Perfectionism in Women with Binge Eating Disorder

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Abstract: Objective: This study examined self-oriented (SOP), socially prescribed (SPP), and other-oriented (OOP) perfectionism in 127 obese women with binge eating disorder (BED). Method: Relationships between eating disorder and general psychopathology variables and SOP, SPP, and OOP were assessed. Levels of SOP, SPP, and OOP in the BED sample were compared with those of 32 normal weight women with bulimia nervosa (BN) and 60 obese non–eating-disordered individuals (NED). Structural equation modeling (SEM) was used to test models of the maintenance of BED. **Results:** Only SPP was significantly associated with eating disorder variables related to BED. All three groups demonstrated similar levels of SPP and OOP. BN and BED groups scored significantly higher than the NED group on SOP only. SEM resulted in two models with good fits. Discussion: Further research is needed on the roles of SPP and SOP in BED and on weight and shape overconcern in BED maintenance models. © 2001 by John Wiley & Sons, Inc. Int J Eat Disord 29: 177–186, 2001.

Key words: perfectionism; binge eating disorder; maintenance models

INTRODUCTION

Perfectionism has been found to be an important associated feature in females diagnosed with anorexia nervosa (AN) and bulimia nervosa (BN). It is also found in females who exhibit related symptoms (i.e., restrictive dieting, extreme weight and shape concerns, and drive for thinness) but do not meet diagnostic criteria for frank eating disorders (Bastiani, Rao, Weltzin, & Kaye, 1995; Davis, 1997; Garner, Olmsted, & Polivy, 1983; Hewitt, Flett, & Ediger, 1995; Joiner, Heatherton, Rudd, & Schmidt, 1997). Binge eating disorder (BED) is a proposed new diagnostic category in the Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV; American Psychiatric Association [APA], 1994). The principal feature in BED, binge eating, is defined exactly as it is for BN.

Despite the fact that BED shares some of its clinical correlates with BN (i.e., binge eating and extreme weight and shape concerns), relatively few studies have examined perfec-

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tionism in BED. To date, three studies have examined perfectionism in women with BED (de Zwaan et al., 1993; Kuehnel & Wadden, 1994; Raymond, Mussell, Mitchell, de Zwaan, & Crosby, 1995). The findings from two of these studies (de Zwaan et al., 1993; Raymond et al., 1995) suggest that women with BED exhibit similar levels of perfectionism compared with women with BN. However, Kuehnel and Wadden (1994) found that BED participants were not significantly different from an overweight non–eating-disordered group (NED). These three studies utilized the perfectionism subscale of the Eating Disorders Inventory (EDI; Garner et al., 1983). This subscale is a unidimensional measure comprised of an equal number of questions that tap two separate dimensions of perfectionism: self-oriented (SOP) and socially prescribed (SPP) perfectionism. Recently, however, several authors have emphasized the importance of examining the construct of perfectionism multidimensionally (Davis, 1997; Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991).

BED is associated with high levels of depressive symptomatology and increased lifetime rates of major depressive disorder (Marcus et al., 1990; Telch & Stice, 1998; Yanovski, Nelson, Dubbert, & Spitzer, 1993). There is also a positive relationship between depressive symptomatology and maladaptive perfectionism (Hewitt & Flett, 1991). Given the associations between BED and negative affect and between negative affect and perfectionism, an investigation of perfectionism in BED may demonstrate specific associations between maladaptive perfectionism and negative affect in women with BED.

The primary aim of this study was to investigate the relationships among three dimensions of perfectionism and eating and general psychopathology variables in women with BED. Most descriptive studies of BED utilize clinical samples. Such samples may be biased in that treatment-seeking individuals tend to present with higher levels of psychopathology and comorbid diagnoses. Accordingly, this study compared a nontreatment-seeking sample of women with BED with normal weight women with BN and overweight NED women on a multidimensional measure of perfectionism.

Given that binge eating, low self-esteem, and weight and shape concerns are involved in women with BN and BED, a modified version of the cognitive-behavioral model of the maintenance of BN (without the compensatory behaviors) was initially believed to adequately represent BED. Recently, however, a specific model for the maintenance of BED has been proposed (Castonguay, Eldredge, & Agras, 1995). Structural equation modeling (SEM; Schumaker & Lomax, 1996) was used to test several models of the maintenance of BED (both specific to BED and modified models of BN) in order to ascertain which models fit the data best as well as to what extent perfectionism affects the goodness of fit.

