

MULTIDIMENSIONAL PERFECTIONISM AND BODY IMAGE DYSFUNCTION IN THE  
PREDICTION OF EATING DISORDER SYMPTOMS

by

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### Abstract

The relationship between perfectionism and eating disorders has long been recognized, if not well understood. The current study tested a diathesis-stress model of the associations among multidimensional perfectionism, body image discrepancy, body image investment, and anorexic and bulimic symptoms in 145 female university students. The findings indicated that socially prescribed perfectionism, perfectionistic self-promotion, nondisplay of imperfection, and nondisclosure of imperfection were associated with both anorexic and bulimic symptoms, suggesting that the social facets of perfectionism may be most relevant to eating disorder symptoms. Further, for the self-presentation dimensions these results were qualified by a moderation effect. The results showed that perfectionistic self-presentation predicted both anorexic and bulimic symptoms in women who were dissatisfied with their bodies, but that it did not predict eating problems in women who liked their bodies and felt there was little or no discrepancy between their actual and ideal appearances. Moreover, body image investment did not moderate the relationship between trait and self-presentational perfectionism and eating disorder symptoms. The results are discussed in light of personality and social psychology theory on escape from aversive self-awareness and construction of the social self.



## TABLE OF CONTENTS

Abstract .....	ii
Table of Contents .....	iii
List of Tables .....	v
List of Figures .....	vii
Dedication .....	viii
Acknowledgements .....	ix
Introduction .....	1
The Perfectionism-Eating Disorder Link .....	1
Multidimensional Perfectionism and Eating Disorders .....	2
Perfectionism, Eating Disorders, and Body Image .....	8
Methods .....	12
Participants .....	12
Materials .....	13
Procedure .....	16
Results .....	16
Associations Among the Perfectionism, Body Image and Eating .....	18
Disorder Symptom Variables	
Testing the Diathesis-Stress Model .....	19
Discussion .....	22
Hypothesis I .....	22
Hypothesis II .....	24



Hypothesis III .....	27
References .....	30



## List of Tables

Table	Page Number
Table 1: <i>Means, Standard Deviations, and Alpha Reliability of the Perfectionism, Body Image, Eating Disorder Symptom Measures, and Body Mass Index</i>	39
Table 2: <i>Zero-Order Correlations of the Perfectionism and Body Image Variables with the Eating Disorder Symptom Measures</i>	40
Table 3: <i>Summary of Hierarchical Regression Analysis for Perfectionism, Body Image Discrepancy, and the Perfectionism x Body Image Discrepancy Variables Predicting EAT Total Scores</i>	41
Table 4: <i>Simple Slope Regression Analyses of Significant Perfectionism x Body Image Discrepancy Interactions Predicting EAT Total Scores</i>	43
Table 5: <i>Summary of Hierarchical Regression Analysis for Perfectionism, Body Image Investment, and the Perfectionism x Body Image Investment Variables Predicting EAT Total Scores</i>	46
Table 6: <i>Summary of Hierarchical Regression Analysis for Perfectionism, Body Image Discrepancy, and the Perfectionism x Body Image Discrepancy Variables Predicting BULIT Scores</i>	46
Table 7: <i>Simple Slope Regression Analyses of Significant Perfectionism x Body Image Discrepancy Interactions Predicting BULIT Scores</i>	48



Table 8: <i>Summary of Hierarchical Regression Analysis for Perfectionism, Body Image Investment, and the Perfectionism x Body Image Investment Variables Predicting BULIT Scores</i>	49
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## List of Figures

Figure	Page Number
Figure 1: <i>The Interaction of Perfectionistic Self-Promotion with Body Image Discrepancy to Predict Anorexic Symptoms</i>	52
Figure 2: <i>The Interaction of Nondisplay of Imperfection with Body Image Discrepancy to Predict Anorexic Symptoms</i>	53
Figure 3: <i>The Interaction of Nondisclosure of Imperfection with Body Image Discrepancy to Predict Anorexic Symptoms</i>	54
Figure 4: <i>The Interaction of Perfectionistic Self-Promotion with Body Image Discrepancy to Predict Bulimic Symptoms</i>	55
Figure 5: <i>The Interaction of Nondisplay of Imperfection with Body Image Discrepancy to Predict Bulimic Symptoms</i>	56
Figure 6: <i>The Interaction of Nondisclosure of Imperfection with Body Image Discrepancy to Predict Bulimic Symptoms</i>	57



## Dedication

For my partner, Jaimie. Thank you for your patience, your support, and your irrepressible sense of humour. This thesis would not have reached fruition without your help.



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## Introduction

### *The Perfectionism-Eating Disorder Link*

Perfectionism is a personality variable that engenders rigid and unrealistic standards for behaviour. It has long been recognized as a central feature of eating disorders, and has been hypothesized to have a pathogenic role in eating problems (Bruch, 1978). Early work by Bruch (1978) described anorexia nervosa patients as perfectionistic and seemingly well adjusted, where adjustment is rooted in overly submissive and considerate behavior, with a marked lack of self-assertion. While they often exhibit excellence in academic and athletic domains, anorexics lack conviction in their own inner value and live in constant fear of not being respected or rated highly enough. Others have noted that eating disordered patients may emerge from familial environments that emphasize a public image of perfection (Humphrey, 1992), families in which mistakes are greeted with dismay and in which a patient has learned to derive self-worth from the rigid pursuit of physical perfection (Reindl, 2001). Accordingly, a central component of eating disorder treatment has been to help patients discover that “they have substance and worth and do not need the strain and stress of a superstructure of artificial perfection” (Bruch, 1988, p. 8).

These clinical signs of perfectionism in eating disorder patients spurred research, which confirmed that perfectionism is not only associated with anorexia, but is a risk factor for bulimia nervosa and binge eating disorder as well (Fairburn, Cooper, Doll, & Welch, 1999; Fairburn, Doll, Welch, Hay, Davies, & O'Connor, 1998). Recent controlled family-genetic studies support these findings for both bulimic and anorexic populations by demonstrating that perfectionism is transmitted independently of eating disorders and is among the most potent vulnerability factors for the development of eating disorders (Lilenfeld et al., 2000).

The eating disorders literature is replete with studies that reveal a connection between perfectionism and eating disturbances. However, much of this of the early work conceptualized



perfectionism as a unidimensional cognitive construct. Numerous studies have tied unidimensional perfectionism to eating disturbances in cross-sectional samples ranging from currently ill and recovered eating disorder patients (e.g., Pryor, Wiederman, & McGilley, 1996; Sullivan, Bulik, Fear, & Pickering, 1998) to university students (e.g., Davis, Claridge, & Fox, 2000) to non-elite adolescent athletes (Fulkerson, Keel, Leon, & Dorr, 1999). In their study of covariation in perfectionism across clinical subtypes of anorexia nervosa, Halmi and her colleagues (2000) suggested that higher levels of perfectionism among purging-type anorexics may indicate a more desperate effort to attain the thin ideal. Moreover, increasing perfectionism was associated with greater prominence of eating preoccupations and rituals, lower body weight, and a diminished motivation to change. Therefore, it appears that higher levels of perfectionism are related to more profoundly disturbed eating behaviors. Although fewer studies have examined the relationship longitudinally, those that have done so prospectively have demonstrated that perfectionism is a risk factor for eating disorder development (Tycka, Waldron, Graber, & Brooks-Gunn, 2002; Vohs, Bardone, Joiner, & Abramson, 1999; Vohs, Voelz, Pettit, Bardone, Katz, Abramson, et al., 2001) and that it is predictive of poorer treatment response and more severe clinical outcomes (Bizeul, Sadowsky, & Rigaud, 2001; Sutandar-Pinnock, Woodside, Carter, Olmsted, & Kaplan, 2003). Moreover, follow-up studies on eating disordered patients indicate that perfectionism persists even after recovery (Pla & Toro, 1999; Stein, Kaye, Matsunaga, Orbach, Har-Even, Frank, et al., 2002; Sullivan, Bulik, Fear, & Pickering, 1998), suggesting that perfectionism may act as a general vulnerability factor, independent of illness status, that can predict eating problems under certain conditions.

