Pathogenic Eating Behaviors and Psychological Risk Factors of Weight Preoccupied College Students

by

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Dissertation submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirement for the degree of

DOCTOR OF PHILOSOPHY

In

Counselor Education

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November 21, 2002
Blacksburg, Virginia

Keywords: Risk of Disordered Eating, Pathogenic Weight Control Behaviors, Eating Disorders

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(ABSTRACT)

This study investigated the connection between Body Dissatisfaction and Drive for Thinness to several psychological correlates- Ineffectiveness, Interpersonal Distrust, Perfectionism, Interoceptive Awareness, and Maturity Fears. Regression analyses indicated that these five correlates together accounted for 23% of the variance in a measure of Body Dissatisfaction. Body Dissatisfaction and the five correlates together accounted for 52% of the variance in a measure of Drive for Thinness. Results of the path analysis confirmed that Ineffectiveness, Interoceptive Awareness and Maturity Fears were the strongest predictors of Body Dissatisfaction. In turn, Body Dissatisfaction, Ineffectiveness and Interoceptive Awareness were the strongest predictors of Drive for Thinness. Gender differences and prevalence rates of eating disordered behavior were reviewed. Consistent with other research, this study confirmed high levels of bingeing and purging behavior (44%) among college men and women.

ACKNOWLEDGMENTS

I would like to thank each of my committee members for their time spent in the completion of this study. Appreciation is also expressed to the Executive Director of DePaul Family Services, Herb Beskar, for his support in granting me the time-off to complete my studies and my team members at work who have been a tremendous support.

A special thank you goes to my parents and my sister and brother-in-law, without your help with my children and your encouragement, completing this journey would have been impossible. To my children, Jessica and Benjamin, you have endured a lot and I will always be indebted to you. I love you both.

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CHAPTER I

INTRODUCTION

Over the years, the number of individuals experiencing high levels of body dissatisfaction, body distortion and eating disorders has grown in epidemic proportions (Briseman & Siegal, 1984; Joiner et al, 1995). The fatality rate from eating disorders alone is higher than that of any other psychiatric disorder. It is estimated that up to 15% of women diagnosed with anorexia will die due to symptoms associated with this illness (Sacker & Zimmer, 1987). Following obesity and asthma, eating disorders has now become the third leading chronic illness in the United States among adolescent girls (Fisher et al, 1995; Rosen & Newumark-Sztainer, 1998). Societal standards, by which women and even men are judged, have become increasingly stringent and more difficult to attain. Many of these standards, specifically body appearance, can lead young people to ignore their own happiness, beauty and abilities and seek outside of themselves for the "ideal person." Individuals vulnerable to societal pressures have the potential to be caught in a life-long pursuit of body changing activities. Beliefs such as "never too thin," "winning is thinning," and "success is thinness" are common themes among individuals who have a serious problem with body image. These cognitive distortions have led some individuals to engage in unhealthy methods of weight reduction, causing significant physical and emotional distress (Clarke & Palmer, 1983). This paper will explore certain psychological traits that have been linked to individuals with eating disorders and determine which of these traits, prior to the development of a clinically significant eating problem, may predict an individual's vulnerability to this disorder. Furthermore, this study will explore body dissatisfaction, weight preoccupation and weight reduction methods. This study was based primarily upon questionnaires distributed among a population considered to be most at risk for developing problems with disordered eating: specifically first and second year college students. This first chapter of the dissertation presents the background of the study, specifies the problem of the study, describes its significance, describes the purpose of the study and presents the research questions. The chapter concludes by noting the limitations of the study and defining some special terms used.

Background of the Problem

Over the past several decades, research has shown body dissatisfaction and eating disorders to be a growing concern on the college campus. Historically, females have been viewed as the primary focus of body dissatisfaction and eating disorders; yet research over the past several years has shown an increase in bulimic symptoms among males (Anderson & Mickalide, 1983; Crosscope-Happel, Hutchins, Getz & Hayes, 2000). It has been estimated that males comprise 10%-15% of reported cases of eating disorders (Carlat, Camargo, & Herzog, 1997). Both college males and females are engaging in self-destructive behaviors such as: induced vomiting, misuse of laxatives, diuretics, excessive exercise and diet pill use to enhance their current image of themselves (Johnson, Powers & Dick, 1999; Klemchuk, Hutchinson & Chislett, 1990). Although engaging in these behaviors on a long term basis can cause serious consequences, the severity of this behavior does not always meet the operational definition of an eating disorder (Buckroyd, 1996). Mintz and Betz (1988) found that 61% of freshmen college women exhibited some behavioral and psychological characteristics of disturbed eating which would have classified them as having a sub-clinical eating disorder. Rosen, McKeag, Hough & Curley (1986) found 32% of female college athletes practiced some form of pathogenic weight

control behavior, specifically: self-induced vomiting; binges more than twice a week; laxative use; diet pill use; and diuretic use. Greenfeld, Quinlan, Harding, Glass & Bliss (1987) reported that among their male/female general college population 44.4% of females and 16.4% of males indicated binge eating behavior and 15.6% of females and 1.7% of males were actively self-inducing vomiting. Unfortunately, these sub-clinical eating disorders are often not recognized until obsessions and phobias have taken control and the body and mind begin to be compromised (Buckroyd, 1996).

Prior to the 20th century, reported cases of eating disorders were rarely diagnosed due to the medical and psychiatric communities' lack of awareness (Johnson, Brems, & Fischer, 1996). In 1964, a case of anorexia nervosa had been documented in the medical literature (Yates, 1991). In A.D. 895, a servant girl was described in medical records as gorging food, fasting, and eating in secret. These symptoms may suggest an eating disorder (Habermas, 1986). Throughout the years, the numbers of reported cases of eating disorders increased; however, they were still not recognized by many in the medical field until the 1973 publication of the book *Eating Disorders* by Hilde Bruch, a German-born psychiatrist and pioneer in the field of eating disorders (Gordon, 1997). By 1982, The International Journal of Eating Disorders was established, encouraging research and awareness on this topic. The popularity of research in this area was due primarily to the increase and recognition of the detrimental consequences associated with eating disorders: such as osteoporosis, dental decay, cardiac abnormalities, endocrine dysfunction and renal failure (Powers, 1999; Milosevic, 1999; Page and Fox, 1998). Public awareness of the dangers of eating disorders increased in the early 1980's following the death of the singer, Karen Carpenter. Her death from cardiac arrest was associated with the abuse of Ipecac, an over-the-counter drug used to induce vomiting (Gordon, 1997). During this period of time, the media popularized and to some extent glamorized this disease, naming it the "psychiatric disorder of the 80's" (Gordon, 1997; Kennedy, 1998).

Since the early 80's research on eating disorders has explored a variety of risk factors. There is a consensus among most researchers that there is an interaction among socio-cultural, biological and psychological risk factors for eating disorders (Blumenthal, Rose & Chang, 1985; Sokol, Steinberg & Zerbe, 1998; Graber, Brooks-Gunn, 1996). At this time, no inherent factors have been identified, indicating that symptoms may be psychologically motivated (Johnson, Sansone & Chewning, 1992). Socio-cultural/environmental factors include peer pressure, media portrayal, and parental attitudes about weight (Anderson & DiDomenico, 1992; Williamson, 1998). Research has shown the strongest influence among elementary and middle school girls, regarding weight concerns, was peer pressure (avoidance of teasing, fitting in) (McVey, Pepler, Davis, Flett, & Abdolell, 2002). In addition, self-confidence was shown to decrease dramatically during this same developmental time period which increase the risk of high weight preoccupation (Taylor et al, 1998). Media studies (television, magazines etc.) have been shown to be highly influential in the link between body dissatisfaction, eating disorders, and the media's portrayal of the ideal woman. Results of a study (Pinhas, Toner, Garfinkel & Stuckles, 1999) conducted on female university students supported the hypothesis that images portrayed in the media, specifically pictures of "ideal" female beauty, have a negative effect on a woman's mood; therefore contributing to disordered eating. Several other studies support this conclusion. Kalodner (1997) showed pictures of thin female models to female college students. The participants reported experiencing greater levels of self-consciousness and state anxiety (feelings

of being upset, nervous and tense) when viewing these images. Likewise, Meyers and Biocca (1992) concluded in their study that 30 minutes of watching television advertisements is directly correlated with female body size overestimation. For males, there were no differences in self-consciousness and state anxiety after looking at pictures of thin males. Interestingly, Kalodner's study does not seem to take into account that males may be more interested in defining muscle and bulking up, as opposed to thinning down. Over the years, the medias' influence on the ideal body shape for a woman has also changed. The soft and curvaceous feminine ideal has evolved to a boyish, pre-pubescent figure with a high definition of muscle. Although the weight of the average woman has increased, the ideal body-weight for women promoted in the media has been lowered. The percentage of acceptable body fat on female super models has continuously decreased over the past several decades (Garner, Garfinkel, Schwartz and Thompson, 1980). It has been reported that 60% of Miss America pageant contestants and 69% of Playboy magazine centerfold models between 979-1988 were 15% below the ideal weight for their height and body-build (Wiseman, Gray, Mosiman & Ahrens, 1992). The DSM-IV reports that maintaining a body weight of 15% below what is expected for height and weight is a criteria for anorexia nervosa (APA, 1994). Interestingly, only 5-10% of all American women can actually acquire and maintain a super-model image, leaving many other women to engage in various weight reduction methods in their endeavor to gain the perfect body (Seid, 1994).

Biological and psychological risk factors of excessive weight concerns still require much research. Biological risk factors that have been identified through research include body weight, early maturation, puberty development, and neuroendocrine and hypothalamic factors (Cullari, Rohrer & Bahm, 1998; Geller, Johnston, Madsen, Goldner, Remick & Birmingham, 1998). Psychological risk factors include low self-esteem, body image distortion, obsessive-compulsiveness, dependency, depression, and coping strategies (Troop, Holbrey & Treasure, 1998; Hewitt, Flett, & Ediger, 1995; Meyer & Russell, 1998; Rothenberg, 1998; Tamburrino, Kaufman & Hertzer, 1994; Fairburn, Cooper, Doll, Welch, 1999; Rogers & Petrie, 1996). Other studies have linked anxiety (Cullari, Rohrer & Bahm, 1998; Noles, Cash & Winstead, 1995), perfectionism, ineffectiveness, isolation (interpersonal distrust), emotional confusion (interoceptive awareness), and maturity fears (the desire to regress to early childhood years) to high levels of body dissatisfaction. In the development of The Eating Disorder Inventory, Garner, Olmsted and Polivy (1983) included these last five psychological constructs to measure levels of psychopathology related to weight preoccupation and body dissatisfaction. Empirical evidence is still lacking regarding the relationship between these five constructs and the risk of developing an eating disorder. However, if certain psychological traits can be identified as more influential than others in developing an eating disorder then many individuals may be spared the resulting physiological and psychological consequences. The most common means of obtaining data to assess the influence of psychological traits is through self-report assessments.

In the past 20-30 years a variety of assessment methods have been developed to screen for eating disorders. The most accepted method is the clinical interview. A diagnosis of anorexia nervosa or bulimia nervosa cannot be determined without a clinical interview by a trained clinician. Due to time limitations, clinicians have been using more and more pencil and paper instruments (Racti & Norcross, 1987). Several instruments have proven to be most effective in screening for cognitive and behavioral symptoms of anorexia and bulimia nervosa, assessing frequency of behaviors, tracking treatment progress and identifying at risk individuals.

Pencil and paper instruments, or more frequently referred to as self-report instruments, have several advantages. Self-report instruments are time efficient, less costly, descriptive, does not require a trained clinician, and can give immediate feedback. Of course, the limitations must also be considered. Self-report instruments are completed by accessible and cooperative individuals and there is more risk of "response sets" such as agreeing with positive statements and disagreeing with negative statements (Isaac & Michael, 1997). Regardless of these limitations, it is still the best method to collect information from large samples. Many instruments have been developed to assess body image, fear of fat, bulimia and anorexia. The following briefly describes several of these instruments. The Multifactorial Assessment of Eating Disorders Symptoms (MEADS; Anderson et al., 1999): this instrument measures six constructs that have been identified as central to eating disorders. The constructs are depression, binge eating, purgative behavior, fear of fatness, restrictive eating and avoidance of forbidden foods. The Bulimia Test-Revised (BULIT-R; Thelen et al., 1991) is designed to assess bulimia nervosa. Scales include: bingeing and control, radical weight loss measures, laxative/diuretic use, vomiting and exercise. Goldfarb Fear of Fatness Scale (GFFS; Goldfarb, Dykens, & Gerrard, 1985) assesses the level of fatness in both patient and non-patient populations. The Eating Attitudes Test (EAT) developed by Garner and Garfinkel (1979) has been a widely used instrument and is credited for much of the available data with regard to screening for eating disorders (Garner and Garfinkel, 1979; Garner, Olmsted, Bohr, & Garfinkel, 1982). The instrument measures symptoms most commonly associated with anorexia and bulimia nervosa. Individuals scoring 30 and above represent high concerns with eating disorder symptomatology. Perhaps the second most recognized, and currently, the most commonly used instrument for assessing weight preoccupied individuals is The Eating Disorder Inventory, developed by Garner, Olmsted and Polivy (1983). It has been used in hundreds of studies and is known for its use as an "outcome measure and a prognostic indicator" (Garner, 1990). While most other assessments focus on the behaviors and symptoms of anorexia and bulimia nervosa, the EDI is intended to tap into the psychological dimensions relevant to eating disorders. In its original form the instrument contained 64 items consisting of 8 scales. Later, Garner added three new constructs consisting of 27 additional items (currently known as EDI-2). Sub scales include Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Interpersonal Distrust, Perfectionism, Interoceptive Awareness and Maturity Fears. Provisional scales include Asceticism, Impulse Regulation and Social Insecurity. For women, a conservative cut-off score of 15 and above on the Drive for Thinness scale indicates a high weight concern and therefore should be assessed by a clinician through a clinical interview for an eating disorder. The EDI-2 will be discussed in detail in Chapter 3-Methodology as it is the primary instrument used in this study.

Statement of the Problem

Research has shown that stressful life events often precede the onset of disordered eating (Schmidt, Tiller, Andrews, Blanchard & Treasure, 1997; Koff & Sangani, 1997; Troop et al, 1998). Young people entering college are faced with enormous pressures. Dickstein (1989) speculated that various aspects of the campus environment might foster eating disorders. Being away from home for the first time, financial problems, pressure for acceptance, tendencies

toward social comparison and little support can be pivot points for destructive weight control behaviors among individuals with certain vulnerabilities. Due in part to sociocultural changes (e.g., societal standards, educational/work opportunities for women, etc. (Kruger, McVey & Kennedy 1998; Rosen, Newumark-Sztainer, 1998), characteristics related to the symptoms of eating disorders have changed, creating a variant of what was once called "the classic eating disordered woman". The classic eating disordered woman has typically been described as immature, severely disturbed, socially isolated and enmeshed within the family constellation. The new eating disordered woman is being described as mature, not enmeshed in her family, relatively well adjusted, more likely to be bulimic, educated and high achieving (Yates, 1991; Kruger et al, 1998). With this change in profile and the increase in male concern, there is a need for more information to assess psychological predictors as well as gender based differences in body dissatisfaction and weight control behaviors. This study investigates certain psychological characteristics that may predict eating disorders, and addresses the problem of male and female college students' use of pathogenic weight control methods that put their health and life at risk (Page & Fox, 1998; Scarano & Kalodner-Martin, 1994).

Significance of the Study

This study, which has focused on the psychological risk factors and pathogenic use among college age students, has made a contribution to the knowledge base of eating disorders and methodology of clinical diagnosis. Although there have been several studies on psychological risk factors, information remains limited as to their relationship to disordered eating. Identifying specific personality factors that may exacerbate high body dissatisfaction and disordered eating will contribute to the design and implementation of more effective counseling at earlier stages of the illness. Moreover, in establishing a psychological profile, research can expand and further explore the relationship that exist between environmental factors and these specific personality factors.

For school personnel who spend large amounts of time with students and are often the first referral agent for individual counseling, this information will assist in the recognition of needs and symptoms of individuals who may be significantly weight-preoccupied, and who are therefore engaging in unhealthy dieting behaviors. Although school administrators are aware that this problem exists among this age group, adequate services are often not available to students on campus due to staffing and funding issues. This study will provide additional information in planning and evaluating prevention and intervention programs on college campuses; such as peer support groups, hot lines, on campus screening and health seminars. The awareness of symptoms in at-risk individuals could lead to early intervention, a reduction in medical complications associated with dangerous methods of weight reduction, and a lowering of current high fatality rates.

Purpose of the Study

Research on college and university campuses has primarily been conducted on females and athletes to obtain frequencies of clinical and sub-clinical eating disorders, and pathogenic weight control behaviors. There are few studies which examine psychological constructs that are associated with body dissatisfaction and subsequently risk of disordered eating. This study fills a

critical gap in the literature in that it explores and compares a pattern of behavior in both men and women at the college level who are dissatisfied with their bodies and who are currently engaging in potentially life-threatening behavior.