Our main hypothesis was that BED participants would exhibit less perfectionism than the BN participants but more than the NED participants. BED participants tend to score lower than those with BN but higher than NED overweight participants on measures of general and eating psychopathology (Fichter, Quadflieg, & Brandl, 1993; Hay & Fairburn, 1998; le Grange, Telch, & Agras, 1997). The testing of various models of binge eating and BED was exploratory and intended to provide more information about the maintenance of BED. Without data on multidimensional perfectionism scores in BED samples, no a priori hypotheses were made regarding the role of perfectionism in these models. Consistent with the literature that demonstrates significantly lower levels of dietary restraint in BED versus BN participants (Castonguay et al., 1995; Marcus, Smith, Santelli, & Kaye, 1992), a maintenance model that was less reliant on an association between restraint and binge eating was hypothesized to provide a better fit of the data.

METHODS

Participants

Women were recruited from the community to participate in a paid research study of eating behavior that did not offer treatment. Advertisements in the local newspapers announced a laboratory study of eating behavior for women between 18 and 65 and compensation of \$150.00. A total of 219 women participated in the laboratory studies of eating behavior at Stanford University (for greater detail, see Agras & Telch, 1998; Telch & Agras, 1996a, 1996b).

All participants met criteria for one of the following categories: BN (n = 32) as defined by the 3rd Rev. ed. of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; APA, 1987); BED (n = 127) as defined by the proposed criteria of the 4th ed. of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; APA, 1994); and NED participants (n = 60). The NED participants were included if they denied current binge eating, a past history of binge eating, a subjective sense of loss of control over eating, purging, and/or any behavior that might meet criteria for an eating disorder not otherwise specified. A clinical interview developed specifically for the purposes of this study, the Questionnaire on Eating and Weight Patterns-Revised (QEWP-R; Spitzer et al., 1992), and the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) were used to determine the BN and BED diagnoses and to confirm the status of the overweight NED group.

Measures

The EDE-Q is a 38-item, self-report measure of specific eating disorder behaviors (i.e., binge eating/purging) and eating psychopathology derived from the structured interview, the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993). The EDE-Q has four subscales: Restraint, Weight Concern, Shape Concern, and Eating Concern. It also provides rates of frequency of binge eating for the past month. The four subscales have been found to have acceptable reliability and validity (Fairburn & Beglin, 1994; Black & Wilson, 1996).

The QEWP-R (Spitzer et al., 1992) assesses the frequency, duration, and criteria of binge eating for the proposed DSM-IV BED diagnosis and for purging and nonpurging BN. The BED diagnosis based on this measurement is moderately stable over a 3-week interval (kappa = .58) and correlates well with the diagnosis arrived at by structured interview (kappa = .57; Johnson & Torgrud, 1996).

The height and weight measurements for each subject were obtained with a physician's balance scale and converted into a body mass index (BMI; kg/m^2) (Garrow & Webster, 1985).

The Multidimensional Perfectionism Scale (MPS; Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991) is a comprehensive measure of perfectionism. It comprises 45 items that are evenly distributed into three low to moderately correlated subscales (15 items each): SOP, SPP, and other-oriented perfectionism (OOP). Participants are asked to make 7-point ratings of agreement with various statements representing each of the three dimensions. The scoring for each subscale ranges from 15 to 105, with higher scores indicating greater perfectionism. The reliability, validity, and factor structure of the MPS have been established in both clinical and nonclinical samples (Hewitt & Flett, 1991; Hewitt et al., 1991).

The Beck Depression Inventory (BDI; Beck, Steer, & Garbin, 1988) is a reliable and valid 21-item self-report measure of depressive symptomatology.

The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) is a reliable and valid 10-item questionnaire that measures self-reported level of self-esteem. Higher scores indicate higher self-esteem.

The Binge Eating Scale (BES; Gormally, Black, Daston, & Rardin, 1982) is a 16-item self-report questionnaire that assesses severity of binge eating problems in the obese. A standard cutoff point for determining binge severity is 27 (Marcus, Wing, & Hopkins, 1988). Individuals who score above this level are categorized as severe binge eaters, whereas individuals who score between 17 and 27 are categorized as moderate binge eaters.

The Symptom Checklist-90 (SCL-90; Derogatis, 1977) is a reliable and valid 90-item questionnaire that assesses general psychiatric symptomatology and provides an overall index of psychiatric distress, the General Symptomatic Index (GSI). The GSI was used here to provide a continuous measure of general psychopathology.

Statistical Analysis

Data were analyzed using a standard statistical package (SAS; Cody & Smith, 1991). For all data analyses, only results with a *p* value of .05 or less were considered significant. Adequacy of model fit in SEM has been based on the chi-square test, the goodness of fit index (GFI), the root-mean-square error of approximation (RMSEA) estimate, and Bentler and Bonnet's normed fit index (NFI; Bentler & Bonnet, 1980). A model is considered to provide a close fit if the RMSEA estimate is less than .05 (MacCallum & Hong, 1997). In addition, in order to ascertain the degree of fit for any given model, the parameter values must be in-bounds (i.e., without any negative R-squares or negative variances).