### *Multidimensional Perfectionism and Eating Disorders*

While there is a clearly supported link between perfectionism and eating disorders, it is meaningful to ask what type of perfectionism has been examined. As a construct, perfectionism



has been variously described, ranging from unidimensional perspectives (Burns, 1983) to multidimensional models (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991b). From the multidimensional perspective, two broad components have become prevalent in the field of perfectionism: the trait component and the self-presentation component. Each defines perfectionism as a multidimensional construct comprising interpersonal, motivational, and perceptual components (Hewitt & Flett, 1991b). Further, each component consists of three dimensions. The trait component consists of three stable dimensions known as self-oriented perfectionism (SOP), socially prescribed perfectionism (SPP), and other-oriented perfectionism (OOP) (Hewitt & Flett, 1991b). Self-oriented perfectionism involves an individual's self-imposed need to be perfect. As a counterpoint, socially prescribed perfectionism involves the belief that others hold unrealistic and perfectionistic expectations for oneself, and it entails a desire to meet those expectations. Finally, other-oriented perfectionism involves holding perfectionistic expectations for the behavior of others. All three trait dimensions involve the need to *be* perfect, which distinguishes it conceptually from the self-presentation component of perfectionism described next.

Although perfectionism may be manifest within the individual, it can also be expressed interpersonally. This suggests an important distinction between an individual's need to *be* perfect and his or her need to *appear* perfect in the eyes of others. To account for these entrenched interpersonal styles, a perfectionistic self-presentation component was developed and added to the multidimensional model (Hewitt et al., 2003). As with the trait component of perfectionism, the self-presentation component distinguishes three facets of perfectionism: perfectionistic self-promotion (PSP), nondisclosure of imperfection (NDC), and nondisplay of imperfection (NDP). Perfectionistic self-promotion involves actively proclaiming one's successes, strengths, and achievements. Conversely, the latter two facets are protective or defensive orientations geared



toward concealing imperfections. Each strategy has as its goal the maintenance of a flawless image by obscuring perceived mistakes or weaknesses, but each achieves that end in a different way. The nondisclosure of imperfection facet entails a reticence to verbally admit personal shortcomings, whereas the nondisplay of imperfection facet involves an avoidance of behavioral displays of imperfection. Although the self-presentational styles are related to the trait dimensions, they are distinct aspects of perfectionism and are predictive of different maladaptive outcomes.

According to Hewitt and colleagues, the dimensions of perfectionism can function in eating disordered behavior in a variety of ways. First, perfectionism is associated with psychopathology through its influence on and interaction with stress (Hewitt & Flett, 2002). Perfectionists generally face greater stress than less perfectionistic individuals as a result of their high personal standards, stringent evaluation, and desire to meet the expectations of others. That is, perfectionism can function in a stress *generation* capacity. Moreover, perfectionism can affect the impact of distressing events (Hewitt & Flett, 1993). Individuals with stringent evaluative criteria are more likely to be faced with a failure to meet a goal, and such failures, even when minor, will be viewed as serious downfalls. In this way, perfectionism serves to *enhance* stress. For example, for a woman who holds rigid appearance standards and fails to achieve her weight goal, the event will be experienced as a calamity rather than as a temporary setback. Finally, perfectionists are prone to experience psychological distress because their elevated levels of stress are often accompanied by maladaptive ways of coping with this stress. For example, high levels of perfectionism hinder the help-seeking process (Ey, Henning, & Shaw, 2000). Negative attitudes about mental health services, diminished capacity to recognize the need for help and to be interpersonally open, and an inability to tolerate the stigma associated with receiving psychological services may prevent perfectionistic individuals from seeking treatment. Coupled



with the knowledge that eating disordered individuals often present a capable and compliant front (Bruch, 1978), this reluctance to seek treatment may indicate that only the most desperately ill become involved in treatment.

There are additional reasons to suspect an association between the trait and self-presentational components and eating pathology. With respect to trait perfectionism, the commonly reported tendency for eating disordered women to view achievements in all-or-nothing terms may indicate the presence of self-oriented perfectionism (Bauer & Anderson, 1989). Self-oriented perfectionism engenders rigid and unrealistically high self-imposed standards that extend to all areas of functioning, including appearance and eating behavior. Further, the social correlates of eating disorders, such as sensitivity to stringent parental expectations, suggest a link between socially prescribed perfectionism and problem eating (Bruch, 1973; Garner, Olmstead, Polivy, & Garfinkel, 1984). In addition to the trait dimensions of perfectionism, a number of findings point to an association of eating disorders with perfectionistic self-presentational styles. Perfectionistic self-presentation may evolve from the familial environment of individuals with anorexia. In a family that presents a public image of perfection while masking underlying problems (Humphrey, 1992), promoting an image of perfection or hiding perceived faults reflects conformity to established familial norms. Convergence in levels of perfectionism may be a factor with other reference groups as well. Meyer and Waller (2001) found that social proximity promotes convergence in levels of perfectionism in college roommates who were randomly assigned to housing groups. Alternatively, perfectionistic self-presentation may arise from a disturbed identity development. Weinrich, Doherty, and Harris (1985) compared the identity development of female anorexic and bulimic patients with female patients with other psychiatric disorders and with normal controls. They found that anorexic and bulimic patients exhibited significantly lower self-evaluations than



the other two groups. Moreover, anorexics' current self-evaluations were lower than their past self-evaluations, suggesting an "anti-developmental" trend. These women may attempt to construct a less fragile self-concept by focusing on their physical appearance (Striegel-Moore, Silberstein, & Rodin, 1993). They may concentrate on their public image to compensate for a weakened identity.

Both trait and self-presentational dimensions of perfectionism have been associated with a host of negative effects (see Hewitt & Flett, 2002 for a review), including eating disorder symptoms (e.g., Bastiani, Rao, Weltzin, and Kaye, 1995; Cockell et al., 2002; Hewitt, Flett, & Ediger, 1995). A number of researchers have explored the relationship of trait perfectionism to maladaptive eating behavior. Pliner and Haddock (1996) examined the issue experimentally in the context of a goal-setting scenario and found that weight-concerned undergraduate women adhere strongly to the unrealistic standards set by others, but that they set lower self-defined standards. Thus, weight-concerned women emerged as socially prescribed perfectionists, but not self-oriented perfectionists. Other studies have used clinical samples to demonstrate that trait perfectionism, or more specifically socially prescribed perfectionism, is a maintenance factor in binge eating disorder (Pratt, Telch, Labouvie, Wilson, & Agras, 2001). Using both underweight and weight restored restrictor anorexic subjects, Bastiani and her colleagues (1995) showed that restricting subtype anorexic subjects are perfectionistic and that this perfectionism persists even after weight restoration. Their results indicated that this perfectionism is generally experienced as self-imposed (i.e., SOP) and not as a response to others' expectations (i.e., SPP). Moreover, self-oriented perfectionism was found to be a risk factor associated with disordered eating in adolescent females (McVey, Pepler, Davis, Flett, & Abdoell, 2002). Further work on the relationship of trait perfectionism to anorexia nervosa in both clinical and non-clinical populations has confirmed the relationship of both SOP and SPP to anorexic symptomatology



(Cockell et al., 2002; Geller, Cockell, Hewitt, Goldner, & Flett, 2000; Hewitt et al., 1995).

It is important to note that while the association of SOP and SPP to eating disorder symptoms is well established, it lacks clarity. Although many studies have linked SOP (but not SPP) to eating disorder symptoms, there are others that have demonstrated a relationship between SPP (but not SOP) and eating pathology. This may be a function of the sample characteristics (e.g., clinical versus nonclinical) or the specifics of the eating pathology (e.g., disorder subtype) in each study, but in general the field lacks a clear model to explain these apparent inconsistencies.

In recent years, researchers have turned their attention increasingly to the role of perfectionistic self-presentation in the development of eating disorders. For example, using anorexic patients and psychiatric controls, Cockell et al. (2002) demonstrated that anorexic subjects had higher scores on nondisclosure of imperfection than did other psychiatric patients, suggesting that anorexic patients are more reluctant to admit their shortcomings than are other psychiatric patients. Additional work on women with anorexia nervosa revealed that all three self-presentational perfectionism facets (PSP, NDC, and NDP) were associated with the anorexics' tendency to suppress negative feelings and to give priority to the feelings of others (Geller et al., 2000). Finally, research using female university students demonstrated that the self-presentational facets of perfectionism were related to eating disorder symptoms as well as body image avoidance and self-esteem (Hewitt, et al., 1995). Thus, the need to present a public image of perfection is not only related to eating behaviors, but to other weight and shape concerns as well.