The purpose of this study is to investigate the relationship between certain socio-demographic variables (age, race and gender) and psychological constructs (perfectionism, maturity fears, ineffectiveness, interoceptive awareness and interpersonal distrust) to the risk of disordered eating among the general college population of freshmen and sophomores, and to explore gender-based differences among weight preoccupied individuals with regard to their use of pathogenic weight reduction methods. This study is primarily an exploratory study guided by the following research questions:

1. Wat is the relationship among socio-demographic variables (age, race and gender) and the risk of disordered eating, as defined by the Drive for Thinness sub-scale of the Eating Disorder Inventory?
2. What is the relationship of certain psychological variables to body dissatisfaction and the risk of disordered eating?
3. What is the prevalence rate reported by male and female college students for bingeing, laxative use, diet pill use, water pill use, excessive exercise and self-induced vomiting? Are there gender differences with regard to these behaviors?
4. What are the levels for each of the cognitive, behavioral and psychological constructs in the general college population? Are there gender differences in Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness and Maturity Fears?

Limitations of the Study

The sample for the current study consists of 435 male and female freshmen and sophomores attending a large university in southwest Virginia. The total number of freshmen and sophomore students enrolled at the university in the Fall of 2001 was 10,785. Because of the study's small sample size, geographic area and being a single site study, national generalization of results may be limited. The results may be generalized to students in other universities only to the extent that those students are similar to those in the sample. Although the most widely used method of obtaining data in the behavioral sciences is through the use of self-reporting instruments, this method should be viewed with caution. As stated earlier, self-report instruments are limited, in that symptoms can be under-reported or over-reported, responses may be biased, and certain individuals will not participate or be accessible to complete self-report questionnaires (Isaac & Michael, 1997). It is assumed that participants will accurately and candidly respond to the questions.

Definition of Terms

Anorexia Nervosa-a method of weight reduction with a primary focus on self-starvation. Diagnostic criteria include: A) Refusal to maintain a body weight at or above what is normal for height and weight. Weight loss below 15% of what is expected for age and height; B) Intense fear of gaining weight or getting fat; C) Disturbance in body image (weight or shape); D) The absence of three or more consecutive menstrual cycles (APA, 1994)

Bingeing-eating larger then normal amounts of food in a short amount of time (e.g., within two hours) and feeling a lack of control over eating during this time (APA, 1994).
Bulimia Nervosa-a method of weight reduction with a primary feature of bingeing and purging. Diagnostic criteria include: A) Recurrent episodes of binge eating; B) Regularly engaging in inappropriate compensatory behavior to avoid weight gain; C) Both binge eating and inappropriate compensatory behaviors occur at least two times a week for three months; D) Over concern with body weight and shape (APA, 1994).
Eating Disorders-Anorexia Nervosa and Bulimia Nervosa. "Characterized by a severe disturbance in eating behavior" (APA, 1994).
Pathogenic Weight Control Behaviors-potentially harmful methods of weight reduction to prevent weight gain. Methods include: self-induced vomiting, misuse of laxatives, diuretics, enemas, or other medications, fasting and excessive exercising, etc..
Purging-a method of getting rid of calories through self-induced vomiting, laxatives, enemas, excessive exercise and/or diuretics.
Risk of Disordered Eating-factors relating to one's increased potential of developing an eating disorder. For Example: early dieting behaviors, high degrees of weight preoccupation, use of compensatory weight reduction behaviors, certain personality characteristics, etc.
Sub-Clinical Eating Disorder-also referred to in the DSM-IV as Eating Disorder Not Otherwise Specified (EDNOS); individuals who manifest serious symptoms of the disorder yet fail to meet all diagnostic criteria of anorexia nervosa or bulimia nervosa (APA, 1994).

Summary

This study assesses the frequency of harmful weight reduction behaviors (food restricting, laxative use, diet pill use, diuretics and excessive exercising) and binge eating behavior and the interrelationships of socio-demographic variables and certain psychological constructs to the risk of disordered eating. Identifying possible psychological predictors of serious disordered eating may assist counselors in treatment strategies. Such identification will also provide useful information for faculty, staff and resident assistants in increasing awareness, education and symptom identification with regard to eating disorders. Included in this chapter is a discussion of the increased awareness of this disorder, associated risk factors and a brief overview of assessment tools.

CHAPTER II

REVIEW OF THE LITERATURE

Body dissatisfaction and eating disorders has been a topic frequently researched in the past several decades. Many of these studies have focused on women and athletes being at high risk, while others have explored family dynamics, prevention programs and treatment strategies. Research is typically centered on college women and college athletes; however, some studies have shown that a large percentage of the general college population of male and females students are engaging in unhealthy dieting practices due to intense body dissatisfaction. Psychological risk factors that are inherent in certain individuals, continues to be a growing concern as prevalence rates increase.

Some studies have linked certain psychological factors to high levels of body dissatisfaction and eating disorders (Cullari, Rohrer & Bahm, 1998; Noles, Cash & Winstead, 1995). However, the topic is so complex that environmental, familial and biological concerns all interact with psychological factors. If a psychological profile can be established, then researchers are one-step closer to solving this multifaceted problem.

This chapter will present a review of related research and selected literature that is important to understanding body dissatisfaction in men and women as well as the associated psychological risk factors. Prevalence rates among the college population for various weight reduction methods will also be reviewed to support the importance of this life-threatening problem on the college campus.

Body Dissatisfaction and Gender Differences

Body dissatisfaction among college age females has increased dramatically. Severe body dissatisfaction has been identified as a risk factor for the development of an eating disorder (Shisslak, Crago, Neal, & Swain, 1987). The number of women on the college campus, expressing dissatisfaction with their bodies is alarming. Studies using the EDI to assess weight preoccupation are consistent, in that among non-clinical samples of young women, body dissatisfaction is the strongest factor to emerge out of all the EDI scales (Klemchuk, 1990).

Over the years, society has vocalized its preference for a thinner female (Garner et al., 1980; Wiseman, Gray Mosiman & Ahrens, 1992). The image portrayed of the ideal female is white, slender and in control of her physical self (Yates, 1991). In a society in which beauty and appearance are seen as highly desirable qualities, women are pressured to focus their attention on the presentation of their physical selves. In the workplace, thin, well-dressed and attractive individuals have more benefits (Lavanchy, 1998). In dating and mate selection, physical appearance is more often at the top of the list of "must have" qualities than other desirable qualities such as intelligence, strong character, financial security, conflict-resolution skills, spirituality, and values (Warren, 1999).

The pressure for men to fit a certain profile has increased. Women are focalizing their fantasies for the "ideal male". Just as the fashion industry and the media (e.g., magazines, advertisements) have affected an influence on women for many years; now men as well, are being similarly targeted. Importance is placed on physique and dress in billboard ads depicting male models in scant underwear, pictures of slim, exotic dancers, and images derived from the

increasingly popular sport of male body building (Anderson, Cohn & Holbrook, 2000). Whether they are bulking up, thinning down or defining muscle, men engage in body-changing activities to enhance their current image of themselves. In 1997, 130 million dollars were spent by men on liposuction, face lifts, nose jobs, anti-wrinkle injections, chin augmentation and eyelid tucks (Anderson et al., 2000). With the increase in male body dissatisfaction, several books have been published in recent years which focus on the conflict that men have regarding food, weight, shape and appearance and how these conflicts present a unique struggle within the family (Anderson et al., 2000; Lawrence, 1999). It is evident that this disorder is no longer gender-specific.

The Diagnostic and Statistical Manual (APA, 1994) indicates that a central feature of disordered eating is a dissatisfied and distorted view of the self. This body dissatisfaction reflects two dimensions of the physical self: one's weight which can be manipulated by the individual, and body-shape which may or may not be manipulated, with some exceptions being through cosmetic surgery.

Several studies have been conducted on college and university campuses to assess the degree of body dissatisfaction. Klemchuk et al (1990) compared three female undergraduate samples (sample one-621, sample two-350, and sample three-286 females) to the clinical and non-clinical sample (577 females) reported by the authors of the EDI: Garner, Olmsted, and Polivy (1983). The results were similar across the eight scales. Body dissatisfaction, compared to all other EDI scales, revealed much higher scores, indicating that college women express high negative perceptions of themselves. Mable, Balance and Galgan (1986) surveyed seventy-five undergraduate women; all of these women perceived themselves to be approximately 10% over weight. After examining standard height and weight scales, these same females reported their actual weight 4%-5% below the midpoint weight for their height and build, which made the difference between their actual and perceived weight approximately 15%. Males, on the other hand, were shown to distort less than 1%.

Evidence that men and women experience body dissatisfaction differently has been established (Silberstein, Striegel-Moore, Timko & Rodin, 1988). This is an important factor when looking at prevention and intervention strategies. Research is consistent in that women seem to experience greater degrees of dissatisfaction with the self, as well as body-image distortion compared to men (Meyers & Biocca, 1992; Waller, Hamilton, & Shaw, 1992; Tiggemann & Pennington, 1990). A comparison study of college males' (20) and college females' (37) revealed the mean reported ideal weight of women to be 14 pounds lighter than their actual weight. For men, the mean reported ideal weight was about 1 pound heavier than their actual weight. Eighty-eight percent of the women sampled indicated an ideal weight lighter than their actual weight, as opposed to 29% of men. In contrast, 58% of men indicated a heavier ideal weight compared to 12% of women (Cullari et al, 1998).

Tiggemann (1994) added support to the evidence of gender differences with regard to body dissatisfaction. In his study examining the interrelationship between weight, weight dissatisfaction, restraint and self-esteem, 76.3% of women indicated an ideal weight lighter than their actual weight, while only 43.2% of men desired a lighter weight. Almost 41% of men, compared to only 9% of women, considered as the "ideal" a weight that was heavier than their actual weight. Among other gender differences, it was noted that the greater the degree of subjective over-weightiness in women, the lower the self-esteem. For men, the larger they

perceived themselves, the higher the self-esteem. The more the male perceived himself as underweight, the lower the self-esteem. In spite of actual weight, more women perceived themselves as overweight than men.

The dissatisfaction of one's body shape has been a critical influence on the level of body dissatisfaction. The ability to observe weight reduction as one diets or restricts food intake is a motivator to continue the reduction. For many, the physical change increases the self-esteem and provides many other psychological and biological advantages. Body-shape however, is much more difficult to change and in some parts of the body change is impossible without costly and dangerous surgeries. This realization causes some individuals a life of unhappiness.

Studies on the interrelationship between body image stereotypes and body type preference have supported the findings that societal standards may promote an athletic, bulky male and a thin, sexual female. For males, the mesomorphic body type (muscular and athletically built) is preferred to the endomorphic (round appearance) and ectomorphic (thin and tall appearance) body type. Males typically perceive the mesomorphic body type as active, energetic and dominant, while the other two body types were less distinguishable, and were rated as more withdrawn, shy and dependent (Dibiase & Hjelle, 1968). As the body deviates from the cultural ideal of the mesomorphic type, male body satisfaction declines (Tucker, 1982 &1984; Dibase & Hjelle, 1968). In contrast, female college students typically perceive the ectomorph body type as the ideal body type. Satisfaction with the body decreases as they become "fatter" or "muscular" (Davis, 1985). Davis (1985) also examined in this study, satisfaction with regards to specific body parts. The five body aspects with which female students were least satisfied included weight distribution, size of waist, shape of legs, hips, and thighs. The most satisfying body parts included eyes, height, teeth, ears, and hair color.

Additional gender differences were noted in Franzoi and Shields' (1984) study, in which 331 males and 633 female university students were surveyed. The Body Esteem Scale was used to examine dissatisfaction related to specific body parts. Factor loading of items revealed three dimensions that describe male and female body esteem. For women, the first dimension noted was Sexual Attractiveness. This dimension pertained to areas of the body that typically require cosmetic surgery for alterations (nose, lips, ears, chin, breasts, eyes, cheekbones and face), and to body functions (body scent, sex drive, sex organs, and sex activities). The author suggests that for women, sexuality and sexual attractiveness is of high importance. The Physical Attractiveness sub scale for men appeared to be similar to that of women's with the exception of body function, suggesting that sexuality in men is not as primary a focus as it is in women.

The second dimension noted for women is Weight Concern. Significant items typically referred to those body parts that can be altered through exercise (waist, thighs, buttocks, hips, legs, stomach) and are typically objectified by men (thinner and smaller). For males, the second dimension identified was the Upper Body Strength sub scale which focuses on body image (muscular strength, biceps, body build, physical coordination, width of shoulders, arms, chest, physique, and sex drive). This gives support to the assertion that males appear to be concerned with "bulking up" and broadening while females are more concerned with becoming thinner and smaller.

The third aspect of female and male body esteem is Physical Condition. For women this aspect includes stamina, reflexes, strength, energy level, biceps, coordination, agility, and health and physical condition. For men, this aspect includes appetite, stamina, reflexes, waist, energy

level, thighs, coordination, agility, physique, stomach, health, physical condition and weight. Several body attributes identified by men (thighs, waist, stomach, weight and appetite) related to Weight Concerns in women, suggesting that these areas in men may be more closely related to one's ability to physically and/or athletically perform.

Bulimia Related Behaviors Among College Students: Description of Pathogenic Weight Reduction Methods

As noted in the previous section, research has established that high levels of body dissatisfaction exist on the college campus and that body dissatisfaction reveals itself differently in males than females. Research has also established that females are more likely to have higher levels of body dissatisfaction than males, due in part, to cultural expectations being more stringent on females. As a result of body dissatisfaction and weight preoccupation, the use of weight loss methods, specifically, self-induced vomiting, excessive exercise, laxatives, diuretics, diet pills and food restricting has become more of the norm on college campuses (Dykens & Gerrard, 1986). The following will describe the various weight loss methods used on the college campus.

Food Restricting

Over half of the women in the United States restrict their food intake; however, high levels of food restricting can predispose an individual to out-of-control binges (Yates, 1991; Gendall, Joyce, Sullivan & Bulik, 1998). Food restricting often begins with a diet in which an individual controls the food taken into their body. It can be in the form of skipping a meal each day, liquid diets, no-carbohydrate diets or fasting completely. For the majority of individuals, when the desired weight is achieved, the diet ceases. For some people, though, the ideal goal weight continues to be lowered. With extreme food restricting, some individuals feel such power and control over their bodies that this success becomes a motivating factor in and of itself (Siegel, Briseman, & Weinshel, 1988). As the restricting continues, more food is eliminated and a large amount of time is spent in obsessive thoughts about fear of food and weight gain (Buckroyd, 1996). These obsessive thoughts are indicators that the individual is losing control while the illness is gaining control.

As the body is deprived of nutrients, both physiological and psychological changes are evident. Physiological changes associated with starvation are emaciation; hair thinning; fine downy lanugos hair on the back, arms and side of the face; dry skin; cold hands and feet; hypotension; constipation; dizziness; numbness in hands and feet; dehydration; and low blood pressure (Gilchrist, Ben-Tovim, Hay, Kalucy & Walker, 1998; Siegel et al., 1988; Buckroyd, 1996). Laboratory tests indicate common findings associated with starvation including mild neutropenia, anemia, hypoglycemia, raised liver enzymes and sinus bradycardia (Gilchrist et al., 1998). Sacker and Zimmer (1987) reported that up to 15% of all anorectics die due to medical complications associated with starvation. Psychological consequences associated with starvation include depression, loss of concentration, social isolation, an increase in negative self-perception, irrational thinking and suicidal ideation (Sacker & Zimmer, 1987; Yates, 1991; Siegel et al., 1988).

Self-Induced Vomiting/Bingeing

Purging through self-induced vomiting has been a common means of eliminating calories. More often, individuals who purge, alternate between periods of food restricting, bingeing and purging. Unlike extreme food restrictors, individuals' who binge and purge do not

typically isolate themselves from social gatherings (Buckroyd, 1996). They can present themselves as normal eaters in social settings while their weight typically remains in a normal range. Because there is no obvious extreme weight loss and there is an appearance of healthy eating, the secret bingeing continues (Buckroyd, 1996).

The purge often begins with a binge, which can be triggered through stress (Pyle, Mitchell, Eckert, 1981; Hay, Gilchrist, Ben-Tovim, Kalucy & Walker, 1998). The DSM IV (APA, 1994) defines a binge as eating abnormally large amounts of food in a short amount of time (within two hours) and usually in private. The binge itself is often not only seen as pleasurable and comforting, but can also be the outlet for emotional expression that was absent in the family unit or used as a method of avoiding emotions like pain and anger (Pyle et al., 1981; Sherman & Thompson, 1990). The binge continues until abdominal pain occurs, the individual falls asleep, is caught, or self-induces vomiting (Ruff, Koch & Perkins, 1992). Some individuals report using food markers such as beetroot at the beginning of a binge to ensure that all eaten food has been expelled (Buckroyd, 1996).

