly, Orleans and Barnett (1984) suggest the bulimic cycle begins with a restricted dieting plan.

Although various researchers have sought to distinguish key elements related to the etiology of eating disorders, very little is actually known about the causes of bulimia (Maxmen & Ward, 1995). Some researchers and biopsychologists have noted a relationship between bulimia and other psychiatric disorders (Maxmen & Ward, 1995). Research relating to bulimia and various other mood and personality disorders suggests that about 75% of bulimics develop major depression (Beebe, 1994; Hinz & Williamson, 1987); 43% have anxiety disorders (Williamson, Goreczny, Davis, Ruggiero, & McKenzie, 1988); 49% have substance disorders; and 50-75% have personality disorders or trait disturbances (Maxmen & Ward, 1995).

Numerous explanations have been proposed for the etiology and maintenance of bulimia nervosa, including family predisposition (Kendler et al., 1991), dieting behavior (Kendler et al., 1991), extreme shape and weight concerns (Polivy & Herman, 1985), and a sociocultural coercion to be thin (Striegel-Moore et al., 1986; Wilson, 1993). Some researchers have evaluated genetic predispositions of bulimic behavior, and a recent study was conducted which tested 316 bulimic patients by officiating blood tests
(Kaye & Bulik, 2002). Such studies are said to help counselors understand how differences in the genes of some individuals contribute to the problem of bulimia nervosa. Kaye and Bulik (2002) claim that despite the progress in understanding the biological and genetic underpinnings of eating disorders, the perception remains that these disorders are self-imposed and socioculturally caused problems.

Although various theories of eating disorders have been conjugated into the vast field of research, it is generally now recognized that a multidimensional approach to understanding the causes of eating disorders is the most productive (Smukler, Dare, & Treasure, 1995). Fairburn and Beglin (1990) argue that epidemiological research needs to shift its focus away from studies of the prevalence of bulimia nervosa to studies of the nature, cause, and course of the full spectrum of eating disorders. The present research study contributes to that end.

Some clinicians have noted in their counseling experience that women suffering from bulimia nervosa often report being sexually abused as children. However, researchers have uncovered little direct evidence for a link between childhood sexual abuse and bulimia (Bower, 1993). Other investigators indicate a significant correlation between the two phenomena (Calam & Slade, 1989; Goldfarb, 1987; Smolak et al., 1990). Some studies suggest two-thirds of patients with eating disorders have experienced sexual abuse (Oppenheimer et al., 1985) while other researchers show samples in which
approximately one-third of patients with eating disorders have been sexually abused (Crisp, 1984; Nash & West, 1985; Palmer et al., 1990; Sloan & Leichner, 1986). Additionally, some research implies sexual abuse is not unique to eating-disordered individuals but rather is common in other psychiatric clients as well (Briere & Runtz, 1988; Folsom et al., 1993; Palmer, Chaloner, & Openheimer, 1992; Pribor & Dinwiddie, 1992; Vize & Cooper, 1995). Because of the discrepancies found in the research regarding sexual abuse and bulimia nervosa, one must cautiously view the potential of a direct correlation between the two factors. In sum, research suggests a potential relationship between eating problems and sexual abuse, although the nature of the relationship remains unclear at present (Goodwin & Attias, 1993).

**Distinctive Characteristics of Bulimic Behavior:**

Researchers define bulimic behavior in a variety of ways. Bulimia is often referred to as ox-hunger. The bulimic woman is typically one who gorges herself with food, especially high caloric food, for periods lasting up to several hours, then in avoidance of weight gain, she purges herself after each binge through self-induced vomiting and/or laxative and diuretic abuse. (Maxmen & Ward, 1995). The binge is typically followed by intense feelings of shame and guilt, which then can lead to the perpetuation of the eating-disordered behavior. Bulimia is mostly recognized as an
abnormal eating pattern characterized by binging and purging. Russell (1979) defines bulimic behavior as follows: patients suffer from powerful urges to overeat, and then they try to avoid the consequences of overeating and their fear of weight gain by inducing vomiting or using laxatives.

Individuals with bulimia nervosa use a number of different kinds of methods to prevent weight gain, and vomiting as a purging behavior is seen among 80-90% of all bulimics (American Psychiatric Association, 2000). For many, vomiting appears to reduce the physical discomfort experienced during and after an intense binge, and it also serves the purpose of abbreviating the fears associated with gaining weight (American Psychiatric Association, 2000). Abraham and Beaumont (1982) indicate that bulimia is characterized by episodes of overeating or binge eating in which a person consumes large amounts of caloric intakes far beyond the recommended daily food allowance. These binges are often followed by purging through self-induced vomiting, the use of diet pills, laxatives or diuretics or excessive exercise (Muuss, 1986).

Diagnosing eating disorders can be difficult due to the frequency of women who oscillate between the different eating-disordered behaviors. Anorexia nervosa is a complex emotional disorder characterized primarily by an obsession with food intake and weight gain and is restrictive in nature (Gilbert & DeBlassie, 1984; McNab, 1983), while bulimia nervosa is characterized more so with gorging and responding with
compensatory behaviors to rid oneself of the food in avoidance of weight gain. When patients alternate between these two eating disorders, the condition is labeled bulimarexia (Boskind-White & White, 1986). Anorexia nervosa is often considered the most serious of the eating disorders. However, bulimia nervosa has its own set of medical complications, including electrolyte imbalance, hypokalemia (low potassium) leading to serious, even life-threatening cardiac conduction abnormalities, parotid gland enlargement, menstrual irregularities, dental erosion, gastric or esophageal rupture, and acute gastric dilation (Maxmen & Ward, 1995).

Root, Fallon and Friedrich (1986) note several significant differences between anorexia and bulimia. Anorectic women refuse to maintain recommended minimal weight while bulimic women are usually of normal or near-normal weight. Denial is much stronger in anorectic women, thus treatment is much more likely to be initiated by family and friends whereas the bulimic women are much more likely to acknowledge abnormal eating patterns and seek treatment on their own. Anorectic women outwardly exhibit more self-control while bulimic women are typically characterized as impulsive.

Finally, both groups tend to have difficulties with intimacy, but the anorectic woman tends to have a very low tolerance for intimacy, while the bulimic woman is much more likely to be in a relationship or married. Binge-eating disorder (BED) is defined within eating disorders not otherwise specified in the 4th edition of the
Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000). BED is used to identify those individuals who display characteristics of binge eating as in bulimia nervosa, but they do not partake in the compensatory behaviors such as vomiting, abuse of laxative or diuretics and/or excessive exercise. Similar characteristics of both bulimia nervosa and binge-eating disorder include binge episodes and associated general psychiatric symptoms such as anxiety, dysphoria, and emotional instability (Fairburn & Walsh, 1995; Polivy & Herman, 1993).

**Cognitions and Mood States of the Bulimic Individual:**

Sherman and Thompson (1990) describe the complexity of bulimic behavior with a triad model:

Bulimia has three components: the actual eating and purging behaviors, or the behavioral component; the way bulimic individuals think about themselves and their world, or the cognitive component; and the way bulimics handle their emotions, or the emotional component. Understanding bulimia requires understanding all three parts of the problem. (p. 6)

Bulimia is one means by which some individuals may seek to gain control in their lives when feeling a control loss. Distorted thoughts are characteristic of those who struggle
with eating disorders and the sudden sense of loss of control may revolve around a fear of fatness and a strong desire to be thin (Nasser, 1997).

Gamman and Makinen (1995) compare bulimia with sexual fetishism. Fetishism is described as being available to women, being as much about the disavowal of individuation as of sexual difference, carrying a strong oral component, and allowing direct sensual gratification.