In addition to work that has examined multidimensional perfectionism overtly, it has been recognized for some time now that the commonly used Eating Disorders Inventory Perfectionism subscale (EDI-P; Garner, Olmstead, & Polivy, 1983 ) is actually a composite of



two dimensions of trait perfectionism comprised of three items corresponding to SOP and three items reflecting the SPP dimension (Bardone, Vohs, Abramson, Heatherton, & Joiner, 2000; Joiner, Heatherton, Rudd, & Schmidt, 1997; Joiner & Schmidt, 1995, Sherry, Hewitt, Besser, McGee, & Flett, in press). Despite this, the EDI-P is usually treated as a unidimensional measure of perfectionism, which may obscure the differential relations of its SOP and SPP components to eating pathology. More importantly, it negates the possibility of an interaction between the SOP and SPP components to predict eating disturbance. Therefore, although the existing literature using the EDI-P has been largely unidimensional in nature, it can be taken as tacit, if qualified, support for the association of SOP and SPP with eating disorders.

### *Perfectionism, Eating Disorders, and Body Image*

Despite ample support for a link between perfectionism and eating disorder symptoms, “the interpretation of simple relationships among personality variables—at least in the area of body image and eating disorder research—can offer a misleading account of a complex process of psychopathology” (Davis, 1997, p. 426). Therefore, it is advisable to entertain more complex predictive relationships when possible. In this vein, Heatherton and Baumeister (1991) offered an explanatory model for binge eating behavior that postulates a diathesis role for perfectionism. They suggested that in the context of perfectionistic standards, a perceived failure experience would result in aversive self-perceptions accompanied by negative affect. To alleviate this unpleasant state, they hypothesized that binge eaters would attempt to narrow their cognitive field, focusing on the immediate stimulus environment to the exclusion of more broadly meaningful thought. One of the consequences of this type of low-level thought is to disengage normal inhibitions against overeating and permit binge behavior. This model is consistent with current knowledge of perfectionism. We know that perfectionism tends to increase the frequency and impact of perceived failure experiences (Hewitt & Flett, 2002); that perfectionists have



maladaptive coping styles that are often characterized by avoidant techniques (Ey, et al., 2000; Haring, Hewitt, & Flett, in press); and that there is an association between perfectionism and disordered eating (e.g., Bastiani, et al., 1995; Cockell et al., 2002; Hewitt, et al., 1995). The first stage of the model is the most relevant for our research. It suggests that perfectionism (the diathesis) can lead to binge eating, but that it will only do so when a person feels he or she has failed to meet the standards of the self or others (the stressor). The question, of course, is what kind of failure experiences moderate the link between perfectionism and eating disordered behavior?

Given the evidence for an association between body image dysfunction and eating disturbance (see Cash & Brown, 1987 for a review), body image, or the way an individual experiences her body weight or shape, is an excellent candidate as a moderator. In their diathesis-stress model, Joiner and his colleagues (1997) demonstrated that perfectionism (as measured by the EDI Perfectionism subscale) acts as a vulnerability factor for bulimic symptoms only in those individuals who perceive themselves to be overweight. In their conceptualization, perfectionism is a risk factor for eating problems only when an individual experiences stress caused by a failure to meet weight standards. Moreover, actual weight status did not affect this relationship. To refine and extend this work, Vohs and others (1999) demonstrated that self-esteem moderates the interaction between perfectionism and perceived weight status in predicting change in bulimic symptoms over time. More specifically, they showed that women high in perfectionism who perceive themselves to be overweight only develop bulimic symptoms if they also have low self-esteem. More recently, Vohs and her colleagues (2001) used a longitudinal design with different measurement techniques to provide convincing support for the model's predictive ability. They also demonstrated that the model exhibits only partial symptom specificity: the three-way perfectionism x body dissatisfaction x self-esteem interaction is not a



significant predictor of anxiety symptoms, but it does predict depression in addition to bulimic symptoms. These findings are important not only to the theoretical understanding of eating disorder development, but also to risk assessment and preventative health care. The more refined the model, the more precise will be our identification of individuals at risk for these disorders.

In the interest of building on this work, we attempted to examine three key features more broadly. First, we elected to test the model using both trait and self-presentational perfectionism to explore whether the dimensions were uniquely and differentially predictive of eating behavior. Second, we chose to measure body image as a dimensional construct using multiple attitudinal measures and to examine two aspects of body image as prospective moderators. Consistent with the work of Joiner et al. (1997) and Vohs et al. (1999, 2001) we measured body image discrepancy, or the degree to which a person likes the way she looks and how close she feels she is to her ideal appearance. In addition, we assessed another facet of body image, body image importance or investment. In our conceptualization, body image investment refers to how much time a person spends on her appearance and how important her ideal appearance is to her. We wanted to establish whether it is specifically a *discrepancy* between an individual's actual and ideal appearance that moderates the perfectionism-eating pathology relationship, or whether believing that appearance is *important* will also affect the relationship between perfectionism and eating disorder symptoms. The former constitutes a perceived failure experience, while the latter does not. Finally, we included both anorexic and bulimic symptoms as criterion variables. While the model postulated by Heatherton and Baumeister (1991) was generated to explain bulimic symptoms, it may also explain anorexic behaviors. The cognitive narrowing that is hypothesized to reduce painful self-awareness is characteristically associated with highly ritualized actions and present-focused experiences. It is essentially a process of cognitive deconstruction evidenced by concrete thinking, immediate proximal goals, cognitive rigidity, and a very constricted temporal



focus. In the case of bulimia, such actions may include chewing and swallowing, with a focus on the taste or texture of the food (Heatherton & Baumeister, 1991). We believe that this model can be extended to explain anorexic behaviors such as ritualistic food preparation, compulsive calorie counting, or repeated weighing (Rothenberg, 1990). Whether these actions are the result of cognitive narrowing or are the mechanism by which it occurs remains to be seen. This study investigated only the moderational relationship of perfectionism and body image to eating disorder symptoms and not the mechanism by which this relationship emerges.

To summarize, the purpose of this study was to explore the relationship between multidimensional perfectionism and eating disorder symptoms and to determine whether body image discrepancy or body image investment alters that relationship. We made a number of predictions for the results. First, concordant with theory and with prior work on multidimensional perfectionism (e.g., Bastiani, et al., 1995; Cockell, et al., 2002; Hewitt, et al., 1995), we predicted that two of the trait perfectionism dimensions (SOP and SPP) and all three of the perfectionistic self-presentation facets (PSP, NDP, and NDC) would be positively related to both anorexic and bulimic symptoms. Second, we predicted that the perfectionism x body image discrepancy interactions would predict significant variance in both anorexic and bulimic symptoms. Specifically, we anticipated that the severity of eating disturbance amongst perfectionists would be worse when body image discrepancy was high, and that the relationship between perfectionism and eating disturbance would be substantially reduced when individuals possess healthy body images. Third, we predicted the perfectionism x body image investment interactions would not predict significant variance in eating disorder symptoms. That is, level of body image investment would not affect the relationship between perfectionism and eating disturbance. This was based on the belief that, unlike body image discrepancy, body image investment does not in and of itself constitute a perceived failure to meet expectations.



## Methods

### *Participants*

A sample of 145 undergraduate females taking first and second year psychology courses at the University of British Columbia completed measures and provided basic demographic information, including height and weight data from which body mass index ( $\text{kg}/\text{m}^2$ ) was calculated. Undergraduate women were specifically selected because eating problems are predominantly a female health concern (Heatherton, Nichols, Mahamedi, & Keel, 1995), and because an estimated 64% of university women exhibit some degree of eating disordered behavior (Mintz & Betz, 1988). Thus, female undergraduates represent a rich source of information on the relationship between personality and eating behavior. Based on work by Green (1991), 145 participants should ensure that the regression procedures we used would have power statistics of .80 for a medium effect size with four predictors. Participants averaged 21.6 years of age ( $SD = 1.63$ ) with 1.25 years of university education ( $SD = 0.59$ ); all but one of the participants reported their relationship status as single. Eighty-one percent of the sample was in their first year of university; 11% were in their second year; 6% were in their third year; 1% were in their fourth year; and 1% did not specify their years of university education. Thirty-seven percent of participants reported their ethnic identity as Caucasian of European or North American descent; 54% as Asian; 5% as East Indian; and, 3% as "other." Only one participant did not declare her ethnic identity. The average number of years that participants in this sample had resided in Canada at the time of the study was 14.29 ( $SD = 6.56$ ). This sample is comparable to other samples of university students recruited at the University of British Columbia (e.g., Sherry et al., in press).