Purging has been described as having a relaxing and calming effect. In times of stress and loneliness, the purge can provide a sense of comfort. For some, purging continues without the binge for the purpose of relaxation and decreasing anxiety (Sacker & Zimmer, 1987). Purging after a binge not only provides physical relief (bloating and discomfort) but also is viewed as ridding the body of calories and guilt associated with the ingestion of the food (Sacker & Zimmer, 1987). Bingeing without purging has become an increasing problem. With the revision of the DSM-IV, Binge Eating Disorder was added as a new diagnostic category to describe this unique population (Sokol, Steinberg & Zerbe, 1998). Mitchel, Pyle and Eckert (1981) reported that the average caloric intake during a binge is approximately 3,400 calories in a one to two-hour period. In a 24-hour period, binge-associated caloric intake can be as high as 50,000 calories.

Common laboratory findings related to self-induced vomiting includes hypokalemia, mild ST changes and metabolic acidosis or alkalosis (Gilchrist et al., 1998). Oral problems are most commonly associated with this purging behavior. Chronic regurgitation of gastric contents can lead to smooth enamel erosion of the teeth (perimylolysis) that can be observable after about two years of bingeing and purging; parotoid swelling of the glands; soft palate injury (a result of objects being used to induce vomiting); dry skin from dehydration or loss of water; electrolyte imbalance; edema (puffiness and swelling); stomach and intestinal problems; and irregular menstrual cycle (Brown & Bonifazi, 1993; Sherman & Thompson, 1990; Steinberg, 1999; Mandel & Kaynar, 1992).

Laxatives

In the general population it has been estimated that 4.18% have abused laxatives (Neims, McNeil, Giles & Todd, 1995). Multiple forms of laxatives can be obtained over the counter, giving a false impression of safety. Laxatives have been classified into five distinct categories: bulk-forming, stimulant, softening, lubricant and osmotic types (McCara, 1982).

The term laxative abuse has been defined in various studies. Waller, Newton, Hardy and Svetlik (1990) defined laxative abuse as current use, at least once a week and twice the recommended dose. Mitchel et al (1986) defined laxative abuse as the use of laxatives several times a week for the purpose of eliminating calories. Similar to self-induced vomiting, laxative use can become an addictive cycle due to its false impression of immediate weight loss. The

binge-purge cycle of laxative use is based on the myth that weight reduction has occurred after laxative use. In actuality, what has happened is that the temporary weight loss is due to dehydration. As the body re-hydrates, weight increases due to fluid retention. The increase in weight causes alarm and reinforces repeated laxative use (Willard, Winstead & Anding, 1989). For many, the use of laxatives is viewed as "cleansing" that suggests a sense of starting over, and which, like self-induced vomiting, relieves the body of the bloating and abdominal pain associated with an eating binge (Willard et al., 1989). Willard et al (1989) indicates that the number of laxatives ingested in a single episode could increase in a short period of time from 30 pills to 100 pills per episode. The actual benefit to the individual who believes that high levels of calories are being eliminated is minimal. Sometimes, only 12% of the caloric intake is eliminated (Bo-Linn, Santa Anna, Morawski & Fordtran, 1983).

Excessive Exercise

Excessive exercise has been noted to play a role in the development and/or maintenance of eating disorders (Eisler & La Grange, 1990; Baum, 1998; Sherman & Thompson, 1990; Garner et al., 1998). High levels of exercise reduces calories, suppresses appetite and increases physical performance in sports (Davis & Fox, 1993; Epling & Pierce, 1984). The initial weight loss associated with exercise provides social reinforcement, leading to increased awareness of one's physical appearance. This heightened awareness then leads to a narcissistic preoccupation with the body (Davis, Fox, Cowles, Hastings & Schwass, 1990; Sacks, 1987). As the body reduces in weight; physical exercise is increased. Epling and Pierce (1988) stated, the cycle eventually becomes "self-motivating".

Several theories have emerged to explain how the body can endure such extreme levels of exercise. Epling and Pierce (1984) examined a theory based on a bio-behavioral model of activity-based anorexia that hypothesized that increased activity reduces appetite and body weight, eventually leading to self-starvation. A laboratory study conducted on rats revealed that animals that were fed a single meal each day and were allowed to run on a wheel in their cage without limitation, decreased their food intake and increased their activity rate, eventually starving themselves to death. In contrast, rats who were fed the same amount of food each day, yet had restricted wheel running survived.

A biochemical theory has been postulated which suggests an opioid-based hypothesis. As excessive physical activity increases, so does the level of certain endorphins. The increase in these endorphins decrease the appetite, which can produce an addictive quality characterized by the individual becoming dependent on these endorphins (Blumenthal et al., 1985; Carr, Bullen, Skrinar, Arnold, Rosenblatt, Beitins, Martin & McArthur, 1981). This may account for the "runners' high" experienced by many long distance runners; however, how and why some individuals can endure so much activity with little regard to physical pain still requires research (Epling & Pierce, 1984; Yates, 1991; Pasman & Thompson, 1988). Yates (1991) speculated that the habitual male distance runner is similar to that of an anorectic. This speculation elicited much controversy among researchers. Blumenthal et al (1985) disagreed with this hypothesis, suggesting that habitual running is more of a coping mechanism to regulate one's affect. Goldfarb and Plante (1984) conducted a study among 200 distance runners and found that only 14.5% had a high fear of fat score when given the Goldfarb Fear of Fat Scale. Yates failed to measure directly a fear of fat among runners. Goldfarb did contend that runners who ran ten or more marathons a year and trained on an average of 57.70 miles per week were shown to have

traits of assertiveness, obsessiveness, perfectionism, and anxiety. She speculated that these traits were related more to an obsessive-compulsive disorder than an eating disorder.

There appears to be a high correlation between childhood physical activity and adult excessive physical activity. Results of one study report that 81% of anorexia nervosa patients engaged in excessive exercising during an acute phase of their illness, 56% were involved in a regular sport or exercise program prior to dieting, and 50% reported higher-than-normal levels of activity compared to those of their same-age peers (Davis et al., 1997). Likewise, hyperactivity has been noted to be a characteristic of approximately one-third of the anorectic population (Crisp, Hsu, Harding & Hartshorn, 1980). Hyperactivity can vary in individuals, from a restless, anxious and nervous activity level to a focused solitary exercise routine that takes on the appearance of the type of compulsive pattern so often noted among weight-preoccupied groups (Beumont, Arthur, Russell & Touyz, 1994).

Excessiveness is difficult to determine and varies in each individual. In the western culture, fitness is heavily promoted. Individuals adhering to strict exercise routines are praised for their discipline and commitment, reinforcing the excessive behavior (Kaminker, 1998). Regular exercise has been shown to decrease anxiety and depression; aid in the control of diabetes, osteoporosis, high blood pressure, heart disease, and assist in the prevention of colorectal cancer. Exercise enhances one's sleep and self-esteem, helps to maintain a healthy weight, improves glucose tolerance, increases body awareness and a healthy immune system, and improves the aerobic cardio-respiratory system (Blumenthal et al., 1985; Warren & Stiehl, 1999). Exercise out of control exhibits a pattern similar to that of a chronic dieter. The compulsive exerciser arranges his or her life to ensure that rituals and routines are not disturbed. When the routine is disturbed, depression, guilt and anxiety can result (Sherman & Thompson, 1990). Several other indicators that exercise behavior might be out of control include: avoiding social contacts; preoccupation of thoughts regarding when, where and how much to exercise; avoidance of work and social responsibilities; exercising when injured; and an inability to exercise for enjoyment or relaxation (Beumont et al., 1994). There is a decrease in self-esteem and an increase in rigidity and compulsiveness; hormone levels are altered; increased stress fractures; an increase in torn muscles, ligaments, tendons and cartilage; amenorrhea; increased susceptibility to infectious diseases; mood disturbances; fatigue; dehydration; upper respiratory infections; and even death (Yates, 1991; Kaminker, 1998; McKenzie, 1999; Ogles, Masters & Richardson, 1995).

Diet Pills

Of the pathogenic weight control behaviors discussed in this paper, diet pill use appears to be the least-relied-upon as a body-changing behavior. The lack of immediate results may contribute to this. Krupka and Vener (1983) surveyed 944 undergraduates. Thirty percent used over-the-counter diet pills within the previous year. Of these women, 86% felt that the benefit was short term or that the pills acted as a placebo with no positive effects. Only 3.7% of men admitted using diet pills over the previous year. Gritz and Crane (1991) examined the use of diet pills and amphetamines to lose weight among smoking and non-smoking female high school seniors. Using database information obtained by the Institute of Social Research at the University of Michigan, results indicated that diet pill and amphetamine use for the purpose of weight reduction was two to three times higher in female smokers than female non-smokers. Some differences have been identified in bulimics using diet pills and non-diet pill using

bulimics. Compared to the non-diet pill group, the diet pill using bulimic group indicated a higher maximum body weight; dieting behavior beginning approximately two years earlier; more likely to use other pills such as laxatives and diuretics; and engage in the behavior of chewing and spitting out food (Mitchell, Pyle & Eckert, 1991). Harmful side effects have been shown to be elevated blood pressure, renal failure, anxiety, agitation, and memory loss (Swenson, Golper & Bennett, 1982; Shapiro, 1977; Puar, 1984; Dietz, 1981).

Bulimia Related Behaviors Among College Students: Prevalence Rates

The average age of onset for anorexia nervosa is 17 years of age, with a bimodal distribution that peaks at ages 14 and 18. Bulimia nervosa typically begins in late adolescence to early adulthood (APA, 1994). The use and frequency of pathogenic weight control behaviors can assess the intensity at which an individual feels the need to reduce body fat. The DSM-IV (APA, 1994) reports strict criteria for meeting a clinical and sub clinical diagnosis: the frequency of the behavior; the continuation of regular menses; and the maintenance of normal weight in anorexia. The following review focuses on prevalence rates for the use of pathogenic weight control behaviors on the college campus. The high levels of students engaging in these behaviors add support to the need for more research in areas of prevention, specifically, the identification of potential risk factors that could identify students at risk.

Research has shown, that over the years, pathogenic behaviors have changed significantly. Kruger et al. (1998) conducted a study at an out patient facility for anorexics over three 5-year time periods. He found, in contrast to earlier decades, that higher percentages of individuals with anorexia are engaging in bulimic type behavior. Several other studies also support this change in the anoretic profile. Both Garfinkel, Moldosfsky & Gardner (1980) and Casper, Eckert, Halmi, Goldber & Davis (1980) found anoretic patients engaging in bulimic behavior in 47%-48% of cases. Kruger et al. (1998) also found that diet pill use doubled over a five-year span from 1978-83 to 1989-94 and during this same time period, the use of vomiting, exercising, and binge eating increased significantly.

Prevalence rates among college students have been fairly consistent from one study to the next. The majority of students engaging in these behaviors are more likely to be classified as having a sub-clinical eating disorder than a clinical disorder. The numbers of reported cases of clinical and sub-clinical eating disorders may not reflect reality because of the nature of data collection. When large groups are sampled, survey instruments are used which may or may not be 100% accurate. It is only with a clinical interview that a diagnosis of an eating disorder can be given. Obviously, this is an impossible task when collecting data from large groups of people. Mintz and Betz (1988) surveyed a group of 643 undergraduate females. Three percent were classified as bulimic and 61% were classified as having a subclinical eating problem (chronic dieting, bingeing or purging alone or sub-clinical bulimia). Only 33% were classified as normal eaters. The Eating Attitudes Test was administered in a postal survey to male and female university students. Eleven percent of the undergraduate females scored in the "anorectic range," (scoring 30 or more) similar to that of anoretic patients; and 4.5% of these females scored in the borderline range (scoring 20-29). None of the males who returned the survey scored above a 30 and were thus excluded from the study (Clarke & Palmer, 1983).

Greenfeld, Quinlan, Harding, Glass & Bliss (1987) reported on specific behaviors of male and female subjects between the ages 13-19. Forty-six percent of women and 17% of men described themselves as overweight. From this sample, 13.5% of females reported secondary

amenorrhea associated with weight loss. Binge eating behavior was reported at 44.6% for females and 16.4% for males. Vomiting behavior was reported for 15.6% of females and 2.5% of males. Eight and one-quarter percent of females met the DSM III criteria for bulimia. Page and Fox (1998) surveyed 116 males and 126 females with a mean age of 17.9 years. Fifty-one percent of females and 17.6% of males reported losing weight within the last year. Nineteen percent of men and 2.3% of women attempted to gain weight within the last year. The most frequent weight loss strategy for both males and females was reducing fatty foods and increasing exercise. Females reported vomiting behavior (19%), fasting for more than 24 hours (15.2%), binge eating (8.6%), and diet pills and laxative use (5.7%). Males reported none of these behaviors.

One methodologically rigorous study was conducted in collaboration with the NCAA regarding the prevalence of disordered eating and weight reduction among 1,445 male and female student athletes in eleven Division I schools. This study found that binge eating was the most prevalent for both men (13.02%) and women (10.85%). Women with clinically significant problems with bulimia were estimated at 9.2%, versus .01% of men. Purging behavior on a weekly or greater frequency was estimated at 5.52% in women and 2.05% in men. During their life time, women more than men, were shown to use vomiting (23.9%, 5.93%, respectively), diet pills (14.03%, 2.16%, respectively), and laxatives (11.72%, 5.06%, respectively). Males exceeded women in sauna/steam use for weight loss (24.26%, 6.59% respectively) (Johnson, Powers & Dick, 1999).

Similarly, results for males were shown among 131 collegiate lightweight football players. Seventy-four percent engaged in binge eating and 17% engaged in self-induced vomiting. During the previous month, 66% fasted, 4% used laxatives, and less than 2.5% used diet pills, diuretics or enemas (Depalma et al., 1993). In a female athlete study 32% were found to practice some form of pathogenic weight control behavior (Rosen, McKeag, Hough and Curley, 1986).

Related Theories of Eating Disorders and Weight Preoccupation

Many theories have been postulated in an attempt to understand the etiology and course of eating disorders of adolescents and young adults. The following briefly discusses several of these theories. Erikson, in his concept of developmental stages, stressed the psychosocial needs of individuals throughout the life span. Many adolescents begin experimenting with weight loss behaviors as a result of peer, family and societal pressures. During this developmental period the adolescents goal is to develop a personal identity (Corey, 1982). This involves a gradual separation from the family, both physically and psychologically (Johnson et al., 1992). When these developmental tasks are not accomplished, identity confusion results, and the individual, though physically moving into young adulthood, is emotionally unprepared. When adolescents are successful in this stage, the transition to the next stage, adulthood, becomes less conflict ridden (Cory, 1982). Success in the adulthood stage is dependent upon one's confidence in whom he or she is (identity) and the ability to share him or her self with others. When these qualities are not achieved, feelings of isolation, loneliness and difference are experienced (Cory, 1982). Research has shown that individuals suffering from disordered eating and severe body image disturbances lack a sense of identity and social competence which often results in fearing intimate relationships (Striegel-Moore, Silberstein & Rodin, 1993; Tiller, Slone, Schmidt, Troop,

Power & Treasure, 1996). Without success in these areas, balancing the self and societal pressures is a continuous battle.

Meyers and Russell (1998) discuss the separation-individuation model which stems from a psychodynamic, family systems and object relations theory as it is related to disordered eating. It is proposed that certain patterns of cognition and behaviors appear to be associated with eating disorders, and, further, that these behaviors are linked with women's difficulties in separating and becoming less dependent on their parents and more individual with regard to their identity. Friedlander & Siegel (1990) also assert that separation-individuation plays a role in the etiology and maintenance of disordered eating. When problems within the family occur (conflict, role confusion, suppressed emotions), the separation-individuation process is compromised (Strober & Humphry, 1987; Friedlander & Siegel, 1990). Research on family traits support such conflicts within the family. The anoretic family is described as being enmeshed, overly protective, avoiding conflict and being unresponsive to the daughter's emotional needs (Garner, Garfinkel & Bemis, 1982). These characteristics make it difficult for the adolescent to separate and not become overly-dependent on the parents. Families of bulimic children have been described as enmeshed in a hostile manner, non-nurturing, and emotionally unresponsive (Humphrey, 1989). Smolak and Levine (1993) found that bulimic-like women were highly independent from their parents in terms of their attitudes towards beliefs, values, religion and politics. However, these same women experience more guilt and conflict concerning separating from their parents than women with no eating disorder or those with very limited symptoms of the disorder. The anoretic women showed high levels of guilt and conflict about separation and were generally under separated. When in a family environment that is out of control, eating and weight control can become quite important, especially in that they give the individual a sense of being able to control some part of herself. Although these traits have been shown to exist among individuals with no eating disorders, differences between the two groups (eating disordered group and non-eating disordered group) may be more a response to one's coping style to the pressures within the family than the family itself (Meyer & Russell, 1998; Koff & Sangani, 1997).

