

EXAMINING THE RELATIONSHIP BETWEEN PERFECTIONISM,
SELF-ESTEEM, BODY SATISFACTION, AND BULIMIC BEHAVIOR

A Thesis

by

CRYSTAL ANNE PEARSON

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

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May 2003

Major Subject: Psychology

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ABSTRACT

Examining the Relationship Between Perfectionism, Self-Esteem,

Body Satisfaction, and Bulimic Behavior. (May 2003)

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A variety of risk factors for bulimia nervosa have been proposed including both environmental factors (e.g., family environment) and personal characteristics (e.g., body dissatisfaction, self-esteem, and perfectionism). The main goal of this study was to further examine the relationship between body satisfaction, self-esteem, and perfectionism in the development of bulimic symptoms. A confirmatory factor analysis on the construct of perfectionism was conducted to determine if it was best explained as a unidimensional or a multidimensional construct. Perfectionism was best explained as a construct consisting of three factors—normal perfectionism, neurotic perfectionism, and orderliness. The relationship between body satisfaction, self-esteem, and perfectionism in the development of bulimic behaviors was also examined using structural equation modeling. We did not find support for a hypothesized three-way interaction among body satisfaction, self-esteem, and neurotic perfectionism in the development of bulimic behavior. We did find support for a pair of two-way interactions predicting bulimic behaviors. Interactions between body satisfaction and self-esteem and body satisfaction and neurotic perfectionism were predictive of bulimic symptom development.

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INTRODUCTION

Numerous risk factors for bulimia nervosa have been proposed, encompassing both environmental factors, such as family environment, as well as personal characteristics, including body dissatisfaction, self-esteem, and perfectionism. Although some of these factors, such as body dissatisfaction, dieting and low self-esteem, have been consistently found to relate to eating disorders, the relationship between eating pathology and other factors, such as perfectionism, has been less well defined. One factor that may contribute to inconsistent findings regarding perfectionism and bulimia nervosa is an unaccounted for interaction with other risk factors. The purpose of this study was to further examine the relationship between body satisfaction, self-esteem, and perfectionism in the development of bulimic symptoms. Additionally, this study explored the nature of perfectionism, in order to gain a better understanding of the construct itself and its role in the development of bulimia nervosa.

Dissatisfaction with one's body has long been proposed as a risk factor for the development of bulimia nervosa. According to Rosen (1995), "body image dissatisfaction is the most relevant and immediate antecedent" to the development of an eating disorder (p. 369). Furthermore, body dissatisfaction is also an important risk factor because it predicts dieting, which has been found to precede binge eating (Fairburn & Wilson, 1993). Discrepancy between actual and ideal self has been associated both with body

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dissatisfaction and with bulimic behaviors (Strauman, Vookles, Berenstein, Chaiken, & Higgins, 1991).

Goldfein, Walsh, and Midlarsky (2000) compared three measures of excessive concern about shape and weight in bulimia nervosa—*influence of shape and weight*, *overconcern with shape and weight*, and *dissatisfaction with shape and weight*. Compared to a group of restrained eaters and a group of control participants, the bulimia nervosa patients scored significantly higher on almost all measures of eating psychopathology, on discrepancy between current and ideal body shape, on lowest adult weight, and on measures of general psychopathology. *Influence* and *overconcern* but not *dissatisfaction* itself was found to successfully discriminate the bulimia nervosa group from controls but not from the group of restrained eaters. The distinction between the three measures of concern was made based on the theory that it is the excessive contribution of shape and weight concerns to self-esteem and not dissatisfaction, per se, that is central to the concept of bulimia nervosa.

Low self-esteem is another factor which has often been implicated in the development of bulimia nervosa. Fairburn and Wilson (1993) reported that binge eating occurs more often in individuals with low self-esteem than those with higher self-esteem. In one examination (Joiner, Schmidt, & Wonderlich, 1997), the self-esteem of bulimia nervosa patients was more dependent on body satisfaction than was the self-esteem of the control group. However, when compared to a sample of depressed patients, the

relationship between body satisfaction and self-esteem was similar to that of the group with bulimia nervosa.

Perfectionism is a term frequently researched but rarely well-defined. Perhaps the central feature of perfectionism is the setting of high standards, but the setting of high standards is not necessarily, by itself, pathological. Many researchers argue that perfectionism must be thought of as a multidimensional, rather than unidimensional, construct. A distinction must be made between normal or adaptive perfectionism, which allows one to pursue one's goals, and neurotic or maladaptive perfectionism which may encompass the more detrimental aspects of perfectionism (Frost, Marten, Lahart, & Rosenblate, 1990; Hamachek, 1978; Mitzman, Slade, & Dewey, 1994). Hamachek (1978) described normal perfectionists as those who set high standards but are able to re-evaluate those standards when needed. Neurotic perfectionism, on the other hand, typically involves the setting of unrealistically high standards and the inability to accept mistakes. The normal aspect of perfectionism allows for the setting of realistic goals and feelings of satisfaction when these goals are achieved. The neurotic aspect of perfectionism may involve a fear of failure motivational component and may lead to negative feelings about oneself due to the inability to achieve true perfection (Mitzman, Slade, & Dewey, 1994).

Perfectionism has been found to relate to many types of psychopathology (see Frost et al., 1990), including both attitudes and behaviors associated with eating disorders. Perfectionism has also been found to relate to body dissatisfaction, which as

described above also influences the development of eating disorders. After previous findings reported that both normal and neurotic perfectionism were positively related to body dissatisfaction, Davis (1997) found that rather than functioning in an additive manner, these aspects of perfectionism related to body esteem in an interactive fashion. When neurotic perfectionism was low, normal perfectionism was positively associated with body satisfaction; however, when levels of neurotic perfectionism were high, normal perfectionism was negatively associated with body satisfaction.

Looking to further examine the construct of perfectionism and its role in eating disorders, Ashby, Kottman, and Schoen (1998) compared a clinical sample of 24 women with various types of eating disorders with a group of 166 undergraduate women on measures of adaptive and maladaptive perfectionism. The maladaptive, or neurotic, factor consisted of discrepancy, intimacy, anxiety, procrastination, concern over mistakes, personal expectations, parental criticism, and doubts about actions. The adaptive, or normal, factor consisted of personal standards, order, standards, and organization. Although no significant differences between the groups were found on levels of adaptive perfectionism, the clinical sample had significantly higher scores on maladaptive perfectionism. In relation to the Eating Disorder Inventory (EDI; Garner, Olmstead, & Polivy, 1983) maladaptive perfectionism was positively correlated with body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, and interoceptive awareness, and adaptive perfectionism was not significantly related to any of the EDI subscales. Those with eating disorders differed on a component of maladaptive

perfectionism, indicating that they are more likely to engage in the potentially more damaging aspects of perfectionism than those women without an eating disorder. All of these results emphasize the importance of evaluating the construct in a multidimensional manner, in order to gather a more complete understanding of the role of perfectionism in eating disorders, as normal and neurotic perfectionism may be separate factors and not merely on opposite ends of a continuum.

In another study, Suddarth and Slaney (2001) found support for the idea that perfectionism is a multidimensional construct. They conducted an exploratory factor analysis on three perfectionism scales: Frost et al.'s (1990) MPS, Hewitt and Flett's (1991) MPS, and the APS-R (Slaney et al., 1998). They found three orthogonal factors—Unhealthy Perfectionism (i.e., neurotic perfectionism), Healthy Perfectionism (i.e., normal perfectionism), and Orderliness. This finding provides additional support for the concept of normal and neurotic factors of perfectionism, along with a third factor pertaining to an individual's need for order.

Hewitt and Flett (1991) also proposed that perfectionism is a multidimensional construct but with three dimensions, including both personal and social components, and that these components contribute to severe levels of psychopathology. Their three proposed dimensions included the following: self-oriented, other-oriented, and socially prescribed perfectionism. Self-oriented perfectionism is the setting of perfectionistic standards for oneself and the evaluation of one's behavior based on these high standards, regardless of how realistic these standards may be. This component of perfectionism also

includes a motivational aspect, which consists of efforts to avoid failure as well as efforts to achieve perfection. If one fails to meet the excessively high standards, self-oriented perfectionism may result in “self-criticism and self-punishment” (p. 457). With other-oriented perfectionism, the emphasis is on the perfection of others. This component is the setting of unrealistic standards for others and the strict evaluation of significant others based on these high standards. If others do not live up to these expectations, the result may be “other-directed blame, lack of trust, and feelings of hostility towards others” (p.457). This may also lead to difficulties in interpersonal relationships because perfectionists may continually strive to find others who can meet their high unrealistically high standards and may be continually disappointed. Socially prescribed perfectionism includes the desire to achieve the goals and expectations that significant others have set. In this domain, perfectionists believe that others have set extremely high standards for them and expect them to be perfect. Those high in socially prescribed perfectionism may have greater fears of negative evaluation and may experience feelings of anger and depression if they are unable to meet the goals set for them by others.

In addition to the three proposed dimensions of perfectionism, Hewitt, Flett, and Ediger (1995) also proposed that perfectionism consists of social facets involving self-presentation styles. This self-presentation component is also thought to consist of three components: “the need to appear perfect, the need to avoid appearing imperfect, and the need to avoid disclosure of imperfection” (p. 318). In a study of female university students, Hewitt et al. found self-oriented perfectionism related only to anorexic

symptoms. Socially-prescribed perfectionism and the dimensions of perfectionistic self-presentation were related to eating disorder symptoms in general, as well as to body image avoidance and self-esteem.

