THE RELATIONSHIP BETWEEN BODY DISSATISFACTION AND EATING DISORDER SYMPTOMATOLOGY: AN EXAMINATION OF MODERATING VARIABLES

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The purpose of this study was to examine whether Psychological Well-Being (comprised of self-esteem, optimism, satisfaction with life, and self-determination), perfectionism, body surveillance, and neuroticism moderated the relationship between body dissatisfaction and bulimic symptoms after controlling for social desirability and actual physical size. 847 female undergraduate students participated in the study. Participants completed an online questionnaire packet. An exploratory factor analysis determined that self-determination, optimism, self-esteem, and satisfaction with life loaded on to one factor representing Psychological Well-Being. Hierarchical moderated regression (HMR) was used to control for the influences of social desirability and body mass index on bulimic symptoms and then determine the main and interactive effects of body dissatisfaction and each moderator. Four variables (neuroticism, body surveillance, concern over mistakes, and doubts about actions) strengthened the relationship between body dissatisfaction and bulimic symptomatology, whereas Psychological Well-Being weakened the relationship. Parental expectations, parental criticism, and personal standards did not moderate the relationship between body dissatisfaction and bulimic symptomatology.
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INTRODUCTION

Etiological models frequently identify body dissatisfaction as the primary precursor in the development of disordered eating in women (Levine & Smolak, 1996; Stice, 2001; Striegel-Moore & Bulik, 2007). Previous research has shown that body dissatisfaction is the single strongest predictor of eating disorder symptomatology and subclinical eating problems (Phelps, Johnston, & Augustyniak, 1999; Polivy & Herman, 2002), is considered normative among females (e.g., Mazzeo, 1999; Streigel-Moore, Silberstein, & Rodin, 1986), and has markedly increased over the last 25 years (Feingold & Mazzella, 1998). Despite the high levels of body dissatisfaction that exist among women (Klemchuk, Hutchinson, & Frank, 1990), the actual incidence of clinical eating disorders is relatively low (Streigel-Moore & Cachelin, 2001). This discrepancy begs the question of why so few women develop eating disorders when so many are body dissatisfied. Thus, it is important to consider the circumstances that contribute to body dissatisfied women developing eating disorder symptomatology, as well as what factors may serve a protective function and lessen their vulnerability. In other words, what variables moderate the relationship between body dissatisfaction and eating pathology?

The question of moderation concerns identifying variables that may affect the direction and/or strength of the body dissatisfaction-disordered eating relationship (Baron & Kenny, 1986). Stice (2002) has argued that to fully understand the risk and maintenance factors of disordered eating, potential moderators of established relationships, such as body dissatisfaction and disordered eating, must be examined. Recent research has investigated this issue (Brannan & Petrie, 2008; Phan & Tylka, 2006; Tylka, 2004), hypothesizing that some variables may (a) strengthen the relationship, such as when body dissatisfied women who also are high in body surveillance have more symptoms than body dissatisfied women who are not, or (b) weaken the
relationship, such as when body dissatisfied women with high self-esteem report fewer symptoms than those with low self-esteem.

Most studies, though, have examined variables believed to worsen the deleterious effects of body dissatisfaction (Brannan & Petrie, 2008; Tylka, 2004). For example, Tylka (2004) demonstrated that four variables – body surveillance, neuroticism, presence of a family member with an eating disorder, and presence of a friend with an eating disorder – intensified the relationship between body dissatisfaction and disordered eating among female undergraduates. Brannan and Petrie (2008) reported similar effects with respect to neuroticism and body surveillance and also found that socially-prescribed perfectionism and an ego orientation strengthened the relationship between body dissatisfaction and bulimic symptoms, whereas self-oriented perfectionism did so only for anorexic symptomatology. Unfortunately, few studies have investigated moderators of the body dissatisfaction-disordered eating relationship, so there is insufficient data to determine the breadth of variables that may be moderators, the direction of the moderation, and, for those that are, which ones have the strongest effects. Thus, there is a need for additional research to test a broader range of potential moderators, in particular focusing on variables that could buffer the relationship between body dissatisfaction and eating pathology (Tylka, 2004). Information from such studies could aid in the development of prevention programs, which is consistent with counseling psychology’s focus on strengths and on developing positive characteristics to protect against psychological distress.

Thus, the purpose of the current study was two-fold. First, to examine neuroticism, body surveillance, and perfectionism as potential moderators. In choosing these variables, I wanted to determine if the findings of Tylka (2004) and Brannan and Petrie (2008) could be replicated in a new sample. Second, to test the potential buffering effect of Psychological Well-Being – as
defined by self-determination, optimism, satisfaction with life, and self-esteem -- on the body dissatisfaction-bulimic symptomatology relationship. In the sections that follow, I describe the variables that define Psychological Well-Being and discuss their potential moderating effects. Because the influence of neuroticism, body surveillance, and perfectionism has been described extensively elsewhere (see Brannan & Petrie, 2008; Tylka, 2004), I do not discuss those variables in the subsequent section.

**Psychological Well-Being as a Potential Buffer**

The study of psychological well-being stems from two separate, but connected philosophical views: hedonic and eudaimonic. From the hedonic perspective, well-being is comprised of happiness or pleasure (Kahneman, Diener, & Schwarz, 1999), whereas, the eudaimonic view is characterized by a pursuit to realize one’s potential (Ryff, 1989; Waterman, 1993). Differing operational definitions of well-being have arisen from these intellectual traditions, specifically, subjective well-being and psychological well-being. Subjective well-being (SWB) is conceptualized as involving three separate, but related components: life satisfaction, positive affect, and the absence of negative affect (Diener, Lucas, & Oishi, 2002), which encompasses the hedonic tradition. Psychological well-being (PWB) involves striving to actualize human potential (Ryff, 1995), reflecting the eudaimonic tradition. Lent (2004) has suggested that SWB and PWB can be integrated to form a more comprehensive understanding of well-being that includes personality traits, life task participation, and life satisfaction. In regard to eating pathology, women with high levels of body dissatisfaction coupled with high levels of psychological well-being, may be less likely to display patterns of disordered eating. Four positive psychological variables have been frequently implicated in psychological well-being – self-determination, optimism, satisfaction with life, and self-esteem (Chang, 1998; Deci & Ryan,
2000; Kitsantas, Gilligan, & Kamata, 2003; Pelletier & Dion, 2007) – and as such, will be used to represent this construct in this study.

Self-determination. According to self-determination theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000), the form of motivation, rather than the amount, is usually more influential in predicting life’s important outcomes (Deci & Ryan, 2000). Individuals tend to be motivated to regulate behaviors through choice as an expression of who they are (autonomy), or to be induced to act as a result of feeling pressured or coerced by internal or external forces (control) (Pelletier, Dion, & Levesque, 2004). These forms of regulation can be grouped into three broad categories of motivation: intrinsic motivation, extrinsic motivation, and amotivation (Deci & Ryan, 1985; 1991; Ryan & Deci, 1999). Behaviors that are intrinsically motivated represent an innate tendency to seek challenge, explore, and master the environment in the absence of rewards or external constraints (Pelletier & Dion, 2007), whereas extrinsic motivation involves a number of behaviors that are engaged in as a means to an end and not for their own sake (Deci, 1975). Amotivation refers to a state in which the link between one’s actions and the outcome of one’s actions is not perceived. Behavior regulated in an amotivated manner results in individuals feeling that their behavior is caused by external forces beyond their control, resulting in feelings of incompetence and a lack of control (Deci & Ryan, 1985).

Generally, studies have demonstrated that self-determined forms of regulation (i.e., intrinsic motivation) were associated positively with enhanced learning, psychological well-being, increased life satisfaction, greater effort and persistence, and better physical health, whereas the less self-determined styles (i.e., extrinsic motivation, amotivation) were associated negatively with these outcomes (Deci & Ryan, 1985; 1991; Ryan & Deci, 2000; Vallerand, 1997). For example, in a study of caregivers to spouses with cancer, Kim, Carver, Deci, &
Kasser (2008) found that those caregivers with more self-determined forms of regulation experienced greater levels of attachment security, whereas those with less self-determined styles experienced more attachment anxiety and more depression. Regarding disordered eating, Pelletier and colleagues (Pelletier, Dion, & Levesque, 2004; Pelletier, Dion, Slovinec-D’Angelo, & Reid, 2004; Pelletier & Dion, 2007) have examined self-determination in relation to psychological risk factors, such as sociocultural pressures of thinness and the internalization of those pressures. For example, Pelletier et al. (2004) found that high self-determination was related to less internalization of the thin ideal and, subsequently, less body dissatisfaction. Conversely, the more the women in their study felt compelled to behave in a particular way, or that they perceived their actions resulted from external forces, the more they endorsed society’s beliefs regarding thinness.

Consistent with these positive effects, one would expect that the more globally self-determined women are toward the various activities of their lives, the less they should be impacted by the experience of body dissatisfaction and the less likely they should be to develop disordered eating. For these self-determined women, body dissatisfaction may play a less influential role in their experiences, goals, and values. Thus, although these women may be dissatisfied with their bodies, they may be less concerned by it because it is not integral in defining who they are as a person. These women may be more likely to dismiss their body dissatisfaction as something that, although present and common among women, does not impede them from striving toward their goals and values. If so, women with high levels of self-determination may be less vulnerable to the effects of body dissatisfaction and as a result, be less likely to develop eating pathology.
Optimism. Optimism has been referred to as hopeful expectations in a given situation (Scheier & Carver, 1988), and defined as general positive expectancies that are relatively stable and promote psychological adjustment (Scheier & Carver, 1985; 1993). Optimism has been theorized to be associated with and lead to obtaining positive outcomes because of the use of more adaptive coping skills, whereas pessimism is associated with and may lead to incurring negative outcomes as a result of less adaptive means of coping (Scheier & Carver, 1985). Optimists have been shown to differ from pessimists in the stability of their coping skills (Carver, Scheier, & Weintraub, 1989), as well in the manner in which they cope with serious disease (Friedman et al., 1992). Optimists also report fewer depressive symptoms than do pessimistic individuals (Scheier & Carver, 1992; 1993). In addition, optimism has been shown to buffer the relationship between perceived stress and psychological well-being (Chang, 1998), lending support to its utility as a moderator.

Despite the positive relationships between optimism and different health outcomes, only a few studies have examined it in relationship to eating disorders. For example, Bulik, Wade, and Kendler (2001) found that monozygotic twins affected by bulimia nervosa displayed lower optimism, self-esteem, and mastery than non-affected twins. In a study by Blaydon, Linder, and Kerr (2004), eating disordered and exercise dependent participants had lower optimism scores than non-eating disordered groups. These studies suggest that optimism may play a role in the development or maintenance of eating pathology.

Women who are dissatisfied with their bodies, but are optimistic, may be able to look beyond the reality that their body does not match the ideal and instead focus on other aspects of their lives. These women may accept their dissatisfaction, but do not allow it to define who they are. Furthermore, body dissatisfied women who also are optimists may react less negatively to
their dissatisfaction and instead may reframe their experience of body dissatisfaction in a positive light. For example, instead of attempting to alter their bodies through drastic measures in an attempt to attain an unrealistic societal ideal, these women instead may focus on the pursuit of health, learning to eat and exercise in moderation so they can have a balanced life. Thus, optimism may serve as a buffer, and thus reduce the normally negative effects of body dissatisfaction and be associated with a lowered risk of eating disordered symptoms.

*Satisfaction with life.* Diener (1984) referred to life satisfaction as a process of cognitive evaluation of one’s life. According to Shin and Johnson (1978), life satisfaction is a “global assessment of a person’s quality of life according to his (or her) chosen criteria” (p. 478), and is based on how a person believes his/her life should be in relation to how it actually is (Paolini, Yanez, & Kelly, 2006). In nonclinical samples, decreases in life satisfaction have been related to maladaptive outcomes, such as interpersonal rejection (Furr & Funder, 1998) as well as depression and anxiety (Lewinsohn, Rohde, Seeley, & Fischer, 1991). Furthermore, negative attitudes and emotions have been found to be significant predictors of the later development of disordered eating in adolescents (Leon, Fulkerson, Perry, Keel, & Klump, 1999; Leon, Keel, Klump, & Fulkerson, 1997). Among female undergraduates, Kitsantas, Gilligan, and Kamata (2003) found less satisfaction with life and lower levels of positive affect in those who had an eating disorder than in those who were at risk for an eating disorder or who currently were asymptomatic.

Life satisfaction typically has been researched as a dependent variable (Furr & Funder, 1998; Kitsantas et al., 2003; Lewinsohn et al., 1991), and thus not examined as a potential moderator, yet it is consistent with theory to suggest that life satisfaction could interact with other variables to produce healthier psychological outcomes. With respect to eating pathology,
high levels of life satisfaction should buffer the negative effects of body dissatisfaction. Among body dissatisfied women, those who generally are satisfied with their lives may be less concerned with trying to achieve the thin ideal image, and instead, focus their attention on the areas in which they do experience satisfaction, such as work, school, family, etc. As a result, these women may be less likely to engage in pathogenic weight control methods because their self-concept and worth is not solely defined or overly influenced by the size and shape of their bodies. On the other hand, body dissatisfied women with low levels of life satisfaction may be more vulnerable to maladaptive weight control techniques. These women may attempt to attain the thin ideal image because of a belief that if they were thinner, their lives would be more satisfying. Thus, these women may engage in disordered eating in a misguided attempt to make their lives more satisfying.