According to Homme (1999), eating becomes an eating disorder when the primary need it satisfies habitually becomes psychological, not physical. For example, the binging and purging aspects of bulimic behavior may be maladaptive tools used to manage uncomfortable emotions. Homme (1999) elaborates:

....Eating behaviors have become a vehicle for the expression of problems in personal identity and in relationships with others. An eating disorder is not merely a problem with food or weight. It is an attempt to use control to solve unseen emotional conflicts or difficulties that in fact have little to do with either food or weight. An eating disorder is someone’s attempt to feel better about himself/herself or to help him/her function in a world that feels intimidating. (p. 5)
Bulimia not only has negative medical ramifications, but it also produces detrimental emotional conditions for the bulimic individual as well. Woodside and Shekter-Wolfson (1991) state: “Bulimia Nervosa is a symptom cluster that can carry chronic emotional consequences, including depression, generalized anxiety, difficulties with intimacy, and deficits in the ability to tolerate conflict” (p. 69). Research suggests that the bulimic individuals experience emotions during a binge which demarcate themselves from those emotions experienced during a regular meal, and whether or not it is planned, the episode usually begins with feelings of tension, boredom, and stress (Levine, 1987).

Frequently, bulimic individuals are preoccupied with their appearance, body image, and sexual attractiveness (Maxmen & Ward, 1995). Fairburn and Cooper (1989) also hypothesize that irrational cognitions, especially about one’s physical appearance, are the most important factors of the starvation-binging cycle in many bulimic patients. The temporal association of negative affect with binging (Arnow, Kenardy, & Agras, 1995; Paxton & Diggens, 1997; Polivy & Herman, 1993) has led some researchers to suggest that binge eating attempts to manage, alleviate, or avoid painful affect. Vitousek (1996) emphasizes the role of starvation and distorted and dysfunctional beliefs about food, weight, and body shape, but he claims this cognitive-behavioral model is not sufficient to explain conclusive evidence of bulimic psychopathology. Waller, Ohanian,
Meyer, and Osman (2000) have shown that binge-eating and vomiting behaviors are associated with different patterns of core beliefs, such as defectiveness/shame and emotional inhibition.

Bulimic individuals encounter various mood states before, during, and after the binge-purge cycle. Bulimia nervosa patients describe themselves as generally sad, lonely, weak, irritable, passive and pressured, and their mood is typically more negative before binge eating occurs (Alpers & Tuschen-Caffier, 2001). Sadness and anxiety are specific mood states mentioned most often in the literature regarding emotional eating (Bulik, Beidel, Duchmann, Weltzin, & Kaye, 1991; Cooper & Boskwill, 1986; Johnson & Larson, 1982; Kaye, et al., 1986). Bulimic individuals have difficulty identifying and articulating their internal states, and they have highly variable moods and low self-esteem, combined with high aspirations (Johnson & Conners, 1987).

Some of the cognitions and mood states of the bulimic individual include: problems with interpreting their internal states, highly variable mood, impulsiveness or weak impulse control, a strong need for immediate satisfaction, high levels of anxiety and tension, and low adjustments to social norms (Bergh, 1988). Palme and Palme (1999) conducted a study that measured personality traits of bulimic, obese, and alcoholic women, and the results indicate the personality traits of women seeking treatment for obese, bulimic, and alcoholic problems are very similar. The scales where bulimics
differed significantly from obese subjects were on the suspiciousness, psychasthenia, irritability, and guilt subscales as measured by the Karolinska Scales of Personality (Palme & Palme, 1999). Higher levels of negative affect have been associated with the onset of binging and compensatory behaviors in non-clinical populations (Stice & Agras, 1998; Stice, Killen, Hayward & Taylor, 1998).

*Family Systems and Eating-Disordered Behavior:*

Problematic family functioning can perpetuate the distorted thinking already present in women who struggle with eating disorders. According to Friedlander and Siegel (1990), college women report that family impairment and a diminished sense of individuation are related to bulimic and anorexic behaviors. Although many researchers point to the negative evaluations bulimic individuals provide as evidence that family dysfunction contributes to the development of eating disorders, Young, McFatter, & Clopton (2001) indicate the relationship between family functioning and potential eating disorders in nonclinical samples is unclear. Tseng (2001) purports the family as being the basic sociocultural unit acting as a nest for growth of an individual, a resource for social support, and the institution through which culture is transmitted. Werne (1996) supports this when writing:
There is little doubt that regardless of how the problem arose in the first pace, the eating disorder symptoms become intertwined with family relationships, dominating family life in a way that makes the whole family feel paralyzed, stuck, and unable to find a way out of their predicament. (p. 220)

Parents may serve as great supports or sustainers of their daughter's eating-disordered behavior. Garner and Garfinkel (1985) report that parents often need help with their own anxieties to permit the daughter more individual freedom. Specifically, Gilbert and Commerford (2000) assert:

Just as one family pattern is to overwhelm children with too much food and love, another may convey the message that whatever a child does, it is never good enough. Parents may mean well by this—they may only want to urge their children to (be better.) But a sensitive child who is already predisposed to disordered eating may respond by using food to strive for perfection. (p. 12)

Research shows a higher incidence of various psychopathological disorders in the families of persons with eating disorders (Strober & Katz, 1988). Strober, Lampert, Morrell, Burroughs, and Jacobs (1990) concluded anorexia is intergenerationally transmitted: "It is roughly eight times as common in female first-degree relatives of anorexic probands as in the general population, and is absent in relatives of probands
with other types of deviance" (p. 249). Although bulimia does not appear to agglomerate to the same extent, Strober, et al. (1990) found the lifetime prevalence of this condition in sisters of bulimics was four times that of the general population. Bulik, Sullivan, and Kendler (1999) have recently found moderately high heritabilities for both latent binge eating (82%) and broadly defined bulimia nervosa (83%). Further research is needed to examine whether bulimic families are predisposed to the later development of eating disorders (Strober & Katz, 1988).

Humphrey's (1986, 1987, 1989) research findings showed the nature of a female adolescent's eating disorder may be associated with a nonpareil pattern of disturbed family relationships. Also, the portrait of the classical anorexic's family displayed behavior that was both too nurturant and too neglectful, while the bulimic family was distinguished by little affection or support in their interactions, but instead were enmeshed in a hostile manner. When compared with normal women, bulimics in treatment report poorer family adjustment and more problems with their parents (Humphrey, 1986; Mitchell, Hatsukami, Eckert, & Pyle, 1985; Norman & Herzog, 1984; Sights & Richards, 1984). Bulimics in treatment may not be representative of all bulimics; their personality functioning as well as their family relationships may differ from those bulimics who do not seek treatment (Kent & Clopton, 1992).
One possible mechanism by which parents may influence their children's perspective of weight and body image concerns is via modeling weight loss behaviors (Wertheim & Paxton, 1999). In two studies, mothers' dieting or weight concerns were associated with adolescent (Pike & Rodin, 1991) and grade 4 (Ruther & Richman, 1993) daughters' individual weight concerns. However, three other studies found no significant relationship between mother and daughter eating concerns when studying adolescents (Attie & Brooks-Gunn, 1989; Moreno & Cooke, 1994; Thelen & Cormier, 1995). Although the role played by familial factors in the etiology of eating disorders has ignited a great deal of theoretical interest, empirical data are fragmentary and highly speculative (Kog & Vandereycken, 1985; Strober & Humphrey, 1987). A family systems approach does not see the family as the cause of an eating disorder, but rather it emphasizes the family as the context within which the eating disorder is embedded (Eisler, 1995).