Pliner and Haddock (1996) examined Hewitt and Flett's (1991) three-dimensional model of perfectionism in weight-concerned and unconcerned participants. Based on findings that anorexics have been described as high in socially prescribed perfectionism, the goal of this study was to examine the extent to which these standards were internalized as self-oriented perfectionism. Participants were 100 college females who scored above 20 (weight-concerned) or below 6 (unconcerned) on the Eating Attitudes Test (EAT; Garner & Garfinkel, 1979). In addition to the EAT, subjects completed the EDI, the Multiple Affect Adjective Check List, and questionnaires designed for use in the study. Subjects were put into a performance task in which they were asked to generate uses for common objects and were either assigned high or low goals or asked to select their own goals. Additionally, participants were asked for their personal goals for each trial. Subjects were then given false feedback indicating success or failure, and their mood was measured. Those participants in weight-concerned group were more likely to strive for an unrealistically high goal set by the experimenter and set lower personal goals when compared to the controls. Additionally, when measuring mood, the high-scoring group was more reactive to the feedback, regardless of whether it was positive or negative. These findings indicate that the weight-concerned group are responding to socially-prescribed perfectionism rather than self-oriented perfectionism.

While working to develop The Neurotic Perfectionism Questionnaire (NPQ) as a measure specifically related to eating disorders, Mitzman et al. (1994) found that this questionnaire also discriminated between normal and neurotic perfectionism. Examining the relationship between the various proposed factors of perfectionism (e.g., normal/neurotic perfectionism versus self-oriented/other-oriented/socially prescribed perfectionism), they reported that items at the normal end of the NPQ were mainly composed of questions representing self-oriented perfectionism, whereas items at the neurotic end tended to consist of a mixture of both self-oriented and socially prescribed perfectionism. Very few items appeared to be tapping the idea of other-oriented perfectionism, which they argued was an indication that this dimension was less relevant in the study of eating disorders.

Seeking to account for some of the proposed risk factors for an eating disorder, including perfectionism, Vohs, Bardone, Joiner, Abramson, and Heatherton (1999) proposed a 3-factor model in which self-esteem, perfectionism, and perceived weight status interacted to predict bulimic symptom development. In a prospective examination of 342 female college students, Vohs et al. had the participants complete the EDI-Bulimia and Perfectionism subscales and the State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991) and to report whether they perceived themselves as being overweight. An interaction among these risk factors was found, such that women who reported high levels of perfectionism and who considered themselves to be overweight, showed symptoms of bulimia nervosa only if they had low self-esteem. Those women with high

self-esteem were much less likely to report bulimic symptoms even when they considered themselves to be overweight and reported highly perfectionistic attitudes. Bardone, Vohs, Abramson, Heatherton, and Joiner (2000) proposed several implications for this model in the areas of assessment, treatment, and prevention of bulimic symptoms and suggested that altering any one of the three factors should result in lower levels of reported bulimic symptoms.

The primary goal of this study was to further explore the relationship among the proposed risk factors in the model of Vohs et al. (1999). Before this model can be used as a guide, the factors in the model itself needed to be more adequately tested to address potential concerns about the way in which they were initially measured and to ensure that these findings remain consistent. For example, as described above, perfectionism had been postulated to consist of more than one dimension, although there was disagreement regarding exactly how many dimensions compose this construct. More comprehensive measures of general perfectionism, including proposed dimensions, were employed to more thoroughly assess this construct. A confirmatory factor analysis of perfectionism was conducted to determine if it was best explained as a multidimensional or a unidimensional construct. Based on the previous research, it was expected that the construct of perfectionism would be multidimensional, consisting of either two or three factors. Additionally, both self-esteem and body dissatisfaction were more completely assessed using self-report measures of these constructs.

To further examine the relationship between the three factors in the model, comprehensive measures of self-esteem, body satisfaction, and perfectionism, including proposed dimensions were utilized to test the hypothesis that these variables interact to predict bulimic symptoms. More specifically, it was predicted that high levels of body dissatisfaction would predict bulimic symptoms only among those participants who had high levels of neurotic perfectionism, and that this relationship would occur only among those with low levels of self-esteem.

METHOD

Participants

Initial participants were 304 female college students, ages 16 to 23 ($M = 18.75$, $SD = 1.00$) from introductory psychology classes at a large southwestern university. Eighty-three percent of the students were Caucasian, 2% were African-American, 10% were Hispanic, 3% were Asian-American, and 2% were classified as Other. Participants received course credit for their participation. Data from 18 participants were deleted listwise for having 10 or more missing data points; therefore, 286 participants were used for all analyses.

Procedure

A group administration format was used. After giving informed consent, participants completed a packet consisting of all the measures, presented in random order. Most participants completed the study in 35 to 70 minutes.

Measures

Demographics. Each participant completed a questionnaire providing basic demographic information including age, race, height, and weight. See Table 1 for the alpha and validity coefficients of the measures.

Perfectionism. Frost's Multidimensional Perfectionism Scale (MPS; Frost et al., 1990) is a 35-item scale designed to measure normal and neurotic perfectionism using a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"). It contains the following subscales: Personal Standards, Concern over Mistakes, Organization, Doubting

Actions, Parental Expectations, and Parental Criticism. The total score is computed by summing all of the subscales scores with the exception of Organization, which did not correlate well with the other subscales. According to Frost et al., (1990), coefficient alphas for the subscales ranged from .77 to .93, and the reliability of the total scale was .90. In this sample, alphas for the subscales ranged from .65 to .93.

The Burns Perfectionism Scale (BPS; Burns, 1983) is a 10-item measure of neurotic aspects of perfectionism. It is scored on a 5-point Likert scale, ranging from “I disagree strongly” to “I agree very much.” The BPS has been found to have a test-retest coefficient of .78 over a 6-week period and .63 over a 2-month period, and tests of internal consistency produced coefficient alphas ranging from .70 to .78 (Hewitt, Mittelstaedt, & Wollert, 1989). In the current study, alpha for the BPS was .81.

Table 1

Alphas (on Diagonal), Convergent, and Discriminant Validity Coefficients

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1.MPS-CM	.88																					
2.MPS-PE	.29	.65																				
3.MPS-PC	.46	.62	.86																			
4.MPS-DA	.66	.33	.54	.78																		
5.APSR- DISC	.69	.32	.48	.69	.93																	
6.BPS	.76	.23	.35	.57	.61	.81																
7.NPQ	.75	.37	.57	.77	.78	.67	.94															
8.MPS-PS	.32	.12	.02	.16	.16	.44	.22	.81														
9.APSR- STAN	.07	.00	-.13	-.03	-.03	.23	-.02	.63	.84													
10.MPS-O	.04	.00	-.09	.04	-.01	.13	-.03	.27	.33	.93												
11.APSR- ORD	.10	.01	-.05	.07	.04	.21	.02	.31	.40	.87	.88											
12.BIA	.17	.06	.14	.21	.24	.12	.26	.08	-.07	.03	.03	.03	NA									
13.BES- WT	-.33	-.10	-.26	-.33	-.39	-.31	-.42	.04	.14	.05	.01	-.61	.92									
14.BSS- BOD	.38	.19	.31	.37	.42	.31	.43	.01	-.09	-.03	-.04	.39	-.66	.80								
15.BSQ	.43	.19	.27	.46	.46	.38	.56	.08	-.03	.06	.09	.61	-.76	.52	.97							

Table 1 Continued
Alphas (on Diagonal), Convergent, and Discriminant Validity Coefficients

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
16.SES	-.62	-.19	-.42	-.60	-.66	-.50	-.72	.05	.23	.08	.04	-.25	.50	-.47	-.51	.91						
17.SEI	.52	.27	.48	.64	.61	.44	.70	-.08	-.23	-.08	-.07	.21	-.37	.42	.42	-.66	.80					
18.SEJ	-.72	-.29	-.53	-.69	-.69	-.59	-.80	-.03	.24	.09	.05	-.26	.45	-.45	-.48	.82	-.71	--				
19.EAT-																						
BUL	.15	.08	.19	.24	.17	.17	.26	.06	.03	.13	.03	.28	-.25	.18	.43	-.16	.23	-.20	.89			
20.BULIT	.39	.17	.28	.45	.44	.40	.53	.09	.05	.02	.05	.52	-.60	.43	.83	-.48	.39	-.46	.56	.96		
21.BITE-																						
SYM	.39	.15	.25	.46	.44	.40	.52	.09	.06	.02	.06	.51	-.57	.44	.76	-.46	.43	-.47	.48	.85	.86	

The Neurotic Perfectionism Questionnaire (NPQ) was developed by Mitzman et al. (1994) to assess the specific attitudes and experiences of neurotic perfectionism hypothesized to be related to eating disorders. The NPQ consists of 42 items rated on a 5-point scale (1 = strongly disagree to 5 = strongly agree), with higher scores indicating neurotic perfectionism. Mitzman et al. (1994) found internal consistency of the NPQ to be satisfactory ($\alpha = .95$) and found it to discriminate normal from neurotic perfectionism. An alpha of .94 was found in the current study.