RESULTS

Preliminary Analyses

Participants ranged in age from 18 to 60 years. The BN group was the youngest and the BED and NED groups were of similar ages. Approximately 78% of the entire sample was White, 12% Hispanic, 6% Black, 3% Asian, and 1% Native American. The majority of our sample was employed (70%) and had attended college (79%). As expected, the BED and NED groups differed significantly from the BN group in terms of weight and BMI. The average BMI of BN participants fell at the lower end of the normal weight range (i.e., BMI = 20–25), whereas the average BMI for both the NED and BED groups fell within the obese range (i.e., BMI >30).

Relationships Between Perfectionism and Other Measures

Correlations between perfectionism scores and standard measures of eating disorder pathology (i.e., EDE-Q, BES) and general psychiatric symptoms (i.e., BDI, RSE, and SCL-90) were calculated for the BED group. SOP showed no significant correlation with any of the eating disorder pathology measures. SOP and SPP were significantly related to level of depressive symptomatology (BDI; r = .21, p < .05; r = .36, p < .0001, respectively) and general psychiatric symptom severity (SCL-90; r = .28, p < .01; r = .29, p < .01, respectively).

SPP was significantly and positively associated with three of the four EDE-Q subscales (i.e., Weight Concern, r = .24, p < .01; Shape Concern, r = .24, p < .01; and Eating Concern, r = .29, p < .0001) and the BES (r = .37, p < .0001). SPP was also significantly correlated with the RSE (with which SPP was negatively correlated, r = -.38, p < .0001; a high RSE score indicates high levels of self-esteem). OOP was not significantly related to any of the eating disorder or general psychopathology measures.

MPS Scores

ANCOVA was used to compare MPS subscale scores (SOP, SPP, and OOP) across groups. The ANCOVA controlled for significant covariates (i.e., depressed mood, self-esteem, age, and BMI). ANCOVA, *F* (2, 195) = 3.28, *p* = .04, indicated that the SOP mean score (64.6 ± 15.5) of the control group (NED) was significantly lower than the scores of the BN and BED groups (72.6 ± 17.4 and 72.3 ± 17.9, respectively). However, all three groups had similar scores on SPP and OOP. The mean scores of the BN and BED groups were not significantly different on any of the subscales.

Structural Models

In order to test various proposed models of binge eating and maintenance of BED, we utilized SEM (Schumaker & Lomax, 1996). A covariance matrix was constructed from the intercorrelations of the main variables used in the models tested.¹ Of the first six models we tested, four contained perfectionism as a factor and two did not. This was done in order to ascertain (a) which models provided the best fit and (b) whether or not the relationship of perfectionism to the aforementioned variables adds to our current understanding of BED.

The first BED maintenance model tested was the cognitive-behavioral model proposed by Castonguay et al. (1995). It consisted of the following components: low self-esteem (RSE), negative affect (BDI), weight and shape overconcern (EDEQWTSH), and restraint (EDEQREST). All were hypothesized to be associated with binge eating (EDEQ19), which then relates to the beginning of the model (i.e., self-esteem or RSE). The second BED model consisted of the Castonguay et al. (1995) model with the addition of several dimensions of perfectionism (SOP, SSP, and OOP) as specific components associated with low self-esteem. The third BED model was an extension of the second. In this model, weight and shape overconcern are related to perfectionism. This in turn is associated with attempts at restraint and negative affect. Both of these factors were hypothesized to be associated with binge eating, which then leads back to restraint and self-esteem.

The first modified BN model to be tested included all components of the original cognitive-behavioral model of the maintenance of BN (Fairburn, Marcus, & Wilson, 1993) except compensatory behaviors. Clearly, this modified model is not technically a BN model without this component. However, we will retain this classification in order to distinguish this model from those proposed specifically for BED. This model is almost identical to that of the BED model proposed by Castonguay et al. (1995), except that it does not include a pathway from negative affect to binge eating. Therefore, we predicted

¹This covariance matrix and visual representations of the models are available from the first author upon request.

that it would not provide as good a fit as the Castonguay et al. (1995) model for the maintenance of BED. The second modified BN model tested added perfectionism as a factor associated with dieting. Finally, a third modified BN model, which consisted of elements of the more recent cognitive-behavioral model of BN (Fairburn, 1997), was compared with each of the other models. In this cognitive-behavioral model of BN, perfectionism is related to dieting and negative affect, both of which are associated with binge eating.

Our initial tests of the six models resulted in one of three outcomes: The procedure did not converge, the procedure converged to solutions with out-of-bound values (i.e., negative r-squares and/or negative variances), or the procedure converged to a solution that provided a poor fit to the data.