Adolescents are prime candidates for eating disorders, and Smets and Hartup (1988) indicate adolescents are in the process of learning to separate from their families and developing independence, and as a result, their psychological well-being is often less directly linked to family systems. Individuation is the process by which one learns to differentiate between important self-other distinctions and moves toward gradually forming an assured self-identity (Lopez, 1992). Achieving a balanced capacity for
autonomy and intimacy in the process of individuation is a difficult, but important developmental challenge of adolescence (Grotevant & Cooper, 1986; Youniss & Smollar, 1985). Some prominent characteristics associated with codependents and women with eating disorders who have separation-individuation problems include a high need for control, distorted self-other boundaries, and the displacement of repressed feelings by way of self-destructive behaviors (Meyer & Russell, 1998).

*Psychosocial Components of Eating Disorders:*

There is a close relationship between dieting behavior promoted by society and bulimic symptoms, which tend to develop within a year from the onset of dieting, particularly in women who have poor impulse control (Nasser, 1997). Psychosocial stressors have not proven to be exclusively causative in the development of eating disorders, but biology, personality, family environment, as well as psychosocial components together have allowed research to form some conclusions about the etiology of eating disorders (Cooper, 1995; Halmi, 1992; McFarland, 1995; Woodside, 1993).

Non-western cultures have long been considered relatively immune from developing eating disorders, by reasons of different authentic cultural values that do not overvalue thinness and possibly associate plumpness with positive attributes of wealth,
fertility, and femininity. Even obesity in some societies was once seen to reflect desirable sexual characteristics (Nasser, 1997).

Although bulimia is becoming more cross-cultural in some senses, many bulimics come from similar white, middle to upper-class backgrounds (Hall & Cohn, 1986). Americans typically worry a great deal about external life factors, including what they will eat and wear (Kilbourne, 1999). Many researchers suggest a link between increases in the cultural emphasis on thinness and the escalation of disordered eating patterns in young women (Striegel-Moore, 1993). According to studies conducted by Williamson, Cubic, and Gleaves (1993) and Stice and Agras (1998), bulimic women exhibit a tendency to prefer thinner ideal body sizes on silhouettes than other women, which implies women with bulimia internalize thin-ideal images to a greater extent than do other women.

Peer pressure is the primary mechanism which transports group norms and encourages or discourages certain attitudes and behaviors. Because adolescent women are susceptible to internalizing others' opinions, eating-disordered behaviors have the potential of escalating based on negative peer influence through the realm of body-image fixation and teasing. Stice (1998) defines social reinforcement as comments or actions of others that serve to support and perpetuate the thin ideal body image for women, such as criticism regarding weight (i.e., teasing) and encouragement to diet.
The sociocultural model of disordered eating purports that individuals who live in a sociocultural environment favoring values related to the significance of thinness and dieting will be more likely to adopt such values (Levine & Smolak, 1992).

Dieting is a rapidly growing trend that encompasses the minds of girls and women of all ages (Hill, Draper & Stack, 1994; Hill, Oliver, & Rogers, 1992; Wardle & Beales, 1986). Adolescence is an important developmental stage of life for the emergence of body dissatisfaction, dieting, and eating problems (Crisp, 1980; Rosen & Gross, 1987). Wardle and Marsland (1990) indicate that dieting occurs in approximately 50-70% of North American adolescent high school girls, with even greater numbers reporting body dissatisfaction and expressing a desire to be thin. Horm and Anderson (1993) report that 40% of individuals in their sample were dieting at any time, and Furnham and Greaves (1994) indicate that 87% of their sample had dieted at some time. Rosen, Tacy, and Howell (1990) surveyed 1,373 high school students and found on the day the study was conducted, 63% of the girls and 16.2% of the boys were dieting to lose weight despite the fact that most of these adolescents were already at a normal weight level. Similarly, Miller, Coffman and Linke (1980) conducted a study and found 61% of college women were dieting to lose weight, even though only 35% of the students in the survey were classified as overweight.
The importance of the role of dieting in the formation of eating disorders is well documented (Fairburn & Cooper, 1984; Polivy & Herman, 1985, 1987, 1995; Williamson, 1990; Wilson, 1995). Dieting alone is not exclusively the only potential cause of eating disorders, but its significant impact on young adolescent women has been verified by various researchers throughout the last two decades. Several studies offer evidence that dieting behavior in conjunction with personality factors may lead to the onset of eating-disordered behavior (Johnson-Sabine et al., 1988; Patton, 1988; Szmukler, Eisler, Gillis, et al., 1985). Just as dieting can be a psychologically contagious behavior, bulimic symptoms have the potential of being very communicable as well. Crandall (1988) conducted a study that found women in two college sororities reported a positive relationship between binge eating and popularity, suggesting that binge eating is primarily acquired through peer modeling. Schwartzberg (1998) says adolescents see themselves in their peers and develop a concept of self through the eyes of others.

Mintz and Betz (1988) postulate that up to 65% of women in their first year of college display some behavioral and psychological characteristics of disturbed eating, while Drewnowski, Yee, Kurth, & Krahn (1994) and Joiner & Kashubeck (1996) indicate prevalence studies suggesting that around 30% of college students experience various degrees of eating-disordered behaviors such as binge eating, purging, caloric restriction, and unhealthy weight loss. College is a time of transition from childhood to adulthood.
in that frequently adolescents are independent from their parental support systems for the first time in their lives. The modulation from dependence on family to independence while at college typically increases some levels of stress for the adolescent seeking to find her identity separate from that of their families (Dickstein, 1989; Hotelling, 1989; Howard & Porzelius, 1999; and Rhodes & Kroger, 1992;).

Striegel-Moore, Silbertstien, and Rodin (1986) suggest college campuses are stressful semiclosed environments that intensify sociocultural pressures to be thin. Mintz and Betz (1988) reported that in a sample of over 600 nonobese, nonanorexic college women, only 33% could be characterized as having normal eating habits, while 61% were found to have some intermediate form of eating-disordered behavior. These behaviors ranged from chronic dieting to binge-eating and purging, but at the time of the study, they did not meet the DSM-III-R criteria for an eating disorder (American Psychiatric Association, 1987). The mean age of onset for bulimia nervosa is approximately eighteen years old, although the disorder can develop in childhood as well (Sokol, Steinberg, & Zerbe, 1998; Steiner & Lock, 1998). Because the average age onset for bulimic behavior coincides with college age students, studies conducted with college females are significant to the field of research related to eating disorders.
Personality Characteristics Related to Bulimic Behavior:

Some emotional difficulties are commonly associated with bulimic individuals. Low self-esteem (Kirkpatrick & Caldwell, 2001), anxiety, emotional instability, dysphoria (Edwards & Nagelberg, 1986; Eldredge, Wilson, & Whaley, 1990; Herman & Polivy, 1988; Johnson & Maddi, 1986), alienation, self-consciousness, lack of assertiveness, inadequate emotional expression (Norman & Herzog, 1984; Pyle et al., 1981), feelings of inadequacy, helplessness, ineffectiveness, guilt, and self-doubt (Garfinkel & Garner, 1982) all have been found to portray emotional problems of the early bulimic child. Some researchers believe eating disorders result in exaggerations of certain personality disorders as a result of the starvation effects, dietary chaos, and emotional turmoil associated with eating-disordered behavior (Vitousek & Manke, 1994; Wonderlich & Mitchell, 1992).

Steiger et al. (1997) found that bulimic individuals showed elevated rates of narcissistic traits, even after they had recovered from their bulimic illness. In addition, they also found that active and remitted bulimic subjects showed greater increases in self-criticism and deterioration in mood following stressful interpersonal transitions than did normal eaters. Impulsivity is a common characteristic of the individual who struggles with control in the intake of his or her food portions. Steiger, Lehoux, and Gauvin (1999) found that bulimic individuals who had elevated levels of trait
impulsivity displayed a weaker association between dietary restraint and daily binging behavior than did subjects lower in impulsivity. Borderline personality traits are commonly observed in bulimic patients, such as interpersonal distress, suicidal and self-destructive behavior, and a greater use of psychotropic medications and inpatient treatment (Johnson, Tobin, & Dennis, 1990; Vitousek & Manke, 1994; Wonderlich & Swift, 1990; Wonderlich & Mitchell, 1992). Anorexia and bulimia nervosa inevitably affect personality development if they are severe, prolonged, or occur at critical junctures in development (Schwartzberg, 1998).