The Almost Perfect Scale-Revised (APS-R; Slaney et al., 1998) consists of 23 items that measure positive and negative dimensions of perfectionism. The APS-R contains 3 subscales: Standards, Order, and Discrepancy (Slaney et al., 2001). The Standards subscale examines personal standards, the Order subscale was found to measure organization and the need for order, and the Discrepancy subscale measures the level of distress that occurs when a person experiences a disparity in performance and personal standards. Higher scores indicate higher levels of the aspect of perfectionism measured by that subscale. In an examination by Slaney et al. (2001), internal consistency of the subscales ranged from .82 to .91 and good convergent and divergent validity for the scale was found. In the current sample, alphas for the subscales ranged from .84 to .93. Again, see Table 1 for details.

Eating disorder symptoms. The Bulimia Test (BULIT) was developed in 1984 by Smith and Thelen. The BULIT was a 32 item, multiple choice inventory constructed by comparing the responses of a clinical sample of bulimic subjects with normal female

college students on 75 questions based on the DSM-III criteria for bulimia (Smith & Thelen, 1984). In 1991, the BULIT was revised to be consistent with criteria for bulimia nervosa in the DSM-III-R (Thelen, Farmer, Wonderlich, & Smith, 1991). The BULIT-R contains 36 items and is highly correlated with the original version (Williamson, Anderson, & Gleaves, 1996). Brelsford, Hummel, and Barrios (1992) found support for the internal consistency of the revised measure (coefficient alpha of .90 for the binge eating measures and an alpha of .93 for purging measures) and for the test-retest reliability of the measure. They also found support for the construct validity of the inventory by evaluating the correlations between the BULIT-R and self-monitored binge eating and purging. In the current examination, internal consistency of the BULIT-R was satisfactory (alpha = .96).

The BULIT-R has also been found to measure the symptoms of bulimia nervosa as defined by DSM-IV criteria (Thelen, Mintz, & Vander Wal, 1996). Using DSM-IV criteria, the sensitivity, specificity, and negative predictive power were all found to be above .90, and the positive predictive power was found to be .81 (Thelen et al., 1996). These figures were computed using a cut score of 104 to differentiate bulimics from non-bulimics; however, all of the false positives for bulimia were classified with a diagnosis of eating disorder not otherwise specified.

The Eating Attitudes Test (EAT; Garner & Garfinkel, 1979) was designed to assess thoughts and behaviors related to anorexia nervosa. Internal consistency of the EAT was found to be .79 (Garner & Garfinkel, 1979) and test-retest reliability was .84

over a 2-3 week period (Carter & Moss, 1984). The EAT originally contained 40 items but after factor analysis, a 26-item version (EAT-26) was developed to eliminate unnecessary items. Items are scored on a 6-point Likert-type format ranging from “always” to “never.” The EAT and the EAT-26 were found to be highly correlated (Garner, Olmstead, Bohr, & Garfinkel, 1982). The EAT-26 consists of 3 subscales: Dieting, Bulimia and Food Preoccupation, and Oral Control (Garner et al., 1982). The Bulimia and Food Preoccupation subscale was used in this study, as the primary concern was predicting bulimic symptomatology. The internal consistency of the Bulimia subscale of the EAT-26 was found to be .89 in this study.

The Bulimic Investigatory Test, Edinburgh (BITE; Henderson & Freeman, 1987) consists of 33 items designed to detect and describe binge eating. It contains 2 subscales—symptom and severity. Cutoff scores of 20 on the symptom scale and of 5 on the severity scale have been suggested to define bulimia. Henderson and Freeman (1987) reported internal consistencies of .96 for the symptom subscale and of .62 for the severity subscale. Test-retest reliability at 1-week was .86 and at 15-weeks was .68 (Henderson & Freeman, 1987). The BITE was found to correlate significantly with other measures of binge eating (Henderson & Freeman, 1987; Waller, 1992). The symptom scale of the BITE was used in this study as a measure of bulimic behaviors, and the internal consistency of this scale was found to be .86.

Self-esteem. The Rosenberg Self-Esteem Scale (SES; Rosenberg, 1965) consists of 10-items measuring global self-esteem. Respondents provide answers based on a 4-

point scale, ranging from “strongly agree” to “strongly disagree,” with higher scores indicating higher levels of self-esteem. Griffiths et al., (1999) found that the SES has strong construct and convergent validity when used in a dieting disordered sample, and it was also a strong predictor of psychopathology related to disordered eating behaviors and attitudes. The SES was found to have a coefficient alpha of .91 in the current sample.

The Coopersmith Self-Esteem Inventory (SEI; Coopersmith, 1967) is a 25-item measure of self-evaluative attitudes across several domains. Although the SEI was originally designed for use with children, an adult form is also available for individuals ages 16 and older (Blascovich & Tomaka, 1991; Pervin, 1993). Acceptable reliability and validity have been reported for the SEI (Blascovich & Tomaka, 1991). For the SEI, the alpha was found to be .80 in this study. The Self-Esteem Inventory (SEI-J; Jerabek, 1996) assesses evaluative attitudes toward the self and consists of 30 items. Internal consistency for the SEI-J could not be calculated by the examiner, as this measure was scored on-line yielding only a total scale score.

Body satisfaction. The Body Esteem Scale (BES; Franzoi & Shields, 1984) consists of 35 items, listing both body parts and functions. Respondents assess the items on a 5-point Likert scale, ranging from “have strong negative feelings” to “have strong positive feelings.” Three separate subscales have been identified for both males and females. The female subscales include Sexual Attractiveness, Weight Concern, and Physical Condition. The Sexual Attractiveness subscale deals with items relating to physical attractiveness. The body parts on this factor are those that generally can only be

altered through cosmetic or surgical enhancement. Body parts that can be altered through physical exercise or diet are included on the Weight Concern subscale. The final subscale includes items relating to agility and strength. The BES has been found to have high test-retest reliability over a 3-month period (Franzoi, 1994). For females, test-retest reliability ranged from .75 for the Physical Condition subscale to .87 for the Weight Concern subscale. Due to its emphasis on measuring concerns about one's body and appearance, the Weight Concern subscale was used to assess body dissatisfaction, with lower scores indicating greater levels of dissatisfaction. In this study, the alpha of the BES Weight Concern subscale was .92.

The Body Image Assessment Procedure (BIA; Williamson, Davis, Bennett, Goreczny, & Gleaves, 1989) was originally developed to be administered individually as a measure of body image disturbance. Ratings of current and ideal body size are used to compute a measure of body dissatisfaction (current-ideal discrepancy). This study used a group administration format of the BIA (Williams, Gleaves, Cepeda-Benito, Erath, & Cororve, 2001) that consists of nine female silhouettes, ranging from very thin to very obese. Participants were asked to look at the randomly arranged silhouettes and selected the one that most closely resembled their ideal and current body sizes. The group administered format has been found to have good test-retest reliability and construct validity (Williams et al., 2001).

The Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987) contains 34 items designed to measure concerns with body shape. Participants rate

items on a 6-point Likert scale, ranging from “never” to “always.” In this sample, the BSQ had an alpha of .97. The Body Satisfaction Scale-Body Subscale (BSS-BOD; Slade, Dewey, Newton, Brodie, & Kiemle, 1990) examines satisfaction with 8 body parts and was found to have a coefficient alpha of .80 in the current study.

Data Analysis

Quality of indicators. Preliminary steps were taken to examine the quality of each potential indicator by first examining Chronbach’s alpha to assess the internal consistency of each measure. Then, a correlation matrix of all the variables was examined as a preliminary check of convergent and discriminant validity.

Confirmatory factor analysis of perfectionism. Using the LISREL 8.52 program (Jöreskog & Sörbom, 2002), a confirmatory factor analysis was conducted on the perfectionism measures to determine the number of dimensions that best fit the construct. It was predicted that either a two-factor model, representing the dimensions of normal and neurotic perfectionism, or a three-factor model, with an added dimension of orderliness, would best fit the data. These models were compared to a unidimensional model. See Figure 1 for a diagram of the factor structures to be compared and the subscales comprising the factors in each model. The fit of the model was determined by examining the χ^2 statistic, the Goodness-of-Fit Index (GFI; Jöreskog & Sörbom, 1998), the Adjusted Goodness-of-Fit Index (AGFI), the Comparative Fit Index (CFI; Bentler, 1990), the Normed Fit Index (NFI; Bentler & Bonett, 1980), the Tucker-Lewis Index (TLI; see Marsh, Balla, & McDonald, 1988) and the root mean square error of

approximation (RMSEA; Browne & Cudeck, 1993). Values of the GFI, AGFI, CFI, NFI, and TLI range from zero to 1.00. Higher values indicate better fit, and values at .8 or above are considered to indicate a good fit. When evaluating the RMSEA, values of .05 or lower are considered to be a close fit, and values less than .08 are considered to be an adequate fit. The fit of the individual parameters of the model were determined by examining t-values, standardized residuals, and modification indices. Models were compared using χ^2 difference tests. On the model with the most support, discriminant validity was tested by examining confidence intervals around factor intercorrelations.

Structural modeling analyses. A two-step approach was used in the structural modeling analyses (Anderson & Gerbing, 1989). In the first step, the measurement model was examined in two stages using confirmatory factor analysis. Initially, all of the variables were examined to determine if the data best fit a five-dimensional model with latent dimensions of normal perfectionism, neurotic perfectionism, self-esteem, body dissatisfaction, and bulimic behaviors. This five-dimensional model was tested against an alternative model with one dimension and a model with an added sixth dimension of orderliness, as suggested by the previous factor analysis of perfectionism. The purpose of this analysis was to further examine discriminant validity among all the variables. Figure 2 illustrates the measurement model with six dimensions.