## *Materials*

### *Predictor Variables*

*Multidimensional Perfectionism Scale (MPS).* The MPS (Hewitt & Flett, 1991b) is a 45-item scale composed of three 15-item subscales designed to measure self-oriented, other-oriented, and socially prescribed perfectionism. However, as neither theory nor past research postulated an association between other-oriented perfectionism and eating disorder symptoms, only the socially prescribed perfectionism and self-oriented perfectionism dimensions were used in this study. Participants are asked to make seven-point ratings to reflect their agreement with statements such as “I must always be successful at school or work” (self-oriented), “Everything that others do must be of top notch quality” (other-oriented), or “I feel that people are too demanding of me” (socially prescribed). Higher scores indicate an increased level of perfectionism. Perfectionism dimensions are stable over time. For example the three-month test-retest correlations for self-oriented, other-oriented, and socially prescribed perfectionism are .69, .66, and .60, respectively in a psychiatric sample and .88, .85, and .75, respectively in a student sample (Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991; Hewitt & Flett, 1991b). Coefficients alpha for the MPS subscales usually range from .70 to .95, indicating a high degree of internal consistency (e.g., Hewitt & Flett, 1991b). Additional studies have established the incremental validity, predictive validity, convergent validity, discriminant validity, and multidimensionality of the MPS in both psychiatric patients and university students (e.g., Hewitt & Flett, 1991b; Hewitt et al., 1991).

*Perfectionistic Self-Presentation Scale (PSPS).* The PSPS (Hewitt, et al., 2003) is a 27-item measure composed of three perfectionistic self-presentation subscales: perfectionistic self-promotion (10 items), nondisplay of imperfection (10 items), and nondisclosure of imperfection (7 items). Participants rate their agreement with items on a seven-point scale to statements such



as “If I seem perfect, others will see me more positively” (perfectionistic self-promotion), “I should solve my own problems rather than admit them to others” (nondisclosure of imperfection), and “It would be awful if I made a fool of myself in front of others” (nondisplay of imperfection). Higher scores indicate greater perfectionistic self-presentation. The PSPS possesses good internal consistency, test-retest reliability, and adequate convergent and discriminant validity. Coefficient alpha values generally range between .78 and .86 for the three subscales, supporting their internal consistency, and test-retest reliability estimates range between .74 and .84, indicating a high level of stability in both clinical and student samples (Hewitt et al., 2003). Further work has documented the factorial stability, construct validity, convergent validity, and predictive validity of the PSPS in both psychiatric patients and university students (Habke, Hewitt, & Flett, 1999; Hewitt et al., 1995; Hewitt et al., 2003)

*Multidimensional Body-Self Relations Questionnaire (MBSRQ).* The MBSRQ (Brown, Cash, & Mikulka, 1990; Cash, 2000) is a 69-item attitudinal body image inventory with 10 subscales. Reliability for the subscales is satisfactory, with test-retest reliabilities ranging from .74 to .94 and Cronbach’s alphas ranging between .73 and .90. Three MBSRQ subscales were used in this study: Appearance Evaluation, which assesses feelings of physical attractiveness and satisfaction with one’s appearance; Appearance Orientation, which evaluates the extent of investment in one’s appearance as gauged by the amount of time spent grooming and the importance placed on appearance; and Body Areas Satisfaction, which assesses a person’s satisfaction with discrete areas of her body. For all subscales, higher scores reflect greater body dissatisfaction or appearance investment.

*Body-Image Ideals Questionnaire (BIQ).* The BIQ (Cash & Szymanski, 1995) is a 20-item attitudinal instrument that considers one’s perceived discrepancy from and degree of investment in personal ideals on multiple physical attributes. The measure consists of internally



consistent Discrepancy and Importance subscales. For the Discrepancy subscale, participants are instructed to think about how they would describe themselves as they actually are, and then to think about how they wish they were. The difference between the two reveals how close they have come to their personal ideal, with higher scores reflecting greater discrepancy. For the Importance subscale, subjects are asked to assess the importance of each physical ideal, regardless of the discrepancy between actual and ideal self. Higher scores signal greater importance. Items are presented in pairs for each physical characteristic (e.g., “My ideal skin complexion is”[Discrepancy] and “How important to you is your ideal skin complexion?”[Importance]), and participants are asked to rate each item on a 4-point scale. The reliability and validity of this measure have been established (Cash & Szymanski, 1995).

#### *Criterion Variables*

*Bulimia Test (BULIT).* The BULIT (Smith & Thelen, 1984) is a 36-item measure for symptoms of bulimia nervosa. Items are presented in a 5-point forced-choice format with higher scores indicating greater bulimic symptomatology. Reliability and validity for this measure are sound (Smith & Thelen, 1984), and the BULIT has been shown to discriminate bulimic from normal control subjects, and to distinguish bulimia in nonclinical populations.

*Eating Attitudes Test (EAT-26).* The EAT-26 (Garner & Garfinkel, 1979; Garner, Olmstead, Bohr, & Garfinkel, 1982) is a 26-item measure of behaviors and attitudes symptomatic of anorexia nervosa. There are subscales for dieting (e.g., “I think a lot about wanting to be thinner”), bulimic behaviors (e.g., “Have the urge to vomit after meals”), and self-control of eating behaviors (e.g., “Cut my food into small pieces”). Participants rate the frequency of items on a 6-point scale. The original scoring of the EAT maximizes the differences between nonclinical and clinical groups by creating a 3-point extreme score scale from a 6-point scale. As we were using a nonclinical sample and were attempting to measure a range of eating



attitudes and behaviors characteristic of anorexia, we summed the 6-point item ratings. Prior to scoring, the item ratings were reverse scored so that higher test scores reflect higher levels of anorexic symptoms. The EAT-26 exhibits acceptable criterion-related validity, high internal consistency ( $\alpha = .90$ ), and it correlates well with the longer, 40-item EAT-40 (Garner et al., 1982)

### *Procedure*

Participation was confidential and voluntary. Participants were recruited from the undergraduate participant pool at the University of British Columbia (UBC). In exchange for participating in this study, each participant received a 1% bonus added to her final course grade, which could be applied to either a first or a second year psychology course in which the participant was currently enrolled. All participants were debriefed following their involvement in this study.

Each participant was provided with a copy of the complete battery and asked to complete the package and return it to the lab. The complete battery consisted of a) a brief questionnaire on demographic information, including height and weight, b) measures of multidimensional perfectionism (MPS and PSPS), c) measures of eating disorder symptomatology (BULIT and EAT-26), and d) measures of body image dysfunction (MBSRQ and BIQ).

### *Results*

Prior to analysis, the data were examined to ensure that the assumptions of the statistical test were adequately met (Tabachnick & Fidell, 1996). First, missing data were identified and replaced by the subject item mean for the given measure, unless more than 10% of the data were missing in which case that measure was considered missing. Second, distributions were examined for the presence of univariate outliers and considerable skew or kurtosis. One participant was eliminated as an extreme outlier on the BULIT, as her score was well above the



diagnostic cut-off for bulimia (Smith & Thelen, 1984) and she was therefore not a member of the nonclinical target population. All of the distributions met the assumption of normality (Tabachnick & Fidell, 1996), so no transformations were required. Next, multicollinearity and singularity were assessed by examining the bivariate correlations between predictor variables. The magnitude of all correlations were within accepted limits, but in accordance with published procedures for detecting moderation effects (Aiken & West, 1991) we centered the predictor variables by subtracting the mean from each score. The centered variables were used only in testing the interactions. The advantage of this scale transformation is to reduce the correlation between the interaction term and its constituent variables without changing the overall interaction or any aspect of the interaction that is subsequently examined (e.g., simple slope analysis). Criterion variables were left in their original, uncentered form.