Perfectionism is a characteristic seen repeatedly in women who struggle with eating disorders. The cycle begins with the person unrealistically desiring to perform at perfection, inevitably falling short of the perfectionistic standard, and this results in a decreasing of the already low self-esteem in the eating-disordered individual often contributing to the person's poor sense of worth and increasingly low self-esteem (Kirkpatrick & Caldwell, 2001). Perfectionism is associated with the psychological and cognitive dimensions of eating disorders, and Brownell (1991) believes perfectionism may be the prime motivation of unhealthy weight loss. Hewitt and Flatt (1991) purport perfectionism, including the following: setting unrealistic standards, fear of failure, shame, and strict self-evaluations. Vohs, Joiner, et al. (1999) have found some
prospective support for their hypothesis that perfectionism combines with weight dissatisfaction and low self-esteem to increase the risk of developing bulimic symptoms.

Some researchers contend that both anorexic and bulimic women share perfectionistic traits which play a crucial role in the development and maintenance of their eating disorders (Flett & Hewitt, 2002). Hewitt, Flett, and Ediger (1995) studied perfectionism and supported Strober's (1991) psychobiological and multidimensional model of perfectionism that implied perfectionistic personality traits may have a genetic basis. Flett and Hewitt (2002) conclude the following:

...the role of perfectionism in cognitive-behavioral models of eating disorders appears to be linked to the development and maintenance of faulty cognitions that reflect unrealistic standards about shape and weight and to the interpretation of 'failures' to achieve desired weight loss. (p. 323)

According to Flett and Hewitt (2002), a review of literature reveals that research on eating disorders and perfectionism has evolved from studying only the prevalence of perfectionistic traits in eating-disordered individuals to now incorporating more current research which explores the role of perfectionism in the etiology and maintenance of anorexia nervosa and bulimia nervosa. When bulimic individuals avoid disclosing imperfections to others, it can be significantly related to purging behaviors. This suggests that people who avoid disclosing facets of their lives that they perceive to be
imperfect tend to actively pursue weight loss by vomiting, abusing laxatives, or exercising excessively. Traits such as perfectionism and other related dispositions may create vulnerabilities which interrelate with life stressors and body dissatisfaction to promote disordered eating (Joiner, Heatherton, Rudd, & Schmidt, 1997; Leon, et al., 1995).
CHAPTER 3: METHODOLOGY

Population and Sample:

The participants in this study were female college students enrolled in psychology courses at a private comprehensive university in the Midwest. The participants were recruited from undergraduate psychology classes, with extra credit offered for taking the Myers-Briggs Type Indicator and the Eating Disorder Inventory-2. The number of sampled women available, based on the nine classes surveyed, was 248, ranging from freshmen to seniors in college.

All subjects were screened for subclinical bulimic behavior as opposed to clinical cases of bulimia nervosa according to the DSM-IV-TR (American Psychiatric Association, 2000). They were administered the Eating Disorder Inventory-2 and the Myers-Briggs Type Indicator (MBTI) in a single contact session. The purpose of administering the MBTI was to view the "S" (Sensing) and "J" (Judging) components of the females' personalities, while the administration of the EDI-2 was for identifying bulimic behavior.
Instrumentation:

Myers-Briggs Type Indicator

The Myers-Briggs Type Indicator was developed by Katherine C. Briggs and Isabel Briggs Myers and has been used extensively in various fields of study: education, counseling, career guidance, and communication-building activities for places of employment (Myers & McCaulley, 1985). The MBTI is a self-report inventory developed to measure personality variables associated with the Jungian psychological typology. The MBTI (Form G) consists of 126 forced-choice phrases, to which the respondent responds on a scantron answer form. The questions yield information regarding the four functions and the two attitudes. The attitude-and-function profile is assessed on the basis of the individual's preferences on items that require a choice between opposing functions such as Thinking versus Feeling, or Sensing versus Intuiting or opposing attitudes such as Introversion versus Extroversion (Barresi-Devore, 1987). Four literature reviews examined the research on the Myers-Briggs Type Indicator (Carolyn, 1977; Carskadon, 1979; Carlson, 1985; Murray, 1990), and they concluded that the MBTI possesses sufficient psychometric validity for research purposes, even if further studies are needed in particular regarding its construct validity. Reliabilities remain stable up to twenty-five omissions for Form G, and these cut-off points can be used to determine the number acceptable for research studies (Briggs-Myers & McCaulley, 1986). Test-retest
reliabilities of the MBTI show consistency over time, and when individuals report a change in type, it usually occurs in only one preferences or in scales where the original preference score was low (Briggs-Myers & McCaulley, 1986).

There are a total of sixteen different 4-letter personality profiles using the Myers-Briggs Type Indicator (e.g., ESFJ, INTP, ENFP, ISFJ, etc.). Scores on the extroversion scale correlate with social adjustment, leadership, assertiveness, gregariousness, desire for affiliation and affection and altruism. Scores on the introversion scale are attached to reflective observation, autonomy, and interest in privacy. Scores on the sensing scale correlate with measures of practical outlook and occupations relating to economic gain while scores on the intuitive scale have significant correlations with measures of flexibility, artistic sensitivity, independence, innerdirectedness, and liking to use the mind. Scores on the thinking scale have correlations with measures of dominance, abstract conceptualization, assertiveness, achievement, and aggression. Scores on the feeling scale correlate with measures of concern for others, nurturance, sociability, deference, blame avoidance, and creative occupations in the arts and humanities. Scores on the perceptive scale correlate with measures of complexity, flexibility, autonomy, succorance, and imagination, while scores on the judging scale have significant correlations with measures of order, self-control, achievement, leadership, and endurance (Briggs-Myers & McCaulley, 1986).
Kiersey and Bates (1984) focused on four temperaments, which include combinations of two-letter types (e.g., NF, NT, SJ, SP). For the purposes of this study, the researcher is focusing on the "SJ" component of the personality. Some of the characteristics of the "SJ" quadrant of personality are as follows: bound by a sense of duty; yearn to belong to meaningful institutions; are trustworthy, loyal, helpful, reverent, and stabilizing traditionalists; love to organize people, furniture, schedules, timetables, and organizations; find fulfillment in administration because of their dependability and ability to take charge; love to take charge of the home; need family roles and rituals to be clearly defined; and keep the fabric of our society together as they seek to do the right thing at the right time. Another characteristic of the "SJ" temperament is they gather information in a practical, structured, and realistic way (Kiersey & Bates, 1984).

**Eating Disorder Inventory-2**

The EDI-2 is a 91-item, standardized self-report measuring symptoms commonly associated with a range of eating disorder behaviors, including bulimia nervosa and anorexia nervosa. The inventory is dissevered into two clinically relevant domains: ego-dysfunction characteristics and eating attitudes (Valdiserri & Kilhlstrom, 1995). The three eating attitude subscales are as follows: Drive for Thinness (a
preoccupation with dieting and fear of weight gain); Bulimia (a tendency to think about and engage in binging behavior); and Body Dissatisfaction (extreme dissatisfaction with overall shape and parts of the body). The eight ego-dysfunction subscales include: Ineffectiveness (feelings of emptiness, aloneness and lack of control over one's life); Perfectionism (the belief that only the highest standards are acceptable); Interpersonal Distrust (the need to keep others at a distance); Interoceptive Awareness (confusion and mistrust in recognizing and accurately responding to emotional states); Maturity Fears (the desire to retreat back to the security of childhood); Asceticism (the practice of self-denial, self-restraint and self-discipline); Impulse Regulation (a tendency towards recklessness, impulsivity, and hostility); and Social Insecurity (the belief that relationships are unrewarding and disappointing). In all cases, higher scores are equivalent with a greater level of eating and related psychopathology (Garner, 1991).