Snyder and Hasbrouck's (1996) feminist view posits that females identifying with feminist values have higher body satisfaction with regard to weight and overall figure, less concern about thinness, fewer bulimic tendencies and fewer feelings of ineffectiveness. Females who expressed more traditional gender roles showed higher levels of body dissatisfaction. However, Bailey & Hamilton (1992) failed to show a relationship between feminism and anorexia.

The Affective Variant Hypothesis proposes that bulimia is an affective variant, a form or symptom of depression which has a similar biological base as affective disorders (Herzog, 1982), as opposed to a separate diagnostic category. Support for this theory is provided through several studies involving the treatment of bulimic patients with antidepressant medications. Repeatedly, studies (Rich, 1978; Pope & Hudson, 1982; Walsh, Stewart, Wright, Harrison, Roose & Glassman, 1982) have shown that not only has the antidepressant decreased depressive mood but also markedly decreased binge eating. Although antidepressant medication has been shown to be beneficial to disordered eating, it does not contribute evidence of being an affective variant (Hinz & Williamson, 1987); however, it may support that bulimia and depression covary. As depression decreases, binge eating also decreases (Williamson, Prather, Upton, Davis, Ruggiero, Van Buren, 1987). Other forms of intervention, such as cognitive-behavioral therapy show

similar results in that as depression lifts, binge eating frequency declines (Johnson, Schlundt, & Jarrell, 1986).

The psychodynamic model suggests that eating disordered behaviors may be an expression related to early developmental problems related to unmet needs of the child by the parents. The child then, is unable to recognize, or meet their own personal needs and emotions (Perry, Silvera & Rosenvinge, 2002). The theory suggests that eating problems can be a means of dealing with both the psychological and interpersonal problems within the individual (Bruch, 1961).

Psychological Risk Factors of Disordered Eating and Weight Preoccupation

As previously reviewed in this chapter, intense levels of body dissatisfaction can lead to high levels of weight preoccupation. This weight preoccupation can lead certain individuals to engage in a variety of unhealthy weight loss methods. The frequency and intensity of these behaviors can push a person from having a relatively minor eating problem to a serious eating disorder. Many theories have been proposed to explain eating disorders, however, the disorder is multidimensional and very complex.

Although biological and socio cultural factors play an important role in risk, understanding personality factors which are inherent and common to eating disordered individuals will be useful in identifying at risk individuals. Risk is defined as those factors that influence and increase the potential for an eating disorder to occur. Studies have found that certain psychological factors are more common in individuals with eating disturbances than those without eating disturbances. However, views are mixed as to whether an individual has a predisposing personality profile that can be predictive of future eating disturbances. The following presents a review of common psychological themes and characteristics that have been identified as predictors of eating disorders.

Perfectionism has been implicated as a risk factor (Fairburn, Cooper, Doll, & Welch, 1999). Previous research has shown inconsistent findings regarding the relationship between perfectionism and disordered eating. Joiner et al. (1997), Rosch, Crowther and Graham (1991) and Steiger, Leung, Puentes-Newuman and Gottheil (1992) all found a significant relationship to exist between perfectionism and disordered eating while Hurley, Palmer and Stretch (1990) and Frye et al. (1997) found no relationship to exist. Joiner et al (1997) found this relationship to exist with women who had perfectionistic tendencies combined with a self- perception of over-weightiness (body dissatisfaction) even when they were not over-weight. The relationship was not found in women with perfectionistic tendencies who did not perceive themselves as over weight but were. This suggests that it is one's perception of not meeting a standard (unrealistic perfection) that is important in predicting bulimic symptoms.

Perfectionism is multidimensional and includes both personal and social components (Hewitt & Flett, 1991; Shafran & Mansell, 2001). Self-oriented perfectionism relates to the expectation of oneself and the motivation to attain that perfection. Socially prescribed perfectionism is the perception that one has in regards to the expectations that others (parents, coaches, peers) have of them (Hewitt & Flett 1991). McVey et al (2002) studied several factors relating to risk, one of which was perfectionism. His study showed a significant relationship between self-oriented perfectionism and disordered eating. However, no relationship existed between socially prescribed perfectionism and disordered eating. Vohs, Boelz, Pettit, Bardone, Katz, Abramson, Heatherton, and Joiner (2001) conducted a risk factor study using primarily the

Eating Disorder Inventory and Beck Depression Scale. The study showed that the combination of perfectionistic attitudes and body dissatisfaction were related to disordered eating in only women with low self-esteem. Additionally, these researchers found these three variables (perfectionism, body dissatisfaction, low self-esteem) were not only predictive of bulimic behavior but also depressive symptoms. Vohs, Joiner, Bardone and Abramson (1999) also found women high in perfectionism combined with a perception of over-weightiness and low self-esteem to predict bulimic symptoms.

Some studies have revealed that ineffectiveness (low self-esteem) is a significant predicator of body dissatisfaction and eating disorders (Button, Sonuga-Barke, Davies, & Thompson, 1996; Garner & Garfinkel, 1982; Shisslak et al., 1998; Dykens & Gerrard, 1986; Wood, Waller, Goweres, 1994); yet, other studies have shown it to be a poor prognostic indicator (Rogers & Petrie, 2001; Rosen & Ramirez, 1998; Williams et al., 1993). The development of self-esteem begins early on in the life of an individual. Research has shown that during the elementary school years there is little difference in the level of self-esteem between boys and girls. However, during middle school, girls have been shown to experience a marked decrease in self-esteem compared to boys (Brown & Gilligan, 1992). This may reflect the numerous changes (biological and social) that girls begin to experience during this developmental time period.

Behaviors associated with low self-esteem include feelings of self-inadequacy, worthlessness, ineffectiveness and loneliness. Tiggemann (1994) studied the relationship between body dissatisfaction and self-esteem. Path analysis revealed self-esteem had no direct pathway to body dissatisfaction, only an indirect pathway through eating restriction. This suggests that as the level of food restricting increases the level of self-esteem decreases, therefore affecting the satisfaction of the individual's perception of their body. Shisslak et al., (1998) reviewed the literature specifically looking at longitudinal studies to assess the predictive quality of ineffectiveness. He found seven longitudinal studies, five of these studies used the Ineffectiveness subscale of the Eating Disorder Inventory to assess this domain. Of the seven studies of self-esteem and eating disorders, three were predictive of disordered eating behavior.

Low moods, low energy levels, feelings of despondency, sadness, difficulty sleeping, lack of interest in life and negative self thoughts are symptoms of depression. Depression is seen in individuals with anorexia and bulimia. Whether it is a predictor or a by-product of the eating disorder is still under investigation. Like many other chronic psychiatric problems, (obsessive-compulsive behavior, alcoholism, anxiety) depression accompanies this disorder (Hinz & Williamson, 1987) and typically increases as the severity of the illness increases. In some cases, depression is the result of disordered eating. Severe food restricting and erratic food consumption can cause a chemical imbalance in the body that ultimately effects one's mood. In anorexics, this change in moods may be secondary to the physical process of starvation (APA, 1994). In others, a predisposition to depression may exist which is physiologically based and precedes the eating disorder (Siegel, Brisman & Weinshel, 1988; Sherman & Thompson, 1990). Whether it preexists or develops after the eating disorder, the presence of depression is there until the disorder is under control. Often pharmacological intervention is necessary to lift the mood so both behavioral and cognitive therapy can be effective.

Obsessive compulsive behavior (OCB) has long been linked with disordered eating. Many studies have shown this behavior to be highly predictive of this illness (Rogers & Petrie,

1996; Wonderlich, Swift, Slotnick, & Goodman, 1990). Although the obsessions and the obsessive behaviors are frequent, debilitating and aid in the maintenance of the disorder, a clinical diagnosis of Obsessive Compulsive Disorder cannot be made if the obsessions are only related to food, weight or body shape (APA, 1994). In studying the relationship of OCB to eating disorders, Rogers and Petrie (1996) surveyed 196 college undergraduate women. Obsessive symptoms and traits and emotional reliance on another (dependency) accounted for 19% of the variance, concluding that OCB can be predictive of women with eating disorders. Tamburino, Kaufman, and Hertzer (1994) also came to this conclusion after finding 42% of diagnosed obsessive-compulsive patients reporting past or present eating disorders.

Anorexia and bulimia are often associated with addictive disorders (Sokol, et al., 1998). The DSM-IV (APA, 1994) reports that substance abuse or dependence is found in approximately one-third of the individuals with bulimia. Davis and Claridge (1998) examined the relationship between addictive and obsessive compulsive personality characteristics to that of anorexia and bulimia. The authors found that individuals with anorexia and bulimia scored high on the Addictive Scale of the Eysenck Personality Questionnaire. These individuals' scores were similar to those of drug addicts and alcoholics. Additionally, they found that patients with anorexia nervosa had higher levels of obsessive-compulsiveness, introversion and social conformity than those with bulimia. Addictive and obsessive compulsiveness was also shown to be related to weight preoccupation and excessive exercise. Palme & Palme (1999) suggest that women with disordered eating are similar to women with addictions. They found that women in treatment for obesity, bulimia and alcoholism were similar in personality. Impulsiveness, anxiety, mood instability, poor social adjustment and immediate self-gratification all seem to be common among the three groups.

Literature supports varying personality profiles among anorexics and bulimics (Levin & Hyler, 1986; Wonderlich et al., 1990). Anorexics have been distinguished from bulimics as exhibiting higher traits of obsessions and seeking higher social approval (Strober, 1980). Several studies report anoretic individuals are more likely to display obsessive-compulsive and dependent personality disorders. As Wonderlich et al. (1990) stated, personality trait studies confirm anorexics as rigidly controlled (such as adhering to a strict routine), affectively restricted (unable to show emotion), industrious (high achieving with perfectionistic standards), and lacks spontaneity (the need for routine, non-impulsive). Lavanchy (1998) discussed the basic psychological make-up of the anoretic. Basic psychological traits found are: emotional dependence on others; mental dependence (feeling the need to think the same way as others); difficulty saying "no"; difficulty in building a self-representation (feeling the need to be the person others see you as); and difficulty in thinking about oneself in a positive way. In contrast, bulimic individuals have been shown to display histrionic personality traits (ie: impulsiveness, affective instability and interpersonal sensitivity) (Wonderlich et al., 1990), and narcissistic or anti-social personality disorders. Rossiter, Agras, Telch and Schneider (1993) report bulimics with any of these personality disorders have a poor treatment prognosis. However, bulimics displaying compulsive, dependent or avoidant personality disorders have a more favorable treatment prognosis. Borderline personality disorders were shown to be prevalent in both groups

CHAPTER III

METHODOLOGY

This study is exploratory in nature. It is designed to investigate the relationship of certain socio-demographic variables and psychological constructs to the risk of disordered eating among college freshmen and sophomores. The research design was a correlational design utilizing survey methodology. The study proposed a path model to investigate the degree of influence that certain variables have on the risk of disordered eating. Socio-demographic variables considered were age, race and gender. Psychological variables considered were Body Dissatisfaction, Perfectionism, Interpersonal Distrust, Ineffectiveness, Interoceptive Awareness and Maturity Fears. The purpose of the research was to look at the interrelationships of these variables and how they simultaneously affect the risk of disordered eating. This model is based on prior research and theory. Prior research has examined these psychological variables, but empirical evidence is lacking as to the nature and magnitude of the relationship. This study showed that significant variance can be explained by these variables and also identified significant factors in predicating the risk of disordered eating. Furthermore, this study examined destructive eating behaviors and their prevalence rate among college freshmen and sophomores. In this chapter the research procedures for this study are presented. The research questions, sample, data collection procedure, and statistical techniques to analyze the data are described.

Participants

The participants selected for this study were male and female college freshmen and sophomores who were enrolled in one public university located in southwest Virginia. This study used a convenience sample of 435 students drawn from four classes (1 Personal Health class, 2 Nutrition classes, and 1 Human Development class). There is no attendance policy in any of these classes. Data was collected over a 2-1/2 month period during the Fall semester of 2001. Freshmen and sophomores were selected due to the natural transitioning from the late adolescent stage to the beginning young adult stage, and due to the increased stress related to this developmental period. It is assumed that a sample of 435 students will capture the variability in freshmen and sophomores in general, and that all of the characteristics of freshmen and sophomores would be normally distributed in this sample.

Instrumentation

Instruments used to collect data for this study were the Eating Disorder Inventory-2 (EDI-2) and the Eating Disorder Inventory-Symptom Checklist (EDI-SC) (Garner, 1990). The EDI-SC (Garner, 1990) is a self-report measure that is independent from the EDI-2. Its purpose is to describe patterns of behavior. It measures frequencies of specific behaviors such as diet pill use, exercise, laxative use, purging, dieting, diuretics and binge eating. Additionally, it obtains menstrual history and current medication use. The EDI-SC can be completed in 10 minutes or less.

The EDI-2 (Garner, 1990) is a 91-item self-report inventory which is designed to collect information on attitudes, feelings and behaviors related to eating. In its original form, the instrument contained 64 items forming eight constructs. It was developed by D. Garner, M.

Olmsted, and J. Polivy (1983). In 1990, Garner added three provisional scales which added 27 items to the measure. The instrument identifies individuals who are "highly preoccupied with their weight"; it also measures symptoms that are commonly associated with anorexia nervosa and bulimia nervosa (Garner, Olmsted, Polivy & Garfinkel, 1983). It has been used in hundreds of studies and is known for its use as an "outcome measure and a prognostic indicator" (Garner, 1990). The measure can assist clinicians in treatment planning and assessing individual progress. It does not yield a diagnosis, but rather assists the clinician in identifying individuals who may be experiencing symptoms associated with an eating disorder (Garner, 1990). The 91 items include eight sub-scales and three provisional sub-scales that are clinically relevant to individuals with disordered eating. The three provisional scales will not be addressed in this study. The eight sub-scales relevant to this study along with the alphas reported by the authors of the EDI include the following:

1. Drive for Thinness (7 items, α=.87)- This scale assesses concerns with dieting and preoccupation with gaining weight. Individuals with a high drive for thinness have an intense fear of gaining weight (fat) which does not subside even when significant weight loss has occurred. This is a primary feature for anorexia nervosa and bulimia nervosa (Garner, 1990).
2. Bulimia (7 items, α=.83)- This scale assesses thoughts and behaviors of uncontrollable overeating (bingeing). Bingeing is defined as eating amounts that are considered larger than most people would eat in a short (less than 2 hours) amount of time (APA, 1994). This is a criterion for bulimia nervosa.
3. Body Dissatisfaction (9 items, α=.92)- This scale measures the dissatisfaction with specific body parts (shape and size) (Garner, 1990). An intense body dissatisfaction is a primary feature of both anorexia nervosa and bulimia nervosa. Individuals with high body dissatisfaction significantly distort their perception of the shape and size of their body (APA, 1994), specifically the stomach, hips, thighs and buttocks. The self-esteem is dependent on the appearance of the body shape and size.
4. Ineffectiveness (10 items, α=.88)- This scale is related to one's self-esteem. The scale assesses feelings of loneliness, inadequacy, ineffectiveness, and emotional emptiness. It is, however, much deeper a low self-esteem in that the individual feels worthless, alone and totally out of control with things in their life (Garner, 1990).
5. Perfectionism (6 items, α=.76)- This scale assesses one's need for high and excessive personal standards. The individual sets goals that are extremely high and feels the pressure to succeed and achieve. The successes may be more of meeting the expectations of others than their own personal fulfillment (Garner, 1990). Thinking is concrete in that you either succeed or fail.
6. Interpersonal Distrust (7 items, α=.80)- This scale assesses one's feelings of trusting others, having difficulty in expressing emotions and feelings, and keeping people at a distance (Garner, 1990). Some individuals with eating disorders avoid close personal relationships and have difficulty forming attachments (Garner, Olmsted & Polivy, 1983). The secrecy needed to continue the behavior promotes distrust and an avoidance of becoming vulnerable to others.
7. Interoceptive Awareness (10 items, α=.81)- This scale measures feelings of fear and confusion over one's emotional state. Anxiety occurs when feelings become too

strong or when emotions cannot be identified and understood. The individual also experiences confusion related to the identification of feelings of hunger and fullness (Garner, 1990).

8. Maturity Fears (8 items, α=.72)- This scale assesses one's desire to return to the security of childhood. Individuals with eating disorders have been noted to have fears relating to the biological and psychological realities of adult weight (Garner, 1990). Food restricting, to the point of starvation, allows the individual's body to return to a prepubescent appearance. This relieves them, to some extent, of the adult demands and expectations of their body (Garner, Olmsted & Polivy, 1983).

The first three sub-scales assess the attitudes and behaviors common to eating and body shape disturbances. Although these attitudes and behaviors are found among eating disordered populations, high scores may also be found among various dieting groups which have not met the operational definition of an eating disorder. The remaining five sub-scales tap into characteristics of psychopathology among eating disordered individuals (Garner, Olmsted & Polivy, 1983).