*Self-esteem.* Rosenberg (1965) conceptualized self-esteem as a global, unidimensional construct regarding the personal judgment of one’s own worth. Individuals with low self-esteem may be more likely to experience upsetting contrast effects as a result of comparisons with others (Jones & Buckingham, 2005). In addition, there is evidence that individuals with low self-esteem react more negatively to unfavorable feedback than individuals with high self-esteem due to a tendency to overgeneralize failure feedback to feelings of self-worth (Brown & Dutton, 1995; Kernis, Brockner, & Frankel, 1989). Specifically, although people with high self-esteem and low self-esteem may both feel bad after failure, persons with low self-esteem tend to generalize these emotions so that they also feel worse about themselves (Jones & Buckingham, 2005).

Most studies have examined self-esteem’s direct association with eating pathology and low self-esteem has frequently been implicated as a risk factor in its development (Button, Loan, Davies, & Sonuga-Barke, 1997; Fairburn, Cooper, Doll, & Welch, 1999; Granillo, Jones-
Rodriguez, & Carvajal, 2005). With respect to potential moderating effects, Twamley and Davis (1999) demonstrated that self-esteem buffered the relationship between body dissatisfaction and bulimic and anorexic symptomatology. They found that at lower levels of self-esteem, body dissatisfaction had a greater impact on disordered eating than at higher levels of self-esteem. Twamley and Davis argued that women, who were body dissatisfied but generally felt positively about themselves, would dismiss their body dissatisfaction more easily because of their other perceived strengths, thus avoiding attempts to achieve the societal thin ideal as a means of improving their overall self-worth. In addition, Twamley and Davis suggested that if high self-esteem women tried to change their bodies, they would likely rely on healthy methods, such as eating nutritiously and engaging in moderate exercise. Thus, self-esteem would be expected to lessen body dissatisfied women’s need to engage in disordered eating behaviors.

Current Study

I hypothesized that overall Psychological Well-Being would weaken the relationship between body dissatisfaction and bulimic symptomatology. Overall Psychological Well-Being was represented by a combination of self-determination, optimism, self-esteem, and life satisfaction, because these variables have frequently been shown to be associated with well-being (Chang, 1998; Deci & Ryan, 2000; Kitsantas, Gilligan, & Kamata, 2003; Pelletier & Dion, 2007). Specifically, we hypothesized that under conditions of high levels of overall Psychological Well-Being, the effects of body dissatisfaction would be minimized, resulting in fewer bulimic symptoms. Regarding perfectionism (i.e., concern over mistakes, parental expectations, parental criticism, and doubts about actions), body surveillance, and neuroticism, we expected these variables to strengthen the body dissatisfaction-bulimic symptomatology
relationship. Specifically, women who reported high levels of these variables and high levels of body dissatisfaction would display the most bulimic symptoms.
METHOD

Participants

Female undergraduates (N = 847) from a university in the Southwestern U.S. participated. Mean age was 20.06 years (SD = 2.08). Mean self-reported body mass index (BMI) was 23.46 kg/m² (SD = 4.87); ideal BMI was 21.15 kg/m² (SD = 2.52). Using the Centers for Disease Control (n.d.) BMI classifications on self-reported BMI, 7.4% of the participants were underweight, 66.3% were within normal limits, 17.2% were overweight, and 9.1% were obese. In terms of year in school, 34.5% (n = 292) were first year students, 25.5% (n = 216) sophomores, 20.5% (n = 174) juniors, and 19.5% (n = 165) seniors. Regarding race/ethnicity, 65.1% (n = 551) were Caucasian, 10.6% (n = 90) Hispanic, 15.1% (n = 128) African American, 0.5% (n = 4) American Indian, 7.2% (n = 61) Asian American, and 1.5% (n = 13) “Other.” Eleven (1.3%) and eighteen (2.1%) of the women, respectively, reported having once been diagnosed with or treated for anorexia nervosa and bulimia nervosa. Five (0.6%) reported currently having an eating disorder not otherwise specified.

Measures

Disordered eating. The 36-item Bulimia Test-Revised (BULIT-R; Thelen, Mintz, & Vander Wal, 1996) assesses bulimic symptomatology as defined by the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV; American Psychiatric Association [APA], 1994). Items are rated on a 5-point scale ranging from 1, absence of disturbance, to 5, severe disturbance. Because only 28-items are scored, total scores range from 28 to 140; higher scores reflect greater endorsement of bulimic attitudes and behaviors. Thelen et al. (1996) reported a Cronbach’s alpha of .98 in a sample comprised of female undergraduate controls and women with bulimia nervosa. Four to six week test-retest reliability was .83 in a sample of
female undergraduates (Brelsford, Hummel, & Barrios, 1992). Cronbach’s alpha for the current study was .94. The BULIT-R was found to accurately identify individuals with bulimia nervosa 91% of the time, as well as correctly identify those without bulimia nervosa 98% of the time (Thelen et al., 1996), providing evidence for the scale’s validity.

Body dissatisfaction. The 7-item body factor from the Body Parts Satisfaction Scale-Revised (BPSS-R; Petrie, Tripp, & Harvey, 2002) measures individuals’ level of satisfaction by focusing on body areas (e.g., arms, stomach, upper thighs, buttocks, etc.) that women report as problematic. Items are rated on a 6-point scale, ranging from 1, extremely dissatisfied, to 6, extremely satisfied. Total scores are obtained by summing the subscale items and dividing by the number of subscale items and can range from 1 to 6; higher scores reflect greater satisfaction. Petrie et al. (2002) reported a Cronbach’s alpha of .90, and Bradford and Petrie (2008) reported a six month test-retest reliability of .68 in samples of female undergraduates. Cronbach’s alpha for the current study was .91. Petrie et al. also reported significant correlations with BMI ($r = -.32$), the Multidimensional Body Self-Relations Questionnaire-Appearance Evaluation subscale ($r = .75$) (MBSRQ; Cash, 1994a), the Body Shape Questionnaire ($r = -.75$) (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987), and the Situational Inventory of Body Image Dysphoria ($r = -.73$) (SIBID; Cash, 1994b), supporting its validity.

Self-determination. The 18-item Global Motivation Scale (GMS; Pelletier et al., 2007) measures the reasons why individuals perform the various activities of their lives. The 18 items are divided into six subscales (3 items each) that represent the six types of motivation defined by Deci and Ryan (1985): intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation. For each item, participants rate their agreement on a 7-point scale ranging from 1, does not correspond at all, to 7, corresponds
The individual subscale scores are used to determine a global self-determination index (SDI). The SDI is calculated by multiplying the score on each subscale by a weight assigned as a function of the position of the subscales on the continuum of self-determination and can range from -36, low self-determination to +36, high self-determination. Pelletier et al., (2004) provided extensive data concerning the scale’s reliability and validity. In a sample of adult men and women, Pelletier et al. reported satisfactory levels of internal consistency for the six subscales (all $\alpha < .73$) and six week test-retest reliability of .72 for the SDI; Cronbach’s alpha for the current study was .90.

Optimism. The 10-item Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994) assesses generalized expectancies for positive versus negative outcomes. Respondents rate their agreement on a 5-point Likert scale ranging from 1, strongly disagree, to 5, strongly agree. Only 6 of the 10 items, however, are used to calculate the total score, which can range from 6, low, to 30, high. Scheier et al. (1994) found the LOT-R to be internally consistent ($\alpha = .78$) and reported test-retest reliability coefficients across four intervals of time, four months ($r = .68$), 12 months ($r = .60$), 24 months ($r = .56$), and 28 months ($r = .79$) in a sample of male and female undergraduates. Cronbach’s alpha for the current study was .80. Scheier et al. (1994) demonstrated evidence of convergent validity by the significant correlations in the expected directions with other constructs, such as depression, hopelessness, self-esteem, perceived stress, and locus of control.

Self-esteem. The 12-item General Esteem subscale of the Self Description Questionnaire-III (SDQ-III; Marsh, 1990) assesses ratings of effectiveness and capability with individuals who are proud and satisfied with who they are. Each item is presented on an 8-point scale that ranges from 1, definitely false, to 8, definitely true. Total scores are obtained by summing across each
item and total scores can range from 12 to 96; higher scores reflect higher self-esteem. Vispoel (2000) reported the General Esteem Scale to be internally consistent ($\alpha = .96$ and .96, respectively) within a sample of undergraduate students on both a paper-and-pencil version and a computerized version of the SDQ-III. Cronbach’s alpha for the current study was .95.

Furthermore, Byrne and Shavelson (1986) reported significant correlations between the SDQ-III General Esteem Scale and the Affective Perception Inventory ($r = .63$; Soares & Soares, 1979) and the Rosenberg Self-Esteem Scale ($r = .79$; Rosenberg, 1965), supporting its validity.

Satisfaction with life. The 5-item Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) assesses overall satisfaction with life. Each item is scored from 1, strongly disagree, to 7, strongly agree. Total scores range from 5 to 35, and higher scores reflect greater satisfaction. Diener et al. (1985) reported internal consistency reliability ($\alpha = .87$) and two-month test-retest (.82) within a sample of male and female undergraduates. Cronbach’s alpha for the current study was .91. Diener et al. (1985) also reported significant correlations between the SWLS and the well-being subscale of the Differential Personality Questionnaire ($r = .68$; Tellegen, 1979), the Self-Anchoring Ladder ($r = .62$; Cantril; 1965), and the semantic differential-like scale ($r = .75$; Campbell, Converse, & Rodgers, 1976), supporting its validity.

Perfectionism. The 35-item Multidimensional Perfectionism Scale (MPS; Frost, Marten, Lahart, & Rosenblate, 1990) measures six dimensions of perfectionism: Concern over Mistakes (CM; 9 items; tendency to react negatively to personal mistakes), Personal Standards (PS; 7 items; setting of extremely high standards for oneself), Parental Expectations (PE; 5 items; perception that parents set excessively high standards), Parental Criticism (PC; 4 items; perception that parents are overly critical in evaluating achievement efforts), Doubts about Actions (DA; 4 items; degree to which an individual feels that tasks are never completed to
satisfaction), and Organization (O; 6 items; preference for order and organization). For each item, participants rate their agreement on a five-point Likert scale, ranging from 1, *strongly disagree*, to 7, *strongly agree*. Subscale scores can range from 1 to 5, and higher scores reflect greater endorsement of that dimension of perfectionism. In the current study, all subscales except Organization were used. Frost et al. (1990) reported Cronbach’s alphas of ranging from .77 to .93 for the subscales in a sample of female undergraduates. For the current study, the Cronbach’s alphas were .91 (CM), .84 (PS), .84 (PE), .85 (PC), and .81 (DA). The subscales are correlated with the Burns Perfectionism Scale (CM; \( r = .87 \); PS; \( r = .53 \); PE; \( r = .43 \); PC; \( r = .42 \); D; \( r = .47 \); Burns, 1983), providing evidence for the scales’ validity (Frost et al., 1990).

*Neuroticism.* The 12-item Neuroticism subscale of the NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992) contrasts adjustment or emotional stability with maladjustment or neuroticism (e.g., emotional lability). Each item is presented on a 5-point Likert scale ranging from 0, *strongly disagree*, to 4, *strongly agree*. Total raw scores are transformed into \( T \) scores, and higher scores are indicative of higher levels of neuroticism. In a sample of men and women employed in a national organization, Costa and McCrae (1992) found Cronbach’s alpha to be .86. The Cronbach’s alpha for the current study was .86. In a sample of Australian adults, 6 month test-retest reliability was .80 (Murray, Rawlings, Allen, & Trinder, 2003). This subscale is correlated with the revised version of the NEO Personality Inventory Neuroticism domain scale (\( r = .89 \)), and with a neuroticism measure based on adjective self reports (\( r = .62 \); Costa & McCrae, 1992), demonstrating its validity.

*Body consciousness.* The 8-item Body Surveillance subscale of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996) assesses the degree to which individuals view their body from the perspective of an outside observer. Each item is presented on a 6-point Likert
scale ranging from 1, strongly disagree to 6, strongly agree. Respondents also are given the choice of Not Applicable (NA). Total scores are calculated by adding together the responses for each item, and then dividing by the total number of scored items (items with NA are excluded). Higher scores indicate a greater frequency of body surveillance. For a sample of female undergraduates, McKinley and Hyde (1996) reported internal consistency reliability ($\alpha = .89$) and two week test-retest (.79). Cronbach’s alpha for the current study was .84. In terms of construct validity, the scale had positive correlations ($r = .64$ and .46, respectively) with the Appearance Orientation Scale of the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, Winstead, & Janda, 1986) and the Public Body Consciousness Scale of the Body Consciousness Questionnaire (Miller, Murphy, & Buss, 1981).

Social desirability. The 12-item Marlowe-Crowne Social Desirability Scale Form B (Reynolds, 1982) assesses the degree to which individuals respond in a socially desirable manner. Each item is answered according to a true-false response format. Total scores reflect the number of items endorsed in a socially desirable way and range from 0, low, to 12, high. The SDS yielded a Kuder-Richardson-20 (KR-20) coefficient of .75 in a sample of undergraduates. KR-20 for the current study was .67. The 12-item scale correlated significantly with the 33-item standard version of the Marlowe-Crowne Social Desirability Scale ($r = .92$; Crowne & Marlowe, 1960), and with the Edwards Social Desirability Scale ($r = .38$; Edwards, 1957), providing support for the scale’s validity.