The EDI-2 is a well recognized assessment tool which distinguishes between clinical and nonclinical eating disorders. Reliability coefficients for the original EDI subscales were between .83 and .93 for the eating disorder sample (Garner & Olmsted, 1984). In a research study conducted by Wear and Pratz (1987), the retest reliability was .90 for respondents who scored high on the Bulimia subscale. Crowther et al. (1990) conducted a large study and found the internal consistency reliability was .69, and the test-retest reliability in this study was .44. According to the EDI-2 manual, lower
reliabilities for the Bulimia subscale may relate to the probable fluctuation of eating behaviors and affective content over time (Garner, 1991).

Criterion validity is the ability of items to discriminate between eating disorder and nonpatient samples, and all of the items in the original EDI validation study met this standard (Garner, Olmsted, & Polivy, 1983a). Concurrent validity was established by comparing patient self-report profiles with the judgments of experienced clinicians who were aware of the patients’ clinical presentation (Garner, 1991). A discriminate function analysis reported that all of the EDI subscales correctly classified 85% of the subjects into bulimic and restrictor subtypes (Garner, Olmsted, & Polivy, 1983a).

The EDI-2 measures cognitive and behavioral aspects associated with bulimia nervosa and anorexia nervosa. Participants respond to the Likert-type scale on the 91 inventory items as follows: always (3), usually (2), often (1), sometimes (0), rarely (0), and never (0). This scoring system is designed to differentiate between those with eating disorders and the occasional dieters with partial syndromes. The EDI has been used in multiple studies and has been found to successfully discriminate between subjects with and without eating disorders (Garner, et al., 1983). The EDI-2 is not to be used in isolation from other assessments when diagnosing eating disorders, but in nonclinical settings it may be used to identify eating disorder behaviors not technically diagnosed
according to the DSM-IV-TR. Individuals with subclinical eating disorders are at risk for developing clinical eating disorders, and the EDI-2 offers useful insight regarding some potential eating-disordered behaviors that, if apprehended in time, may suspend the eating disorder from becoming a serious life-threatening problem.

**Procedures:**

All subjects were administered both the Myers-Briggs Type Indicator and the Eating Disorder Inventory-2 in order to determine if the MBTI personality traits of “S” (Sensing) and “J” (Judging) correlated with high scores on the bulimic subscale of the EDI-2. The researcher was looking for bulimic behaviors associated with personality traits common to those of the Sensor and Judger. The researcher analyzed the Sensing function of the MBTI because of the congruence between the impulsive behavior of bulimic individuals (Herman & Polivy, 1988) and the tendency to focus on the immediate experience and present moment of the Sensor (Briggs-Myers & McCaulley, 1986). The Sensor focuses on immediate gratification, which may lead to impulsive behaviors without consideration of consequences. The researcher analyzed the Judging attitude of the MBTI because this characteristic is commonly associated with individuals who make decisions and devise a plan to bring about closure without gathering sufficient information before making a decision (Briggs-Myers & McCaulley, 1986).
Bulimic individuals struggle with binging and purging, and they often times neglect to consider other more productive behaviors when dealing with intense emotions. The “SJ” factors of the MBTI typically characterize a perfectionistic person, and individuals who struggle with eating disorders often times are perfectionistic, especially as they seek to attain unreasonable goals with weight and body image (Flett & Hewitt, 2002).

The participants were asked to complete the two inventories at the conclusion of their final exam in their respective psychology classes. Each professor agreed to offer extra credit to those who choose to participate in this study, and the researcher read the informed consent to the class before the exams began. Participants received a short debriefing as to the nature of this study, agreeing to write a coded identification number on both of the inventories as a written form of their consent to participate in this research study. The subjects were thanked for their willingness to participate in the study and received assurance of the anonymity of their information. The students were instructed to follow the written instructions provided in the test booklets for both the EDI-2 and the MBTI. The researcher was available to answer any questions individuals had as the tests were completed.
Design:

A correlational design was utilized in this study, which was intended to describe the nature of the existing relationship between the Myers-Briggs Type Indicator temperaments ("SJ") and bulimic behavior based on the bulimia subscale of the EDI-2. The data obtained from the hypotheses in this study may be used for further clinical decisions in research. This study is considered exploratory research since the research literature does not provide a definitive direction regarding specificity in directional hypothesis testing.

Data Analysis:

The researcher utilized correlation coefficients to quantitatively describe the strength and direction between two variables utilizing the Pearson-Product Moment Correlation Coefficient: personality traits from the MBTI and bulimic behavior according to the Eating Disorder Inventory-2. A chi-square test of independence was calculated comparing the "SJ" personality factors of the MBTI with the bulimia subscale on the EDI-2. A chi-square test of independence was calculated comparing the "S" personality factor of the MBTI with the bulimia subscale on the EDI-2. A t-test was also conducted comparing the mean score of subjects who were identified as "S" nonbulimic females to the mean score of subjects who were identified as "S" bulimic females. A chi-
square test of independence was calculated comparing the "J" personality factor of the Myers-Briggs Type Indicator with the bulimia subscale on the EDI-2. An independent t-test was also conducted comparing the mean score of subjects who were identified as "J" nonbulimic females to the mean score of subjects who were identified as "J" bulimic females. When two continuous variables are compared, Isaac and Michael (1995) claim that utilizing the Pearson-Product Moment Correlation test is most appropriate.
CHAPTER 4: RESULTS

This chapter presents demographic information and normative information relevant to the scoring of the Eating Disorder Inventory-2 as well as content related to the objectives of The Myers-Briggs Type Indicator Test. Finally, the results of the statistical analyses and findings related to the hypotheses are reported at the conclusion of this chapter.

Demographic Data:

The total sample consisted of 221 female subjects who were students at a local college. The subjects' ages ranged from 18-22 years old and represented freshmen, sophomore, junior and senior status in college. The subjects were identified as either characterized with bulimic or nonbulimic behavior based on their scores on the EDI-2. The response rate was 91% based on the 221 subjects that completed both the EDI-2 and the MBTI. The researcher believes this high response rate is due in part to the graciousness of the psychology department in offering extra credit for the students who completed both inventories. Four individuals filled out a majority of the inventories, but their data was unable to be used because some answers were left blank. Unanswered
questions skew the results of the MBTI personality profile, and the scores on the Bulimia subscale of the EDI-2 cannot be computed accurately unless all questions are answered.

_The Eating Disorder Inventory-2 Bulimia Subscale:_

There are seven questions specifically related to bulimic behavior on the Eating Disorder Inventory-2, each with a potential score of 0-3 points. Therefore, the range of scores for each individual subject is from 0-21 points, with the higher number representing more severe bulimic behavior. Utilizing the EDI-2 profile form for an authoritative cut-off point, anything above a score of 3 insinuates bulimic behavior in female college students. Scores considered significant on the profile form do not indicate DSM-IV-TR diagnoses of bulimia nervosa, but rather these scores indicate problematic patterns in this domain.

The Bulimia subscale assesses the tendencies to think about and indulge in periodic times of uncontrollable overeating (bingeing). The presence of binge eating is one of the defining features of Bulimia Nervosa and differentiates the bulimic and restrictor subtypes of Anorexia Nervosa (Garner, 1991). Research has shown that bulimia is common in individuals who do not meet all of the criteria to qualify for a formal diagnosis of an eating disorder (Pyle, Halvorson, Neuman, & Mitchell, 1986). In
most severe cases of clinically diagnosable bulimia nervosa, individuals will have high levels of psychological distress (Garner, 1991).