The eight sub-scales are comprised of 64 items. Questions are rated from zero to three. Respondents are asked to decide if the items are true about themselves as indicated by "3-always, 2-usually, 1-often, 0-sometimes, 0-rarely or 0-never". Items that are reversed scored are rated as follows: "3-never, 2-rarely, 1-sometimes, 0-often, 0-usually, or 0-always". Sub-scale raw scores are computed by summing all items for that scale. Raw scores are then plotted on a profile form that allows for comparisons with norms derived from eating-disordered patients and a college female comparison group (Garner, 1990).

There are no set or predetermined cut-off scores. Cut-off scores are dependent upon the purpose of the screening. Chapter four describes the predetermined cut-off scores used in this study. For this study, the college students will be compared to the non-clinical college sample discussed in the EDI Manual. If the respondent scores at or above the mean for anorexia nervosa patients on the Drive for Thinness, the respondent will be considered weight preoccupied and should receive a clinical interview for further diagnostic assessment (Garner, 1990).

The EDI-2 can be administered individually or in a group setting to a population of individuals 12 years and older. The test can be completed in 20 minutes or less.

The EDI has demonstrated adequate to high reliability. Internal consistency has been shown to be between .83 to .93 for eating disordered samples. In the initial EDI validation study for non-patient female comparison groups (college undergraduates), Garner and Olmsted (1984) showed internal consistency of .72 to .92. Raciti and Norcross (1987) found estimates of internal consistency of .79 to .92. Vanderheyden and Boland (1987) estimated internal consistency of .65 to .91. A scale with an internal constancy of .80 and above is considered reliable.

The EDI has been shown to be able to discriminate between patient and non-patient samples. It has high face validity and has met the standards for criterion-related validity (Garner, 1990). Interrater correlations were significant at the $p < .001$ level and ranged from .43 (Maturity Fears) to .68 (Ineffectiveness). Based on the Bulimia sub-scale scores and using a discriminant analysis function, 85% of anorexia nervosa patients were correctly classified into restricting and bulimia subtypes (Garner, Olmsted & Polivy, 1983). Construct validity has been shown by the consistency between clinician ratings and patient sub-scale scores (Garner, Olmsted & Polivy, 1983). The EDI may lack external validity due to the original development aimed at

differentiating between clinical and non-clinical samples. High scores among a non-patient population should not be interpreted as an eating disorder but rather that one's symptoms are similar to that of an eating disordered individual (Garner, Olmsted & Polivy, 1983). It is also important to note that the psychological constructs in the EDI are not an exhaustive representation of the psychopathologies related to eating disordered individuals. Obsessions, depression, introversion, rigidity, compliance and several other personality features have been identified as important factors (Garner, Olmsted & Polivy, 1983).

Data Collection

The questionnaire was administered during regular class time. Participation in the study was voluntary, anonymous and in accordance with university and federal guidelines for human subjects. Individuals wishing to receive the results of their questionnaire and/or enter in the $50.00 incentive drawing could provide their name with complete confidentiality. Only those students completing every question on the survey were eligible for the drawing.

Each participant was given a manila envelope that contained testing material. The researcher introduced the purpose and the procedure of the study to the students and invited them to become participants. In the envelope were two packets. The first packet had information for the students to take home. This packet consisted of two pamphlets: one on body image and one on eating disorders, a list of organizations, names and local phone numbers for counseling if needed, and a consent form. The participants were asked to fill out the second packet of information, which consisted of a demographic sheet, the EDI-2 booklet, the EDI-2 Answer Sheet, the EDI-SC, and a consent form. Participants were informed that there are no right or wrong answers, no time limit, and no consultation with others. They were asked to answer all questions. After completion, participants were instructed to place the forms back into the manila envelope and turn it in. All students participating with the exception of one class received extra class credit.

Data Analysis

The Statistical Package for Social Science (SPSS) software was used to analyze the data in this study. The following statistical analyses were conducted:

1. To assess the reliability and validity with the current sample, item-correlations and reliability estimates were computed.
2. Descriptive statistics were computed to understand the characteristics of the sample. Means and standard deviations were calculated for specific demographic variables, weight reduction behaviors and psychological variables to present a description of the sample.
3. Path model was estimated to assess the influence of five psychological constructs on Body Dissatisfaction and Drive for Thinness. Direct, Indirect and Total Effects of psychological constructs were calculated and are reported on Body Dissatisfaction and Drive for Thinness.
4. Finally, a frequency count of the number of responses in each of the demographic categories and weight reduction behaviors, was used to assess gender differences and level of weight reduction behaviors. The relationship among demographic variables

and the risk of disordered eating were examined using correlations and crosstabs among variables. T-tests were run on all psychological constructs and behavioral measures of disordered eating to explore if scores differed significantly between males and females. One sample T-test was used to determine comparability between the Virginia sample and the non-clinical sample reported by the authors of the EDI.

Summary

The analytic steps used in this study were designed to answer the research questions. Specifically, the questions examined relationships among psychological and socio-cultural variables to the risk of disordered eating and examined gender differences among weight reduction behaviors.

CHAPTER IV

RESULTS OF THE STUDY

The purpose of this study was to examine the relationship of certain psychological construct and socio demographic variables to the risk of disordered eating among college freshmen and sophomores. Additionally, this study assessed the prevalence of pathogenic weight loss methods and gender differences among respondents. Demographic data of the sample surveyed and analyses relating to each of the four research questions are presented and explained. A brief summary is given at the end of the chapter.

Description of the Study Participants

Participants were 435 male (n=128, 29.4%) and female (n=307, 70.6%) college freshmen and sophomores drawn from four classes (1 Personal Health class, 2 Nutrition classes and 1 Human Development class) at a large public university in southwest Virginia. In terms of academic rank, 38.6% (n=168) classified themselves as freshmen, and 61.4% (n=267) as sophomores. All but two of the respondents were single. Participants' responses to items on the Eating Disorder Inventory and the Eating Disorder Inventory-Symptom Checklist were used to further describe the sample and to identify relationships between demographic variables (age, gender and race) and the risk of disordered eating. For categorical variables, frequencies and percentages are reported. For continuous variables, measures of central tendency and standard deviations are reported.

Demographic Data

Age

Of the total sample, the participants' age ranged from 17-25 years. Nineteen years of age represented the largest percentage of respondents (48.7%, n=212). Mean age was 18.7 (SD=.923). Tables 1 & 2 presents the frequencies and percentages for age among the total sample and for male and female separately. The mean age of male respondents was 19.2 (SD=1.17); the mode was 19 (n=62, 48.4%). For female respondents the mean age was 18.6 (SD=.721); the mode was 19 (n=150, 48.9%).

Race

Tables 3 & 4 present frequencies and percentages for race and gender in the total sample. The sample members were asked to identify themselves by filling in the blank next to the question on race. The percentages below reflect the diversity of the sample and no further analysis was done. The largest percentage of respondents in the present sample was Caucasian-American (n=361, 83%), followed by African-American (n=30, 6.9%), Asian (n=19, 4.4%), Bi-Racial (n=14, 3.2%), Middle Eastern (n=5, 1.1%), Hispanic (n=3, .7%), and Native American (n=1, .2%). Two respondents failed to answer this item.

Eating Disorder Treatment

Eighteen respondents (4.1%) reported receiving treatment for an eating disorder. Three (.7%) respondents failed to answer the question. Seventeen of these respondents were females and one respondent was male.

Risk of Disordered Eating

Before analyzing the data for risk of disordered eating, it is important to define the term "risk of disordered eating". As stated earlier, the EDI does not diagnose eating disorders. Rather, it identifies individuals with various levels of weight preoccupation and

Table 1
Age of Respondent (Total Sample)

Age	Frequency	Percentile
17	10	2.3
18	156	35.9
19	212	48.7
20	42	9.7
21	9	2.1
22	3	.7
23	1	.2
25	2	.5
Total	435	100

Table 2
Age of Respondent -Male/Female

Age	Gender	Frequency	Percentile
17	Female	7	2.3
	Male	3	2.3
18	Female	132	43
	Male	24	18.8
19	Female	150	48.9
	Male	62	48.4
20	Female	14	4.6
	Male	28	21.9
21	Female	2	.7
	Male	7	5.5
22	Female	1	.3
	Male	2	1.6
23	Female	1	.3
	Male	0	0
25	Female	0	0
	Male	2	1.6
Total	Female	307	100
	Male	128	100

Table 3
Race of Respondents (Total Sample)

Race	Frequency	Percentile
Caucasian-American	361	83
African American	30	6.9
Asian	19	4.4
Bi-Racial	14	3.2
Middle Eastern	5	1.1
Hispanic	3	.7
Native American	1	.2
Missing	2	.5
Total	435	100

Table 4
Race of Respondents- Male/Female

Race	Gender	Frequency	Percentile
Caucasian-American	Female	265	86.3
	Male	96	75
African American	Female	19	6.2
	Male	11	8.6
Asian	Female	9	2.9
	Male	10	7.8
Bi-Racial	Female	7	2.3
	Male	7	5.5
Middle Eastern	Female	3	1.0
	Male	2	1.6
Hispanic	Female	2	.7
	Male	1	.8
Native American	Female	1	.3
	Male	0	0
Missing	Female	1	.3
	Male	1	.8
Total	Female	307	100
	Male	128	100

psychopathology which have been shown to be clinically relevant to eating disordered individuals. Research has shown that high scores (15 and above for females) on the EDI Drive for Thinness sub-scale have successfully identified highly weight preoccupied females with clinical and sub-clinical eating disorders. The higher the score on this scale, the higher the level of weight preoccupation the individual is experiencing, and the more likely he or she is to engage in risky weight loss behaviors. To have a clearer understanding of the range of weight preoccupation among this sample, the Drive for Thinness scale was classified into three categories, using predetermined conservative "cut-off scores". Females scoring 15 (94th percentile of non-patient college females) and above and males scoring 6 (94th percentile of non-patient college males) and above represent the highly-weight-preoccupied group. Females scoring between 4-14 (60-91 percentile of non-patient college females), and males scoring 3-5 (86-93 percentile of non-patient college males) define the low to moderately-weight-preoccupied group. A score of 3 and below for females (55th percentile and under) and 2 and below for males (79th percentile and under), define the group of non-weight-preoccupied respondents. The cut-off score of 15 and above for women has been used in numerous studies to define a group of highly weight preoccupied college women. In a previous study, a clinical interview was conducted on a sample of female participants scoring 15 or above on the Drive for Thinness sub-scale. Results revealed that 75% of the participants had current or previous eating disorders. Twenty-five percent were classified as "normal dieters". Females scoring 3 or below had no eating disorder (Garner, Olmsted & Polivy, 1983). Results further indicated that as scores on this scale increase, so does one's weight preoccupation. Another study conducted by Noring & Sohlber (1988) which used a cut-off score of 17 (97th percentile) found that only participants with eating disorders were left, and that over half of these participants had been previously diagnosed. Szekely, Raffeld and Snodgrass (1989) used a cut-off score of 4 or less (50th percentile) to define his non-weight-preoccupied female sample. Vanderheyden and Boland, (1987) used the Drive for Thinness sub-scale with female undergraduates and also found that it correctly classified 73% of the participants into various levels of disturbed eating. These studies confirm that the Drive for Thinness scale is adequate to identify at-risk women. Although there is little research on cut-off scores for males, research indicates that males typically have lower Drive for Thinness scores than females. In this study, male cut-off scores were determined by comparison of female and male percentile ranks from the Normative Tables in the EDI manual. Table 5 presents cut-off scores.

Relationship between socio-demographic variables (age, race and gender) and the risk of disordered eating.

Gender: Table 6 presents a chi-square test of independence for Drive for Thinness and Gender. A chi-square test of independence was used to look at the relationship between gender and risk of disordered eating (using the Drive for Thinness sub-scale). Of 124 males in this study, 100 (80.6%) were in non-weight preoccupied; 11 (8.9%) were in low-moderate weight preoccupied; and 13 (10.5%) were in high weight preoccupied. Of the 305 females in this sample 146 (47.9%) were in non-weight preoccupied; 119 (39%) were in low-moderate weight preoccupied; and 40 (13.1%) were in high weight preoccupied. Within the total sample (male/female) surveyed 75.5% of students in the high weight preoccupied category were females while males accounted for 24.5% of this category. In the low-moderate weight preoccupied category, females accounted for 91.5% and males accounted for 8.5%. In the non-weight

Table 5
Drive for Thinness Cut off Scores

Classification	Gender	Cut off Score	%
Non-Weight Preoccupation	Male	Below 3	79% below
	Female	Below 4	55% below
Low-Moderate Weight Preoccupation	Male	3-5	86-93%
	Female	4-14	60-91%
High Weight Preoccupation	Male	6 & above	94% & above
	Female	15 & above	94% & above

*Conversion of Raw Scores to Percentile Ranks for Nonpatient College Females and Nonpatient College Males (EDI: Garner, 1990).
*The higher the score the greater the level of Drive for Thinness.

Table 6
Chi-Square Test of Independence for Drive for Thinness and Gender

Category	**Female**	**Male**	**Total**
Non-Weight Preoccupied			
Observed	146	100	246
Expected	174.9	71.1	246.0
% w/i drive for thin	59.3%	40.7%	100.0%
% w/i gender	47.9%	80.6%	57.3%
% of Total	34.0%	23.3%	57.3%
Low-Moderate			
Observed	119	11	130
Expected	92.4	37.6	130.0
% w/i drive for thin	91.5%	8.5%	100.0%
%w/i gender	39.0%	8.9%	30.3%
% of Total	27.7%	2.6%	30.3%
High			
Observed	40	13	53
Expected	37.7	15.3	53.0
% w/i drive for thin	75.5%	24.5%	100.0%
% w/i gender	13.1%	10.5%	12.4%
% of Total	9.3%	3.0%	12.4%
Total			
Observed	305	124	429
% w/i drive for thin	71.1%	28.9%	429
% w/i gender	100%	100%	100%
	Value	df	Asymp. Sig.
Pearson Chi-Square	43.448	2	.000
Likelihood Ratio	49.108	2	.000
Linear-by-Linear Association	22.295	1	.000
N of Valid Cases	429		

$X^2(2)=43.448$, P=.000

preoccupied category, females accounted for 59.3% and males accounted for 40.7% of this category. Of the total sample surveyed; 12.4% reported being highly weight preoccupied, 30.3% reported being low-moderately weight preoccupied and 57.3% reported no thoughts and feelings of weight preoccupation.

The results of the chi-square showed a significant connection between Drive for Thinness (risk) categories of weight preoccupation and gender [x^2 (2)=43.448, p=.000], indicating that women are disproportionately concentrated in moderate and high weight preoccupation categories.

Race: Due to the preponderance of White participants (83%), the relationship between race and risk was not examined.

Age: A Pearson Correlation was computed between age and the Drive for Thinness sub-scale. The results from this study revealed no relationship between age and risk of disordered eating (r=-.079). The reason maybe the narrow range of age in the sample.

Relationship between psychological constructs to body dissatisfaction and the risk of disordered eating.

Table 7 presents intercorrelations between sub scales of five psychological variables and three outcome measures for the total sample. Correlational analysis was computed to assess the relationship between each of the independent variables (the predictor variables) and the dependent variable (Drive for Thinness), as well as the relationships between the predictor variables themselves. In the total sample, each of the predictor variables was significantly correlated with Drive for Thinness. Each predictor variable also showed a significant relationship with each other with the exception of Body Dissatisfaction and Perfectionism [r(427)=.079, p=.103], Ineffectiveness and Perfectionism [r(429)=.089, p=.065] and Maturity Fears and Perfectionism [r(428)=.041, p=.398]. Table 8 presents intercorrelations between sub scales for the female sample. The female sample showed significant relationships with the dependent and predictor variables with the exception of Ineffectiveness and Perfectionism [r(305)=.098, p=.087] and Maturity Fears and Perfectionism [r(304)=.070, p=.221]. Table 9 presents intercorrelations between sub scales for the male sample. In the male sample, significant correlation was found between the dependent variable and predictor variables with the exception of Drive for Thinness and Perfectionism [r(124)=.090, p=.318] and Drive for Thinness and Interpersonal Distrust [r(124)=.018, p=.369]. Among the predictor variables, Perfectionism was not strongly correlated with any other predictor variable with the exception of Interoceptive Awareness [r(124)=.190, p=.034]. Maturity Fears and Interpersonal Distrust also revealed a weak relationship [r(124)=.159, p=.077].