Demographics. A brief demographic questionnaire was developed to assess: age, race/ethnicity, class rank, height, weight, ideal weight, and eating disorder history (i.e., “Have you ever been diagnosed or treated for anorexia nervosa [Yes or No], bulimia nervosa [Yes or No], or other eating disorder [Yes or No]?).
Procedure

Approval was obtained from the university’s Institutional Review Board. Participants were solicited via the university’s web-based research recruitment system. Participants completed online consent forms and then a series of online questionnaires that consisted of the Bulimia Test-Revised (BULIT-R; Thelen et al., 1996), Body Factor of the Body Parts Satisfaction Scale-Revised (BPSS-R; Petrie et al., 2002), Global Motivation Scale (GMS; Pelletier et al., 2007), Life Orientation Test-Revised (LOT-R; Scheier et al., 1994), General Esteem Scale of the SDQ (Marsh, 1992), Satisfaction with Life Scale (SWLS; Diener et al., 1985), Multidimensional Perfectionism Scale (MPS; Frost et al., 1990), Neuroticism subscale of the NEO-FFI (Costa & McCrae, 1992), Body Surveillance subscale of the Objectified Body Consciousness Questionnaire (OBC; McKinley et al., 1996), Marlowe-Crowne Social Desirability Scale Form B (SDS; Reynolds, 1982; Crowne & Marlowe, 1960), and demographic questionnaire. Participants received course extra credit.

Data Analysis

Because the data were collected online, missing data was not an issue. Next, skewness and kurtosis statistics of the variables was examined. Because of the large sample, the histogram plots of the variables also were examined considered (Tabachnick & Fidell, 1996). Because the statistics and plots reflected a skewed and kurtotic distribution, a logarithmic transformation was conducted on the BULIT-R scores, which then approximated normality. Next, we conducted the regression analyses again with the transformed BULIT-R scores. Significance levels and the directions of the relationships (i.e., signs on the beta weights) did not change meaningfully from those obtained with the nontransformed data. Thus, for clarity in the presentation of the data and
because the transformation process did not alter the results, we present the statistical results that were obtained using the nontransformed data.

To determine the factor structure of Psychological Well-Being, an exploratory factor analysis was conducted. The principle axis factoring extraction procedure was used and based on eigenvalues and scree plot analysis, a one-factor model, which explained 61.4% of the variance, was retained. The four measures loaded positively on the factor (i.e., Psychological Well-Being), with all loadings being greater than .57. The four measures were then combined, based on their standardized scores, to form a composite measure of Psychological Well-Being. It was this composite measure that was used in the subsequent analyses.
RESULTS

Correlations for all the continuous variables in the study are presented in Table 1. Means, standard deviations, alphas, skewness and kurtosis are presented in Table 2. For all variables, except for the Bulimia Test-Revised (BULIT-R) (skewness and kurtosis) and parental criticism (skewness), skewness and kurtosis were within acceptable levels.¹

Hierarchical moderated regression (HMR) was used to control for social desirability and actual physical size (i.e., body mass index) and then determine the main effects of body dissatisfaction² and each variable (i.e., Psychological Well-Being, perfectionism, body surveillance, and neuroticism) as well as their interaction on disordered eating. Some argue that if a significant interaction is found, the main effects should be ignored. Others, however, suggest that is still important to interpret all of the effects found and to consider them in relation to each other (Howell, 2002). As such, significant main effects are reported. HMR is the preferred statistical procedure for detecting the presence and nature of moderator effects (Frazier, Tix, & Barron, 2004) and, with the sample size of 847, an effect size of $\Delta R^2 = .01$-.03, alpha level of .01, power exceeded .90. Although the statistical power in this study was high, in non-experimental research, moderator effects are notoriously difficult to detect, and effects that explain as little as 1% of the variance may be considered important (McClelland & Judd, 1993). Consistent with the recommendations of McClelland and Judd, no correction to alpha was made (even though multiple analyses were being conducted) and changes in $R^2$ greater than or equal to .01 were used to evaluate the significance of the moderator effects.

As recommended by Frazier et al. (2004), scale scores for the predictor and moderator variables were standardized to reduce problems associated with multicollinearity between the main effects and the interaction terms. Product terms representing the interaction between the
predictor and moderator variables were created by multiplying together the standardized predictor and moderator variables. After the product terms were created, the HMR equation was structured to test for moderator effects. The order of variable entry into the regression model was: Step 1 – social desirability and body mass index; Step 2 – body dissatisfaction; Step 3 – moderator; and Step 4 – body dissatisfaction X moderator interaction. A moderating effect was identified at Step 4 by a statistically significant change in $R^2$ (i.e., $\Delta R^2 \geq .01$) and a significant beta weight.

When the interaction was significant, the regression slopes were plotted using predicted values for bulimic symptomatology derived from representative groups at the mean, 1 standard deviation above the mean, and 1 standard deviation below the mean on body satisfaction and the moderator term. Following procedures described by Aiken and West (1991) and Frazier et al. (2004), these predicted values were obtained by multiplying the unstandardized regression coefficients for each standardized variable by the appropriate value, summing the products, and then adding the constant value. In addition, for each regression line, an analysis of the simple slopes (Aiken & West, 1991) was conducted to test whether the slope differed from zero. Finally, the simple slopes were compared to identify whether they differed significantly from one another.

**Individual HMR Analyses for Bulimic Symptomatology**

In all the models, at Step 1, social desirability and body mass index were related significantly to bulimic symptoms, adjusted $R^2 = .11$, $p < .0001$. Once the influence of social desirability and physical size was controlled, body dissatisfaction was entered next into each model at Step 2 and accounted for an additional 23% of the variance ($p < .0001$). Higher levels of body dissatisfaction were associated with higher BULIT-R scores.
Psychological Well-Being was related directly and significantly to bulimic symptoms, accounting for an additional 3% of the variance beyond that explained by social desirability, body mass index, and body dissatisfaction. The interaction term also was significant ($\Delta R^2 = .03$) suggesting that Psychological Well-Being buffered the relationship between body dissatisfaction and BULIT-R scores.

Concern over mistakes accounted for an additional 2% of the variance beyond that explained by social desirability, body mass index, and body dissatisfaction ($p < .0001$). The interaction term was significant ($\Delta R^2 = .01$) suggesting that concern over mistakes exacerbated the relationship between body dissatisfaction and BULIT-R scores.

Personal standards were related directly and significantly to bulimic symptoms, accounting for an additional 1% of the variance beyond that explained by social desirability, body mass index, and body dissatisfaction. The interaction term, however, was not significant ($\Delta R^2$ of Step 4 = .001), suggesting that personal standards did not moderate the relationship between body dissatisfaction and bulimic symptomatology.

Parental expectations were related directly and significantly to bulimic symptoms, accounting for an additional 1% of the variance beyond that explained by social desirability, body mass index, and body dissatisfaction. The interaction term, however, was not significant ($\Delta R^2$ of Step 4 = .001), suggesting that parental expectations did not moderate the relationship between body dissatisfaction and bulimic symptomatology.

Parental criticism were related directly and significantly to bulimic symptoms, accounting for an additional 1% of the variance beyond that explained by social desirability, body mass index, and body dissatisfaction. The interaction term, however, was not significant
(ΔR² of Step 4 = .002), suggesting that parental criticism did not moderate the relationship between body dissatisfaction and bulimic symptomatology.

Doubts about actions accounted for an additional 3% of the variance beyond that explained by social desirability, body mass index, and body dissatisfaction (p < .0001). The interaction term also was significant (ΔR² = .01), suggesting that doubts about actions worsened the relationship between body dissatisfaction and bulimic symptomatology.

Neuroticism accounted for an additional 2% of the variance beyond that explained by social desirability, body mass index, and body dissatisfaction (p < .0001). The interaction term also was significant (ΔR² = .02), indicating that neuroticism strengthened the relationship between body dissatisfaction and bulimic symptomatology.

Body surveillance accounted for an additional 3% of the variance beyond that explained by social desirability, body mass index, and body dissatisfaction (p < .0001). The interaction term also was significant (ΔR² = .02), suggesting that body surveillance made the relationship between body dissatisfaction and BULIT-R scores stronger. See Table 3 for HMR data for the models tested.

Analysis of Moderator Interactions

When the interaction was significant, the regression slopes were plotted using predicted values for bulimic symptomatology (BULIT-R scores) derived from representative groups at the mean, 1 standard deviation above the mean, and 1 standard deviation below the mean on body dissatisfaction and the moderator term (See Figures 1-5). Following procedures described by Aiken and West (1991) and Frazier et al. (2004), these predicted values were obtained by multiplying the unstandardized regression coefficients for each standardized variable by the appropriate value, summing the products, and then adding the constant value. In addition, for
each regression line, an analysis of the simple slopes (Aiken & West, 1991) was conducted to test whether the slope differed from zero. Finally, the slopes of the regression lines were compared to identify whether they differed significantly from one another.

For each significant moderator interaction determined from the HMR, the slopes were tested. All slopes were found to be significantly different from zero and, for each moderator, the slopes in the high and low conditions were significantly different from each other. These results indicate that the BULIT scores are highest when body dissatisfaction and neuroticism, body surveillance, concern over mistakes, and doubts about actions are high, whereas participants score the lowest on the BULIT when body dissatisfaction is low and Psychological Well-Being is high. See Table 4 for the slope values and respective t-tests for each significant moderator interaction.
DISCUSSION

The purpose of the current study was to replicate the findings of Tylka (2004) and Brannan and Petrie (2008) by examining neuroticism, body surveillance, and perfectionism, and to examine overall Psychological Well-Being as a potential buffering variable of the body dissatisfaction-bulimic symptomatology relationship. Psychological Well-Being was a composite score derived from four variables – self-determination, optimism, satisfaction with life, and self-esteem. After controlling for the influences of social desirability and actual physical size (i.e., BMI), body dissatisfaction was found to be strongly, directly, and positively related to BULIT-R scores, which is consistent with previous research that has shown it to be the primary predictor of bulimic symptomatology (Brannan & Petrie, 2008; Phelps et al., 1999; Polivy & Herman, 2002; Stice & Shaw, 2002).

As predicted, Psychological Well-being buffered the effects of body dissatisfaction on bulimic symptomatology. Among body dissatisfied women, those who report high levels of Psychological Well-Being may be less concerned with trying to approximate the societal ideal and instead, focus on other aspects of their lives. For example, among women who are self-determined, are satisfied with their lives, feel good about themselves, and are optimistic about the future, body dissatisfaction may not play a major role in their experiences, goals, and values. Thus, although these women may experience body dissatisfaction, they may be less concerned by it because it is not integral in defining who they are as a person and plays a minor role in their overall life. These women may be more likely and more readily able to dismiss their body dissatisfaction because of their other perceived strengths, which may limit the efforts they make to actively pursue the thin ideal image (Twamley & Davis, 1999). Furthermore, these women may be more accepting of the fact that their bodies do not match the societal ideal and thus may
have less negative and less intense emotional reactions and/or may be less driven to engage in dietary restraint in response to their dissatisfaction. Because these women have such a strong and positive view of themselves, instead of pursuing an unrealistic beauty ideal through extreme dietary restraint, these women may focus on eating healthfully and exercising moderately and on being successful in other life areas such as work, school, family, etc. Overall, women who display higher levels of Psychological Well-Being will be less affected by their body dissatisfaction and, as a result, be less likely to engage in disordered eating behaviors. Given that this is one of the first studies with eating disorders to look at potential buffering variables, and given the importance of psychological well-being, it may be important in future studies to examine how these buffering variables have their effects.

For perfectionism, concern over mistakes (tendency to react negatively to personal mistakes) and doubts about actions (degree to which an individual feels that tasks are never completed to satisfaction) moderated the body dissatisfaction-bulimic symptomatology relationship. These findings are consistent with Brannan, Petrie, Greenleaf, Reel, and Carter (in press), who found that female collegiate athletes who were dissatisfied with their bodies and who were overly concerned about making mistakes reported the highest BULIT-R scores. Women who perceive mistakes as failures or consistently doubt themselves and their actions may react more negatively to the fact that their bodies do not meet the thin ideal image than those who are not similarly perfectionistic. Their intensely negative reactions to their bodies’ size and shape may be associated with strong feelings of anxiety, depression, or general negative affect that they seek to escape through binge eating (Heatherton & Baumeister, 1991) or dietary restraint. Because binge eating can cause weight gain, which may be perceived as further failure, women with these types of perfectionism may respond by purging as a means of mitigating the effects of
their bingeing. If these women do not develop a more active and conscious way of coping with their negative feelings, such as seeking of social support or positive thinking, they may fall into a pattern of bingeing and purging, which is the immediate precursor to the development of bulimia nervosa.

As expected based on past research (Brannan & Petrie, 2008), personal standards did not moderate the relationship between body dissatisfaction and bulimic symptomatology. This type of perfectionism, which is conceptually similar to self-oriented perfectionism (Hewitt & Flett, 1991), may be more predictive of anorexic symptomatology than the bulimic behaviors that are measured by the BULIT-R. For example, Brannan and Petrie (2008) found that self-oriented perfectionism moderated the effects of body dissatisfaction on anorexic, but not bulimic, symptomatology. They suggested that the differential moderating effects of self-oriented perfectionism are reflective of the nature of anorexia nervosa and bulimia nervosa. Specifically, anorexia nervosa is characterized as involving self-imposed standards of perfectionism, which include rigidity and restraint, whereas bulimia nervosa is described by the need for approval of others, difficulties with impulse control, and a pattern of alternating disinhibition and restraint (Vitousek & Manke, 1994). Self-oriented perfectionistic women who also are body dissatisfied may feel ashamed of themselves and view themselves as failures for not reaching their self-imposed beauty standards. They may concentrate on their bodies, which they believe to be controllable, and commit to achieving the thin ideal through methods such as restraining from eating, setting rigid schedules for exercising, and becoming more critical and judgmental of themselves and their efforts.