The means, standard deviations and coefficients alpha are presented in Table 1 and were consistent with previous reports using nonclinical samples (e.g., Hewitt & Flett, 1991a; Hewitt, et al., 1995; Cash & Henry, 1995; Cash & Szymanski, 1995; Cash, Ancis, & Strachan, 1997). Further, all scales showed adequate internal consistency.

To understand the mechanism by which perfectionism and body image are related to eating disorder symptoms, we explored a diathesis-stress model in which perfectionism acted as an underlying vulnerability that was activated by the presence of appearance stress. In order to do this we created composite measures of body image dysfunction to reduce the number of analyses and better tap the underlying facets of this construct. Using a principal components analysis with varimax rotation, and based on a scree test, a two-factor solution seemed to best fit the data. Selecting variables with loadings above .40, the first factor consisted of the MBSRQ appearance evaluation subscale, the MBSRQ body areas satisfaction subscale, and the BIQ discrepancy subscale. We labelled it 'body image discrepancy'. The second factor comprised the



MBSRQ appearance orientation and BIQ importance subscales and we called it 'body image investment'. These two factors, body image discrepancy and body image investment, were used as variables in the interaction terms of the moderated regression analyses. The zero-order bivariate correlations between these factors and anorexic and bulimic symptoms are presented in Table 2.

*Associations Among the Perfectionism, Body Image and Eating Disorder Symptom Variables*  
*Anorexic Symptoms*

Zero-order bivariate correlations are presented in Table 2 and were used to assess the degree of association of perfectionism and body image dysfunction with eating disorder symptoms. A Bonferroni procedure (Larzelere & Mulaik, 1977) was used to control the family-wise Type I error rate in all analyses. For the bivariate correlations, the Bonferroni correction ( $p = .05/20$ ) was applied, resulting in a significance level of .003. Consistent with the notion that perfectionism is associated with anorexic symptoms, socially prescribed perfectionism, perfectionistic self-promotion, nondisplay of imperfection and nondisclosure of imperfection all exhibited significant positive correlations with the EAT-26 total scores. Surprisingly, self-oriented perfectionism was not significantly correlated with anorexic symptoms, suggesting that amongst the trait dimensions SPP, but not SOP, is an important predictor of anorexic behaviors. This conflicts with both our own expectations and with prior research demonstrating a link between SOP and eating problems (Bastiani et al., 1995; Cockell et al., 2002; Hewitt, et al., 1995). Finally, all three variables related to body image discrepancy (MBSRQ appearance evaluation, MBSRQ body areas satisfaction, and BIQ discrepancy) as well as those reflecting body image investment (MBSRQ appearance orientation and BIQ importance) displayed significant positive correlations with anorexic symptoms.

*Bulimic Symptoms*



With respect to bulimic activities, the zero-order correlations indicated that SPP, PSP, NDP, and NDC are all significantly associated with bulimic symptom scores. However, SOP failed to exhibit a significant association with bulimic pathology, which was contrary to our predictions. Finally, body image variables related to both body image discrepancy and body image investment exhibited significant positive associations with bulimic symptoms.

### *Testing the Diathesis-Stress Model*

In order to ascertain whether the relationship between perfectionism and eating disorder symptoms is moderated by body image dysfunction, we conducted a series of hierarchical multiple regression analyses. On the first step, body mass index was entered to control for actual weight characteristics. In Step 2, one of the trait perfectionism or perfectionistic self-presentation variables was entered, followed by entry of either the body image discrepancy factor or the body image investment factor in Step 3. The final step consisted of the perfectionism x body image factor interaction term. The criterion variable was either anorexic behavior, as measured by EAT-26 total score, or bulimic symptoms as measured by the BULIT. Owing to the statistical difficulty of detecting moderator effects (McClelland & Judd, 1993), the family-wise Type I error rate was controlled at the .10 level for moderation analyses, resulting in a corrected significance level of .005.

### *Anorexic Symptoms*

#### *Body Image Discrepancy.*

The results presented in Table 3 indicated that there were no significant interactions involving either of the trait perfectionism dimensions examined (i.e., SOP and SPP). In contrast, each of the perfectionistic self-presentation facets interacted with body image discrepancy to predict unique variance in anorexic activities. That is, the PSP x body image discrepancy, NDP x body image discrepancy, and NDC x body image discrepancy interaction terms served as



significant predictors of anorexic symptoms. It is important to note that when a study successfully detects an interaction, the reduction in variation attributable to adding the interaction term to an additive model is likely to be small (McClelland & Judd, 1993). Therefore, even those interactions explaining as little as 1% of the total variance should be considered important (Chaplin, 1991; Evans, 1985). In the present study, the significant interactions accounted for between 3 and 5 percent of the total variance in eating disorder symptoms.

To further explore the significant interactions, we conducted a simple slope regression analysis for each interaction by substituting specific values for body image discrepancy (1 *SD* above and below the mean) and graphed the interactions. The results of the simple slope analysis are depicted in Table 4. They indicated that the slope of the regression line of anorexic symptoms on perfectionistic self-presentation was significantly different from zero at high levels of body image discrepancy, but that the slope was not significantly different from zero at low levels of body image discrepancy. More specifically, at high levels of body image discrepancy, when women are dissatisfied with how they look, higher levels of perfectionistic self-promotion predicted higher levels of anorexic symptoms. At low levels of body image discrepancy, when women feel their actual appearance is close to their ideal, higher levels of perfectionistic self-promotion did not predict higher levels of anorexic behavior (Figure 1). Thus, the relationship between perfectionistic self-promotion and anorexic symptoms depends upon the level of body image discrepancy. Similar patterns of results were found for both nondisplay of imperfection (Figure 2) and nondisclosure of imperfection (Figure 3).

#### *Body Image Investment.*

As predicted, there were no significant interactions involving body image investment (Table 5). Thus, the relationship between perfectionism and anorexic symptoms was not affected



by the amount of time spent grooming or the importance associated with personal appearance ideals.

### *Bulimic Symptoms*

#### *Body Image Discrepancy*

On the question of moderation, the results showed that each of the perfectionistic self-presentation facets interacted with body image discrepancy to predict unique variance in bulimic symptoms (Table 6). That is, the PSP x body image discrepancy, NDP x body image discrepancy, and NDC x body image discrepancy interaction terms served as significant predictors of bulimic behaviors. There were no significant interactions involving either self-oriented perfectionism or socially prescribed perfectionism.

To examine the form of the significant interactions, we conducted a simple slope regression analysis for each interaction by substituting specific values for body image discrepancy (1 *SD* above and below the mean) and graphed the interactions. The results of the simple slope analysis are depicted in Table 7. The findings were analogous to those obtained in the anorexic symptom analysis. Here the slope of the regression line of bulimic symptoms on perfectionistic self-presentation was significantly different from zero at high levels of body image discrepancy, but the slope was not significantly different from zero at low levels of body image discrepancy. In more tangible terms, at high levels of body image discrepancy, when women feel that they have not achieved their ideal appearance, higher levels of perfectionistic self-promotion predict higher levels of bulimic symptoms. At low levels of body image discrepancy, when women are satisfied with how they look, higher levels of perfectionistic self-promotion do not predict higher levels of bulimic behavior (Figure 4). Thus, the relationship between perfectionistic self-promotion and bulimic symptoms is moderated by body image



discrepancy. Similar patterns of results were found for both nondisplay of imperfection (Figure 5) and nondisclosure of imperfection (Figure 6).

#### *Body Image Investment.*

In the prediction of bulimic symptoms there were no significant interactions involving body image investment (Table 8). Thus, the relationship between perfectionism and bulimic behaviors did not depend upon the level of appearance investment.

### Discussion

This study examined a diathesis-stress model of the associations among multidimensional perfectionism, body image, and eating disorder symptoms in a student sample. The results suggested that multidimensional perfectionism, body image discrepancy, and body image investment each predicts symptoms of anorexia and bulimia. However, the moderational findings qualified a number of these relationships. Specifically, the relationship between perfectionistic self-presentation and eating disorder symptoms was shown to depend upon the level of body image discrepancy, such that higher levels of perfectionistic self-presentation predict greater eating disturbance only for women who are dissatisfied with how they look. Although body image investment exhibited a main effect relation to eating disorder symptoms, as predicted, it did not moderate the perfectionism-eating disturbance link.