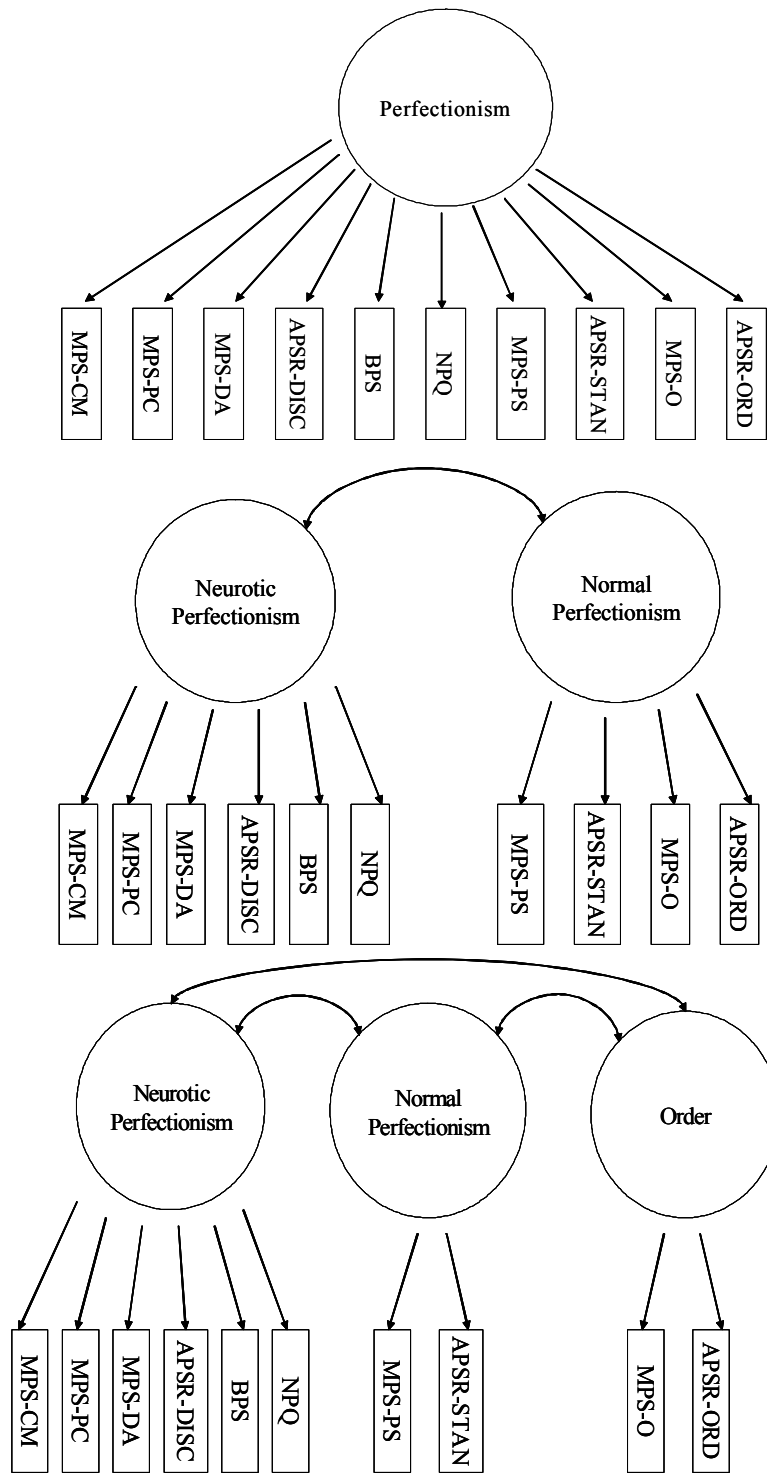


Figure 1. One, Two, and Three Factor Models of Perfectionism

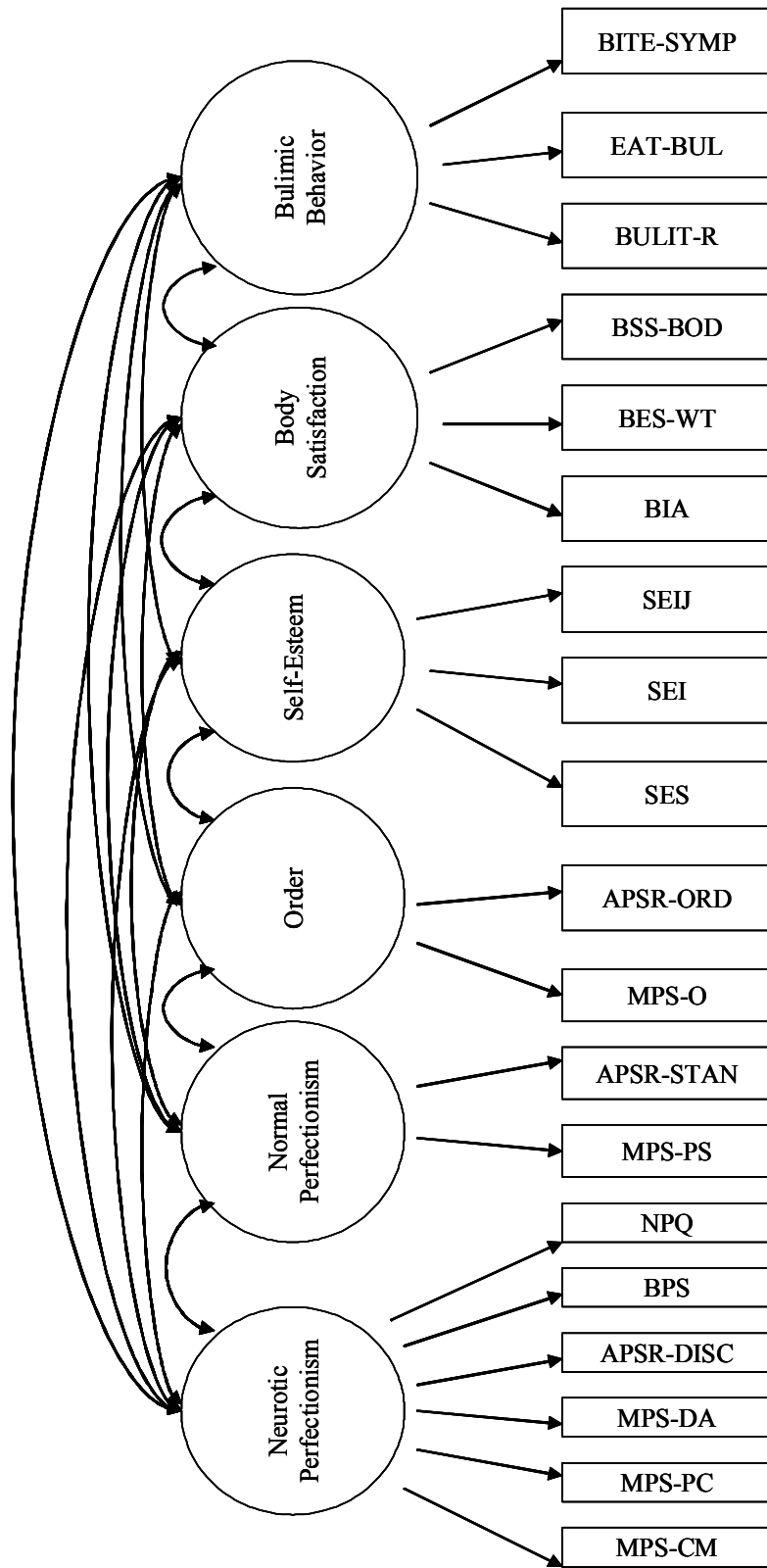


Figure 2. Measurement Model with All Variables

Then, the measurement model was examined using only the variables hypothesized to play a role in the three-way interaction. Using confirmatory factor analysis, a four-dimensional model with latent dimensions of neurotic perfectionism, self-esteem, body satisfaction, and bulimic symptoms was compared to a one-dimensional model. Figure 3 illustrates the measurement model with 4 dimensions. Model fit for these analyses was determined by examining the χ^2 statistic, GFI, AGFI, NFI, CFI, TLI, and RMSEA, and fit of the individual model parameters was determined by examination of t-values. For the models with the best fit, discriminant validity was tested by examining the confidence intervals around factor intercorrelations.

Then, the structural model was tested by re-specifying the data to be consistent with the hypothesis that neurotic perfectionism, self-esteem, and body satisfaction interact to predict bulimic behavior. An illustration of the structural model appears in Figure 3. It was expected that neurotic perfectionism, body satisfaction, and self-esteem would interact to predict bulimic symptoms, such that high levels of body dissatisfaction would predict bulimic symptoms only among those participants who had high levels of neurotic perfectionism, and that this relationship would occur only among those with low levels of self-esteem. To examine the proposed interaction effects, Jaccard and Wan's (1996) approach to modeling interaction effects was used.