Contrary to expectation, both measures of parental perfectionism (i.e., expectations and criticism) were not significant as moderators. Factor analytic work involving items from the
Hewitt and Flett (1991) Multidimensional Perfectionism Scale and the Frost Multidimensional Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990) found support for two factors, conceptually labeled Maladaptive Evaluative Concerns and Positive Striving (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). Socially prescribed perfectionism, concern over mistakes, parental expectations, parental criticism, and doubts about actions loaded on Maladaptive Evaluative Concerns (Frost et al., 1993), whereas self-oriented perfectionism, personal standards, and organization constituted Positive Striving. Based on the conceptual similarities of the scales across the two measures, it was expected that parental expectations and criticism, like concern over mistakes and doubts about actions, would moderate the body dissatisfaction-bulimic symptomatology relationship. Yet, this was not the case. The nonsignificant findings in this study are consistent with Brannan et al. (in press), who demonstrated that parental expectations and criticism did not serve as a moderator in the relationship between body dissatisfaction and bulimic symptoms. Brannan et al. suggested that the influences of parental expectations and criticism may be stronger for women who actually have clinical eating disorders (e.g., Lilenfeld et al., 2000), rather than those with subclinical levels of disordered eating (as was represented in this study’s sample). The family often plays a role in the cause and maintenance of disordered eating patterns. Women with diagnosable eating disorders may come from families in which the rules and processes of the family are more dysfunctional (Gillet, Harper, Larson, Berrett, & Hardman, 2009).

As hypothesized, neuroticism was a significant moderator such that when it is high, the relationship between body dissatisfaction and bulimic symptomatology is strengthened. This finding is consistent with Brannan and Petrie (2008) and Tylka (2004), who reported similar effects for neuroticism in separate samples of female undergraduates. These researchers
suggested that neuroticism can intensify the dissatisfaction that women feel with their bodies, and thus increase their feelings of negative affect that often result from it. Because many women binge eat, and subsequently purge, in response to such negative emotions (Claridge & Davis, 2001), it is not surprising that these women would report more symptoms on measures of disordered eating. Thus, those women who possess higher levels of neuroticism may respond with intense negative affect to their body dissatisfaction and may be more likely to use bulimic behaviors to cope with their negative feelings.

Consistent with past research (e.g., Brannan & Petrie, 2008; Tylka, 2004), body surveillance was a significant moderator, such that greater body dissatisfaction coupled with the tendency to view the self from an objective, third-person perspective was associated with higher BULIT-R scores. Society transmits the message that self-worth is contingent upon attractiveness (e.g., body size/shape) and, as a result, women need to continually monitor their bodies to increase the chances that they may approximate the societal ideal (Tylka, 2004). When the need to constantly monitor one’s body is coupled with high levels of body dissatisfaction, women may ignore the dangers associated with disordered eating practices and use these methods in an attempt to change their size and shape to meet the societal ideal (Striegel-Moore & Bulik, 2007).

Implications for Counseling Psychology

Determining variables that moderate the relationship between body dissatisfaction and bulimic symptomatology can help counseling psychologists predict which women will be more or less likely to engage in pathogenic bingeing and weight control behaviors. Body dissatisfaction has been identified as an important predictor of eating disorder symptomatology and subclinical eating problems (Phelps, Johnston, & Augustyniak, 1999; Polivy & Herman, 2002). Yet, despite high levels of body dissatisfaction among women (Klemchuk, Hutchinson, &
Frank, 1990), most do not develop a clinical eating disorder (Streigel-Moore & Cachelin, 2001). To more fully understand the link between body dissatisfaction and bulimic symptomatology, counseling psychologists should be aware of the variables that moderate this relationship, for better or for worse. Thus, helping clients foster characteristics of Psychological Well-Being (as evidenced by increasing levels of self-determination, optimism, self-esteem, and life satisfaction) may help prevent body dissatisfied clients from engaging in bulimic symptomatology. More specifically, body dissatisfied clients with eating issues may not immediately report these problems until a strong therapeutic alliance has been established. If eating pathology is suspected before the strength of relationship has been developed, counseling psychologists can focus on developing the characteristics of Psychological Well-Being so that as the level of Psychological Well-Being increases, the likelihood of engaging in detrimental weight practices decreases.

Perfectionistic attitudes (i.e., concern over mistakes; doubts about actions), high levels of neuroticism, and high levels of body surveillance are four characteristics that appear to increase the likelihood that a body dissatisfied woman also will experience more bulimic symptomatology. Thus, when these characteristics are present among body dissatisfied clients, counseling psychologists should attempt to determine the extent to which clients also may be experiencing elevated levels of bulimic symptomatology. Because neuroticism and body surveillance have now been supported in a third study and concern over mistakes in a second study, counseling psychologists may want to be particularly mindful of their clients in regard to the presence or absence of these psychological characteristics. If present, counseling psychologists should work with body dissatisfied clients to become less emotionally reactive, to reduce the time and energy they expend monitoring their bodies, and to be more relaxed and
forgiving about mistakes they may make. They also might help clients foster the characteristics that define Psychological Well-Being.

Limitations and Future Research

There are several limitations in the current study that warrant discussion. First, the participants were female undergraduates drawn from only one institution and were mainly Caucasian, which could limit generalizability. The sample, though, was representative of the demographics of the university, and the effect sizes of the moderating relationships were consistent with those found in previous studies (e.g., Brannan & Petrie, 2008; Twamley et al., 1999; Tylka, 2004). It will be important, though, to ascertain whether these findings appear in other groups of women, such as older women, adolescent girls, and women of color. Second, self-report measures were used to collect the data and thus may be susceptible to mono-method reporting bias. To help minimize this issue, though, only measures with established psychometric properties were used. Moreover, a social desirability measure was included to control for biases in reporting. A third limitation concerns the measure of bulimic symptomatology. Although the BULIT-R has been shown to be a valid measure of bulimic attitudes and behaviors, few of the women scored in the extreme range that would be predictive of bulimia nervosa. Interpretation of the findings, therefore, needs to be limited to levels of bulimic symptomatology and not extended to conclusions about bulimia nervosa. Future studies should examine whether the moderators established in this and other studies (e.g., Brannan & Petrie, 2008; Tylka, 2004) play a similar role in exacerbating or buffering the effects of body dissatisfaction among women who have been diagnosed with an eating disorders. And, if moderating effects are supported, if interventions aimed at weakening (e.g., neuroticism) or strengthening (e.g., Psychological Well-Being) the moderators has the effect of lessening the women’s eating pathology. A fourth
limitation involves the collection of data via the internet. Although there are several advantages to online data collection, the reality is that the researcher cannot oversee the environment the participant is in. Moreover, participants are not able to ask questions if they do not understand an item on the questionnaire. Despite this limitation, the findings of this study are similar to other studies in which participants completed paper-pencil questionnaires in a small group format (Brannan & Petrie, 2008; Tylka, 2004). A final limitation concerns the fact that only a measure of bulimic symptoms was used and not all potential moderator variables were included. Future research should examine both bulimic and anorexic symptoms, and include additional exacerbating and buffering moderators, such as achievement motivation, life stress, coping skills, and social support. By expanding the number of moderators tested, researchers will have a better understanding of which body dissatisfied women will be most likely to evidence disordered eating attitudes and behaviors. With that information, targeted intervention studies may be developed and tested in hopes of lowering the risk of developing more severe forms of disordered eating.

Conclusions

Several comprehensive reviews concerning the risk and causal factors associated with eating disorders exist (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004; Stice & Shaw, 2002; Striegel-Moore & Cachelin, 2001), but there is a dearth of research in regard to moderators, specifically variables that might protect women from developing bulimic symptoms. This study demonstrated that Psychological Well-Being, comprised of self-determination, optimism, satisfaction with life, and self-esteem, provided a buffering effect to the relationship between body dissatisfaction and bulimic symptomatology. In other words, when Psychological Well-Being was high, the impact of body dissatisfaction was minimized. In addition to finding a
buffering effect, four variables (neuroticism, body surveillance, concern over mistakes, and doubts about actions) were found to exacerbate the relationship between body dissatisfaction and bulimic symptomatology. Parental expectations, parental criticism, and personal standards, however, did not moderate the relationship between body dissatisfaction and bulimic symptomatology. The current findings provide important information regarding moderating variables that could be targeted by counseling psychologists to lessen the impact body dissatisfaction has on disordered eating. Further examination of both protective and exacerbating moderating variables is warranted to understand the complex relationship between body dissatisfaction and bulimic symptomatology. Such knowledge is important to the field of counseling psychology and can be used to design prevention programs, as well as treatment plans for clients.
ENDNOTES

1 Because the BULIT-R and parental criticism subscale violated statistical tests regarding normality and we had a large sample, we first examined the histogram plots of the variables (Tabachnick & Fidell, 1996). These plots also reflected a skewed and kurtotic distribution, so a logarithmic transformation was conducted on the BULIT-R scores, which then approximately normality. Next, we conducted the regression analyses again with the transformed BULIT-R scores. Significance levels and the directions of the relationships (i.e., signs on the beta weights) did not change meaningfully from those obtained with the nontransformed data. Thus, for clarity in the presentation of the data and because the transformation process did not alter the results, we present the statistical results that were obtained using the nontransformed data.

2 For clarity and to be consistent with past research, the discussion is framed in terms of body dissatisfaction. However, the BPSS-R is a measure of body satisfaction; higher total scores indicate more body satisfaction. Thus, the β values in each regression equation will be negative, which indicate that higher levels of body satisfaction are related to lower levels of disordered eating (or framed from the body dissatisfaction perspective, higher levels of dissatisfaction are related to more disordered eating symptoms). In addition, the negative β values for the interaction terms indicate that higher levels of the moderator variable combined with lower levels of the BPSS-R (indicating lower satisfaction or more dissatisfaction) predict more disordered eating attitudes and behaviors.
Table 1

*Correlations for Bulimic Symptomatology, Body Dissatisfaction, and Proposed Moderators (N = 847)*

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Note: The means and standard deviations presented were derived from the non-standardized variables. BULIT-R = Bulimia Test-Revised (Range 28-140). BPSS-R = Body Parts Satisfaction Scale-Revised Body subscale (Range 1-6). GMS = Global Motivation Scale (Range = 36-36). LOT-R = Life Orientation Test-Revised (Range 6-30). SWLS = Satisfaction with Life Scale (Range 5-35). SDQ = Self Description Questionnaire – General Esteem Subscale (Range = 12-96). MPS-CM, PS, PE, PC, DA = Multidimensional Perfectionism Scale- Concern over Mistakes, Personal Standards, Parental Expectations, Parental Criticism, Doubts about Actions subscales (Range 1-7). NEO = NEO-Five Factor Inventory - Neuroticism subscale (Range = 20-80). OBCS = Objectified Body Consciousness Scale – Body Surveillance subscale (Range = 1-6). SDS = Social Desirability Scale (Range 1-12). BMI = body mass index (kg/m²) (Range 15.5 – 54.58). With the exception of BMI, which reflects the actual range of scores in the sample, the other ranges listed reflect the potential scores for each scale.

α – Cronbach’s alpha

* p < .01

** p < .001
Table 2

*Means, Standard Deviations, Alphas, and Skewness and Kurtosis for Bulimic Symptomatology, Body Dissatisfaction, and Proposed Moderators (N = 847)*

<table>
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<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>α</th>
<th>Skewness</th>
<th>Kurtosis</th>
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<td>.91</td>
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<td>3. GMS</td>
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<td>7.42</td>
<td>.90</td>
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<td>5. SWLS</td>
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<td>6. SDQ</td>
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<td>1.33</td>
<td>.95</td>
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<td>-0.339</td>
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<td>7. MPS-CM</td>
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<td>-0.221</td>
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<td>9. MPS-PE</td>
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<td>0.96</td>
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<td>10. MPS-PC</td>
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<td>.85</td>
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<td>12. NEO</td>
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<td>10.68</td>
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<td>13. OBSC</td>
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<td>1.03</td>
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Table 3

*Hierarchical Moderated Regression Analyses Predicting Bulimic Symptomatology (N = 843)*

<table>
<thead>
<tr>
<th>Step/Predictor</th>
<th>Adjusted $R^2$</th>
<th>$\Delta R^2$</th>
<th>$\Delta F$</th>
<th>$B$</th>
<th>$SE B$</th>
<th>$\beta$</th>
<th>$t$</th>
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<tbody>
<tr>
<td>Step 1 † Body Mass Index</td>
<td>0.11</td>
<td>0.11</td>
<td>50.62**</td>
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<tr>
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<tr>
<td>Step 2 † Body Satisfaction (A)</td>
<td>0.34</td>
<td>0.23</td>
<td>297.48**</td>
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<td>0.36</td>
<td>0.03</td>
<td>32.65**</td>
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<tr>
<td>Step 4 A X B Interaction</td>
<td>0.39</td>
<td>0.03</td>
<td>33.72**</td>
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</table>

Predictors at Step 4

| Body Mass Index              | 0.30           | 0.55         | 0.02        | 0.56  |
| Social Desirability          | -2.08          | 0.53         | -0.12       | -3.95**|
| Body Satisfaction (A)         | -8.62          | 0.63         | -0.48       | -13.74**|
| Psychological Well-Being (B)  | -3.41          | 0.67         | -0.17       | -5.12**|
| A X B Interaction             | 2.99           | 0.52         | 0.16        | 5.81** |

Cumulative $R^2$ at Step 4 = .39, Overall $F (5, 842) = 107.22**

| Step 3 Concern over Mistakes (B) | 0.36           | 0.02         | 28.93**     |
| Step 4 A X B Interaction         | 0.37           | 0.01         | 13.25**     |

Predictors at Step 4

| Body Mass Index              | 0.11           | 0.55         | 0.01        | 0.20  |

*(table continues)*
Table 3 (continued).