#### *Hypothesis I*

##### *Trait Perfectionism*

In line with our expectations, socially prescribed perfectionism, or the belief that others expect perfection from oneself, was related to both dieting and binge-purge behaviors. This finding replicates work that demonstrates a link between SPP and eating problems (e.g., Hewitt, et al., 1995; Pliner & Haddock, 1996). Moreover, it is consistent with reports that eating disordered women perceive that their parents, and indeed broader society, hold unrealistic



expectations for their behavior and appearance (Bruch, 1973; Bruch, 1978; Garner, et al., 1984). As Bruch (1978) noted, most anorexic patients are “constantly concerned with being found wanting, not being good enough, not living up to ‘expectations’, in danger of losing their parents’ love and consideration” (p. 39); they are consumed by the need “to do what they think the others expect [them] to do” (p. 43). Consistent with our description of socially prescribed perfectionism, anorexic patients perceive themselves as acting only in response to demands coming from others (Bruch, 1981)

Unexpectedly, self-oriented perfectionism, or the self-driven need to be perfect, was not predictive of eating problems. Not only was this inconsistent with our predictions, it failed to replicate past research that reveals an association between SOP and eating disorders (e.g., Bastiani, et al., 1995; Cockell et al., 2002). It is difficult to explain this discrepancy. It may stem from the unique characteristics of the sample used in this study. We have measured subclinical eating disorder symptoms in normal individuals rather than examining women with a clinical disorder. Alternatively, the failure to replicate past work may reflect the particular measures used here. While we used the EAT-26 and BULIT as our symptom measures, much of the cited work used the EDI as a criterion measure (e.g., Bastiani, et al, 1995; Fulkerson, et al., 1999; Joiner et al, 1997). However, Hewitt and colleagues (1995) found an association between self-oriented perfectionism and anorexic symptoms using the EAT-26. In any case, further research is warranted to clarify this deviation from previous reports.

#### *Perfectionistic Self-Presentation*

When we examined the various facets of perfectionistic self-presentation, we found that all three facets were related to anorexic and bulimic behaviors. That is, actively promoting one’s strengths (PSP), eschewing overt displays of imperfection (NDP), and refusing to tell others about one’s shortcomings (NDC) were each predictive of eating problems. These findings



parallel past research (Cockell, et al. 2002; Hewitt, et al., 1995) and are concordant with reports that eating disorder patients are “preoccupied with satisfying the image others have of them” (p. 43) and are concerned with hiding the fatal flaw of their basic inadequacy (Bruch, 1978).

### *Hypothesis II*

#### *Trait Perfectionism*

The moderational analyses provided a test of the diathesis-stress model wherein perfectionism is conceived of as an underlying vulnerability that predicts eating problems under conditions of body image stress. Contrary to our expectations, the relationship between trait perfectionism and eating disorder symptoms was not moderated by body image discrepancy. Therefore, the belief that others have extremely high expectations for the self (i.e., SPP) is relevant to eating problems regardless of whether or not the individual is satisfied with her appearance. It may be that the perceived demands from others override any personal feelings about one's appearance. That is, for a woman who believes that others require perfection of her, her own feelings about her body may be irrelevant because someone else has set the appearance goal. Alternatively, socially prescribed perfectionists may be taking their cues not from an individual, but from society at large. Societal pressures for an unachievable body ideal lead individuals to doubt their own judgement. They have learned that even when *they* like their appearance, society does not. Socially prescribed perfectionists may be particularly susceptible to societal pressures because they are eager to please others.

Consistent with the idea that socially prescribed perfectionists internalize the opinions of others or use them as a substitute for their own opinions, Weinrich and colleagues (1985) found that anorexic and bulimic women had high identification conflicts with their maternal metaperspectives ('me as my mother sees me'). When construing the self from their mother's perspective, these women provided negative evaluations of themselves. This was similar to their



own current low self-image. However, the patients also viewed the perceived maternal perspective as a poor role model and exhibited a desire to dissociate from that perspective. Thus, although both anorexic and bulimic patients viewed their mother's perspective as a standpoint from which they wished to distance themselves, they also revealed that their own self-image was highly similar to that perspective. Despite a desire to move away from their mother's perspective, they were unable to do so, suggesting that they may have internalized their mother's view of them.

It is quite interesting that the effect of socially prescribed perfectionism on anorexic and bulimic symptoms does not depend on a person's body image. It suggests that socially prescribed perfectionism may have a different mechanism of action in eating disorder pathology and offers different treatment implications. Most notably, it suggests that body image discrepancy may not be a suitable treatment target for socially prescribed perfectionists. Moreover, if socially prescribed perfectionism arises from or interacts with disturbed identity development, it would be fruitful to intervene early in the course of identity formation rather than treating the clinical sequelae that develop later in life.

#### *Perfectionistic Self-Presentation*

Our results confirmed the diathesis-stress model for perfectionistic self-presentation, or the need to *appear* perfect to others. This suggests that the self-presentation facets may be more important than the trait dimensions as stress vulnerability factors in dieting and binge-purge behaviors, when the stress is defined as body image discrepancy. We found that all three self-presentation facets (PSP, NDP, and NDC) interacted with discrepant body image to predict anorexic and bulimic symptoms. The form of these interactions indicated that perfectionism may act as a vulnerability factor for eating problems in women who are dissatisfied with their appearance, but perfectionism is not predictive of eating disorder symptoms in women who are



satisfied with how they look. To explain more fully, women who score highly on perfectionistic self-presentation have a strong desire to appear perfect in the eyes of others. They can attempt to accomplish this goal through one of three self-presentational styles: (1) by making frequent assertions or demonstrations of their strengths (PSP), (2) through an avoidance of situations in which others may witness their weaknesses (NDP), or (3) by remaining tight-lipped about their flaws (NDC). A problem arises for such women when they are dissatisfied with how they look. For them, the discrepancy between actual and ideal appearance may be perceived as a failure to meet their appearance goals. More importantly, because of the public nature of appearance it is a flaw that will be apparent to other people. To alleviate their aversive self-perceptions and to attempt to correct the perceived flaw, they may engage in dieting or binge-purge behaviors.

The moderational results are consistent with Heatherton and Baumeister's (1991) escape from self-awareness model for binge eating. They hypothesized that individuals with high (i.e., perfectionistic) standards who fall short of those expectations will view themselves negatively. This unhappy state of self-awareness generates an escape response in which cognitive focus is narrowed, resulting in disinhibition and binge eating. Later work suggested that the binge actually facilitates an escape from self-awareness, rather than resulting from it (Schupak-Neuberg & Nemeroff, 1993). Our work confirms that women who attempt to create a public façade of perfection, but who believe that they have failed to do so will engage in disordered eating behaviors. Further, we have demonstrated that this is true for both bulimic behaviors and anorexic behaviors. This supports our proposition that the same mechanism may function in both types of eating problems. We have suggested that the escape model may also hold for anorexic behaviors in that ritualistic dieting behaviors may facilitate cognitive narrowing just as bingeing does.



It is interesting that it was the self-presentation facets of perfectionism, the interpersonal facets, which interacted with body image discrepancy to predict eating difficulties. Eating disordered women are thought to attempt to construct an adequate social self through heightened attention to their physical appearance (Striegel-Moore, et al., 1993). They suffer from an overdeveloped false self (Johnson & Connors, 1987), and in the absence of a true self they become hypervigilant to public presentation and the opinions of others. Thus, they may be more prone to internalize cultural ideals of thinness, which is known to predict onset of eating pathology (Stice & Agras, 1998). Meyer and Waller (2001) found that social proximity promotes convergence in socially valued eating attitudes, but divergence in socially stigmatized characteristics, and they speculated that some individuals are more likely than others to adopt social norms to establish their own identity. Perfectionistic self-presenters may be such people. The goal of these perfectionists is to appear to be perfect in the eyes of other people. They are preoccupied with self-presentation and overly attuned to the opinions of others. Thus, our findings are consistent with the view that eating disordered women lack a well-developed identity and valid self-concept and substitute social standards and validation for personal goals and authenticity (Bruch, 1978; Striegel-Moore, et al., 1993). In so doing, they make themselves vulnerable both to the perceived opinions of others and to perceived social norms, including norms for appearance.