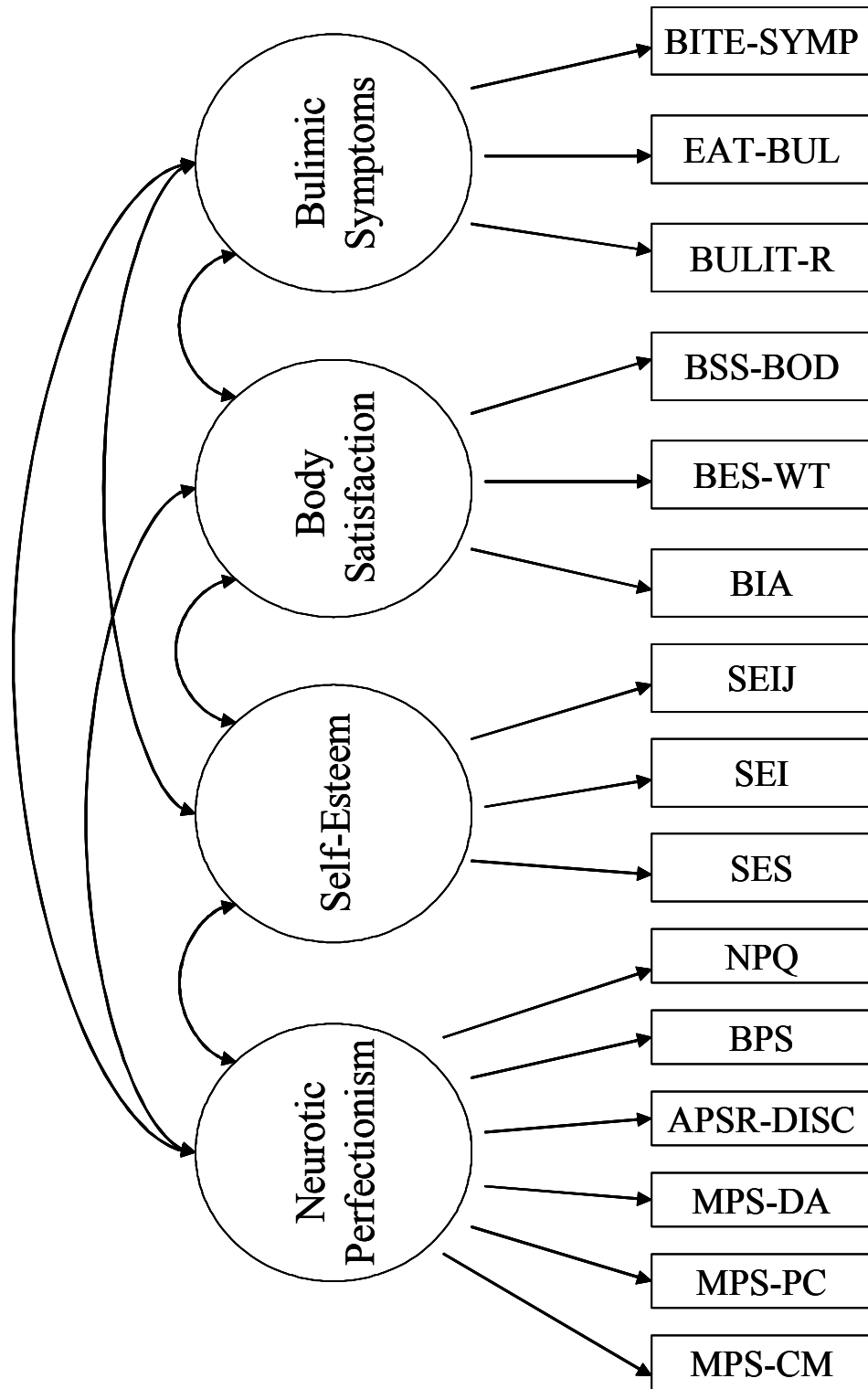


Figure 3. Measurement Model with Four Factors

RESULTS

Quality of Indicators

Internal consistency for each of the measures ranged from alpha = .65 to .96. The MPS-PE was removed from further analyses due to a low Chronbach's alpha. The BSQ was eliminated from further analyses due to poor discriminant validity, meaning it correlated no more highly with other measures of body satisfaction than with measures of the other constructs. Alpha and validity coefficients for the measures were presented in Table 1.

Confirmatory Factor Analysis of Perfectionism

Evaluation of the indicators revealed significant problems with non-normality of the data. To account for this problem, confirmatory factor analysis using maximum likelihood with robust standard errors was used as the estimation method (West, Finch, & Curran, 1995). Additionally, all variables were centered.

The results of the confirmatory factor analysis are presented in Table 2. The two-factor model, consisting of normal and neurotic factors, was found to fit significantly better than a unidimensional model of perfectionism, $\Delta\chi^2(1, N = 286) = 1532.11, p < .01$. The two-factor model was then compared to a three-factor model, consisting of an added factor encompassing an organizational dimension in addition to the factors of normal and neurotic perfectionism, and the three factor model led to a significant χ^2 reduction, $\Delta\chi^2(2, N = 286) = 97.28, p < .01$. Additionally, the other goodness of fit indices generally supported the three-dimensional model over the unidimensional and two-factor models.

T-values for the factor loadings were acceptable, but examination of modification indices indicated that changes in the model could improve model fit. The examination of the modification indices revealed that the Burns Perfectionism Scale appeared to be causing difficulty with the fit of the model; therefore, the confirmatory factor analyses were conducted again after removing the BPS from the analyses. The removal of the BPS resulted in an improvement in the fit of the models, with the three-factor model continuing to best explain the data. Table 3 contains the results of these analyses.

This three-factor model was further examined to evaluate overall model fit. All *t*-values for the factor loadings exceeded the cutoff of $t > 2.00$, indicating that these individual parameters were statistically significant and were important components of the model. T-values ranged from $t = 10.64$ to 21.75 . Squared multiple correlations for the variables ranged from .36 to .88. The three factors in this model of perfectionism were the neurotic factor, the normal factor, and the orderliness factor. A diagram of this model, including factor loadings and factor intercorrelations is presented in Figure 4. The subscales comprising the neurotic factor were Concern over Mistakes, Doubts about Actions, and Parental Criticism subscales from the MPS; the Discrepancy subscale from the APS-R; and the Neurotic Perfectionism Questionnaire. The Personal Standards subscale of the MPS and the Standards subscale of the APS-R made up the normal perfectionism factor. The orderliness factor included the Organization subscale from the MPS and the Order subscale from the APS-R.

Table 2

Comparing Models in the CFA of Perfectionism

Hypothesis	<i>df</i>	χ^2	GFI	NFI	NNFI	CFI	RMSEA	$\Delta\chi^2$	Δdf	<i>p</i>
One Factor	36	1784.20	.42	.40	.26	.41	.41			
Two Factors	35	252.09	.82	.87	.85	.89	.15			
Three Factors	33	154.81	.88	.93	.92	.94	.11			
Model 1-2 difference								1532.11	1	<.01
Model 2-3 difference								97.28	2	<.01

Note. GFI = Goodness of Fit Index; NFI = Normed Fit Index; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation

Table 3

Comparing Models in the CFA of Perfectionism without the BPS

Hypothesis	<i>df</i>	χ^2	GFI	NFI	NNFI	CFI	RMSEA	$\Delta\chi^2$	Δdf	<i>p</i>
One Factor	28	1243.12	.48	.36	.18	.36	.390			
Two Factors	27	138.84	.88	.89	.87	.90	.120			
Three Factors	25	57.91	.95	.96	.96	.97	.068			
Model 1-2 difference								1104.28	1	<.01
Model 2-3 difference								80.93	2	<.01

Note. GFI = Goodness of Fit Index; NFI = Normed Fit Index; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation

Confidence intervals (± 2 standard errors) around the factor correlations were examined as an additional test of discriminant validity. Anderson and Gerbing (1988) noted that evidence for discriminant validity between dimensions is provided if the confidence interval around the correlation estimate between two factors does not include 1.0. None of the confidence intervals among these three factors included 1.0.