Norms for the female college sample are based on the 770 nonpatient female college students who participated in the original EDI validation study (Garner, Olmsted, & Polivy, 1983a; for Interoceptive Awareness and Maturity Fears subscales, the norms are based on only 273 women who completed the final version of the EDI that included all of the final items for these subscales). These women were the first and second year psychology classes at the University of Toronto (Garner, 1991).

*The Myers-Briggs Type Indicator:*

The MBTI is an ipsative instrument because it requires a forced choice between two contrasting responses, but each response alternative is scored on a different scale (Myers & McCaullay, 1988). Because of this separate scoring and the omission issue, the shortcut of scoring an exclusive part of the scale is not recommended. Form G was used for this research project, of which the standardization was based on 1,114 males and 1,111 females, grades four through twelve in three public schools in Bethesda, Maryland, and in four private schools in the suburbs of Philadelphia, Pennsylvania. The analyses included a rescoring of a sample of 3,362 University of Florida freshmen tested in 1972 and 1973 (Myers & McCaullay, 1988). Form G of the MBTI was published in
1977, and it eliminated 38 research items not previously scored for type in Form F, added one new item, and dropped two items that no longer met the criterion for inclusion (Myers & McCaullay, 1988). Some of these items were eliminated due to the changes taking place culturally as well as the need to eliminate ambiguity or awkward alternatives.

The main objective of the Myers-Briggs Type Indicator is to identify four basic preferences. The indices (EI, SN, TF, and JP) are designed to point in one direction or the other; they are not designed as scales for measurement of traits or behaviors (Myers & McCaullay, 1988). The intent of this test is to reflect a habitual choice between rival alternatives. Every person is assumed to use both poles of each of the four preferences, but to respond first or most often with the preferred functions or attitudes. The type descriptions include a model of development that continues throughout life (Myers & McCaullay, 1988).

There are a variety of uses for the Myers-Briggs Type Indicator. Some may use it for the purpose of understanding learning styles in educational settings as well as helping individuals in their choice of school majors, professions, occupations, and work settings. Other purposes for the MBTI are as follows: selecting teams, task forces, and work groups with sufficient diversity in personality to solve problems; helping those who work or live together to understand how previously irritating and obstructive
differences can become a source of amusement, interest, and strength; and, creating a climate where differences are seen as interesting and valuable rather than problematic.

In counseling, the Myers-Briggs Type Indicator may be used for the following purposes (Myers & McCaulay, 1988):

* To help others find direction for their lives by understanding the strengths and gifts of their preferences
* To help individuals cope with their problems by showing them how to use their problems as a laboratory for developing their powers of perception and judgment and to thereby gain more satisfactory direction in their lives
* To help couples and families learn the value of both their differences and their similarities
* To help parents accept their children as they are (however different the child’s type is from that of the parent)
* To help children follow their different roads to excellence without external disparagement or internal guilt. (p. 4)

The researcher chose to analyze the Sensing and Judging types due, in part, to the majority of individuals representing these two MBTI factors. Isabel Myers (1962)
made the following estimates of type in the general population relative to the above study:

* About 75% of the population in the United States prefer “S” (Sensing).
* About 55-65% of the population in the United States prefer “J” (Judging).

Findings Related to the Hypotheses:

Alternative Hypothesis 1 stated: “The Myers-Briggs type function ‘SJ’ is represented with greater frequency among women who score high on measures of bulimia.”

A chi-square test of independence was calculated comparing the “SJ” personality factors of the MBTI with the bulimia subscale on the EDI-2. The selection of this statistical test is consistent with Barresi-Devore’s dissertation data analysis of similar variables, the study after which the present dissertation is patterned. The most commonly used value is the Pearson chi-square (value of .76). No significant relationship was found (chi-square(1) = .76, p > .05). A chi-square test that is not significant indicates there is no significant dependence of one variable on the other (Newton & Rudestam, 1999). The data failed to support the researcher’s (alternative) hypothesis.
Alternative Hypothesis 2 stated: "There is a greater representation of the Myers-Briggs Type Indicator Sensing preference among women who score high on measures of bulimia."

A chi-square test of independence was calculated comparing the "S" personality factor of the MBTI with the bulimia subscale on the EDI-2. No significant relationship was found (chi-square(1) = .25, p > .05). A t-test was also conducted comparing the mean score of subjects who were identified as "S" nonbulimic females to the mean score of subjects who were identified as "S" bulimic females. No significant difference was found (t(219) = .75, p > .05). The mean of the "S" nonbulimic females (M = 16.79, SD = 7.85) was not significantly different from the mean of the "S" bulimic females (M = 15.85, SD = 8.37). Newton and Rudestam (1999) indicate using a Pearson correlation when both variables are continuous. There was no significance found in the correlation between the "S" raw score and the bulimia subscale score (r value = -.025 and p value = .713). The data failed to support the researcher's hypothesis.

Alternative Hypothesis 3 stated: "There is a greater representation of the Myers-Briggs Type Indicator Judging preference among college women who score high on measures of bulimia."

A chi-square test of independence was calculated comparing the "J"
personality factor of the MBTI with the bulimia subscale on the EDI-2. No significant relationship was found (chi-square(1) = 1.11, p > .05). A t-test was also conducted comparing the mean score of subjects who were identified as "J" nonbulimic females to the mean score of subjects who were identified as "J" bulimic females. No significant difference was found (t(219) = -.137, p > .05). The mean of the "J" nonbulimic females (M = 14.57, SD = 6.93) was not significantly different from the mean of the "J" bulimic females (M = 16.11, SD = 7.86). A Pearson Correlation was also calculated, and the correlation between the "J" raw score and the bulimia subscale score was not statistically significant (r value = .063 and p value = .354). The researcher's hypothesis was rejected.

Summary of Researcher's Findings:

Results of the statistical analyses in relationship to the hypotheses were reported in this chapter. Hypotheses 1, 2, and 3 produced no statistical significance, and the researcher's hypotheses were rejected. The researcher also looked at the "S" and "J" factors of the MBTI and conducted Pearson chi-square tests and Pearson correlational t-tests with the other 10 subscales presented on the EDI-2, and no statistical significance was found with any of these subscales as well.
CHAPTER 5: SUMMARY, DISCUSSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

This chapter presents a summary of the study, a discussion of the results of the statistical analyses, and some potential recommendations for future research.

Summary:

The present study examined the psychological and temperamental characteristics of individuals displaying bulimic behavior relative to the bulimia subscale on the EDI-2. The study proposed to view bulimic behavior in college women based on the high prevalence of eating-disordered behaviors in adolescent women. With the frequency of eating disorders rapidly escalating (Maxmen & Ward, 1995), the researcher sought to study personality traits potentially connected with women inclined to bulimic behavior. The study proposed to investigate the differences between psychological subscales of the MBTI and the EDI-2.

The general hypothesis was that measures of bulimia correlate with the attitude and functions of the Myers-Briggs Type Indicator. More specifically, the hypotheses introduced in this study were that a particular typology, represented by the Sensing and Judging preferences, would positively correlate with various measures of
bulimic behavior. The hypotheses consisted of testing separately the Sensing and Judging preferences of individuals with bulimic behavior as well as testing the two-letter Myers-Briggs combination of the Sensing and Judging preferences with bulimic behavior.

To test the hypotheses, 221 students from a local college were given the Myers-Briggs Type Indicator and the EDI-2. The subjects were divided according to their Myers-Briggs type preference, and the researcher chose to focus on the Sensing (S) and Judging (J) preferences. Once the MBTI preferences were divided (SJ's and non SJ's), the researcher examined the bulimia subscale scores on the EDI-2. Subjects who scored 3 or higher were recognized as displaying bulimic behavior according to the EDI-2 female college norm profile scale. The hypothesis of a defined typology characteristic of individuals who score high on measures of bulimia was not upheld. No statistical significance was found between the "SJ" types and the other types on measures of bulimia. The alternative hypotheses 1, 2 and 3 were not accepted according to the .05 level of significance.