### *Hypothesis III*

In this study, we extended previous work by incorporating two different aspects of body image dysfunction, body image discrepancy and body image investment, into the diathesis-stress model. Our findings suggest that the perfectionistic self-presentation facets interact with a specific type of appearance stress, body image discrepancy, to predict eating disorder symptoms, but that body image investment does not serve the same function. This is consistent with



diathesis-stress models from the depression literature, which indicate that only particular forms of life stress interact with perfectionism dimensions to predict psychopathology (e.g., Hewitt, Flett, & Ediger, 1996). In our case, only the body image variable that entails a perceived failure experience moderated the perfectionism-eating disturbance link. High levels of body image discrepancy indicate that a woman believes she has fallen short of her appearance ideal and that she does not like her appearance. In contrast, high levels of body image investment suggest only that appearance is very important to the individual and that she spends significant time on her appearance. Thus, body image discrepancy constitutes a perceived failure experience, while body image investment does not.

This fits with the knowledge that perfectionists abhor failure and that they tend to catastrophize even small setbacks (Hewitt & Flett, 1993). It also supports the Heatherton and Baumeister (1991) model, which requires a perceived failure experience to catalyze the pathway from perfectionism to eating disturbance. Moreover, these findings are consistent with outcome studies on eating disordered patients that indicate that perfectionism persists even after recovery (Bastiani, et al., 1995; Pla & Toro, 1999; Srinivasagam, Kaye, Plotnicov, Greeno, Weltzin, & Rao, 1995; Stein, et al., 2002; Sullivan, et al., 1998). Our results suggest that perfectionism may act as a general vulnerability factor that predicts eating problems only under certain conditions, conditions that we have here identified as body image discrepancy.

It is important to consider these results in light of this study's limitations. First, this study is cross-sectional in nature, so it does not permit us to examine whether the diathesis-stress model can predict *change* in eating disorder symptoms over time. A prospective design would advance our understanding of the effect of perfectionism and body image on eating problems. Second, this study uses a university student sample rather than a clinical one. It may be that perfectionism plays a slightly different role in eating disorder sufferers. Further, this group is



beyond the peak risk period for the onset of eating disorders and so may provide limited information about the etiology of eating problems. In addition, we made no attempt to tease apart the eating disorder subtypes and this too could affect the perfectionism-eating pathology relationship. Third, we used only self-report measures. Interviews, collateral reports, and behavioral observations would enhance the validity of our results. Finally, although we noted that these findings are consistent with Heatherton and Baumeister's model, we tested a diathesis-stress view of eating problems, we did not examine the *mechanism* by which these difficulties arise. Moreover, we did not probe other variables that are known to influence eating pathology, such as self-esteem and internalization of the thin ideal. Future research should address these issues directly.



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Table 1

*Means, Standard Deviations, and Alpha Reliability of the Perfectionism, Body Image, Eating Disorder Symptom Measures, and Body Mass Index*

Variable	<i>M</i>	<i>SD</i>	$\alpha$
Self-Oriented Perfectionism	70.85	14.07	.89
Socially Prescribed Perfectionism	54.27	13.14	.86
Perfectionistic Self-Promotion	42.02	11.04	.89
Nondisplay of Imperfection	44.67	10.25	.87
Nondisclosure of Imperfection	23.10	7.76	.84
MBSRQ Appearance Evaluation	3.17	.77	.89
MBSRQ Appearance Orientation	3.59	.60	.85
MBSRQ Body Areas Satisfaction	3.18	.62	.77
BIQ Discrepancy	1.08	.61	.80
BIQ Importance	1.60	.55	.84
EAT—Total	65.19	18.83	.90
BULIT	59.35	21.14	.95
BMI	20.64	2.69	_____

*Note.* The following labels were used: MBSRQ (Multidimensional Body-Self Relations Questionnaire), BIQ (Body Image Ideals Questionnaire), EAT (Eating Attitudes Test-26), BULIT (Bulimia Test-Revised), and BMI (body mass index).



Table 2

*Zero-Order Correlations of the Perfectionism and Body Image Variables with the Eating Disorder Symptom Measures*

Variable	EAT-26 total score	BULIT
Self-Oriented Perfectionism	.22	.17
Socially Prescribed Perfectionism	.31**	.26*
Perfectionistic Self-Promotion	.45**	.38**
Nondisplay of Imperfection	.37**	.38**
Nondisclosure of Imperfection	.43**	.37**
MBSRQ Appearance Evaluation	.54**	.53**
MBSRQ Appearance Orientation	.39**	.34**
MBSRQ Body Areas Satisfaction	.58**	.56**
BIQ Discrepancy	.34**	.40**
BIQ Importance	.46**	.47**
Body Image Discrepancy Factor	.56**	.57**
Body Image Investment Factor	.50**	.47**

*Note.* The following labels were used: MBSRQ (Multidimensional Body-Self Relations Questionnaire) and BIQ (Body Image Ideals Questionnaire).

\*  $p < .003$ ; \*\*  $p < .001$ .



Table 3

*Summary of Hierarchical Regression Analysis for Perfectionism, Body Image Discrepancy, and the Perfectionism x Body Image Discrepancy Variables Predicting EAT Total Scores*

Predictor	Total <i>R</i>	$\Delta R^2$	$\Delta F$	<i>df</i>	$\beta$
Analysis 1: SOP					
1. BMI	.23	.06*	8.28*	1, 143	.23*
2. SOP	.32	.04	7.00	1, 142	.21
3. Discrepancy	.59	.25**	53.58**	1, 141	.51**
4. SOP x Discrepancy	.60	.02	3.55	1, 140	.74
Analysis 2: SPP					
1. BMI	.23	.06*	8.28*	1, 143	.23*
2. SPP	.38	.09**	14.22**	1, 142	.29**
3. Discrepancy	.58	.19**	41.14**	1, 141	.49**
4. SPP x Discrepancy	.59	.01	1.99	1, 140	.53
Analysis 3: PSP					
1. BMI	.23	.06*	8.28*	1, 143	.23*
2. PSP	.51	.20**	39.05**	1, 142	.45**
3. Discrepancy	.64	.15**	35.19**	1, 141	.42**
4. PSP x Discrepancy	.68	.05**	13.03**	1, 140	1.33**



Predictor	Total <i>R</i>	$\Delta R^2$	$\Delta F$	<i>df</i>	$\beta$
Analysis 4: NDP					
1. BMI	.23	.06*	8.28*	1, 143	.23*
2. NDP	.43	.13**	23.23**	1, 142	.37**
3. Discrepancy	.59	.16**	34.03**	1, 141	.46**
4. NDP x Discrepancy	.62	.03*	7.46*	1, 140	1.16*
Analysis 5: NDC					
1. BMI	.23	.06*	8.28*	1, 143	.23*
2. NDC	.49	.18**	34.23**	1, 142	.43**
3. Discrepancy	.62	.15**	34.89**	1, 141	.43**
4. NDC x Discrepancy	.65	.04*	8.55*	1, 140	.95*

*Note.* The following labels were used: BMI (body mass index), SOP (self-oriented perfectionism), SPP (socially prescribed perfectionism), PSP (perfectionistic self-promotion), NDP (nondisplay of imperfection), NDC (nondisclosure of imperfection), Discrepancy (body image discrepancy factor).

\*  $p < .005$ ; \*\*  $p < .001$ .



Table 4

*Simple Slope Regression Analyses of Significant Perfectionism x Body Image Discrepancy Interactions Predicting EAT Total Scores*

Predictor	<i>t</i> for within-set predictors	$\beta$
PSP x Discrepancy		
PSP at Low Discrepancy	1.11	.10
PSP at High Discrepancy	5.82**	.51**
NDP x Discrepancy		
NDP at Low Discrepancy	.10	.01
NDP at High Discrepancy	3.38*	.34*
NDC x Discrepancy		
NDC at Low Discrepancy	.91	.09
NDC at High Discrepancy	4.90**	.41**

*Note.* The following labels were used: PSP (perfectionistic self-promotion), NDP (nondisplay of imperfection), NDC (nondisclosure of imperfection), Discrepancy (body image discrepancy factor).

\*  $p < .005$ ; \*\*  $p < .001$ .