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<tr>
<th>Step/Predictor</th>
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<td>0.49</td>
<td>-0.10</td>
<td>-3.64**</td>
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Cumulative $R^2$ at Step 4 = .37, Overall $F(5, 842) = 99.62**

| Step 3 Personal Standards (B)  | 0.34           | 0.01        | 6.51*     |
| Step 4 A X B Interaction       | 0.34           | 0.00        | 0.65      |

Predictors at Step 4

| Body Mass Index                | -0.19          | 0.56        | -0.01     | -0.34|
| Social Desirability            | -2.79          | 0.53        | -0.15     | -5.31**|
| Body Satisfaction (A)          | -9.75          | 0.56        | -0.54     | -17.29**|
| Personal Standards (B)         | 1.30           | 0.51        | 0.07      | 2.56* |
| A X B Interaction              | -0.36          | 0.48        | -0.02     | -0.82|

Cumulative $R^2$ at Step 4 = .35, Overall $F(5, 842) = 88.86**

| Step 3 Parental Expectations   | 0.34           | 0.01        | 5.81*     |
| Step 4 A X B Interaction       | 0.34           | 0.00        | 1.89      |

Predictors at Step 4

| Body Mass Index                | -0.19          | 0.55        | -0.01     | -0.36|

(table continues)
Table 3 (continued).

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<td>-0.04</td>
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Cumulative $R^2$ at Step 4 = .35, Overall $F (5, 842) = 89.02**

| Step 3                          |               |              |            |          |        |         |      |
| Parental Criticism (B)          | 0.35          | 0.01         | 16.26**    |
| Step 4                          |               |              |            |          |        |         |      |

Predictors at Step 4

| Body Mass Index                 | -0.14         | 0.56         | -0.01      | -0.26    |
| Social Desirability             | -2.48         | 0.53         | -0.14      | -4.69**  |
| Body Satisfaction (A)           | -9.31         | 0.58         | -0.52      | -16.19** |
| Parental Criticism (B)          | 1.97          | 0.54         | 0.11       | 3.66**   |
| A X B Interaction               | -0.83         | 0.50         | -0.05      | -1.64    |

Cumulative $R^2$ at Step 4 = .36, Overall $F (5, 842) = 92.45**

| Step 3                          |               |              |            |          |        |         |      |
| Doubts about Actions (B)        | 0.36          | 0.03         | 36.71**    |
| Step 4                          |               |              |            |          |        |         |      |

Predictors at Step 4

| Body Mass Index                 | 0.16          | 0.55         | 0.01       | 0.29     |

(table continues)
Table 3 (continued).

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<th>Step/Predictor</th>
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<th>SE $B$</th>
<th>$\beta$</th>
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<td>-0.49</td>
<td>-15.37**</td>
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<tr>
<td>Doubts about Actions (B)</td>
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<td>0.17</td>
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Cumulative $R^2$ at Step 4 = .38, Overall $F(5, 842) = 100.67**$

| Step 3 Neuroticism (B)  | 0.36  | 0.02  | 23.83** |
| Step 4 A X B Interaction| 0.37  | 0.02  | 23.66** |

Predictors at Step 4

| Body Mass Index  | 0.17  | 0.55  | 0.01  | 0.32          |
| Social Desirability | -1.96 | 0.55  | -0.11 | -3.55**       |
| Body Satisfaction (A) | -8.94 | 0.60  | -0.49 | -14.87**      |
| Neuroticism (B)    | 3.03  | 0.59  | 0.17  | 5.09**        |
| A X B Interaction  | -2.25 | 0.46  | -0.14 | -4.86**       |

Cumulative $R^2$ at Step 4 = .38, Overall $F(5, 842) = 101.29**$

| Step 3 Body Surveillance (B) | 0.37  | 0.03  | 41.08** |
| Step 4 A X B Interaction    | 0.39  | 0.02  | 24.23** |

Predictors at Step 4

| Body Mass Index  | 0.21  | 0.54  | 0.01  | 0.39          |

*(table continues)*
Table 3 (continued).

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<tr>
<th>Step/Predictor</th>
<th>Adjusted $R^2$</th>
<th>$\Delta R^2$</th>
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<tbody>
<tr>
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<td>-0.13</td>
<td>-4.92**</td>
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</table>

Cumulative $R^2$ at Step 4 = .39, Overall $F (5, 842) = 106.86**

*Note: $N = 843$. The regression results presented in this table represent the values associated with that variable at that specific step of the model. The order of variable entry into the regression model was: (Step 1) body mass index and social desirability, (Step 2) body dissatisfaction, (Step 3) moderator, and (Step 4) body dissatisfaction X moderator interaction. The $\Delta F$-test is for each step of the model and the $F$-test is for the final step of the model when all variables had been entered. Degrees of freedom corresponding to $\Delta F$ are 2, 840 for Step 1, 1, 839 for Step 2, 1, 838 for Step 3, and 1, 837 for Step 4.
† The values for Step 1 and Step 2 are the same for each regression model, and thus are not presented for subsequent models within the table.
* $p < .05$
** $p < .001$
Table 4

Analysis of the Slopes of the Regression Lines Associated with the Significant Moderator Interactions Predicting Bulimic Symptomatology (N = 843)

<table>
<thead>
<tr>
<th>Interaction</th>
<th>B</th>
<th>t</th>
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</thead>
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<td>Body Dissatisfaction X Psychological Well-Being</td>
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<td>-18.4**</td>
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<td>1 Standard Deviation Above the Mean</td>
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<td>High versus Low</td>
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<td>-7.23</td>
<td>-11.81**</td>
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<td>1 Standard Deviation Above the Mean</td>
<td>-10.78</td>
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<td>High versus Low</td>
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<td>Body Dissatisfaction X Doubts about Actions</td>
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<td>-12.11**</td>
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<td>1 Standard Deviation Above the Mean</td>
<td>-10.31</td>
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<td>High versus Low</td>
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<td>-3.00*</td>
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<tr>
<td>Body Dissatisfaction X Neuroticism</td>
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<td>1 Standard Deviation Below the Mean</td>
<td>-6.69</td>
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Table 4 (continued).

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<td>High versus Low</td>
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<td>-4.92**</td>
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*Note:* The results presented in this table represent the values associated with the regression slopes plotted for each significant moderator. 1 Standard Deviation Below the Mean represents the Low condition of the moderator when compared against zero. 1 Standard Deviation Above the Mean represents the High condition of the moderator when compared against zero. High versus Low represents the comparison of the slopes of the high and low conditions against each other.

* *p < .05

** *p < .001
Figure 1. The interaction between Body Dissatisfaction and Psychological Well-Being.
Figure 2. The interaction between Body Dissatisfaction and Concern over Mistakes.
Figure 3. The interaction between Body Dissatisfaction and Doubts about Actions.
Figure 4. The interaction between Body Dissatisfaction and Neuroticism.
Figure 5. The interaction between Body Dissatisfaction and Body Surveillance.
APPENDIX

EXTENDED LITERATURE REVIEW
Body dissatisfaction, which refers to negative subjective evaluations of one’s physical body, such as figure, weight, stomach, and hips (Stice & Shaw, 2002), is a psychological variable that is central in etiological models that describe the development of eating disorder symptomatology in women (Levine & Smolak, 1996; Stice, 2001; Striegel-Moore & Bulik, 2007). Previous research has shown that body dissatisfaction is the single strongest predictor of eating disorder symptomatology and subclinical eating problems (Phelps, Johnston, & Augustyniak, 1999; Polivy & Herman, 2002), and is so widespread among females that it can be viewed as normative (Mazzeo, 1999; Streigel-Moore, Silberstein, & Rodin, 1986; Rodin, Silberstein, & Streigel-Moore, 1985.) In addition, this dissatisfaction has shown a marked increase over the last 25 years (Feingold & Mazella, 1998). Despite the high levels of body dissatisfaction that exist among women (Klemchuk, Hutchinson, & Frank, 1990), the actual incidence of clinical eating disorders is relatively low (Streigel-Moore & Cachelin, 2001), begging the question of why so few women develop eating disorders when body dissatisfaction is so prevalent. Thus, it is important to consider under what circumstances women with high levels of body dissatisfaction would develop eating disorder symptomatology, as well as why many women with high body dissatisfaction do not develop disordered eating patterns. In other words, what variables might moderate the relationship between body dissatisfaction and eating pathology?

This question concerns moderation. According to Baron and Kenny (1986), a moderator is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable. Moderation implies that the relation between two variables
changes as a function of the moderator. In terms of the relationship between body dissatisfaction and eating disorder symptomatology, a moderator variable would either intensify or weaken the strength of the relationship, such that the combination of body dissatisfaction and the moderator would increase or decrease the likelihood of eating pathology. Moderators are in contrast to mediator variables, which are variables that explain the relationship between a predictor and an outcome (Baron & Kenny, 1986).

Certain variables have been shown to be moderators of the body dissatisfaction-eating disorder symptomatology relationship. In particular, Tylka (2004) demonstrated that four variables—body surveillance, neuroticism, presence of a family member with an eating disorder, and presence of a friend with an eating disorder—intensified the relationship between body dissatisfaction and eating disorder symptomatology. Brannan and Petrie (2008) replicated and expanded upon Tylka’s (2004) research finding continued support for body surveillance and neuroticism, as well as establishing that perfectionism and achievement motivation were moderators that also intensified the relationship between body dissatisfaction and eating pathology. A limit of these studies, however, was their sole focus on moderating variables that increased the likelihood of eating pathology. A dearth of research exists in the current literature in regard to moderators that might serve as buffers of the body dissatisfaction-eating disorder relationship. Thus, examining variables that may mitigate the negative effects of body dissatisfaction on eating disorder symptomatology will be an important focus of future research.

This study examined several potential moderators of the body dissatisfaction-eating disorder relationship. First, this study replicated the research by Tylka (2004) and Brannan and Petrie (2008) by testing previously established moderators—perfectionism, body surveillance, and neuroticism—to determine whether the relationships still stand in a different, but comparable
sample. Second, I investigated the role of Psychological Well-Being (conceptualized as involving several positive psychological variables, such as self-determination, optimism, satisfaction with life, and self-esteem) on the relationship between body dissatisfaction and bulimic symptomatology to test whether Psychological Well-Being provided protection against the deleterious effects of body dissatisfaction.

In the sections that follow, I discuss the specific types of eating disorders that are currently recognized by the *Diagnostic and Statistical Manual of Mental Disorders (DSM;* American Psychiatric Association, 2000), including prevalence and characteristics of clinical as well as subclinical eating disorders. I present information on the research conducted by Tylka (2004) and Brannan and Petrie (2008), providing descriptions of the examined variables and their role in the body dissatisfaction-eating disorder relationship. I also discuss the mechanism by which these variables impact the body dissatisfaction-eating disorder relationship. In the next section, I introduce the proposed buffering variable-- Psychological Well-Being. For each variable proposed to represent Psychological Well-Being, I provide a definition of the variable, information about what each variable has been associated with, and explanations about the mechanism by which each variable influences the body dissatisfaction-bulimic symptomatology relationship. Finally, I present the purpose and hypotheses of the study.

**Eating Disorders: Description and Prevalence**

The *Diagnostic and Statistical Manual of Mental Disorders (DSM;* American Psychiatric Association, 2000) currently recognizes three categories of eating disorders: anorexia nervosa (AN), bulimia nervosa (BN), and eating disorder not otherwise specified (EDNOS). For an individual to be diagnosed with AN, they must meet the subsequent conditions: (1) refusal to maintain body weight at or above a minimally normal weight for age and height, (2) intense fear
of gaining weight or becoming fat, even though underweight, (3) unduly influenced by their body weight or shape in self-evaluation, and (4) cessation of menses for three consecutive months.

According to Wilson, Grilo, and Vitousek (2007), anorexics’ views of their symptoms are complex and variable, often feeling “too fat”, yet taking pride in the achievement of thinness and restraint. Anorexics experience an intense fear of losing control over eating and becoming overweight; eventually, nearly half succumb to binge eating. Changes in mood (e.g., depression, preoccupation with food), behavior (e.g., social withdrawal), and physiology (e.g., altered hormonal secretion, amenorrhea, decreased metabolic rate) are common and brought on by continual semi-starvation (Wilson et al., 2007). The onset of AN typically begins during adolescence and predominantly affects girls and young women; its prevalence rate among females is 0.3% (Hoek & van Hoeken, 2003). Long-term follow-up studies show that approximately 50% of those diagnosed with AN make a full recovery, 20-30% show residual symptoms, 10-20% remain severely ill, and 5-10% will die of related causes (Steinhausen, 2002).