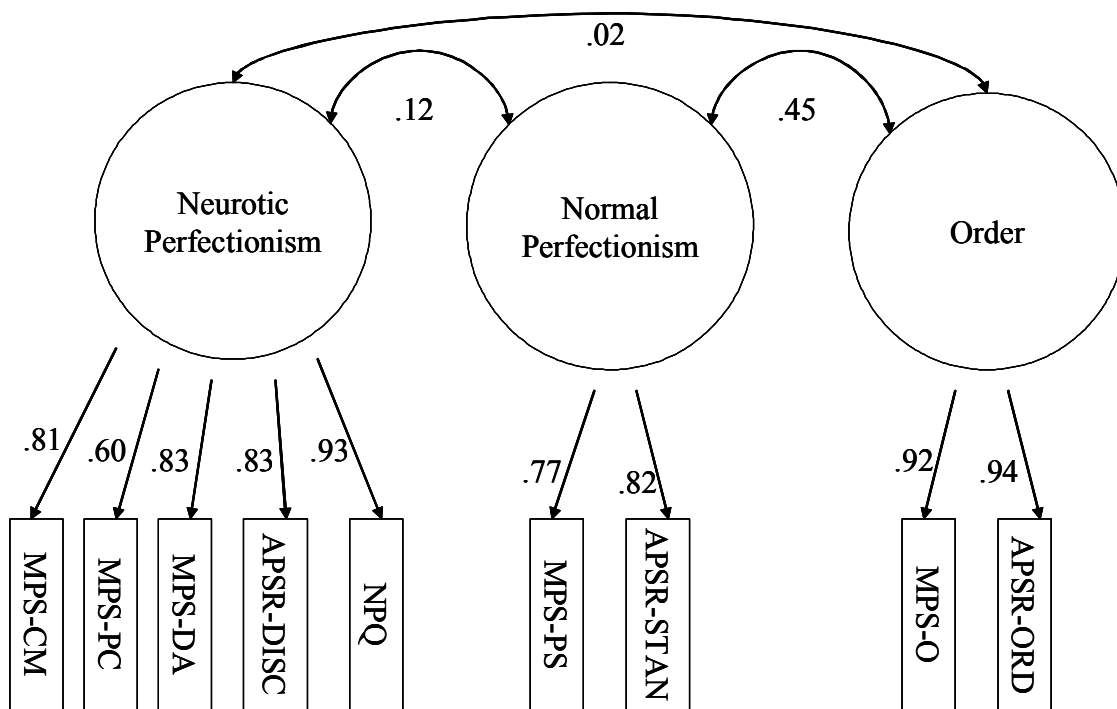


Figure 4. Three Factor Model of Perfectionism with LISREL Estimates

Structural Modeling Analyses

As in the previous factor analysis, the structural modeling analyses were conducted using maximum likelihood estimation with robust standard errors to take into account the non-normality of the data (West et al., 1995), and all variables were centered. In the initial examination of all the variables, the five factor model was found to fit significantly better than the one factor model, $\Delta\chi^2(10, N = 286) = 4112.64, p < .01$. The five factor model was then compared to a six factor model, which accounted for the additional third factor supported by the perfectionism analysis. The six factors included normal perfectionism, neurotic perfectionism, orderliness, body satisfaction, self-esteem, and bulimic behavior. The five factor model combined the factors of normal perfectionism and orderliness. The six factor model was found to fit significantly better than the five factor model, $\Delta\chi^2(5, N = 286) = 147.80, p < .01$. The fit indices also showed better model fit for the six factor model over both the one and five factor models. See Table 4 for further comparison of the measurement models.

The six factor model was further examined to evaluate overall model fit. All t -values exceeded the cutoff of $t > 2.00$, indicating that these individual parameters are important components of the model. Absolute t -values for the factor loadings ranged from $t = 7.27$ to 22.80 . Squared multiple correlations for the variables ranged from $.32$ to $.92$. Confidence intervals between the factors were again examined to further establish discriminant validity. None of these confidence intervals included 1.0 , supporting the

discriminant validity between the constructs. Table 5 contains the correlation estimates (with standard errors) between the constructs. This model is presented in Figure 5.

Then, the four factor model was examined, using only those variables to be included in further analyses. The four factor model was found to fit significantly better than a one factor model $\Delta\chi^2(6, N = 286) = 658.64, p < .01$. Comparison of the fit indices also supported the four factor model. Table 6 contains the results of this examination.

The four factor model was further examined to evaluate overall model fit. All t -values exceeded the cutoff of $t > 2.00$, with absolute t -values for the variables ranging from $t = 7.29$ to 22.88 . Squared multiple correlations for the variables ranged from $.32$ to $.93$. Confidence intervals between the factors were examined as a additional test of discriminant validity. Again, none of these intervals included 1.0 , supporting the

Table 4

Comparing Measurement Models Containing All Variables

Hypothesis	<i>df</i>	χ^2	GFI	NFI	NNFI	CFI	RMSEA	$\Delta\chi^2$	Δdf	<i>p</i>
One Factor	136	4506.86	.28	.55	.51	.56	.340			
Five Factors	126	394.22	.86	.93	.94	.95	.086			
Six Factors	121	246.42	.90	.96	.97	.98	.060			
Model 1-5 difference								4112.64	10	<.01
Model 1-6 difference								4260.44	15	<.01
Model 5-6 difference								147.80	5	<.01

Note. GFI = Goodness of Fit Index; NFI = Normed Fit Index; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation

Table 5

Correlation Estimates (with Standard Errors) between Factors for the Six Factor Model

	Neurotic	Normal	Order	Body Dissatisfaction	Self- Esteem	Bulimic Behavior
Neurotic	1.00					
Normal	0.07 (0.07)	1.00				
Order	0.02 (0.06)	0.45 (0.06)	1.00			
Body Dissatisfaction	0.49 (0.05)	-0.13 (0.07)	-0.02 (0.06)	1.00		
Self-Esteem	-0.92 (0.02)	0.23 (0.07)	0.08 (0.07)	-0.56 (0.05)	1.00	
Bulimic Behavior	0.57 (0.05)	0.08 (0.06)	0.05 (0.06)	0.68 (0.04)	-0.54 (0.05)	1.00

Table 6

Comparing Measurement Models Containing the Four Primary Variables

Hypothesis	<i>df</i>	χ^2	GFI	NFI	NNFI	CFI	RMSEA	$\Delta\chi^2$	Δdf	<i>p</i>
One Factor	77	795.15	.67	.87	.86	.88	.180			
Four Factors	71	136.51	.93	.98	.98	.99	.057			
Model 1-4 difference								658.64	6	<.01

Note. GFI = Goodness of Fit Index; NFI = Normed Fit Index; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation

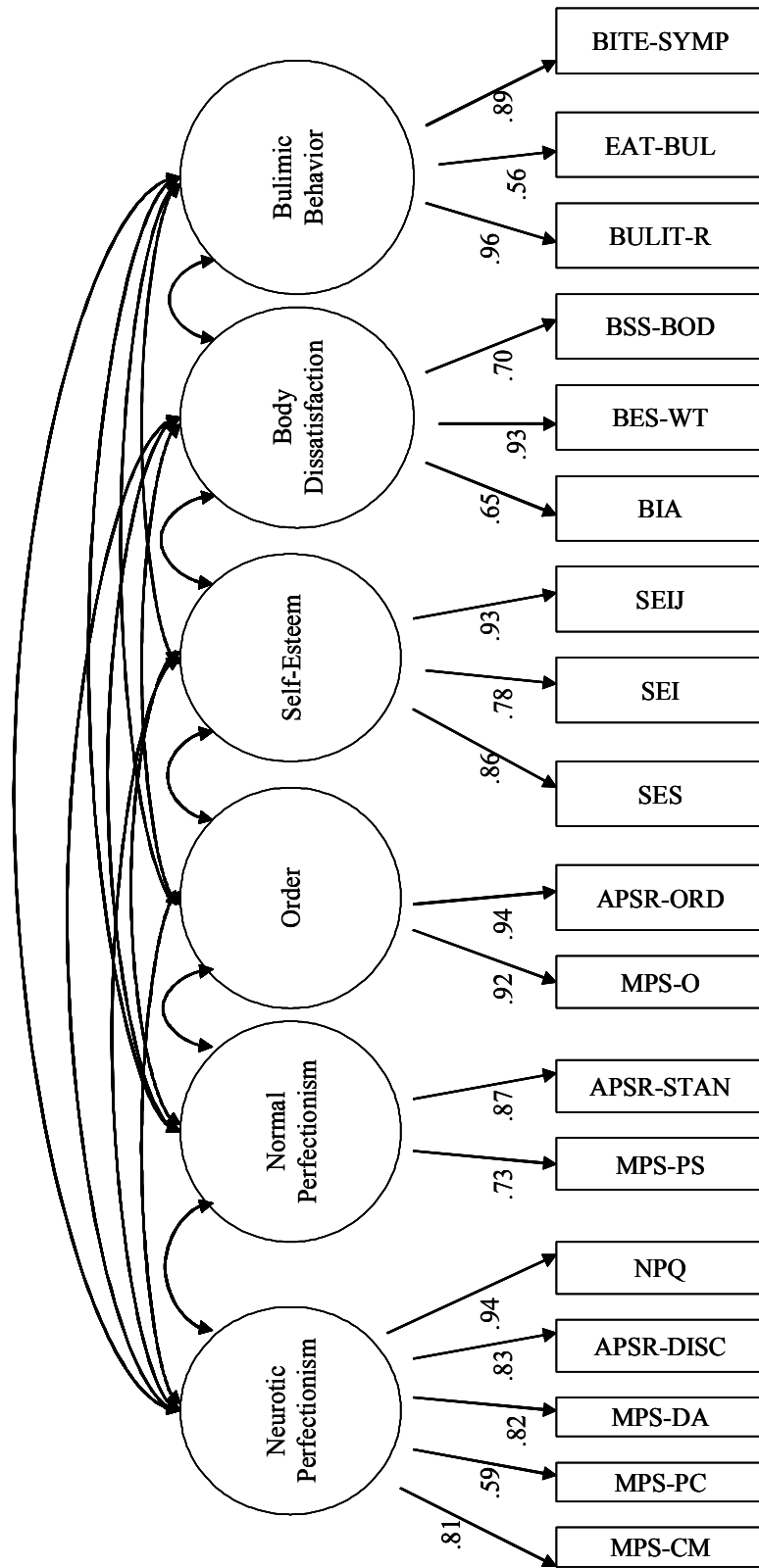


Figure 5. LISREL Estimates for the Six Factor Measurement Model

Note. All factor loadings are shown as absolute values, and due to space limitations in the figure, correlations between the factors were presented in Table 4.

discriminant validity between the constructs. The final measurement model with parameter estimates and factor intercorrelations is presented in Figure 6.