Discussion:

Given that the present research hypotheses were shown to be untenable, the researcher believes the present study provides important insight into better
understanding bulimic behavior in women. In particular, personality characteristics, such as those assessed with the MBTI, generally are thought to be stable through the adult lifespan (Derlega, Winstead, & Jones, 1999). In contrast, bulimic behavior is considered by clinicians to be dynamic and treatable (Garner, 1991). Since these two variables do not appear to correlate, then stable personality characteristics should not be thought to impede or prohibit change in malleable behavioral choices, such as bulimic behavior.

Moreover, since bulimic behavior is changeable, the research frequently addresses the significance of the individual's psychosocial environment as a predictor or sustainer of eating-disordered behavior (Joiner, Heatherton, Rudd, & Schmidt, 1997; Leon, et al., 1995). Behavior is affected by processes external to the individual's inner processes. At the same time, behavior is also affected by attributes and processes within us; we also respond on the basis of our goals, motives, needs, self-esteem, feelings, and other intrapersonal features (Derlega, Winstead, & Jones, 1999).

Bulimic behavior is characteristically viewed as impulsive and an immediate means to deal with the stressors of life (Steiger, Lehoux, & Gauvin, 1999). Because one's personality is, for the most part, stable throughout the course of one's life, it allows the researcher to view this stability as a deterrent in predicting the fluctuating and impulsive aspects of bulimic behavior. The researcher looked specifically at the Sensing preference.
due to the inclination of this type as resistant to change. This personality preference contests change and views things as concrete rather than abstract. Sensing personality types may settle for faulty solutions to problems because they lack the intuitives' capacity to see possibilities. For instance, bulimic individuals may respond and react to present circumstances by impulsively indulging in binging & purging cycles because they are hesitant to objectively view other healthier options of dealing with life stressors (Steiger, et al., 1999).

The heterogeneity of bulimic behavior has well been recognized since the inception of studies on eating disorders (Kirkpatrick & Caldwell, 2001; Herman & Polivy, 1988; Johnson & Maddi, 1986). Given the intricate etiology of bulimia, it is not surprising that, as yet, there is no research showing one specific cause for bulimic behavior. The present study attempted to overcome, at least partially, this convoluted task by analyzing a variety of variables associated with bulimic behavior based on the EDI-2 and examining potential correlations with personality preferences in relation to the MBTI. No single preference was associated with bulimic behavior, and this study reinforces the view that bulimic behavior is a complex pattern of dynamics, unable to be directly correlated with personality traits.
Recommendations for Future Research:

Utilizing assessment measures beyond self-report questionnaires should be considered when designing future research studies in this area. Participants may wish to appear healthier than they are in actuality by omitting, distorting or in some other way, altering the truth. This phenomenon may have led to a bias in the present study, especially since the tests were taken in an academic classroom with peers surrounding them. A qualitative study may offer additional insight and provide a greater level of subject vulnerability by means of in-depth interviews, in addition to the standardized questionnaires utilized in this study.

The hypotheses of this study were unable to be confirmed, so the researcher conducted a post-hoc analysis of the eleven additional subscales on the EDI-2, looking for correlations between eating-disordered behavior and the MBTI preferences (Sensing and Judging). None of the eleven scales showed any type of correlation between personality and eating-disordered behavior. This is significant in that, according to these two instruments, eleven factors related to both anorexic and bulimic behaviors were in no way correlated with personality preferences. Because personality is generally stable, with change occurring only over long periods of time, a longitudinal study might reveal insightful findings. Clearer distinctions between bulimic and nonbulimic groups would allow for stricter control over the results as well. Other psychometric measures of
human behavior, such as the Taylor-Johnson Temperament Analysis, could be utilized to provide additional findings relating to personality and bulimic behaviors. Overall, the researcher believes this study showed the need to explore additional potential factors relevant to the nature of eating disorders, including influential psychosocial facets such as familial, social, and peer relationships.
REFERENCES


*Archives of General Psychiatry, 37*, 1041-1046.


Factors associated with abnormal response on screening questionnaires.

*Psychological Medicine, 18, 615-622.*


November 26, 2003

Dr. Ronald Allen
Liberty University
1971 University Blvd
Lynchburg, VA 24502-2269

Re: Lori Anderson’s Dissertation Research

This memorandum is to confirm that Lori Anderson was given permission by Cedarville University to do her dissertation research involving human subjects (some of our female students). Her research is being conducted from January 2003 through January 2004.

Sincerely,

Dr. Duane R. Wood
Academic Vice President
INFORMED CONSENT

From: Lori Lyn Anderson, M.S., L.P.C.
RE: Voluntary Informed Consent

My name is Lori Anderson, and I am a licensed professional counselor who works in Counseling Services at Cedarville University. I am currently working on my Ph. D. in Professional Counseling at Liberty University and am in the process of conducting my dissertation study focusing on personality characteristics commonly associated with eating disorders. I specialize in working with women who struggle with eating disorders, and along with my supervisor, Dr. Michael Firmin, I am interested in assessing eating behaviors utilizing the Myers-Briggs Type Indicator and the Eating Disorder Inventory-2. These tests are each approximately 20 minutes in length.

You have been selected to participate in this study based on your enrollment in Psychology classes at Cedarville University during the spring semester. Your involvement is strictly voluntary and will in no way negatively affect your grade for this course or your status at the university, now or in the future. There is minimal risk of mental, physical or emotional harm as pertaining to this study. You have the freedom at any time to withdraw from this study without any penalty. By writing your identification number (minus the last number) on the answer sheets you are offering your informed consent to becoming a participant in this study. Your personal information will be kept confidential and will be used only for the purposes of identifying data for this research project.

For answers to questions pertaining to the research, research participant’s rights, or in the event of a research-related injury, you may contact me at (937)-766-7855 or Dr. Michael Firmin, Chair of the Psychology department at Cedarville University, at (937)-766-7970.

Thank you for your willingness to participate in this research endeavor.

Sincerely,

Lori Lyn Anderson, M.S., L.P.C.
Department of Counseling
Cedarville University
### Crosstabs

#### Case Processing Summary

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#### S or N * BULIMIC Crosstabulation

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#### Chi-Square Tests

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*a. Computed only for a 2x2 table
b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.51.

### Crosstabs

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#### J or P * BULIMIC Crosstabulation

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<td>% within s_n = 1 and j_p = 1 (FILTER)</td>
<td>78.2%</td>
<td>21.8%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>sj</td>
<td>Count</td>
<td>71</td>
<td>26</td>
<td>97</td>
</tr>
<tr>
<td>% within s_n = 1 and j_p = 1 (FILTER)</td>
<td>73.2%</td>
<td>26.8%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>168</td>
<td>53</td>
<td>221</td>
</tr>
<tr>
<td>% within s_n = 1 and j_p = 1 (FILTER)</td>
<td>76.0%</td>
<td>24.0%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

### Chi-Square Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>.755a</td>
<td>1</td>
<td>.385</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correctiona</td>
<td>.505</td>
<td>1</td>
<td>.477</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>.752</td>
<td>1</td>
<td>.386</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
<td></td>
<td></td>
<td></td>
<td>.429</td>
<td>.238</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.752</td>
<td>1</td>
<td>.386</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>221</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Computed only for a 2x2 table
b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 23.26.
### THIN * body dissatisfaction * perfectionism Crosstabulation