Path analysis was computed to assess the degree of influence that certain psychological variables (Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness and Maturity Fears) have on one's risk of developing a clinically significant eating disorder. The hypotheses were that these five constructs affect Body Dissatisfaction and, Body Dissatisfaction affects one's Drive for Thinness. These variables not only have a direct effect on Drive for Thinness but also may have an indirect effect through Body Dissatisfaction. Two regression equations were used. In the first equation, Body Dissatisfaction was regressed on Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness and Maturity Fears. Twenty-three percent of the variance in Body Dissatisfaction could be explained by these

Table 7
Intercorrelations Between Subscales of 5 Pshychological Variables and 3 Outcome Measures-Total Sample

DT	-							
B	.348**	-						
BD	.699**	.358**	-					
Ineff.	.392**	.497**	.376**	-				
Perf.	.114*	.150**	.079	.089	-			
ID	.152**	.330**	.168**	.468**	.113*	-		
IA	.385**	.538**	.373**	.591**	.192**	.432**	-	
MF	.148**	.262**	.215**	.386**	.014	.235**	.305	-
	DT	**B**	**BD**	**Ineff.**	**Perf.**	**ID**	**IA**	**MF**

*Correlation is significant at the 0.01 level (2-tailed)
**Correlation is significant at the 0.05 level (2-tailed)

DT=Drive for Thinness
B=Bulimia
BD=Body Dissatisfaction
Ineff.=Ineffectiveness
Perf.=Perfectionism
ID=Interpersonal Distrust
IA=Interoceptive Awareness
MF=Maturity Fears

Table 8
Intercorrelations Between Subscales of 5 Pshychological Variables and 3 Outcome Measures-Female Sample

DT	-							
B	.433**	-						
BD	.673**	.437**	-					
Ineff.	.422**	.412**	.390**	-				
Perf.	.190**	.170**	.188**	.098	-			
ID	.230**	.403**	.224**	.485**	.134*	-		
IA	.402**	.470**	.383**	.545**	.205**	.492**	-	
MF	.183**	.274**	.238**	.385**	.070	.269**	.302**	-
	DT	**B**	**BD**	**Ineff.**	**Perf.**	**ID**	**IA**	**MF**

*Correlation is significant at the 0.01 level (2-tailed)
**Correlation is significant at the 0.05 level (2-tailed)

DT=Drive for Thinness
B=Bulimia
BD=Body Dissatisfaction
Ineff.=Ineffectiveness
Perf.=Perfectionism
ID=Interpersonal Distrust
IA=Interoceptive Awareness
MF=Maturity Fears

Table 9
Intercorrelations Between Subscales of 5 Pshychological Variables and 3 Outcome Measures-Male Sample

DT	-							
B	.401**	-						
BD	.566**	.397**	-					
Ineff.	.528**	.675**	.511**	-				
Perf.	.090	.092	-.091	.065	-			
ID	.081	.180*	.212*	.431**	.016	-		
IA	.438**	.699**	.382**	.713**	.190*	.311**	-	
MF	.221*	.237**	.33**	.393**	-.037	.159	.330**	-
	DT	**B**	**BD**	**Ineff.**	**Perf.**	**ID**	**IA**	**MF**

*Correlation is significant at the 0.01 level (2-tailed)
**Correlation is significant at the 0.05 level (2-tailed)

DT=Drive for Thinness
B=Bulimia
BD=Body Dissatisfaction
Ineff.=Ineffectiveness
Perf.=Perfectionism
ID=Interpersonal Distrust
IA=Interoceptive Awareness
MF=Maturity Fears

five psychological constructs. In the second equation, Drive for Thinness was regressed on the five psychological constructs and Body Dissatisfaction. Fifty-two percent of the variance in Drive for Thinness could be explained by a combination of these five constructs and Body Dissatisfaction.

Figure 1 presents the resulting path coefficients. The significant direct pathways were from Ineffectiveness (.184), Interoceptive Awareness (.199), and Maturity Fears (.254), indicating that Body Dissatisfaction is related to these three constructs. Perfectionism (.011) and Interpersonal Distrust (-.064) were not significant in this sample. Furthermore, Body Dissatisfaction (.633) had the largest direct effect on Drive for Thinness. Ineffectiveness (.129) and Interoceptive Awareness (.108) also had significant direct effects on Drive for Thinness. Maturity Fears (-.046) and Perfectionism (.042) revealed no significant direct effects.

Table 10 presents the direct, indirect and total effects on Body Dissatisfaction and Drive for Thinness. As indicated earlier, Maturity Fears has a direct effect on one's Body Dissatisfaction; however no direct effect was found on Drive for Thinness. This may indicate that most of the effect of Maturity Fears on Drive for Thinness is indirect through Body Dissatisfaction (mediating variable), concluding that people who are likely to have high levels of Maturity Fears are dissatisfied with their body, and in turn, that dissatisfaction with their body affects their Drive for Thinness. Similarly, Interoceptive Awareness revealed a second significant indirect effect. Although the direct effect of Interoceptive Awareness (.108) showed significance on Drive for Thinness, the indirect effect (.125) was higher (.199 x .633 =.125). This analysis indicates that the indirect effect of Interoceptive Awareness through Body Dissatisfaction upon Drive for Thinness is stronger than the direct effect of Interoceptive

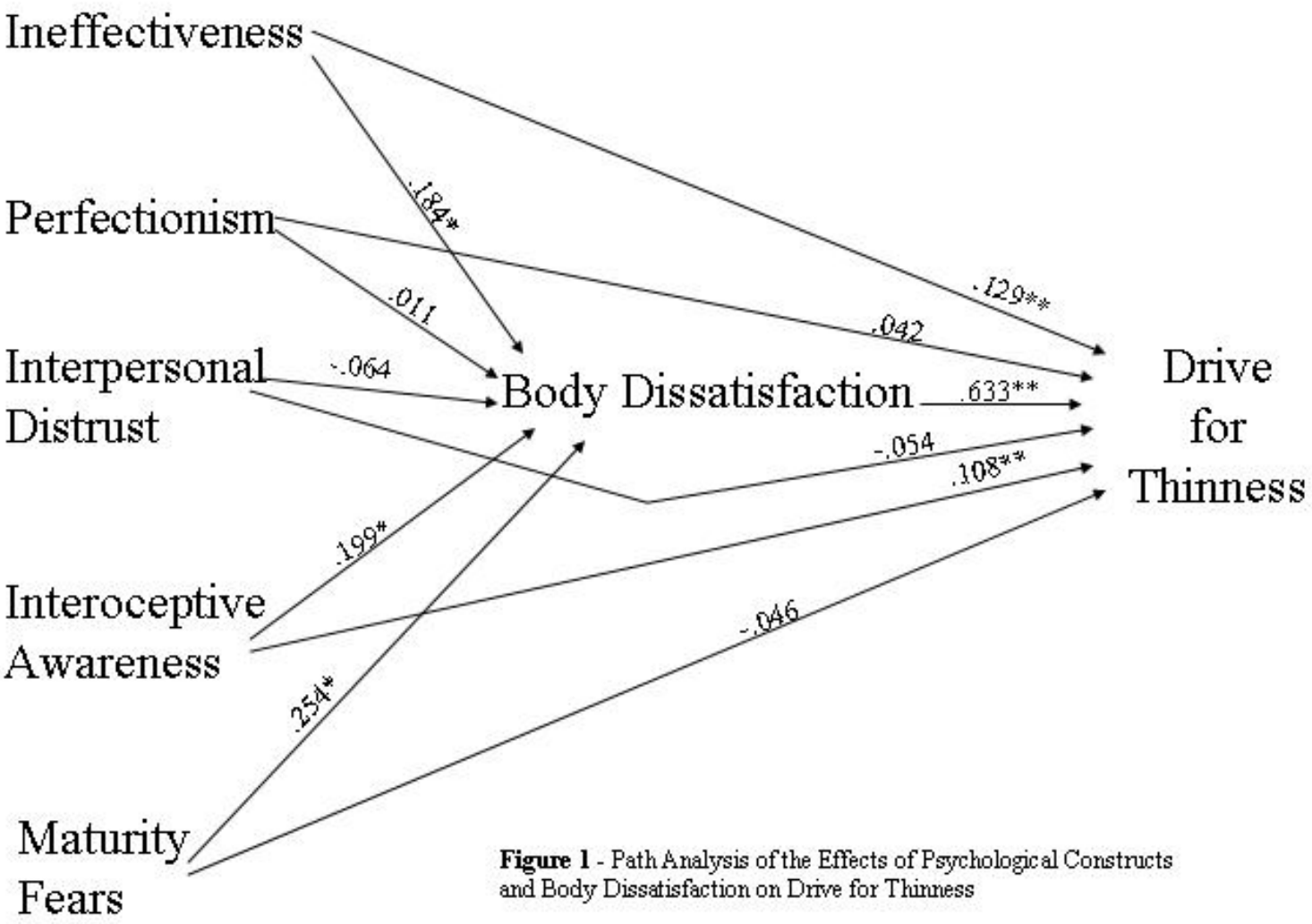

Figure 1 - Path Analysis of the Effects of Psychological Constructs and Body Dissatisfaction on Drive for Thinness

Table 10
Direct, Indirect, and Total Effects on Body Dissatisfaction and Drive for Thinness.

	Body Dissatisfaction			Drive for Thinness		
	Direct Effect	Indirect Effect	Total Effect	Direct Effect	Indirect Effect	Total Effect
Ineffective-ness	.184*	--	.184	.129**	.116	.245
Perfectionism	.011	--	.011	.042	.006	.048
Interpersonal Distrust	-.064	--	-.064	-.054	-.040	-.094
Interoceptive Awareness	.199*	--	.199	.108**	.125***	.233
Maturity Fears	.254*	--	.254	-.046	.160***	.114
R^2	.23			.52		

*Indicates significant direct effect on Body Dissatisfaction.
**Indicates significant direct effect on Drive for Thinness.
***Indicates significant indirect effect on Drive for Thinness through Body Dissatisfaction

Awareness on Drive for Thinness.

Gender Differences in Bulimia Related Behaviors and Other Behaviors.

Data were analyzed to determine gender differences in risk behaviors. Percentages, means, and standard deviations are provided for men and women in Tables 11-14. The following describes gender-based differences among various weight loss methods and eating behaviors.

Food Restricting

Participants were asked to indicate if they had ever restricted their food intake due to concerns about their body size or weight. Of the total sample, 71% (n=308) indicated that they have restricted their food intake due to concerns about body size and weight. Almost 29% (124) reported no and .7% (n=3) of respondents failed to answer this question. Further analysis was carried out to see if there are gender differences. Within the past three months, 80% (n=244) of females and 50% (n=64) of males reported to have restricted their food intake due to weight and body size concerns. Fifty-nine percent of these females (n=144) currently restrict at least weekly and 24% (n=74) currently restrict food intake daily. Among men, 31% (n=40) reported currently restricting weekly and 12.5% (n=16) reported food restricting daily. Only 8.5% (n=26) of females and 8% (n=10) of males reported no restricting behavior in the past three months.

Participants were asked: "How old were you the very first time that you began to seriously restrict your food intake due to concern about body size or weight?" For females the mean age was 15.2 (SD=2.03) years and the mode was 16 years of age. For males, the mean age was 16.2 (SD=2.5) years and the mode was 18 years of age.

Exercise

Participants were asked to indicate the total number of times they exercised in a typical week over the last three months. On average, female participants reported exercising 4.5 (SD=2.82) times a week with an average length of exercise each time at 54.16 (SD=34.81) minutes. The majority of the female participants (n=67, 21.8%) reported that between 50%-75% of their exercise was to reduce weight.

Male participants reported exercising 6.2 (SD=6.31) times a week, with an average length of exercise each time at 62.76 (SD=32.61) minutes. The majority of male participants (n=38, 28.7%) reported that less than 25% of their exercise was to reduce weight.

Binge Eating

Participants were asked if they had ever had an episode of eating an amount of food that others would regard as unusually large. Of the total sample, 30% (n=132) indicated yes and approximately 69% (n=302) indicated no. One (.2%) respondent failed to complete this item.

Further analysis was carried out to assess gender differences. Twenty-seven percent (n=83) of female respondents answered yes to this question while 73% (n=223) answered no. In comparison, 38% of males responded yes and 62% responded no to this question. Participants were asked: "How often, in the past three months, have you typically had an eating binge"? Approximately 8% (n=24) of females and 8% (n=10) of males who reported ever having had an episode of bingeing had not binged in the past three months. Approximately 10% (n=32) of females compared to 12.5% of males reported bingeing monthly with an average monthly binge for females being 2.3 (SD=1.02) times and for males 2 (SD=1.03) times. Approximately 8% (n=24) of female respondents compared to 13% (n=17) of male respondents reported bingeing weekly. Females reported a weekly average number of binges of 2 (SD=1.24) per week while males reported a weekly average number of binges at 2.52 (SD=1.37). Two females (.7%) and five (3.9%) males reported bingeing daily. Females reported bingeing on an average of 1.5 times a day and males reported an average of 2 binges per day.

A t-test with gender as the independent variable was computed on the frequency of binge episodes and on feelings of control. Table 11 presents the results. Results indicate that there is a statistical difference in males and females for lifetime bingeing episodes [t(219)=2.228, p=.027] and feeling out of control [t(83)=3.788, p=000]. Males exceed females in the number of binges; while during a binge episode females are more likely to feel out of control than males. Males also report higher mean levels of monthly, weekly and daily bingeing.

Self-Induced Vomiting

Participants were asked if they have ever tried to vomit after eating in order to get rid of the food eaten. Of the total sample, approximately 15% (n=64) of respondents have used self-induced vomiting in order to rid themselves of food. Eighty-five percent (n=369) of the respondents responded negatively; two respondents failed to answer this question.

Approximately 19% (n=58) of female respondents compared to 5% (n=6) of male respondents reported self-induced vomiting at some point in their lifetime. Of these respondents, approximately 12% of females (n=38) and 2% (n=3) of males reported they have not engaged in this behavior in the past three months. Approximately 4% (n=11) of female respondents and 2% (n=3) of male respondents reported engaging in this behavior on a monthly basis. Females report an average of 2.4 (SD=1.42) episodes per month of self-induced vomiting while males report an average of 2 (SD=1.0) episodes per month. Eight (2.6%) females are currently engaging in this

purging behavior weekly, with an average of 2.2 (SD=1.11) episodes per week. One female respondent (.3%) reported self-induced vomiting daily at least one time each day. There were no males reporting using this purging behavior on a weekly or daily basis. The average age of first time self-induced vomiting for females is 16.4 (SD=2.47, mode= 18 years of age) and for males the average age is 14.4 (SD=1.14, mode=14 years of age).

Laxatives

Participants were asked if they had ever used laxatives after eating in order to rid themselves of eaten food. Of the total sample, 4% (n=18) reported yes and 95% (n=415) reported no. Two respondents failed to answer this item.

Approximately 5% (n=16) of female respondents and 2% (n=2) of male respondents reported using laxatives at some point in their life for weight reduction. Of these respondents, 9 females (3%) and 1 male (.8%) reported not having used laxatives in the past three months for weight reduction. Five (1.6%) female respondents reported using laxatives monthly, with an average of 1.5 (SD=1.0) times per month. Two (.7%) females reported laxative use weekly, with an average of 4 (SD=1.41) times per week. One male reported using laxatives two times per week. The mean age for first time laxative use for the purpose of weight reduction was 16.8 (SD=1.08) for females and for males age 17 (SD= 1.41). The average number of laxative pills used each time for females was 2.2 (SD=.89, mode=2) and for males 1.5 (SD=1.0, mode=1) pills. The laxatives used by women were identified as Correctol, "chewable laxatives", Women's Gentle, Control and Ex-Lax. Males did not identify the type of laxative.

Diuretics

Participants were asked if they had ever taken diuretics (water pills) to control their weight. Of the total sample, .9% (n=4) of respondents reported diuretic use to control their weight. Two (.5%) respondents failed to answer this item.

Two (.7%) females reported diuretic use to control weight. One of these respondents indicated no use within the past three months. The other female respondent reported that in the last three months, she has used an average of six pills per month.

Likewise, two (.7%) male respondents reported having taken diuretics to control weight. One individual indicated weekly usage with an amount of 4 diuretics per week. The other male respondent did not indicate frequency.

Table 12 presents the results of gender differences among purging behaviors. A t-test was computed for each of the purging behaviors on frequency of use. Lifetime episodes of both self-induced vomiting and laxative use were shown to be statistically significant among the two groups [t(405)=-4.891, p=.000 and t (398)=-2.183, p=.030, respectively]. Incidences of self-induced vomiting and laxative use is significantly higher among female students than male students. Incidences of lifetime diuretic use for both groups were not significantly different from the other.

Diet Pills

Participants were asked if they have ever taken diet pills. Of the total sample, 19% (n=83) of the respondents reported yes and almost 81% (n=350) reported no. Two respondents failed to complete this item.

Further analysis on gender differences indicated that 23% (n=71) of female respondents and 9% (n=12) of the males have used diet pills at some time in their life. Of these individuals, 14% (n=44) of females and 4% (n=5) of males reported no diet pill use in the past three months.