The model was then re-specified to test the hypothesis that a high level of body satisfaction would predict bulimic symptoms only among those women with high levels of neurotic perfectionism, and that this relationship would only occur among those women who also had low self-esteem. Jaccard and Wan's (1996) approach for testing interaction effects was used to examine this hypothesis. This approach involved comparing the relationship among the variables in a two step process. The best indicators from each of two constructs were used to construct a product term, and the path coefficient indicated how well the product term predicts bulimic symptoms. The effect of the product term was tested on high and low levels of the third variable. In step 1, the relationship among the variables was free to vary within the two groups. In step 2, the path coefficient for the product variable was held equal in the two groups. If the difference between the step 1 and step 2 analyses was statistically significant, a three-way interaction would be supported. In this study, the test for the three-way interaction was statistically nonsignificant ($\Delta\chi^2(1) = .42, p = .517$), indicating no three-way interaction among the variables. Each variable was rotated through as the variable used to construct the groups. The results of this analysis did not change based on which variable was used to construct the groups. The hypothesized three-way interaction was also examined by splitting the sample into three groups (low, medium, and high) based

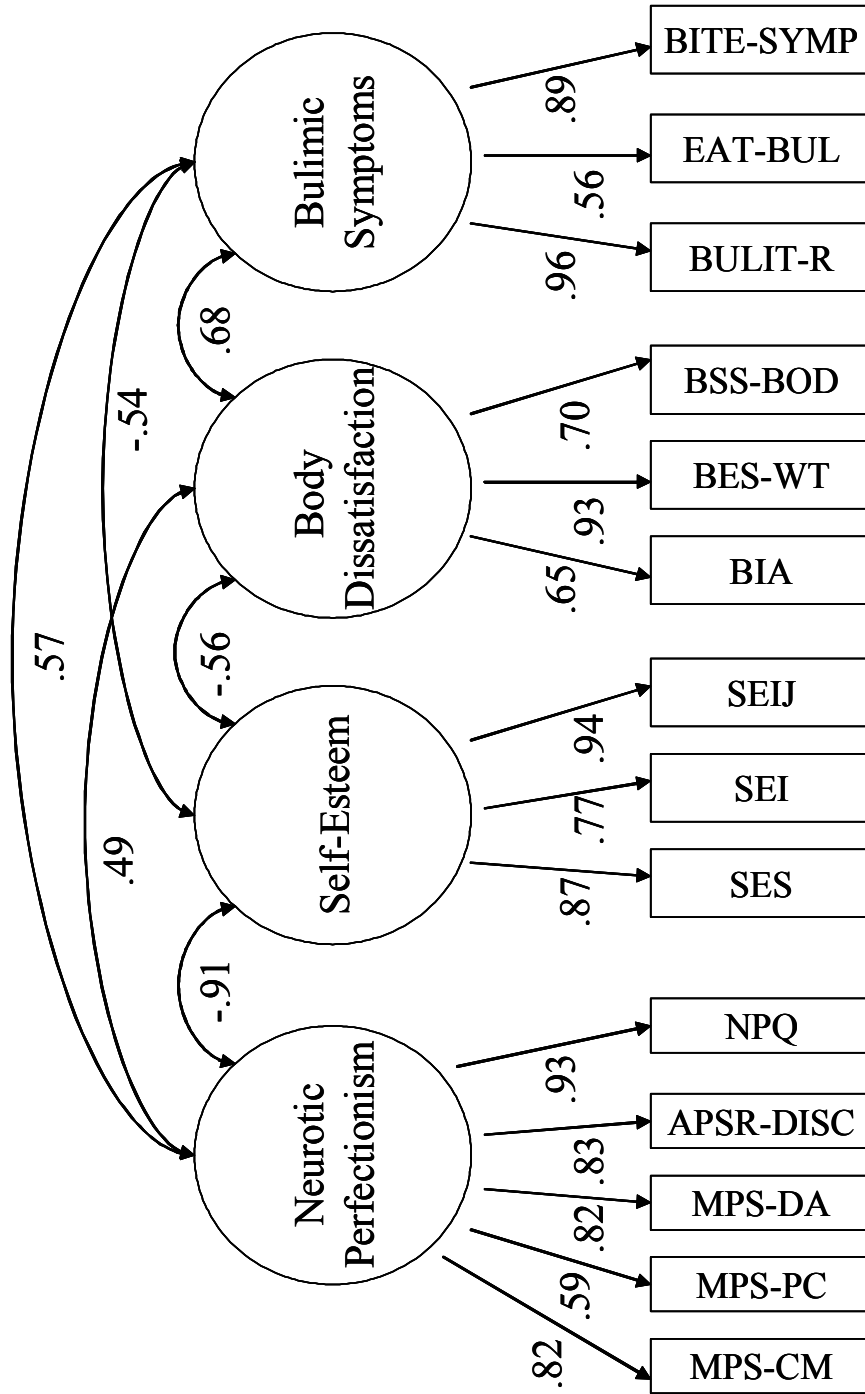


Figure 6. Final Measurement Model

Note. All factor loadings are shown as absolute values.

on the third variable. The test for the three-way interaction remained statistically nonsignificant ($\Delta\chi^2(2) = 1.3, p = .522$).

All possible combinations of two-way interactions of neurotic perfectionism, body satisfaction, and self-esteem were then tested, with two of these interaction yielding statistically significant results. Both the interaction of body satisfaction and neurotic perfectionism and the interaction of body satisfaction and self-esteem were statistically significant. See Table 7 for details. For both of the models with statistically significant two-way interactions, the main effects in each model were also statistically significant. See Figures 7 and 8 for the path coefficients and standard errors for these effects. For the model with the non-significant interaction between neurotic perfectionism and self-esteem, neither of the main effects were statistically significant.

Table 7

Comparing Two-Way Interactions among the Variables

Model	Hypothesis	<i>df</i>	χ^2	RMSEA	Product term	t-value
1	Body Satisfaction X Neurotic Perf.	34	68.97	.060	-.28	-4.72
2	Body Satisfaction X Self-Esteem	34	71.56	.062	.14	2.89
3	Neurotic Perf. X Self-Esteem	34	78.66	.068	-.12	-1.83

Note. RMSEA = Root Mean Square Error of Approximation

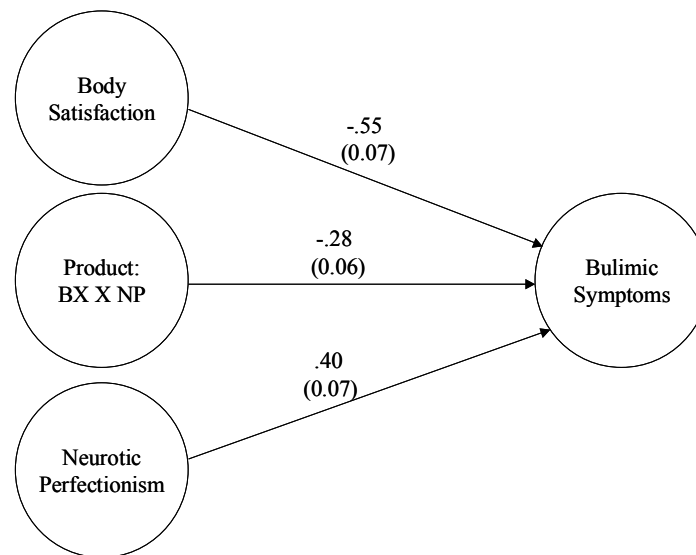


Figure 7. Path Coefficients (with Standard Errors) for the Body Satisfaction by Neurotic Perfectionism Interaction

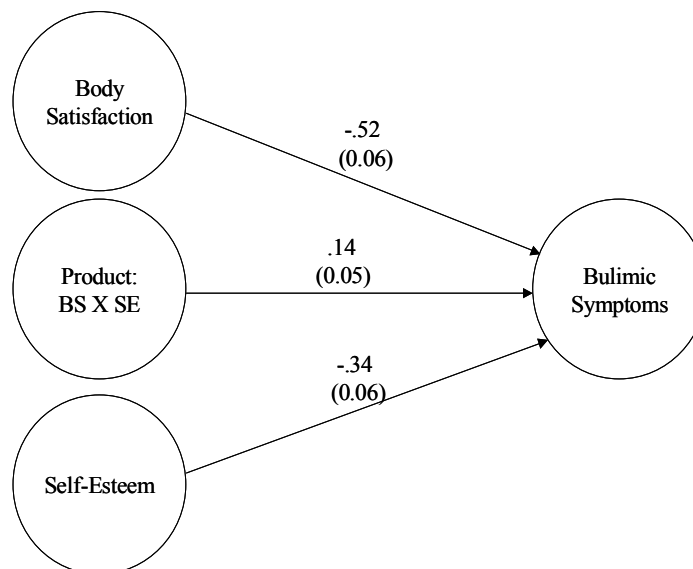


Figure 8. Path Coefficients (with Standard Errors) for the Body Satisfaction by Self-Esteem Interaction

To follow-up the statistically significant interactions, the sample was divided into groups to further examine the relationship between the variables at each level. Initially, the sample was divided into the smallest possible number of groups (i.e., 2) based on a composite score of one of the variables. For both of the statistically significant interactions, two groups did not yield an explainable pattern of results to account for the interaction. In other words, there were no statistically significant differences between the two groups on the relationship between the interaction variables; therefore, the number of groups was increased for each interaction until either a clear pattern of results was found in the follow-up analysis or the sample size for the each group was nearing 50.