For a diagnosis of BN, the following criteria must be met: (1) recurrent episodes of binge eating. A binge is characterized by eating, in a discrete period of time an amount of food that is definitely larger than most people would eat during a similar period of time under similar circumstances and by a sense of lack of control over eating during the episode. (2) Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise, (3) the binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months, (4) self-evaluation is unduly influenced by body shape and
weight, and (5) the disturbance does not occur exclusively during episodes of AN (APA, 2000). The prevalence of BN is approximately 1% to 2% in community samples and occurs predominantly in young women (Hoek & van Hoeken, 2003). Remission rates over time range from 31% to 74%, but remission is often short-lived and relapse is common (Ben-Tovim et al., 2001). As is frequent with other eating disorders, BN is viewed as unstable and often changes into an eating disorder not otherwise specified (Milos, Spindler, Schnyder, & Fairburn, 2005) because over time, individuals may continue to engage in disordered eating behaviors, but with less frequency, and thus no longer qualify for the original diagnosis.

Among individuals with BN, body weight is usually normal or just below normal, although the disorder does occur in some who are overweight. In addition, comorbid psychopathology (e.g., depression, personality disorders) and impaired psychosocial functioning (e.g., interpersonal difficulties) is common (Wilson et al., 2007). BN typically has a chronic course (Fairburn, Cooper, Doll, Norman, & O'Connor, 2000) and tends to be self-perpetuating (Fairburn & Harrison, 2003) in that individuals with BN are unable to maintain the restraint needed to stick with a rigid diet and thus experience a disinhibition that leads to a binge and subsequent feelings of shame and disgust that may be managed through purging. These behaviors may become cyclical as they try and continue to fail at maintaining the necessary behaviors to achieve the thin ideal—dietary restraint and increased exercise (Brannan & Petrie, 2008).

The last category denoted by the DSM-IV-TR (APA, 2000) is EDNOS. This category is for disorders of eating that do not meet the criteria for the two specific eating disorders. Some examples are, for females, when all of the criteria for AN are met except that the individual has a regular menstrual cycle. Another set of examples are when all of the criteria for AN have been
met, except despite a large weight loss, the individual’s body weight is within normal range or all of the criteria for BN have been met except that binge eating and inappropriate compensatory mechanisms occur at a frequency less than twice a week or for a duration of less than three months. Two subgroups of EDNOS have been distinguished (Fairburn & Walsh, 2002). The first are cases that may be viewed as subthreshold instances of AN or BN. The second group are cases are best described as “mixed”, in which the clinical features of AN and BN are combined in a different way to that seen in the two recognized disorders (Fairburn & Bohn, 2005). Disorders that fall under the EDNOS category tend to be no less clinically severe in level of psychopathology and degree of psychosocial impairment than BN and AN (Fairburn & Bohn, 2005). In fact, EDNOS is the most common eating disorder diagnosis encountered in clinical practice (Button, Benson, Nollett, & Palmer, 2005; Martin, Williamson, & Thaw, 2000). In outpatient settings, EDNOS cases account for an average of 60% of all cases, compared to 14.5% for AN and 25.5% for BN (Fairburn & Bohn, 2005).

Research suggests that disordered eating occurs along a continuum, ranging from no weight concern, accompanied by normal eating, to AN and BN. However, between healthy eating and clinical eating disorders are unhealthy behaviors, such as bingeing and purging alone, fasting, and chronic dieting (Mintz & Betz, 1988). Along this eating disorder continuum, women differ only in regard to the degree in which they experience behavioral or psychological symptoms (Tylka & Subich, 1999). When compared against the prevalence rates for formal clinical diagnoses, subclinical forms of eating disorders have been found to be two to five times more frequent (Dancyger & Garfinkel, 1995), with rates in the general population ranging from 4% to 16% (Killen et al., 1994). Thirty-five to seventy percent of female college students report engaging in behaviors and experiencing thoughts and feelings that are related to disordered
eating, such as loss of appetite control, periodic use of laxatives, purging or excessive exercise to inhibit weight gain, body dissatisfaction and distortion, obsessive monitoring of caloric and fat intake, unhealthy weight fluctuations, excessive weight monitoring, moderate depression, and low self-esteem (Edwards-Hewitt & Gray, 1993; Heatherton, Nichols, Mahamedi, & Keel, 1995; Kurth, Krahn, Nairn, & Drewnowski, 1995; Nelson, Hughes, Katz, & Searight, 1999). According to Mintz and Betz (1988), 61% of college women reported occasionally or regularly engaging in unhealthy measures to control weight, such as use of appetite suppressants, fasting, diuretics, and purging after meals. In addition, research suggests that many women entering college with subclinical levels of eating pathology later develop diagnosable eating disorders (Drewnowski, Yee, Kurth, & Krahn, 1994). Thus, it becomes apparent that eating disturbances are not isolated to individuals with clinical eating disorders and efforts must be made to understand factors that increase or decrease the risk for eating disorder development.

Eating disorders are one of the most common psychological problems faced by women and girls today and are characterized by a chronic course and tendency for relapse (Fairburn, Cooper, Doll, Norman, & O’Connor, 2000). They also have the highest mortality rate of any other psychological disorder (Fairburn et al., 2000) and have one of the highest rates of hospitalization and suicidality (Newman et al., 1996). College students are considered one of the most at-risk populations for eating disorders (Hoek, 2002; Keel & Klump, 2003), with prevalence rates of 2.9-3.3% reported among college women (Drewnowski, Yee, & Krahn, 1988; Ghaderi & Scott, 2001). Furthermore, rates of disordered eating symptoms are 2 to 5 times more prevalent in frequency than that of clinical eating disorders (Dancyger & Garfinkel, 1995). Such rates are troubling, considering the many negative health consequences, such as cardiovascular
abnormalities, gastrointestinal problems, osteoporosis, etc., that can occur as a result of disordered eating behaviors.

Eating disorders and, in particular, subclinical eating problems are prevalent and a major problem for many women and girls. Although the prevalence for clinical eating disorders is relatively low, the frequency of subclinical eating problems, as noted previously, is much more common. Furthermore, problems with subclinical eating are very high among college women (Mintz & Betz, 1988). Thus, research may want to focus on this subgroup examining the full spectrum of eating pathology that occurs.

Body Dissatisfaction - Eating Disorder Relationship: Moderators that Increase Risk

Tylka (2004) indicated that researchers could contribute information to the field about prevention and treatment of disordered eating by identifying its correlates, risk factors, and protective factors. She highlighted body dissatisfaction as a strong predictor of eating pathology, but also addressed the normative nature of body dissatisfaction among women. Tylka recognized the need to examine the body dissatisfaction-eating disorder relationship and became one of the first to research this relationship. She examined several variables that she hypothesized would moderate the body dissatisfaction-eating disorder symptomatology relationship. In the first of two studies, Tylka examined impulse regulation and social insecurity as potential moderators of bulimic symptomatology and drive for thinness. She hypothesized that poor impulse regulation (general tendency to engage in self-destructive acts) and social insecurity (beliefs that others cannot be relied upon during times of stress) would strengthen the relationship between body dissatisfaction and eating pathology. Contrary to expectations, though, poor impulse control did not moderate the relationship with bulimic symptomatology and, with drive for thinness, the effect was very small and in the opposite direction. That is, poor impulse regulation slightly
weakened the body dissatisfaction-drive for thinness relationship. Also contrary to her predictions, social insecurity did not have any moderating effects on the relationship between body dissatisfaction and eating disorder symptomatology. In explaining these unexpected findings, Tylka noted that it may actually be social support, not social insecurity that is a potential moderator of the body dissatisfaction-eating disorder relationship and suggested that future research explore this possibility.

In the second study, Tylka (2004) examined five other variables (i.e., body surveillance, appearance control beliefs, neuroticism, the presence of a family member with an eating disorder, and the presence of a friend with an eating disorder) as potential moderators. She selected these variables because they had been identified previously as potential risk factors in the eating disorder literature (e.g., Striegel-Moore et al., 1986). She also used a single measure of eating pathology (i.e., EAT-26; Garner, Olmstead, Bohr, & Garfinkel, 1982). Tylka predicted that all five variables would intensify the body dissatisfaction and eating pathology relationship, yet only four -- body surveillance, neuroticism, presence of a family member with an eating disorder, and presence of a friend with an eating disorder -- interacted significantly, accounting for 6%, 3%, 2%, and 1% of the criterion variance in the moderator condition, respectively. Tylka argued that women who constantly monitor their bodies in hopes of achieving the internalized thin ideal, and who also are body dissatisfied, may minimize the dangers of harmful weight control practices and use these strategies in an attempt to lose weight (Striegel-Moore et al., 1986). Women with high levels of neuroticism, on the other hand, may react with more negative affect regarding their body dissatisfaction and thus may engage in disordered eating behaviors to cope with their feelings (Tylka, 2004). Women with high levels of body dissatisfaction who are
exposed to others engaging in disordered eating behaviors may internalize these behaviors and use them in an attempt to lose weight (Mann, 1995; Striegel-Moore et al., 1986).

Through her research, Tylka (2004) found two key variables -- neuroticism and body surveillance -- that were strong moderators, increasing the risk of body dissatisfied women engaging in disordered eating behaviors and holding eating disordered attitudes. Unfortunately, replication has not been the hallmark of social science research, thus limiting the utility and generalizability of single study findings (Henson, 2006). Brannan and Petrie (2008) addressed this problem by including neuroticism and body surveillance as potential moderators in their study of the body dissatisfaction-eating disorder relationship. Brannan and Petrie also extended Tylka’s (2004) research in three ways. First, in addition to the measure of eating disorder symptoms Tylka used (i.e., the EAT-26), they included a second measure to assess bulimic symptomatology. Second, in the regression models for predicting eating pathology, they controlled for the potential influences of social desirability and physical size (i.e., body mass index; BMI) to ensure that the relationships between body dissatisfaction, the moderators, and disordered eating were not confounded by these salient variables. Third, they included two other potential variables-- perfectionism and achievement motivation. Brannan and Petrie examined perfectionism using Hewitt and Flett’s (1991) multidimensional framework, specifically, self-oriented and socially prescribed perfectionism. Hewitt and Flett suggested that self-oriented perfectionism included behaviors, such as setting exacting standards for oneself and stringently evaluating and censuring one’s own behavior, and a motivational component that is reflected in strivings to attain perfection and to avoid failures in one’s pursuits. Socially prescribed perfectionism, on the other hand, involves the perceived need to achieve standards and expectations prescribed by significant others; these individuals believe that others evaluate them
through the lens of unrealistic (and perfectionistic) expectations. Because the concern is with meeting others’ standards, they fear negative evaluation and place importance on obtaining the attention, but avoiding the disapproval, of others (Hewitt & Flett, 1991). The other variable Brannan and Petrie examined was achievement motivation. Achievement motivation concerns how individuals approach, engage in, and respond to achievement activities as well as the reasons they engage in specific behaviors related to these situations (Ames, 1992). Once an achievement goal orientation is adopted, it influences how subsequent success and competence situations are judged (Nicholls, 1989) and how individuals interpret, feel about, and react to achievement-related efforts (Duda & Hall, 2001). Although two orthogonal goal orientations have been identified -- task and ego – an ego orientation is particularly relevant as a potential risk factor in the body dissatisfaction-eating disorder symptomatology relationship. According to Nicholls (1989), an ego orientation reflects an underlying concern with the demonstration of competence or the avoidance of being judged incompetent. Ego oriented individuals emphasize norm-referenced success and have a strong need to prove themselves to others (Hodge & Petlichkoff, 2000), and tend to seek validation from external sources for their performance accomplishments (Dunn, Causgrove-Dunn, & Syrotuik, 2002).

Brannan and Petrie (2008) found continued support for body surveillance as a moderator of the relationship between body dissatisfaction and bulimic and anorexic symptoms. These findings replicate and extend Tylka (2004) who found that female undergraduates who were dissatisfied with their bodies and who viewed themselves as an outside observer reported the highest EAT-26 scores. Feminist theory suggests that women internalize objectifying messages that concern body size and shape (Fallon, Katzman, & Wooley, 1994; Maine, 2000). Society conveys the message that women’s self-worth is based on their appearance and, as a result, they
need to constantly monitor their bodies so as to increase the likelihood of achieving society’s standards (Tylka, 2004). High levels of body dissatisfaction coupled with the need to continually monitor their bodies may cause women to dismiss the dangers associated with harmful weight control methods and, as a result, use these deleterious strategies in an attempt to lose weight and thus more closely approximate the beauty ideal (Striegel-Moore et al., 1986).

Brannan and Petrie (2008) also found neuroticism to be related positively to bulimic and anorexic symptoms, a finding supported by past research (e.g., Ghaderi & Scott, 2000). In addition, consistent with and extending beyond Tylka (2004), neuroticism moderated the relationships between body dissatisfaction and EAT-26 scores as well as bulimic symptomatology, such that greater body dissatisfaction coupled with higher levels of neuroticism was associated with the most disordered eating symptoms. Neuroticism can exacerbate negative personal characteristics, such as body dissatisfaction, that can result in more maladaptive behaviors (i.e., disordered eating) to cope with negative feelings (Claridge & Davis, 2001). Of the Big Five personality characteristics, neuroticism is viewed as the domain that is most likely to result in overt, pathological behaviors (Costa & McCrae, 1992). Thus, women who display higher levels of neuroticism may react with more negative affect to their body dissatisfaction and, as a result, be more likely to engage in disordered eating behaviors to cope with their negative feelings.