Two percent (n=6) of females report diet pill use monthly, with an average of 5.1 (SD=6.4, mode=2) pills per month. One female respondent reported using 18 pills a month. Only .8% (n=1) of males reported monthly diet pill use. Two percent (n=6) of female respondents reported weekly diet pill use with an average of 3.8 pills (SD=1.72, mode=3) each week. Two percent (n=3) of males report weekly diet pill use with and average of 3 (SD=2.0) pills per week. Almost 5% (n=15) of females report daily use with an average of 3 pills (SD=3.14, mode=1) a day. One female respondent indicated using 10 pills a day, while another reported using 12 diet pills a day. Two percent (n=3) of males reported daily diet pill use with an average of 1.3 (SD=.577) pills a day.

Table 13 presents the number and percentage of respondents who reported their worst average weekly number of diet pills. Twelve individuals reported very high amounts of diet pill use, ranging from 20-63 pills a week.

Table 14 presents the results for gender differences among diet pill use. A t-test with gender as the independent variable was computed on frequencies of diet pill use. Lifetime usage was the only frequency that showed a significant statistical difference [t(338)=-3.922, p=.000]. Female students' incidence of lifetime diet pill use was significantly higher than male students.

Cognitive, behavioral and psychological sub-scale levels among the general college population

Table 15 presents the Item Descriptives and Reliability Coefficients for each of the eight constructs. For the original EDI sub scales, reliability coefficients (alphas) were between .83 and .93 for the clinical population. For non-clinical female populations Garner and Olmsted (1984) reported alphas between .72 and .92, Vanderheyden et al. (1987) report alphas between .69 and .91, and Shore and Porter (1990) report alphas between .65 and .91. This sample reports reliability coefficients between .69 and .92. Results of this study show each item to be highly

Table 11
Gender Differences Among Binge Eating and Control

Frequency	Gender	Mean	t-value	p-value
Lifetime	Female	27% (n=83)	2.228	.027*
	Males	38.3% (n=49)		
Monthly	Females	10.4% (n=32)	.998	.324
	Males	12.5% (n=16)		
Weekly	Females	7.8% (n=24)	-.611	.545
	Males	13.3% (n=17)		
Daily	Females	.7% (n=2)	-.630	.556
	Males	3.9% (n=5)		
Feeling out of Control:				
Sometimes, Often, Usually, Always	Females	76.4%	3.788	.000*
	Males	38.2%		
Never or Rarely	Females	23.6%		
	Males	61.7%		
Have not binged in last 3 months.	Females	7.8% (n=24)		
	Males	7.8% (n=10)		

Note: Lifetime frequencies represent total Virginia sample (n=435).
Binge Eating- Episodes of consuming large quantities of food in a short amount of time (approximately a 2 hour period).
Monthly, Weekly and Daily frequency are based on past 3 months.

Table 12
Gender Differences Among Purging Behaviors

Frequency	Gender	Mean	t-value	p-value
Vomiting				
Lifetime	Female	18.9% (n=58)	-4.891	.000*
	Male	4.7% (n=6)		
Monthly	Female	3.6% (n=11)	.446	.664
	Male	2.3% (n=3)		
Weekly	Female	2.28% (n=7)		
	Male	0		
Daily	Female	.3% (n=3)		
	Male	0		
Have not binged in last 3 months.	Female	12.4% (n=38)		
	Males	2.3% (n=3)		
Laxative				
Lifetime	Females	5.2% (n=16)	-2.183	.303*
	Males	1.6% (n=2)		
Monthly	Females	1.6% (n=5)		
	Males	0		
Weekly	Females	.7% (n=2)	1.155	.864
	Males	.8% (n=1)		
Daily	Females	0		
	Males	0		
Have not used laxatives in last 3 months.	Females	2.9% (n=9)		
	Males	.8% (n=1)		
Diuretics				
Lifetime	Females	.7% (n=2)	.899	.369
	Males	1.6% (n=2)		
Monthly	Females	.3% (n=1)		
	Males	.8% (n=1)		

Table 12. Cont.

Frequency	Gender	Mean	t-value	p-value
Weekly	Female	0		
	Male	0		
Daily	Female	0		
	Male	0		
Have not used diuretics in the last 3 months.	Female	.3% (n=1)		
	Male	0		

Note: Based on total Virginia sample of 435 first and second year college students.
Monthly, Weekly and Daily frequencies are based on past 3 months.
* Denotes statistical significance.

Table 13
Average number of diet pills consumed in one week (at worst of times)

# of pills	# of respondents	Percentile
Females:		
3	1	1.7
4	2	3.4
5	2	3.4
6	2	3.4
6.5	1	1.7
7	15	25.9
8	1	1.7
10	5	8.6
12	2	3.4
14	15	25.9
20	1	1.7
21	2	3.4
24	1	1.7
28	3	5.2
42	2	3.4
56	1	1.7
60	1	1.7
63		1.7
Total	58	100
Males:		
5	1	10
6	2	20
7	2	20
10	1	10
12	1	10
20	2	20
40	1	10
Total	1	100

Table 14
Gender Difference Among Diet Pill Use

Frequency	Gender	Mean	t-value	p-value
Lifetime	Female	23.1% (n=71)	-3.922	.000*
	Males	9.4% (n=12)		
Monthly	Females	2.0% (n=6)	.313	.767
	Males	.8% (n=1)		
Weekly	Females	2.0% (n=6)	.653	.535
	Males	2.3% (n=8)		
Daily	Females	4.9% (n=15)	.857	.404
	Males	2.3% (n=3)		
Not in last 3 months.	Females	14.3% (n=44)		
	Males	3.9% (n=5)		

Note: Virginia sample based on 435 first and second year college students.
Monthly, Weekly and Daily frequencies based on last 3 months of diet pill use.
* Denotes statistical significance.

correlated with their respective sub-scale.

Using gender as the independent variable, t-tests for each of the sub-scales was computed. Table 16 presents a summary of the results. Statistical differences were seen on four of the eight scales. Females scored significantly higher than males on the cognitive based (attitudes toward eating and the body) scales, specifically Drive for Thinness [t(427)=9.762, p=.000] and Body Dissatisfaction [t(425)=9.404, p=.000]. This finding is consistent with previous studies. Males scored significantly higher than females on the psychological constructs, specifically Perfectionism [t(427)=-2.709, p=.007] and Interpersonal Distrust [t(427)=-2.167, p=.031]. There was no significant difference on Maturity Fears and Bulimia sub-scales.

To further add to the validity and support of the EDI instrument, one-sample t-test's was run on each sub scale to determine the comparability among the current non-clinical samples with that of the non-clinical samples reported by the authors of the EDI. Tables 17 &18 summarize the results according to gender. Results indicate that there is little difference among participants' responses in both samples. For males, there was a significant difference in Bulimia [t(123)=3.154, p=.002], Ineffectiveness [t(123)=2.019, p=.046], and Maturity Fears [t(123)=2.964, p=.004] between the Virginia sample and the sample reported in the manual. The Virginia males scored significantly higher in each of these sub scales compared to the scores of the normative non-patient male sample reported in the EDI manual. For females, there was a significant difference in Bulimia [t(304)=2.067, p=.04], Body Dissatisfaction [t(304)=-2.821, p=.005] and Maturity Fears [t(303)=4.141, p=000] between the two samples. The Virginia females scored significantly higher than the normative non-patient female sample in Bulimia and

Table 15

Item Descriptives and Reliability Coefficients for Sub-scales – Total Sample

Item		Mean		St. Dev.
Drive for Thinness (α =.89)				
Q1. I eat sweets and carbohydrates without feeling nervous.	.4372		.81	
Q7. I think about dieting.		.9487		1.15
Q11. I feel extremely guilty after overeating.		.7203		1.13
Q16. I am terrified of gaining weight.	.9417		1.22	
Q25. I exaggerate or magnify the importance of weight.	.4848		.93	
Q32. I am preoccupied with the desire to be thinner.		.6131		1.03
Q49. If I gain a pound, I worry that I will keep gaining.	.5641		1.02	
Bulimia (α =.69)				
Q4. I eat when I am upset.		.4685		.87
Q5. I stuff myself with food.		.2774		.68
Q28. I have gone on eating binges where I felt that I could not stop.	.0886		.377	
Q38. I think about bingeing (overeating).		.1818		.61
Q46. I eat moderately in front of others and stuff myself when they're gone.		.1515		.54
Q53. I have the thought of trying to vomit in order to lose weight.		.2681		.71
Q61. I eat or drink in secrecy.		.1469		.53
Body Dissatisfaction (α=.92)				
Q2. I think that my stomach is too big.	1.025		1.22	
Q9. I think that my thighs are too large.	.9508		1.22	
Q12. I think that my stomach is just the right size.		1.3162		1.10
Q19. I feel satisfied with the shape of my body.	1.0796		1.01	
Q31. I like the shape of my buttocks.		.9016		1.07
Q45. I think my hips are too big.	.6932		1.15	
Q55. I think that my thighs are just the right size.		1.3091		1.18
Q59. I think my buttocks are too large.	.6440		1.11	
Q62. I think that my hips are just the right size.	1.1827		1.14	
Ineffectiveness (α=.81)				
Q10. I feel ineffective as a person.		.1282		.47
Q18. I feel alone in the world.	.1725		.55	
Q20. I feel generally in control of things in my life.		.3427		.64
Q24. I wish I were someone else.		.1725		.54
Q27. I feel inadequate.	.1818		.58	
Q37. I feel secure about myself.	.4406		.76	
Q41. I have a low opinion of myself.		.3124		.71
Q42. I feel that I can achieve my standards.		.2657		.58
Q50. I feel that I am a worthwhile person.		.2238		.58
Q56. I feel empty inside (emotionally).	.1841		.58	

Table 15 cont.

Item		Mean		St. Dev.
Perfectionism (α=.72)				
Q13. Only outstanding performance is good enough in my family.		.4639		.87
Q29. As a child, I tried very hard to avoid disappointing my parents and teachers.	1.3963		1.17	
Q36. I hate being less than best at things.		.9790		1.11
Q43. My parents have expected excellence of me.		1.3869		1.14
Q52. I feel that I must do things perfectly or not do them at all.		.4522		.84
Q63. I have extremely high goals.		1.5641		1.11
Interpersonal Distrust (α=.75)				
Q15. I am open about my feelings.		.4988		.76
Q17. I trust others.		.3566		.65
Q23. I can communicate with others easily.		.3147		.60
Q30. I have close relationships.	.2028		.56	
Q34. I have trouble expressing my emotions to others.	.2331		.61	
Q54. I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close).	.1981		.63	
Q57. I can talk about personal thoughts or feelings.		.3963		.68
Interoceptive Awareness (α=.75)				
Q8. I get frightened when my feelings are too strong.	.2611		.70	
Q21. I get confused about what emotion I am feeling.	.2284		.56	
Q26. I can clearly identify what emotion I am feeling.	.4732		.70	
Q33. I don't know what's going on inside of me.	.2028		.61	
Q40. I get confused as to whether or not I am hungry.	.3287		.70	
Q44. I worry that my feelings will get out of control.	.1865		.58	
Q47. I feel bloated after eating a normal meal.	.3590		.83	
Q51. When I am upset, I don't know if I am sad, frightened, or angry.		.2098		.59
Q60. I have feelings I can't quite identify.		.2401		.65
Q64. When I am upset, I worry that I will start eating.	.3333		.78	
Maturity Fears (α=.78)				
Q3. I wish that I could return to the security of childhood.		.4720		.95
Q6. I wish that I could be younger.		.2336		.70
Q14. The happiest time in life is when you are a child.	.3902		.85	
Q22. I would rather be an adult than a child.		.6028		.81
Q35. The demands of adulthood are too great.	.3738		.79	
Q39. I feel happy that I am not a child anymore.	.6869		.84	
Q48. I feel that people are happiest when they are children.		.3575		.81
Q58. The best years of your life are when you become an adult.		.6075		.67

Table 16
Gender Differences on Composites – Virginia Sample

Composite	Sex	Mean	SD	t-value	p-value
Drive for Thinness (0-21)	Male	1.7	2.6	9.762	.000*
	Female	5.9	6.2		
Bulimia (0-21)	Male	1.83	2.6	-1.328	.185
	Female	1.4	2.3		
Body Dissatisfaction (0-27)	Male	4.6	5.05	9.404	.000*
	Female	10.8	8.2		
Ineffectiveness (0-30)	Male	2.4	3.68	-.156	.876
	Female	2.4	3.6		
Perfectionism (0-18)	Male	7.0	3.94	-2.709	.007*
	Female	5.9	4.0		
Interpersonal Distrust (0-21)	Male	2.6	2.82	-2.167	.031*
	Female	2.0	2.8		
Interoceptive Awareness (0-30)	Male	2.5	3.65	1.094	.274
	Female	2.9	3.7		
Maturity Fears (0-24)	Male	4.04	4.65	-.945	.346
	Female	3.5	3.7		

Note: The Virginia sample is comprised of first and second year college males and females attending a large southwest university in Virginia. Males: N=124 (exception: Body Dissatisfaction- N=122). Mean age=19.2. Females: N=305 (exception: Maturity Fears- N=304). Mean age =18.6.

*Denotes Significant Difference.

Table 17
Male comparisons on Composites–Non clinical male sample reported in the manual and the male Virginia Sample.

Composite	Sample	Mean	SD	t-value	p-value
Drive for Thinness (0-21)	MCG	2.2	4.0	-1.812	.072
	Virginia	1.7	2.6		
Bulimia (0-21)	MCG	1.0	1.7	3.154	.002*
	Virginia	1.83	2.9		
Body Dissatisfaction (0-27)	MCG	4.9	5.6	-.462	.645
	Virginia	4.6	5.05		
Ineffectiveness (0-30)	MCG	1.8	3.0	2.09	.046*
	Virginia	2.46	3.68		
Perfectionism (0-18)	MCG	7.1	4.7	-.100	.920
	Virginia	7.06	3.94		
Interpersonal Distrust (0-21)	MCG	2.4	2.5	1.06	.290
	Virginia	2.66	2.82		
Interoceptive Awareness (0-30)	MCG	2.0	3.0	1.57	.188
	Virginia	2.5	3.65		
Maturity Fears (0-24)	MCG	2.8	3.4	2.96	.004*
	Virginia	4.04	4.65		

Note: The MCI (Male Comparison Group reported in the EDI manual) sample consisted of 101 college males with a mean age of 19.5. The Virginia sample consisted of 124 first and second year college males with a mean age of 19.2.

*Denotes Significant Differences

Table 18
Female Comparisons on Composites- Non-clinical female sample reported in the manual and the female Virginia sample.

Composite	Sample	Mean	SD	t-value	p-value
Drive for Thinness (0-21)	FCG	5.5	5.5	1.283	.2
	Virginia	5.9	6.2		
Bulimia (0-21)	FCG	1.2	1.9	2.067	.04*
	Virginia	1.4	2.3		
Body Dissatisfaction (0-27)	FCG	12.2	8.3	-2.821	.005*
	Virginia	10.8	8.2		
Ineffectiveness (0-30)	FCG	2.3	3.6	.504	.61
	Virginia	2.4	3.6		
Perfectionism (0-18)	FCG	6.2	3.9	-1.263	.207
	Virginia	5.9	4.0		
Interpersonal Distrust (0-21)	FCG	2.0	3.1	.060	.952
	Virginia	2.0	2.8		
Interoceptive Awareness (0-30)	FCG	3.0	3.9	-.246	.806
	Virginia	2.9	3.7		
Maturity Fears (0-24)	FCG	2.7	2.9	4.141	.000*
	Virginia	3.5	3.7		

Note: The FCG (Female Comparison Group reported in the EDI manual) sample consisted of first and second year college women attending Michigan State University. They were between the ages of 18 and 25. N=205. The Virginia Sample (female) consisted of first and second year college women attending a large southwest university in Virginia. They were between the ages of 17 and 23. N=305 for all sub scales except Maturity Fears (N=304).

*Denotes Significant Difference.

Maturity Fears, but significantly lower in Body Dissatisfaction.

Summary

This chapter presented results of the study. A total of 435 predominantly white freshmen and sophomores were surveyed. The results presented above clearly indicate that gender is a factor in regards to one's risk of developing an eating disorder. Path analysis also confirmed that Ineffectiveness, Interoceptive Awareness and Maturity Fears strongly contribute to one's level of Body Dissatisfaction. Likewise, it is Body Dissatisfaction that is strongly related to one's Drive for Thinness. Ineffectiveness and Interoceptive Awareness also made a significant direct contribution to Drive for Thinness. However, their indirect relationship through Body Dissatisfaction had a much stronger effect on Drive for Thinness than their direct effect. Gender differences were reported for each weight reduction and eating behavior. Gender differences were also reported for each of the eight constructs. A more detailed summary and a discussion of the findings are presented in the next chapter.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents a summary of the study. The results and significant findings are discussed and conclusions are drawn. Recommendations for counselors and university administrators, along with recommendations for future research are given.

Summary of the Study

While the study of eating disorders has been widely researched, risk factor studies have primarily focused on the role that socio-cultural factors, coping strategies and family environment play in the development of disordered eating. The effect that personality has on disordered eating, however, has not been as widely researched and empirical evidence is lacking as to its predictive quality. The changing profile of the eating disordered individual presents constant challenges to clinicians and school administrators as they attempt to develop effective treatment strategies and programs. The success of treatment, whether it is prevention or intervention, is dependent on the clinician and the program developer's knowledge base of what factors appear to be of most importance in the development and maintenance of the disorder.