Table 5

*Summary of Hierarchical Regression Analysis for Perfectionism, Body Image Investment, and the Perfectionism x Body Image Investment Variables Predicting EAT Total Scores*

Predictor	Total R	$\Delta R^2$	$\Delta F$	df	$\beta$
Analysis 1: SOP					
1. BMI	.23	.06*	8.28*	1, 143	.23*
2. SOP	.32	.04	7.00	1, 142	.21
3. Investment	.54	.20**	38.89**	1, 141	.45**
4. SOP x Investment	.55	.00	.78	1, 140	.46
Analysis 2: SPP					
1. BMI	.23	.06*	8.28*	1, 143	.23*
2. SPP	.38	.09**	14.22**	1, 142	.29**
3. Investment	.55	.16**	32.57**	1, 141	.43**
4. SPP x Investment	.55	.00	.65	1, 140	.37
Analysis 3: PSP					
1. BMI	.23	.06*	8.28*	1, 143	.23*
2. PSP	.51	.20**	39.05**	1, 142	.45**
3. Investment	.58	.08**	16.50**	1, 141	.33**
4. PSP x Investment	.59	.02	3.30	1, 140	.88



Predictor	Total $R$	$\Delta R^2$	$\Delta F$	$df$	$\beta$
Analysis 4: NDP					
1. BMI	.23	.06*	8.28*	1, 143	.23*
2. NDP	.43	.13**	23.23**	1, 142	.37**
3. Investment	.56	.13**	25.90**	1, 141	.39**
4. NDP x Investment	.58	.02	3.95	1, 140	.92
Analysis 5: NDC					
1. BMI	.23	.06*	8.28*	1, 143	.23*
2. NDC	.49	.18**	34.23**	1, 142	.43**
3. Investment	.61	.14**	30.96**	1, 141	.39**
4. NDC x Investment	.63	.02	3.82	1, 140	.90

*Note.* The following labels were used: BMI (body mass index), SOP (self-oriented perfectionism), SPP (socially prescribed perfectionism), PSP (perfectionistic self-promotion), NDP (nondisplay of imperfection), NDC (nondisclosure of imperfection), and Investment (body image investment factor).

\*  $p < .005$ ; \*\*  $p < .001$ .



Table 6

*Summary of Hierarchical Regression Analysis for Perfectionism, Body Image Discrepancy, and the Perfectionism x Body Image Discrepancy Variables Predicting BULIT Scores*

Predictor	Total <i>R</i>	$\Delta R^2$	$\Delta F$	<i>df</i>	$\beta$
Analysis 1: SOP					
1. BMI	.21	.05	6.88	1, 143	.21
2. SOP	.27	.03	3.80	1, 142	.16
3. Discrepancy	.58	.27**	57.53**	1, 141	.54**
4. SOP x Discrepancy	.60	.02	3.48	1, 140	.73
Analysis 2: SPP					
1. BMI	.21	.05	6.88	1, 143	.21
2. SPP	.32	.06*	9.26*	1, 142	.24*
3. Discrepancy	.58	.23**	48.30**	1, 141	.53**
4. SPP x Discrepancy	.58	.00	.84	1, 140	.35
Analysis 3: PSP					
1. BMI	.21	.05	6.88	1, 143	.21
2. PSP	.44	.15**	25.89**	1, 142	.38**
3. Discrepancy	.61	.18**	40.85**	1, 141	.47**
4. PSP x Discrepancy	.64	.04*	9.71*	1, 140	1.19*



Predictor	Total $R$	$\Delta R^2$	$\Delta F$	$df$	$\beta$
Analysis 4: NDP					
1. BMI	.21	.05	6.88	1, 143	.21
2. NDP	.43	.14**	24.32**	1, 142	.38**
3. Discrepancy	.59	.17**	36.32**	1, 141	.47**
4. NDP x Discrepancy	.63	.04*	10.15*	1, 140	1.33*
Analysis 5: NDC					
1. BMI	.21	.05	6.88	1, 143	.21
2. NDC	.43	.14**	24.15**	1, 142	.37**
3. Discrepancy	.61	.18**	40.46**	1, 141	.47**
4. NDC x Discrepancy	.64	.05*	10.72*	1, 140	1.08*

*Note.* The following labels were used: BMI (body mass index), SOP (self-oriented perfectionism), SPP (socially prescribed perfectionism), PSP (perfectionistic self-promotion), NDP (nondisplay of imperfection), NDC (nondisclosure of imperfection), and Discrepancy (body image discrepancy factor).

\*  $p < .005$ ; \*\*  $p < .001$ .



Table 7

*Simple Slope Regression Analyses of Significant Perfectionism x Body Image Discrepancy Interactions Predicting BULIT Scores*

Predictor	$t$ for within-set predictors	$\beta$
PSP x Discrepancy		
PSP at Low Discrepancy	.39	.04
PSP at High Discrepancy	4.45**	.40**
NDP x Discrepancy		
NDP at Low Discrepancy	-.12	-.01
NDP at High Discrepancy	3.73**	.37**
NDC x Discrepancy		
NDC at Low Discrepancy	-.11	-.01
NDC at High Discrepancy	4.21**	.36**

*Note.* The following labels were used: PSP (perfectionistic self-promotion), NDP (nondisplay of imperfection), NDC (nondisclosure of imperfection), Discrepancy (body image discrepancy factor).

\*  $p < .005$ ; \*\*  $p < .001$ .



Table 8

*Summary of Hierarchical Regression Analysis for Perfectionism, Body Image Investment, and the Perfectionism x Body Image Investment Variables Predicting BULIT Scores*

Predictor	Total <i>R</i>	$\Delta R^2$	$\Delta F$	<i>df</i>	$\beta$
Analysis 1: SOP					
1. BMI	.21	.05	6.88	1, 143	.21
2. SOP	.27	.03	3.80	1, 142	.16
3. Investment	.50	.18**	34.14**	1, 141	.44**
4. SOP x Investment	.50	.00	.33	1, 140	.31
Analysis 2: SPP					
1. BMI	.21	.05	6.88	1, 143	.21
2. SPP	.32	.06*	9.26*	1, 142	.24*
3. Investment	.51	.15**	29.17**	1, 141	.42**
4. SPP x Investment	.51	.00	.03	1, 140	.09
Analysis 3: PSP					
1. BMI	.21	.05	6.88	1, 143	.21
2. PSP	.44	.15**	25.89**	1, 142	.38**
3. Investment	.53	.08**	16.47**	1, 141	.34**
4. PSP x Investment	.54	.01	2.48	1, 140	.80



Predictor	Total $R$	$\Delta R^2$	$\Delta F$	$df$	$\beta$
Analysis 4: NDP					
1. BMI	.21	.05	6.88	1, 143	.21
2. NDP	.43	.14**	24.32**	1, 142	.37**
3. Investment	.54	.11**	20.79**	1, 141	.36**
4. NDP x Investment	.57	.03	6.32	1, 140	1.18
Analysis 5: NDC					
1. BMI	.21	.05	6.88	1, 143	.21
2. NDC	.43	.14**	24.15**	1, 142	.37**
3. Investment	.56	.13**	26.63**	1, 141	.38**
4. NDC x Investment	.57	.02	3.15	1, 140	.86

*Note.* The following labels were used: BMI (body mass index), SOP (self-oriented perfectionism), SPP (socially prescribed perfectionism), PSP (perfectionistic self-promotion), NDP (nondisplay of imperfection), NDC (nondisclosure of imperfection), and Investment (body image investment factor).

\*  $p < .005$ ; \*\*  $p < .001$ .



## Figure Captions

*Figure 1.* The interaction of perfectionistic self-promotion with body image discrepancy to predict anorexic symptoms.

*Figure 2.* The interaction of nondisplay of imperfection with body image discrepancy to predict anorexic symptoms.

*Figure 3.* The interaction of nondisclosure of imperfection with body image discrepancy to predict anorexic symptoms.

*Figure 4.* The interaction of perfectionistic self-promotion with body image discrepancy to predict bulimic symptoms.

*Figure 5.* The interaction of nondisplay of imperfection with body image discrepancy to predict bulimic symptoms.

*Figure 6.* The interaction of nondisclosure of imperfection with body image discrepancy to predict bulimic symptoms.