Furthermore, Brannan and Petrie (2008) found ego goal orientation to moderate the effects of body dissatisfaction on bulimic symptoms, accounting for 2% of the variance. The significant ego orientation-body dissatisfaction interaction is consistent with assertions that high levels of ego orientation involve social comparison, as well as maladaptive belief patterns and attitudes (Roberts, Treasure, & Kavussanu, 1996), which may increase the risk of bulimic
symptomatology. For women, Western culture imposes the value that appearance is central to one’s worth in society, being thin is the ideal, and thinness ensures life success (Striegel-Moore et al., 1986). Brannan and Petrie argued that body dissatisfied women who also are highly ego-oriented, and thus motivated to prove themselves as competent and better than others, may feel even more pressure to alter their bodies and thus be more likely to engage in detrimental eating behaviors (e.g., binge - purge), to adopt rigid ideas about one’s self-worth (e.g., self worth depends on physical appearance), and to have one’s mood and self-concept become increasingly influenced by appearance and weight (e.g., becoming depressed when weighing a certain amount). Such attitudes and behaviors would likely be reflected in higher scores on measures of disordered eating.

Brannan and Petrie (2008) found socially prescribed perfectionism to moderate the effects of body dissatisfaction on only bulimic symptoms, accounting for 4% of the variance. Self-oriented perfectionism served as a moderator only for anorexic symptoms, accounting for 5% of the variance. Brannan and Petrie suggested that the differential moderating effects of self-oriented perfectionism are consistent with current research that links it more strongly with AN than BN (Hewitt et al., 1995; Shafran, Cooper, & Fairburn, 2002). AN has long been described as involving self-imposed standards of perfectionism, which include rigidity and restraint, whereas BN has been characterized by needs for others’ approval, impulse control difficulties, and an alternating pattern of disinhibition and restraint (Vitousek & Manke, 1994). These differing features may help explain why self-oriented perfectionism moderated the relationship between body dissatisfaction and anorexic, but not bulimic, symptoms. Body dissatisfied women who also are self-oriented in their perfectionism may feel disgusted with themselves and perceive themselves to be failures for not living up to their self-imposed standards of beauty.
They may focus on that which they believe is controllable, their bodies, and commit to attaining the beauty ideal. The media also encourage this belief that body size and shape are controllable, which is used to market diet and exercise products, but this idea may only add to their drive to attain the “perfect” body, which unfortunately cannot be achieved, because in reality, body size and shape, are not that malleable. In keeping with their perfectionistic style, they may restrain from eating, set rigid schedules for exercising, and become even more critical and judgmental of themselves and their efforts (which may serve to drive them even more). This reaction to their body dissatisfaction and self-oriented perfectionism is, in essence, the adoption of anorexic behaviors and attitudes, so it would be consistent for them to have higher scores on the EAT-26 (Brannan & Petrie, 2008).

As mentioned, socially prescribed perfectionism moderated the relationship between body dissatisfaction and bulimic symptomatology. Women who hold socially prescribed perfectionistic attitudes already may be predisposed to adopt societal values concerning attractiveness as well as concerns about one’s appearance (Hewitt et al., 1995). In body dissatisfied women, these attitudes may result in attempts to restrain food intake and/or increase exercising in the hopes of shaping their bodies to look more like the ideal. Unlike women with high levels of self-oriented perfectionism, these women are unable to maintain the restraint needed to stick with a rigid diet and thus experience a disinhibition that leads to a binge and subsequent feelings of shame and disgust that may be managed through purging. These behaviors may become cyclical as these socially prescribed perfectionistic women continue to strive for the unattainable societal ideal yet fail to maintain the necessary behaviors-- dietary restraint and increased exercise. In fact, with each binge-purge cycle, these women may
recommit to restrain their eating in some way (e.g., fasting), which only increases the likelihood of a subsequent binge-purge episode (Brannan & Petrie, 2008).

Although Brannan and Petrie (2008) examined perfectionism using Hewitt and Flett’s (1991) conceptualization, it is important to examine other comparable forms of perfectionism to test whether the moderating relationships still hold. For example, factor analytic work involving items from the Hewitt and Flett (1991a) Multidimensional Perfectionism Scale and the Frost Multidimensional Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990) have found support for two factors, conceptually labeled Maladaptive Evaluative Concerns and Positive Striving (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). Socially prescribed perfectionism, concern over mistakes, parental expectations, parental criticism, and doubts about actions all fall under the same rubric of Maladaptive Evaluative Concerns (Frost et al., 1993), whereas self-oriented perfectionism, personal standards, and organization constitute Positive Striving. Because one of the purposes of this study was to replicate Brannan and Petrie’s (2008) findings in regard to bulimic symptomatology, concern over mistakes, parental expectations, parental criticism, and doubts about actions were used because of their conceptual similarities to socially-prescribed perfectionism. Brannan and Petrie (2008) did not find self-oriented perfectionism to moderate the relationship between body dissatisfaction and bulimic symptomatology. In an attempt to replicate this finding, this study examined personal standards as a moderator, expecting not to find a moderating relationship between body dissatisfaction and bulimic symptoms.

Tylka (2004) and Brannan and Petrie’s (2008) research contributed to the body of literature concerning variables that increase the likelihood of displaying eating pathology. Despite their contributions, both acknowledge the need for additional research in the area of
moderators. In particular, more research is needed in identifying variables that could buffer the relationship between body dissatisfaction and eating pathology (Tylka, 2004). Information from such studies could aid in the development of treatment plans for clients, and could significantly contribute to the field of counseling psychology, which is consistent with counseling psychology’s focus on strengths and nurturing positive psychological variables to protect against psychological distress.

The purpose of the current study was two fold: to replicate the findings of Tylka (2004) and Brannan and Petrie (2008) by examining neuroticism, body surveillance, and perfectionism, and to examine the potential buffering effect of Psychological Well-Being on the body dissatisfaction-bulimic symptomatology relationship.

Potential Buffer of the Body Dissatisfaction - Eating Disorder Relationship

*Psychological well-being.* The study of psychological well-being stems from two separate, but connected philosophical views: hedonic and eudaimonic. From the hedonic perspective, well-being is comprised of happiness or pleasure (Kahneman, Diener, & Schwarz, 1999), whereas, the eudaimonic view is characterized by a pursuit to realize one’s potential (Ryff, 1989; Waterman, 1993). Differing operational definitions of well-being have arisen from these intellectual traditions, specifically, subjective well-being and psychological well-being. Subjective well-being (SWB) is conceptualized as involving three separate, but related components: life satisfaction, positive affect, and the absence of negative affect (Diener, Lucas, & Oishi, 2002), which encompasses the hedonic tradition. Psychological well-being (PWB) involves striving to actualize human potential (Ryff, 1995), reflecting the eudaimonic tradition. Lent (2004) has suggested that SWB and PWB can be integrated to form a more comprehensive understanding of well-being that includes personality traits, life task participation, and life
satisfaction. In regard to eating pathology, women with high levels of body dissatisfaction coupled with high levels of psychological well-being, may be less likely to display patterns of disordered eating. Four positive psychological variables have been frequently implicated in psychological well-being – self-determination, optimism, satisfaction with life, and self-esteem (Chang, 1998; Deci & Ryan, 2000; Kitsantas, Gilligan, & Kamata, 2003; Pelletier & Dion, 2007) – and as such, will be used to represent this construct in this study.

*Self-determination.* According to self-determination theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000), there are different forms of motivation, specifically, autonomous and controlled motivation. The form of motivation is usually more influential than the amount of motivation in predicting life’s important outcomes (Deci & Ryan, 2000). Individuals tend to be motivated to regulate behaviors through choice as an expression of who they are (autonomous), or to be induced to act as a result of feeling pressured or coerced by internal or external forces (controlled) (Pelletier, Dion, & Levesque, 2004). For example, individuals who regulate behaviors through choice are motivated to follow their own interests and not what others say they should do. The regulation of behavior is said to be initiated autonomously and is described as self-determined (Pelletier et al., 2004). Individuals who regulate behaviors because they feel pressured or coerced are not behaving from a sense of personal commitment and choice, but rather some source outside the self that are defined as controlling (Pelletier et al., 2004). The regulation of behavior can take many forms that can be differentiated along a continuum of self-determination. These different forms of regulation can be grouped into three broad categories of motivation: intrinsic motivation, extrinsic motivation, and amotivation (Deci & Ryan, 1985; 1991; Ryan & Deci, 1999).
Behaviors that are intrinsically motivated represent an innate tendency to seek challenge, explore, and master the environment in the absence of rewards or external constraints. Essentially, when one is intrinsically motivated, the activity is embraced with a sense of commitment and personal choice (Pelletier & Dion, 2007). Extrinsic motivation, on the other hand, involves a number of behaviors that are engaged in as a means to an end and not for their own sake. The activity is performed to induce pleasant experiences or to avoid unpleasant ones (Deci, 1975). However, extrinsic motivation is thought to exist along a continuum of self-determination. Deci and Ryan (1985) have suggested four forms of regulation for extrinsic motivation that differ in the extent to which the regulation of the behavior is viewed as freely chosen by the individual (autonomous) or limited by external sources (controlled). The types of extrinsic motivation are: external regulation, introjected regulation, identified regulation, and integrated regulation.

According to Deci and Ryan (1985), external regulation involves behaviors that are influenced by external sources of control; behaviors that pertain to receiving rewards or avoiding punishment. After external regulation, the three remaining forms of extrinsic motivation differ in terms of their level of internalization, as well as the extent to which the regulations become integrated with a person’s sense of self (Deci & Ryan, 2008).

Deci and Ryan (2008) argue that SDT highlights that internalization and integration will function more or less effectively, depending on the degree to which the person experiences support for basic psychological need satisfaction. They suggest that people are more likely to internalize and integrate within themselves the regulation of activities that were initially prompted and/or regulated by external sources. For the process to function properly, people must
feel their basic psychological needs are met. If these needs are prevented from being met, people will not be as successful at internalizing and integrating regulations.

Introjected regulation involves previously external sources of control that have now been internalized so that the external source is no longer necessary to prompt behavior. Instead, self-imposed pressures, such as guilt or anxiety, become the controlling source (Ryan & Connell, 1989). Thus, individuals engage in a behavior because they would feel guilty or anxious for not doing so. For example, a student who has always been made to study by one’s parents (external regulation) may internalize the parental demands. As a result, the student may begin to be motivated to study, not because of being forced to, but rather because he/she would feel guilty if he/she did not study. Due to the feelings of self-imposed pressures emanating from an external source, introjected regulation is considered nonself-determined and internally controlled (Deci & Ryan, 1985). In essence, introjected regulation is a partial internalization, in which people internalize a demand without feeling ownership of it and then feel pressured and controlled by the demand (Deci & Ryan, 2008).

Identified regulation stems from when external regulatory processes have been internalized into one’s sense of self. The behavior is valued and is viewed as being significant to one’s identity. Although the behavior is still motivated by extrinsic reasons, identified regulation is defined as self-determined because it is internally regulated (Deci & Ryan, 1985). With identified regulation, people engage in activities with a greater sense of autonomy and as a result, do not feel pressured to do the activity (Deci & Ryan, 2008).

With integrated regulation, a behavior is performed not only because the individual values its significance, but also because it is commensurate with other values in the person’s self-system (Deci & Ryan, 1985). For example, a student may be motivated to study because putting
effort into tasks is consistent with the student’s self-concept. Deci and Ryan (2008) contend that integrated regulation represents complete internalization and is the process through which extrinsically motivated behaviors become truly autonomous and self-determined.

The last form of motivation described in SDT is amotivation. Amotivation refers to a state in which the link between one’s actions and the outcome of one’s actions is not perceived. Behavior that is regulated in an amotivated manner results in individuals feeling that their behavior is caused by external forces beyond their control, resulting in feelings of incompetence and a lack of control (Deci & Ryan, 1985). For example, a student may avoid studying because they view themselves as incapable and unable to exert control to change their ineptitude.

Research on self-determination and eating pathology has been led by Pelletier and colleagues (Pelletier, Dion, & Levesque, 2004; Pelletier, Dion, Slovinec-D’Angelo, & Reid, 2004; Pelletier & Dion, 2007). Much of their work has focused on the relationship of self-determination to other variables in models explaining the development of eating disorder symptomatology (Levine et al., 1996; Stice, 2001; Striegel-Moore et al., 2007). Specifically, their work has centered on investigating the relationship between sociocultural pressures of thinness and the internalization of those pressures. For example, Pelletier et al. (2004) suggested that self-determination could result in a lower likelihood of women internalizing the thin ideal and, subsequently, be less likely to experience body dissatisfaction. Pelletier et al. argued that the more women perceive their actions as personally caused, and the more they experience choice toward the various activities in their lives, the less they endorse the societal ideal of thinness. Pelletier et al. (2004) found support for this notion. Conversely, the more women feel compelled to behave in a particular way, or that they perceive that their actions stem from external sources, the more they endorse society’s beliefs regarding thinness.
Pelletier and Dion (2007) demonstrated that self-determination acted as a buffer against sociocultural pressures and messages of thinness. They argued that the more women feel self-determined toward their lives in general, the more motivated they may be to behave in accordance with their own values rather than just responding to external forces. Furthermore, Pelletier and Dion (2007) suggested that women with high levels of general self-determination would be less likely to experience sociocultural messages about body image as a type of pressure, but instead perceive the messages as information that they are free to use or dismiss. However, body dissatisfaction is widespread among women (Mazzeo, 1999), implying that many women may already ascribe to the notion of the thin ideal. Pelletier et al. (2004) found self-determination to be negatively associated with bulimic symptomatology, but this was not studied in the context of body dissatisfaction. They suggested that body dissatisfaction may not always be a necessary prerequisite for the development of eating pathology. However, clear links between body dissatisfaction and disordered eating have been repeatedly established. Thus, it becomes important to explore the role of self-determination when body dissatisfaction already exists.