<table>
<thead>
<tr>
<th>perfectionism</th>
<th>body dissatisfaction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>satisfied</td>
<td>dissatisfied</td>
</tr>
<tr>
<td>nonperf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THIN not want thin</td>
<td>Count 119</td>
<td>26</td>
</tr>
<tr>
<td>% within THIN</td>
<td>82.1%</td>
<td>17.9%</td>
</tr>
<tr>
<td>want thin</td>
<td>Count 11</td>
<td>18</td>
</tr>
<tr>
<td>% within THIN</td>
<td>37.9%</td>
<td>62.1%</td>
</tr>
<tr>
<td>Total</td>
<td>Count 130</td>
<td>44</td>
</tr>
<tr>
<td>% within THIN</td>
<td>74.7%</td>
<td>25.3%</td>
</tr>
<tr>
<td>perfect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THIN not want thin</td>
<td>Count 16</td>
<td>5</td>
</tr>
<tr>
<td>% within THIN</td>
<td>76.2%</td>
<td>23.8%</td>
</tr>
<tr>
<td>want thin</td>
<td>Count 7</td>
<td>20</td>
</tr>
<tr>
<td>% within THIN</td>
<td>25.9%</td>
<td>74.1%</td>
</tr>
<tr>
<td>Total</td>
<td>Count 23</td>
<td>25</td>
</tr>
<tr>
<td>% within THIN</td>
<td>47.9%</td>
<td>52.1%</td>
</tr>
</tbody>
</table>

### T-Test

**Group Statistics**

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<thead>
<tr>
<th>BULIMIC</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S raw score</td>
<td>non bulimic</td>
<td>168</td>
<td>16.7857</td>
<td>7.8536</td>
</tr>
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<td></td>
<td>bulimic</td>
<td>53</td>
<td>15.8491</td>
<td>8.36981</td>
</tr>
<tr>
<td>N raw score</td>
<td>non bulimic</td>
<td>168</td>
<td>9.4762</td>
<td>5.61963</td>
</tr>
<tr>
<td></td>
<td>bulimic</td>
<td>53</td>
<td>10.6226</td>
<td>6.19623</td>
</tr>
<tr>
<td>J raw score</td>
<td>non bulimic</td>
<td>168</td>
<td>14.5655</td>
<td>6.92703</td>
</tr>
<tr>
<td></td>
<td>bulimic</td>
<td>53</td>
<td>16.1132</td>
<td>7.86096</td>
</tr>
<tr>
<td>P raw score</td>
<td>non bulimic</td>
<td>168</td>
<td>12.6012</td>
<td>7.27076</td>
</tr>
<tr>
<td></td>
<td>bulimic</td>
<td>53</td>
<td>11.5660</td>
<td>8.26138</td>
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</tbody>
</table>

**Independent Samples Test**

<table>
<thead>
<tr>
<th>BULIMIC</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S raw score</td>
<td>.549</td>
<td>.460</td>
</tr>
<tr>
<td>N raw score</td>
<td>1.039</td>
<td>.309</td>
</tr>
<tr>
<td>J raw score</td>
<td>2.688</td>
<td>.103</td>
</tr>
<tr>
<td>P raw score</td>
<td>1.980</td>
<td>.161</td>
</tr>
</tbody>
</table>
## Independent Samples Test

### t-test for Equality of Means

<table>
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<tr>
<th></th>
<th>Std. Error of the Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Difference</td>
<td>Lower</td>
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<tr>
<td>S raw score</td>
<td>Equal variances assumed</td>
<td>1.25707</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>1.29958</td>
</tr>
<tr>
<td>N raw score</td>
<td>Equal variances assumed</td>
<td>.90774</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>.95519</td>
</tr>
<tr>
<td>J raw score</td>
<td>Equal variances assumed</td>
<td>1.12799</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>1.20480</td>
</tr>
<tr>
<td>P raw score</td>
<td>Equal variances assumed</td>
<td>1.18439</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>1.26586</td>
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</tbody>
</table>

### Correlations

#### Correlations

<table>
<thead>
<tr>
<th></th>
<th>S raw score</th>
<th>N raw score</th>
<th>J raw score</th>
<th>P raw score</th>
<th>bul</th>
</tr>
</thead>
<tbody>
<tr>
<td>S raw score</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>-.896**</td>
<td>.470**</td>
<td>-.466**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>222</td>
<td>222</td>
<td>222</td>
<td>222</td>
</tr>
<tr>
<td>N raw score</td>
<td>Pearson Correlation</td>
<td>-.896**</td>
<td>1</td>
<td>-.452**</td>
<td>.457**</td>
</tr>
<tr>
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<td>Sig. (2-tailed)</td>
<td>.</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
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<tr>
<td></td>
<td>N</td>
<td>222</td>
<td>222</td>
<td>222</td>
<td>222</td>
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<tr>
<td>J raw score</td>
<td>Pearson Correlation</td>
<td>.470**</td>
<td>-.452**</td>
<td>1</td>
<td>-.975**</td>
</tr>
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<td>.</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>222</td>
<td>222</td>
<td>222</td>
<td>222</td>
</tr>
<tr>
<td>P raw score</td>
<td>Pearson Correlation</td>
<td>-.466**</td>
<td>.457**</td>
<td>-.975**</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
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<td></td>
<td>N</td>
<td>222</td>
<td>222</td>
<td>222</td>
<td>222</td>
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<tr>
<td>bul</td>
<td>Pearson Correlation</td>
<td>-.025</td>
<td>.068</td>
<td>.063</td>
<td>-.017</td>
</tr>
<tr>
<td></td>
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<td>.</td>
<td>.314</td>
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<td>.798</td>
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<td>N</td>
<td>221</td>
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</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
<table>
<thead>
<tr>
<th>Raw Score</th>
<th>Equal Variances</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Assumed</td>
<td>.745</td>
<td>219</td>
<td>.457</td>
<td>.9367</td>
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<tr>
<td></td>
<td>Not Assumed</td>
<td>.721</td>
<td>82.907</td>
<td>.473</td>
<td>.9367</td>
</tr>
<tr>
<td>N</td>
<td>Assumed</td>
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<td>219</td>
<td>.208</td>
<td>-1.1465</td>
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<td></td>
<td>Not Assumed</td>
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<td>80.795</td>
<td>.234</td>
<td>-1.1465</td>
</tr>
<tr>
<td>J</td>
<td>Assumed</td>
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<td>219</td>
<td>.171</td>
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<tr>
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<td>79.119</td>
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<td>P</td>
<td>Assumed</td>
<td>.874</td>
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<td>.383</td>
<td>1.0352</td>
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<td>Not Assumed</td>
<td>.818</td>
<td>79.048</td>
<td>.416</td>
<td>1.0352</td>
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</tbody>
</table>
APPENDIX D

Table 1

Mean Scores and Standard Deviations on the S/N and J/P Dimensions for Bulimics and Nonbulimics

<table>
<thead>
<tr>
<th>BULIMIC</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t (219)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S raw score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nonbulimic</td>
<td>168</td>
<td>16.79</td>
<td>7.85</td>
<td></td>
</tr>
<tr>
<td>bulimic</td>
<td>53</td>
<td>15.85</td>
<td>8.37</td>
<td>.75</td>
</tr>
<tr>
<td>N raw score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nonbulimic</td>
<td>168</td>
<td>9.47</td>
<td>5.62</td>
<td></td>
</tr>
<tr>
<td>bulimic</td>
<td>53</td>
<td>10.62</td>
<td>6.20</td>
<td>-1.26</td>
</tr>
<tr>
<td>J raw score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nonbulimic</td>
<td>168</td>
<td>14.57</td>
<td>6.93</td>
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</tr>
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<td>bulimic</td>
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<td>16.11</td>
<td>7.86</td>
<td>-1.37</td>
</tr>
<tr>
<td>P raw score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nonbulimic</td>
<td>168</td>
<td>12.60</td>
<td>7.27</td>
<td></td>
</tr>
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<td>11.57</td>
<td>8.26</td>
<td>.87</td>
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