The results of this research suggest four conclusions. First, gender is related to body dissatisfaction and drive for thinness. Second, body dissatisfaction is influenced by self-esteem, insecurity of adult responsibilities and emotional confusion. Risk of disordered eating behavior is strongly influenced by self esteem, body dissatisfaction and the ability to understand and act appropriately on emotions. Third, gender differences exist in regard to pathogenic behavior. Fourth, gender differences exist in regard to certain cognitive, behavioral and psychological constructs.

Participants in this study were 435 freshmen and sophomores at a large southwest Virginia university. Data were collected through survey instruments (EDI & EDI-SC) during class time and administered by this writer.

Conclusion and Discussion

Conclusion 1: Gender is related to body dissatisfaction and drive for thinness. Women are more dissatisfied with their bodies and have a higher drive for thinness than males. However, both genders show dissatisfaction. The direction for females is a slimmer ideal as determined by the reported actual and ideal weight (10 lbs. difference), suggesting that cultural standards of appearance are more important for women (Garner, Garfinkel, Schwartz, & Thompson, 1980) when compared to men. These results are similar to those of Tiggemann (1994) and Cullari et al. (1998).

Although the literature supports males as desiring a larger, muscular body, no conclusion can be made from this study regarding the direction of dissatisfaction of men. The EDI-SC fails to differentiate between those interested in improving their appearance for aesthetic purposes and those endeavoring to increase athletic performance. On the average, males desired a weight of one pound lighter, which is fairly insignificant. Although males typically exercised more frequently and at longer lengths of time than females, weight reduction was the motivator for the majority of the females. Several tentative ideas emerge from this finding. First, males are more

satisfied with their weight. Second, males may exercise more for enjoyment, competition and peer interaction than females. And third, the EDI-SC question on motivation to exercise is biased towards females. The question asks, "What percentage of your exercise is aimed at controlling your weight?" Weight reduction or maintenance here is assumed. Perhaps a better question, based on the literature, would be, "What percentage of your exercise is aimed at body enhancement?" This allows for weight reduction along with muscle building, which increases weight and bulk.

As expected, the largest percentage of females reported low to moderate body dissatisfaction (91.5%) while the largest percentage of males (40.7%) reported no weight preoccupation. Individuals in the low-moderate range of body dissatisfaction have varying levels of concern with dieting and their desire to be thin. These concerns may not be to an extreme where frequent bingeing, purging and restrictive behavior is occurring. However, on the upper end of this group (the moderate to high), some disordered eating behavior may be seen which is indicative of a sub clinical eating disorder. The highly weight preoccupied group accounted for 12% of the sample (male and female). As expected, this group was comprised of three times more females than males. It is this group that would be referred for a clinical assessment and require an aggressive treatment approach.

Age was not shown to be significantly related to risk of disordered eating, perhaps due to range restriction. Studies have shown that adolescence to young adulthood is the peak developmental period for eating disorders to begin. Tiggemann and Pennington (1990) added support to this as they found body dissatisfaction in 9-10 year olds to be evenly distributed between boys and girls. Both boys and girls rated their current bodies larger than their ideal body. However, body importance was shown to separate in the adolescent and young adult range between genders. Females in both groups (adolescents and young adults) showed significantly more body dissatisfaction than their male counterpart. Although due to primarily Caucasian sample, data on race was not analyzed. Research suggests that individuals from many races are affected. While those affected are predominantly white, African American studies support an increase in eating disordered behavior among the females from this group.

Conclusion 2: The present study found that body dissatisfaction is related to three psychological constructs: Ineffectiveness, Interoceptive Awareness and Maturity Fears. These three constructs lead to an increase in body dissatisfaction. These results suggest that individuals reporting intense body dissatisfaction will most likely report difficulties in thoughts and feelings regarding insecurities of adult responsibilities while feeling more secure in childhood. They will report emotions being scattered, confusing and anxiety provoking, along with difficulty in the identification of visceral sensations such as fullness and bloating (Garner, 1990). This difficulty in accurately identifying the real cause of feelings of dissatisfaction can result in food cravings along with problems in controlling internal and external impulses (Palme & Palme, 1999). These individuals will also report intense levels of low self-esteem to the extent of feeling worthless, ineffective as a person, out of control with their life, inadequate and empty (Garner, 1990; Dykens & Gerrard, 1986). Interestingly, van der Ham, van Strien and van Engeland (1998) found self esteem and maturity fears, along with a long duration of the illness, as predictors of a poor prognostic outcome. Silberstein et. al. (1988) stated that the core of body dissatisfaction is the conflict of the perceived self and the ideal self. This results in self-criticism and damaged

self-esteem. This suggests that closing the gap between the perceived self and the ideal self will result in increased self-esteem and lower body dissatisfaction.

In addition, this study found three factors to be predictive of drive for thinness (risk). The most significant factor was body dissatisfaction which we have already established is influenced by a combination of Ineffectiveness, Interoceptive Awareness, and Maturity Fears. Research is well documented in this association between body dissatisfaction and eating disordered symptoms (Klemchuk et al, 1990; Joiner et al., 1995). Both Ineffectiveness and Interoceptive Awareness directly influences one's risk of eating disordered behaviors. Ineffectiveness, although a direct contributor to Drive for Thinness, is shown to have a much stronger influence indirectly through Body Dissatisfaction. This is consistent with past investigations linking low self-esteem with body dissatisfaction (Mintz & Betz, 1988; Shisslak et al., 1998). Likewise, Interoceptive Awareness (emotional confusion) has a much stronger influence on Body Dissatisfaction than on one's desire to be thin. These results suggest that it is primarily through a dissatisfaction of the body that the emotional and visceral confusion and apprehension influences the risk of developing an eating disorder. Additionally, Maturity Fears is shown to play an important role in risk, but only through the influence it has on one's body dissatisfaction. Surprisingly, unlike other studies (Bardone, Vohs, Abramson, Heatherton, & Joiner, 2000; Striegel-Moore, McAvay and Rodin, 1986) which have shown Perfectionism to be a predictor of eating disorders, this study did not find it significantly related to Body Dissatisfaction or Drive for Thinness.

Conclusion 3: Gender differences in bulimia- related and other behaviors were confirmed. The current study indicates that food restriction is a primary means of reducing weight. In this study, females far out numbered males in both lifetime and current food restricting. This is not surprising considering females were shown to exceed males in body dissatisfaction and drive for thinness.

As stated earlier, no conclusions can be made regarding one's exercising habits due to the EDI's inability to determine excessiveness. Without a clinical interview exploring the behaviors, the attitudes and the context in which the exercise is engaged, one cannot determine if the exercise has gone to a pathological extreme. This study gives evidence to the primary motivation of exercise in women. Fifty to seventy-five percent of females reported exercising for weight reduction purposes. When exercise is used for the sole purpose of weight reduction, failure often results due to its lack of immediate results, time commitment and the amount of energy required. This failure, like restrictive dieting, can set up an individual for chaotic eating patterns. Exercise that is engaged in for other purposes such as peer interaction, enjoyment, and competition becomes routine. This ultimately reinforces the behavior and maintains the body in a physically fit condition for longer periods of time. Interestingly, males report weight loss as a very low motivator for their exercise; yet they exercise significantly more than females and have less concern about their body. More research is needed to explore gender based differences regarding the relationship of exercise motivation and long term body weight maintenance.

Over one-quarter (28.3%) of the sample surveyed reported engaging in one or more weight reduction behaviors in their lifetime. This total is representative of those individuals who have engaged in one or more forms of purging behaviors, characteristic of a bulimic type. When purging behaviors and binge eating behaviors are combined, 44.4% of the sample reported engaging in some type of unhealthy eating or weight loss behavior. This number, however, is

still low, and does not account for individuals who severely restrict their food intake. Although the EDI-SC reports on food restriction, without more detailed information, it is impossible to distinguish between healthy and pathological food restriction. In the sample, almost three-fourths (70.8%) of the students surveyed reported restricting their food intake. Of these individuals, approximately 10% reported restricting two or more meals a day. This finding may suggest that the total amount of unhealthy eating and weight reduction behaviors may occur in more than half of the students surveyed. This percentage would be consistent with the study conducted by Mintz and Betz (1988), which revealed that approximately 61% of females surveyed reported engaging in unhealthy eating behaviors.

Of the purging behaviors (laxatives, self-induced vomiting and diuretics), females had higher incidence of both lifetime and current behavior of laxative use and self-induced vomiting than males. Males, however, reported more frequent binge eating episodes. Differences in binge eating were noted in the areas of control and pleasure. Females more than males felt out of control while bingeing, and males found more pleasure in their bingeing than the females. This gender difference may be related to the anxiety of weight gain females experience during and after the binge. Males are typically more active than females so weight gain is a lesser concern. Additionally, as stated earlier, males typically see their ideal weight as heavier which lessens the anxiety of becoming fat, resulting in the ability to enjoy their binges. The out of control feelings that females experience may also be related to the internal and external confusion within the individual and the inability to control impulses, much like individuals with addictive disorders. This is consistent with the hypotheses that excessive eating and addictive behaviors may be linked (Palme & Palme, 1999). Bulimics, similar to alcoholics and drug addicts, are characterized as having problems with interpreting their internal states; variable moods; impulsiveness or weak impulse control; a strong need for immediate satisfaction; high levels of anxiety and tension; and low adjustment to social norms (Palme & Palme, 1999). This would account for the difficulty of controlling food impulses.

Conclusion 4: EDI sub scale scores indicate differences between genders. The five psychological scales (perfectionism, ineffectiveness, interpersonal distrust, interoceptive awareness and maturity fears) represent clinical themes that appear prevalent with eating disordered individuals. Although an individual may have high levels of one or more of these constructs, without high levels in the cognitive or behavioral-based scales, an assumption of eating disorders at the clinical or sub-clinical level cannot be made (Garner, 1990). High levels of these psychological constructs and low levels of the cognitive or behaviorally based sub-scales may be indicative of a separate psychopathology unrelated to disordered eating. Of significance, males clearly were more concerned with thoughts and feelings that related to the belief that only high standards of personal performance are acceptable and expected by others (perfectionism). Males also reported experiencing higher levels of thoughts and feelings related to alienation and keeping others at an emotional distance (interpersonal distrust). Traditionally, males are taught at an early age that performance and achievement are strong masculine characteristics. Emotional expression for males is culturally depicted as weak and feminine. In contrast, females had significantly higher levels of body dissatisfaction and a desire to be thin (Drive for Thinness). Lavanchy (1998) explains this gender difference:

> Boys, from the very start, are encouraged to develop skills, to practice sport, to make objects, to take initiatives. Girls are taught to give an image of themselves (which

comprises physical aspects, clothes and hairdo, as well as personality traits). Males are expected to *do*, whereas females are expected to *be.* This is a simplifying contrast. Adolescent boys too are influenced in their clothing by current fashion passwords, and girls too are encouraged to study and develop abilities. But a man can be successful even if he is not particularly handsome; for a woman, being plain is more of a handicap. So the importance of body image is particularly impressed upon the girl's conscience, where as the pressure on the male is rather about professional realization.

Limitations, Implications and Recommendations for Future Research

There are limitations to the present study. First, although most social science research is based on self-reports, results may have been biased due to the reliance on self-reported data. Symptoms related to disordered eating may have been under reported or over reported. However, many of the findings in this study were consistent with previous research. Second, the sample was drawn from a single university in southwest Virginia; therefore, it may not be completely representative of first and second year undergraduate students. Third, the sample was predominantly Caucasian and therefore did not represent diverse ethnic groups. Although limitations exist, the findings of this study suggest implications for treatment as well as directions for future research.

Supported by this study, there are large numbers of students engaging in disordered eating behavior on the college campus, and an even larger number with serious body dissatisfaction. Understanding the prevalence rate and severity of pathogenic weight loss behaviors on the university campus is critical in establishing effective programs. At a time when funding and college counselors are limited, administrators have the difficult task of making eating disorder prevention and intervention as much of a priority as the treatment of other negative behaviors, (e.g., alcohol and drug prevention). Such programs may be included at freshmen and sophomore orientation. Since stress exacerbates disordered eating behavior, program content may want to focus on identifying healthy ways to handle the pressures of college life; the identification of unhealthy eating patterns and behaviors that indicate a deeper problem; and support systems on and off campus. Since faculty, staff and resident assistants are often the first referral source of the individual, they will need to be well educated in recognizing the attitudinal as well as behavioral signs of disordered eating. Signs to be aware of may include restrictive dieting and chaotic eating patterns; compulsive exercising; reports of mood changes; unrealistic body expectations and obsessive thoughts related to weight and appearance; and severe body dissatisfaction along with very low self-esteem.

Individuals with disordered eating symptoms vary in degree and behaviors; therefore, intervention and treatment should focus on different levels. Individuals experiencing body dissatisfaction with no serious behavioral indicators will require a different treatment strategy from the individual already experiencing physical and psychological complications. The treatment of clinical and sub-clinical eating disorders requires a multidimensional approach. Counselors must be well versed in a variety of treatment approaches beneficial to a student with an eating problem. Specific interventions include nutritional counseling, behavioral therapy, cognitive-behavioral therapy, group and family therapy and, at times, drug therapy, to assist in the reduction of affective and obsessive-compulsive behaviors (Shisslak, Crago & Neal, 1988).

Treatment contracts outlining goals, responsibilities of client and family members, and participants expectations may want to be considered as a useful tool in moving therapy along and avoiding stagnation. Online support groups have been growing in numbers over the past few years. This type of support group can give added support to individuals at all hours of the day and night. Caution must be taken to select a reputable site that gives clear guidelines and is monitored for content.

Counselors must be aware of the specific psychological traits associated with eating disturbances and how these traits exacerbate eating disorders. Understanding the psychological traits that influence body dissatisfaction and drive for thinness will give clinicians a focus for intervention strategies and further their understanding in the development and maintenance of the disorder. Cognitive behavioral therapy has been a treatment of choice among clinicians. There is empirical support that it is an effective treatment for individuals suffering from bulimia nervosa (Wilson & Fairburn, 1993). This therapy focuses both on the thoughts and beliefs as well as the behaviors in which the individual is engaging. Based on the psychological traits identified in this study, counselors will want to focus on reconstructing the self-view in regards to worthiness, effectiveness, adequacy, and discerning and acting accurately on internal emotional states. It is important to remember that since the personality profile is established early on, counselors will want to focus on increasing the client's awareness and sense of who he or she is. Maximizing his or her understanding of how specific thinking patterns and behaviors influence at risk behavior will be a valuable treatment objective.

Shisslak et al. (1998) discussed that interventions related to increasing self-esteem may be more effective if the individual can have opportunities to develop skills and experience success instead of just providing knowledge of increasing self-worth. There should be careful consideration in identifying goals which are meaningful to the individual and can provide successes. This can be in the form of participation in sports, social activities or anything that is of value to the individual. This success will help in the creation of a self- identity which is often lacking among individuals with low self-esteem. Other benefits of increasing the self-esteem will show up in a decrease in depression which as noted in the literature review has shown to decrease the incidences of binge eating.

Personality reconstructing may require a psychodynamic approach in which early experiences related to identity and feelings of fatness are explored. Understanding these experiences will provide valuable direction to the clinician. In examining the relationship between interoceptive awareness and body dissatisfaction, the counselor will want to focus on helping women to identify and respond appropriately to emotions that have been restricted. In doing this, one must explore the cause of the restricted emotions which often relates back to the family of origin. Family therapy is often recommended to explore the dynamics (unspoken family rules) of the family and how the eating disorder was used by the individual to function within the family. Regarding the relationship between maturity fears and body dissatisfaction, one strategy may be to explore the fears of becoming a mature sexual being, teaching self assurance, self dependency and confronting immature sexual attitudes.

Because of the inconsistent findings related to the identification of personality traits as predictors of eating disorders, future investigation which builds on the current study appears to be warranted. Since this study used a combined sample of both men and women in the identification of significant factors related to body dissatisfaction and drive for thinness, a study

using qualitative methods such as interviews comparing men and women may provide information as to whether there are different pathways that lead to body dissatisfaction and drive for thinness between males and females. A replication of this study using similar cut off scores and weight preoccupation classification will want to be considered since this is the first study that categorizes both males and females into three groups. Additionally, due to the preponderance of white participants, future research is needed that is designed to investigate the differences in ethnic groups in disordered eating behaviors in order to allow for greater between group comparisons. Although the primary focus of this study was college students, there is also a need for studies which include other groups and socioeconomic levels such as high school students and young adults not in college. Lastly, as discussed in the literature review, there are many factors which influence risk of disordered eating. Research is needed in exploring the college environment, specifically stress related to college life and general coping mechanisms of individuals engaging in pathogenic behaviors.

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