Generally, studies have demonstrated that self-determined forms of regulation (i.e., intrinsic motivation, integrated regulation, and identified regulation) were associated positively with enhanced learning, psychological well-being, increased life satisfaction, greater effort, persistence, and better physical health, whereas the less self-determined styles (i.e., introjected regulation, external regulation, and amotivation) were associated negatively with these outcomes (Deci & Ryan, 1985; 1991; Ryan & Deci, 2000; Vallerand, 1997). In line with the idea that self-determination is associated with positive outcomes, one would expect that the more globally self-determined women are toward the various activities of their lives, the less they should be
impacted by the experience of body dissatisfaction and the less likely they should be to develop disordered eating. For these women, body dissatisfaction may not play an important role in their experiences, goals, and values. Thus, although these women may be dissatisfied with their bodies, they may be less concerned by it because it is not integral in defining who they are as a person. These women may be more likely to dismiss their body dissatisfaction as something that, although common among women, does not impede them from striving toward their goals and values. If so, women with high levels of self-determination may be less vulnerable to the effects of body dissatisfaction and as a result, be less likely to develop eating pathology.

**Optimism.** In psychological research, optimism has been referred to as hopeful expectations in a given situation (Scheier & Carver, 1988), and recently has been defined as general positive expectancies that are relatively stable and promote psychological adjustment (Scheier & Carver, 1985; 1993). This more generalized expectancy, or more commonly called, dispositional optimism, has been implicated as a causal factor in physical and psychological well-being (Aspinwall & Taylor, 1992; Litt, Tennen, Affleck, & Klock, 1992; Scheier et al., 1989). Scheier and Carver’s (1985) model of dispositional optimism-pessimism theorizes that optimism is associated with and leads to obtaining positive outcomes because of the use of more adaptive coping skills, whereas pessimism is associated with and leads to incurring negative outcomes as a result of less adaptive means of coping. Optimists have been shown to differ from pessimists in the stability of their coping skills (Carver, Scheier, & Weintraub, 1989), as well in the manner in which they cope with serious disease (Friedman et al., 1992). Optimists also report fewer depressive symptoms than do pessimistic individuals (Scheier & Carver, 1992; 1993). In addition, optimism has been shown to buffer the relationship between perceived stress and psychological well-being (Chang, 1998), lending support to its utility as a moderator.
Despite the positive findings associated with optimism, little research has been performed in the area of eating disorders. However, the studies that have been conducted suggest that optimism may be an important variable in its development. Bulik, Wade, and Kendler (2001) demonstrated that monozygotic twins affected by BN displayed lower optimism, self-esteem, and mastery than non-affected twins. Bulik et al. (2001) posed two possible interpretations for the differences found in personality. Specifically, the differences in self-esteem, mastery, and optimism could either be a result of having suffered from BN or represent persistent premorbid traits that may predisposed an individual to BN and possibly could also have been exacerbated by the eating disorder. In a study by Blaydon, Linder, and Kerr (2004), eating disordered and exercise dependent participants had lower optimism scores than non-eating disordered groups. They suggested that emotional stability and psychological health results from being able to fulfill various needs of different metamotivational states over time. Blaydon et al. argued that lower optimism scores in the eating disordered and exercise dependent groups could be explained by an inability to shift smoothly and appropriately between metamotivational states, and thus, these individuals are unable to fully get their needs satisfied.

Women who are dissatisfied with their bodies, but are optimistic, may be able to look beyond the reality that their body does not match the ideal and instead focus on other aspects of their lives. These women may accept their dissatisfaction, but do not allow it to define who they are. Furthermore, body dissatisfied women who also are optimists may react less negatively to their dissatisfaction and instead may reframe their experience of body dissatisfaction in a positive light. For example, instead of focusing negatively on their dissatisfaction, these women may focus on becoming healthier or being successful in other life areas. Thus, optimism may serve as a buffer against eating pathology. Consequently, an optimistic attitude may reduce the
normally negative effects of body dissatisfaction and be associated with a lowered risk of eating disordered symptoms.

Satisfaction with life. Shin and Johnson (1978) defined life satisfaction as a person’s cognitive evaluation of his or her quality of life as a whole. They (1978) suggested that such evaluations are thought to be based on one’s perception of what is standard, but is derived more from internal judgments than external evaluations of others’ lives. Basically, life satisfaction is based on how a person believes his/her life should be in relation to how it actually is (Paolini, Yanez, & Kelly, 2006). Researchers have shown in nonclinical samples that decreases in life satisfaction are related to maladaptive outcomes, such as interpersonal rejection (Furr & Funder, 1998) and depression and anxiety (Lewinsohn, Rohde, Seeley, & Fischer, 1991). Furr and Funder (1998) argued that when individuals are dissatisfied with life, they may appear insecure, self-pitying, irritated, and show a general social discomfort, an inability to communicate well, and an overall lack of social skill. Thus, these individuals are more likely to experience interpersonal rejection based on their behaviors and attitudes toward others. Furthermore, negative attitudes and emotions have been found to be significant predictors of the later development of disordered eating in the adolescent population (Leon, Fulkerson, Perry, Keel, & Klump, 1999; Leon, Keel, Klump, & Fulkerson, 1997). In a sample of female undergraduates with eating disorders, Kitsantas, Gilligan, and Kamata (2003) found less satisfaction with life and lower levels of positive affect than in individuals at risk for an eating disorder or individuals with healthy weights.

As of yet, life satisfaction has not been examined as a moderator. Life satisfaction has typically been researched as a dependent variable (Furr & Funder, 1998; Kitsantas et al., 2003; Lewinsohn et al., 1991), yet life satisfaction could interact with other variables to produce better
psychological adjustment. High levels of life satisfaction should buffer the relationship between body dissatisfaction and eating disorder symptomatology. Among body dissatisfied women, those who possess high levels of life satisfaction may be less concerned with trying to achieve the thin ideal image, and instead, focus their attention on the areas in which they do experience satisfaction, such as work, school, family, etc. As a result, these women may be less likely to engage in pathogenic weight control methods because their self-concept and worth is not solely defined or overly influenced by the size and shape of their bodies. On the other hand, body dissatisfied women who also possess low levels of life satisfaction may be more vulnerable to maladaptive weight control techniques. For these women, they may attempt to attain the thin ideal image because of a belief that if they were thinner, their lives would be more satisfying. Thus, these women may engage in disordered eating in a misguided attempt to make their lives more satisfying.

**Self-esteem.** Self-esteem has been defined as a trait-like evaluative attitude that people have toward themselves (Coopersmith, 1967) in reference to their own value, importance, and self-worth (Blascovich & Tomaka, 1991). Rosenberg (1965) conceptualized self-esteem as a global, unidimensional construct regarding the personal judgment of one’s own worth. Research on self-esteem and social comparison suggests that individuals with low self-esteem may be more likely to experience upsetting contrast effects as a result of comparing with others (Jones & Buckingham, 2005). In addition, there is evidence that individuals with low self-esteem react more negatively to unfavorable feedback than individuals with high self-esteem due to a tendency for individuals with low self-esteem to overgeneralize failure feedback to more general feelings of self-worth (Brown & Dutton, 1995; Kernis, Brockner, & Frankel, 1989). More specifically, although people with high self-esteem and low self-esteem may both feel bad after
failure, persons with low self-esteem tend to generalize these emotions so that they also feel worse about themselves (Jones & Buckingham, 2005).

Most studies have tended to examine self-esteem’s direct association with eating pathology and low self-esteem has frequently been implicated as a risk factor in the development of eating disorders (Button, Loan, Davies, & Sonuga-Barke, 1997; Fairburn, Cooper, Doll, & Welch, 1999; Granillo, Jones-Rodriguez, & Carvajal, 2005). Few studies have examined the role of self-esteem as a moderator in the development of disordered eating. However, one such study has investigated the role of self-esteem on the relationship between body dissatisfaction and eating disorder symptomatology.

Twamley and Davis (1999) demonstrated that self-esteem had a buffering effect on the relationship between body dissatisfaction and eating pathology. They found that at lower levels of self-esteem, body dissatisfaction had a greater impact on disordered eating than at higher levels self-esteem. Twamley and Davis argued that women who are body dissatisfied, but generally feel positive about themselves, may dismiss their body dissatisfaction more easily because of their other perceived strengths, thus avoiding attempts to achieve the societal thin ideal. In addition, Twamley and Davis suggested that if these women do try to change their bodies, they may use healthier methods. Thus, self-esteem appears to protect women with body dissatisfaction from eating pathology.

Summary

Several comprehensive reviews concerning the risk and causal factors associated with eating disorders exist (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004; Stice & Shaw, 2002; Striegel-Moore & Cachelin, 2001), but there is a dearth of research in regard to moderators, specifically variables that might protect women from developing bulimic symptoms.
As noted previously, body dissatisfaction is one of the strongest predictors in the development of disordered eating (Phelps et al., 1999; Polivy & Herman, 2002), and is a common to a majority of women (Mazzeo, 1999), yet only a small percentage actually develop an eating disorder (Striegel-Moore & Cachelin, 2001). Thus, it begs the question as to why among so many body dissatisfied women, so few actually go on to develop an eating disorder. Or, more importantly, how is it that so many women with high levels of body dissatisfaction do not develop patterns of disordered eating?

Psychological Well-Being, represented by self-determination, optimism, satisfaction with life, and self-esteem, has the potential to moderate the relationship between body dissatisfaction and bulimic symptomatology. In regard to self-determination, the more self-determined women are toward the many activities of their lives, the less they should be impacted by body dissatisfaction and the less likely they should be to develop disordered eating. For these women, body dissatisfaction may not play an important role in their experiences, goals, and values. Thus, although these women may be dissatisfied with their bodies, they may be less concerned by it because it does not have an integral role in defining who they are as a person. These women may be more likely to dismiss their body dissatisfaction as something that, although common among women, does not impede them from striving toward their goals and values.

Women who experience body dissatisfaction, but are optimistic, may be able to accept that their body does not fit the ideal and are able to focus on other aspects of their lives. These women may accept their dissatisfaction, but do not allow it to define who they are. Furthermore, body dissatisfied women who also are optimists may react less negatively to their dissatisfaction and instead may reframe their experience of body dissatisfaction in a positive light.
Among body dissatisfied women, those with high levels of life satisfaction may be less concerned with trying to achieve the thin ideal image, and instead, focus their attention on the areas in which they do experience satisfaction, such as work, school, family, etc. As a result, these women may be less likely to engage in disordered eating behaviors because their self-concept and worth is not solely defined or overly influenced by the size and shape of their bodies.

Women who are body dissatisfied, but possess high self-esteem, may dismiss their body dissatisfaction more easily because of their other perceived strengths, thus avoiding attempts to achieve the societal thin ideal. If these women do try to change their bodies, they may engage in healthier methods to do so, such as appropriate exercise and approved weight loss programs.

Examining variables that buffer the relationship between body dissatisfaction and bulimic symptomatology is clearly consistent with counseling psychology’s philosophy of highlighting strengths. Body dissatisfaction is common; eating disorders are not. Identifying variables that protect women from developing disordered eating despite high levels of body dissatisfaction is of the utmost importance.

Purpose and Hypotheses of the Proposed Study

The purpose of this study was to replicate and extend the research conducted by Tylka (2004), Brannan and Petrie (2008), Twamley and Davis (1999) by investigating whether Psychological Well-Being, perfectionism, body surveillance, and neuroticism moderate the relationship between body dissatisfaction and eating disorder symptomatology. It was hypothesized that:

1. Psychological Well-Being would weaken the relationship between body dissatisfaction and bulimic symptomatology. Specifically, under conditions of high Psychological Well-
Being, the effects of body dissatisfaction are minimized, resulting in fewer bulimic symptoms. However, when Psychological Well-Being is low and body dissatisfaction is high, women would display the highest bulimic symptoms.

2. Concern over mistakes would strengthen the relationship between body dissatisfaction and bulimic symptomatology, such that those who experience high levels of concern over mistakes and high levels of body dissatisfaction would display the highest BULIT-R scores. However, when concern over mistakes is low, the effect of body dissatisfaction is lessened.

3. Personal standards will not moderate the relationship between body dissatisfaction and bulimic symptomatology.

4. Parental expectations would strengthen the relation between body dissatisfaction and bulimic symptomatology, such that those who experience high levels of parent expectations and high levels of body dissatisfaction would display the most bulimic symptoms. When parental expectations are low, however, the effect of body dissatisfaction would be minimized.

5. Parental criticism would strengthen the relationship between body dissatisfaction and bulimic symptomatology. Specifically, those who experience high levels of parental criticism and high levels of body dissatisfaction would display the most bulimic symptoms. Under conditions when parental criticism is low, the impact of body dissatisfaction would be reduced.

6. Doubts about actions would strengthen the body dissatisfaction-bulimic symptomatology relationship, such that those who experience high doubts about actions and high body
dissatisfaction would display the highest BULIT-R scores. When doubts about actions are low, however, the effect of body dissatisfaction would be minimized.

7. Body surveillance would strengthen the relation between body dissatisfaction and bulimic symptomatology, such that those with high levels of body surveillance and high levels of body dissatisfaction would display the most bulimic symptoms. Conversely, when body surveillance is low, the effects of body dissatisfaction would be minimized.

8. Neuroticism would strengthen the relationship between body dissatisfaction and bulimic symptomatology. Specifically, those with high levels of neuroticism and high levels of body dissatisfaction would display the highest level of bulimic symptoms. However, under conditions when neuroticism is low, the impact of body dissatisfaction would be reduced.
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