When examining the interaction between body satisfaction and neurotic perfectionism, a division into 2 groups did not yield statistically significant differences between the groups on this relationship. Three groups of approximately equal size were then constructed based on neurotic perfectionism scores. Groups were constructed using a composite score of three of the neurotic perfectionism measures (APSR-DISC, MPS-CM, and NPQ). The relationship between body satisfaction and bulimic symptoms was examined at each of the three levels of neurotic perfectionism, and a non-linear pattern of findings was discovered. As detailed in Table 8, there was a stronger negative relationship between body satisfaction and bulimic symptoms for those women who scored in the middle on neurotic perfectionism compared to those who scored highest on this variable. For those who scored lowest on neurotic perfectionism, the negative relationship between

body satisfaction and bulimic symptoms was greater than those who scored highest but slightly lower than participants with scores in the middle range of this variable.

To follow-up the significant interaction between body dissatisfaction and self-esteem, 5 groups of approximately equal size were constructed based on SES scores. A smaller number of groups was initially constructed but did not result in an understandable relationship between the variables. Again, a composite score of the three self-esteem measures (SES, SEI, SEI-J) was used to divide the sample into groups. The relationship between body satisfaction and bulimic symptoms was examined at each of the five levels of self-esteem. As can be seen in Table 9, there was a small curvilinear relationship among the variables; however, there was little variability with the relationship between body satisfaction and bulimic symptoms at the various levels of self-esteem.

Table 8

Relationship between Body Satisfaction and Bulimic Symptoms by Level of Neurotic Perfectionism

Group	Beta	Standard Error	t-value
1: Low neurotic perfectionism	-.65	.10	-6.37
2: Middle neurotic perfectionism	-.72	.12	-5.84
3: High neurotic perfectionism	-.49	.10	-5.13

Table 9

Relationship between Body Satisfaction and Bulimic Symptoms by Level of Self-Esteem

Group	Beta	Standard Error	t-value
1: Very low self-esteem	-.53	.12	-4.25
2: Low self-esteem	-.57	.17	-3.28
3: Moderate self-esteem	-.64	.13	-4.87
4: High self-esteem	-.62	.15	-4.26
5: Very high self-esteem	-.60	.13	-4.60

DISCUSSION AND CONCLUSION

These results indicated that perfectionism, as measured in this study, is best explained as a three factor construct with the dimensions of normal perfectionism, neurotic perfectionism, and orderliness. These results are consistent with more recent research, which has also found support for a three factor model of perfectionism. In an exploratory factor analysis of three perfectionism scales, Suddarth and Slaney (2001) found three factors they labeled Unhealthy Perfectionism, Healthy Perfectionism, and Orderliness. These factors correspond to the three dimensions found in the current research, including the subscales loading on each factor in the same manner for the measures used in both studies.

The current findings are consistent with expectations of a multidimensional perfectionism construct consisting of a potentially pathological factor along with less harmful aspects, with neurotic perfectionism encompassing the more deleterious aspects of the construct. There was some evidence that both normal perfectionism and orderliness are more neutral, or perhaps even slightly positive, aspects of perfectionism. For example, normal perfectionism correlated with both body dissatisfaction and self-esteem in the opposite as did neurotic perfectionism. Additionally, normal perfectionism did not statistically significantly correlate with bulimic symptoms, whereas neurotic perfectionism did.

When neurotic perfectionism was examined in combination with other risk factors for bulimia nervosa, an interaction between neurotic perfectionism, self-esteem, and body

satisfaction was not found to predict bulimic symptoms. This finding was not consistent with hypothesized predictions but given the discrepant findings in the literature regarding the relationship of perfectionism to bulimic symptoms, may not be that surprising.

It is important to note that all three variables continued to predict bulimic symptoms independent of any interaction. Therefore, although the constructs did not predict bulimic behavior in the hypothesized interactional manner, body satisfaction, self-esteem, and neurotic perfectionism did all independently predict bulimic symptoms, indicating that these variables continue to serve as risk factors for the presence of bulimic symptoms. This finding is especially notable regarding neurotic perfectionism, as previous literature has shown inconsistent findings regarding perfectionism and bulimia nervosa. One potential reason for this inconsistency may be the construct having been measured in a unidimensional manner, when in this study it related to bulimic symptoms in a multidimensional fashion. The use of structural equation modeling (SEM), along with measuring multiple factors of perfectionism, may also account for the somewhat larger effect size between neurotic perfectionism and bulimic symptoms than has been found in previous studies examining only a unidimensional perfectionism construct. By utilizing structural equation modeling, the current research provides an important advancement in the measurement of these constructs and their relationship to bulimic behavior. No other study has utilized SEM to examine the relationship among all of these risk factors and bulimic symptoms. By employing SEM, the effect of measurement error was reduced,

allowing more accurate estimates of the effect size between neurotic perfectionism, self-esteem, and body satisfaction and bulimic behavior.

A pair of two-way interactions was also found to account for bulimic behavior, with body satisfaction by self-esteem and body satisfaction by neurotic perfectionism predicting bulimic symptoms. These interactions appear to be playing an important role in explaining bulimic behavior. Both neurotic perfectionism and self-esteem interact in a detrimental manner with body satisfaction and the level of these constructs may increase the likelihood that a person dissatisfied with her body will engage in bulimic behaviors. Follow-up tests of these interactions suggested curvilinear relationships for both the interaction of body satisfaction and neurotic perfectionism and the interaction of body satisfaction by self-esteem.

For the interaction between body satisfaction and neurotic perfectionism, the strongest negative relationship between body satisfaction and bulimic symptoms was found for those women with moderate levels of neurotic perfectionism compared to those highest or lowest on neurotic perfectionism; however, those participants at the lowest level of neurotic perfectionism had a relationship more similar to those participants who scored in the middle range of this variable than with those who scored the highest. This finding indicates that the more dissatisfied an individual is with her body, the more bulimic behavior she is likely to engage in, and that this relationship is strongest when the individual also has low to moderate levels of neurotic perfectionism. Therefore, neurotic perfectionism interacts in a detrimental manner with body satisfaction and may increase

the likelihood that a person dissatisfied with her body will engage in bulimic behaviors, such as binge eating. It could be that this relationship is not strongest at high levels of neurotic perfectionism because at high levels of neurotic perfectionism, the interaction with body satisfaction is not as important in predicting bulimic behavior. In other words, if a person is extremely high on neurotic perfectionism, it may not matter where her scores fall on the other variable. Neurotic perfectionism may contribute to bulimic symptoms through the rigid, all-or-nothing thinking style that is a part of this construct. For example, an individual may be more prone to binge when a slight violation occurs in her desired eating pattern.

The manner in which body satisfaction and self-esteem interacted did not yield a clear pattern of results to explain how they predict bulimic symptoms. There was little variation in the relationship between body satisfaction and bulimic symptoms at the various levels of self-esteem. However, self-esteem did interact in a detrimental manner with body satisfaction and influences the manner in which a person dissatisfied with her body may engage in bulimic behaviors

There were several limitations of this study. First, the participants were gathered from a non-clinical population of university undergraduates; therefore, we were only able to explore the relationship between the variables and bulimic symptoms, not full-blown bulimic nervosa. The research was cross-sectional in design, and therefore, causation among the variables cannot be established. It is possible that bulimic symptoms may precede or contribute to the development of body dissatisfaction, low self-esteem, and

neurotic perfectionism. The sample was predominantly Caucasian, so the variables could interact differently if studied in a more diverse population.

This study has important implications for both clinical work and future research. Clinically, these findings reveal the importance of attending to other factors, such as perfectionistic traits, body dissatisfaction, and low self-esteem when working with a population displaying bulimic behavior. By working to improve an individual's positive feelings toward her body and self and to decrease perfectionistic tendencies, bulimic symptoms might also be reduced. Although body dissatisfaction and self-esteem issues are often addressed in treatment, neurotic perfectionism may not be a focus of attention. This study emphasizes the importance of exploring the individual's cognitive style, paying particular attention to her tendency to engage in all-or-nothing thinking and to hold rigid attitudes toward eating, food, and her body.

Future research should further examine the relationships among these variables. It would be interesting to explore these factors in a clinical sample to see if the results would be similar. It could be that individuals diagnosed with bulimia nervosa would show more extremes of neurotic perfectionism, self-esteem, and body dissatisfaction that could in some ways influence the relationship among the variables. Also, it would be beneficial to further explore the relationship among these variables in a more diverse population, including more ethnic minorities and perhaps male participants.

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Research Experience

Texas A&M University: Department of Psychology	8/99 - present
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Clinical Experience

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Professional Presentations

- Pearson, C.A., Brown, J.D., & Gleaves, D.H. (2002). Examining the relationship between perfectionism, self-esteem, body dissatisfaction, and bulimia nervosa. Poster presented at the annual meeting of the Association for Advancement of Behavior Therapy, Reno, NV, November 2002.
- Brown, J.D., Gleaves, D.H., & Pearson, C.A. (2002). Male and female body image: Critical measurement issues. Poster presented at the annual meeting of the Association for Advancement of Behavior Therapy, Reno, NV, November 2002.
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- Cororve, M.B., Brown, J.D., Pearson, C.A., & Gleaves, D. H. (2001). Societal effects on male and female body satisfaction. Poster presented at the annual meeting of the American Psychological Association, San Francisco, CA, August 2001.
- Snow, A.C., Pearson, C.A., Brown, J.D., Cororve, M.B., & Gleaves, D.H. (2000). A taxometric analysis of anorexia nervosa. Poster presented at the annual meeting of the American Psychological Association, Washington, DC, August, 2000.