Respecified Models

After consulting the standardized residuals and modification indices (i.e., La Grange multipliers) to ascertain what would be reasonable alterations to make (i.e., what paths should be omitted or added), we tested two modified models (Figure 1). In these respecified models, the pathway from restraint to binge eating was omitted. Additional pathways from weight and shape concerns to binge eating, binge eating to restraint, and negative affect to restraint were added. This resulted in a significantly improved model with a good fit (Model A: GFI = .98, $\chi^2 = .76$, df = 2, p > .68, RMSEA estimate = .00, and Bentler & Bonnet's NFI = .99). Model A consisted of six direct pathways with significant associations between (1) low self-esteem and weight and shape overconcern with dietary



Figure 1. Final models of maintenance of binge eating disorder. Significant paths with unstandardized regression weights and standard errors are shown in parentheses.

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restraint, (4) weight and shape overconcern and negative affect, (5) negative affect and dietary restraint, and (6) low self-esteem and negative affect.

In order to test the role of perfectionism in the maintenance of BED, we tested Model B. The fit of Model B was almost as good as that of Model A (GFI = .97, χ^2 = 8.21, df = 6, p > .23, RMSEA estimate = .06, and Bentler & Bonnet's NFI = .86). Model B consisted of four significant paths between (1) SPP and low self-esteem, (2) low self-esteem and weight and shape overconcern, (3) weight and shape overconcern and binge eating, and (4) weight and shape overconcern and dietary restraint.

DISCUSSION

This study is the first, to our knowledge, to investigate perfectionism in a large sample of non-treatment-seeking obese women with BED. The aim was to provide information regarding its relationship with other features of BED. In addition, we sought to compare levels of perfectionism in women with BED with those of a group of normal weight BN participants and a group of overweight NED women. We also examined proposed models of the maintenance of BED by comparing them to modified models of the maintenance of BN (i.e., without the compensatory behaviors). Finally, this study tested whether or not various dimensions of perfectionism affect the degree of fit of these models.

With regard to the relationship of perfectionism to eating disorder and general psychopathology variables related to BED, it appears that OOP is not associated with the diagnostic features of BED, SOP is only related to general psychiatric symptomatology and none of the eating disorder symptoms present in BED, and SPP is related to several eating disorder and general psychiatric measures important to BED, in particular self-esteem. The third finding is consistent with the findings of Hewitt et al. (1995). They found a similar relationship between SPP and self-esteem in female college students exhibiting eating disorder symptoms. Significant associations between some of the central features of BED (i.e., eating concern, weight and shape concern, and binge eating severity) and SPP provide further support of a relationship between this type of perfectionism and eating disorder symptomatology (Hewitt et al., 1995). However, it is interesting to note that none of the MPS subscales were significantly correlated with the EDE-Q Restraint subscale in this BED sample.

The perfectionism subscale scores for the BED group were not significantly lower than those in the BN group. The NED group scored significantly lower on SOP than the BN and BED groups did. Our findings suggest that SOP is the only dimension of perfectionism that was significantly elevated in the eating-disordered groups. Additional research is needed to clarify how SOP may be important to our understanding of BED and BN. Previous research describing the pathology of BED has relied primarily on data from clinical samples. Because our study used a non-treatment-seeking sample, levels of pathology may be less and explain the lack of significant findings between eating-disordered and NED groups.

One of the purposes of this study was to test models of the maintenance of BED against those proposed for BN. It is possible that the initial feedback loops in the first six models created values that were out of bounds. However, upon testing the models without these paths, the GFIs suggested a poor fit of the data (i.e., significant chi squares, high RMSEA estimates above .05, and/or low GFIs). We then consulted the modification indices to ascertain what paths should be omitted and/or added. This resulted in the testing of Models A and B. Model A was shown to provide a good fit to the data. This model did not include SOP, SPP, or OOP as factors. Another aim was to assess the effect of including SPP in Model B; it had shown the most associations with BED symptomatology. Model B demonstrated a fit that was almost as good as that of Model A. From these results, it is not possible to make a direct comparison between Models A and B as to which provided the best fit. It appears that the data are consistent with both of these models. This does not rule out the possibility of other models that may also have good fits. The results simply indicate that our theoretical interpretation is consistent with the pattern of the data.

Many of the significant associations in Models A and B were present in the original six models that were run (i.e., low self-esteem to weight and shape overconcern, low selfesteem to negative affect, weight and shape concern to dietary restraint, and weight and shape concerns to negative affect). However, two of the modified paths also resulted in significant associations (i.e., weight and shape concerns to binge eating, negative affect to less dietary restraint). Given that binge eating is typically believed to be the only component of the cognitive-behavioral model of BN (and possibly of BED) "that cannot easily be seen as a direct expression of the concern about shape and weight" (Fairburn, 1997, p. 211), the first of these additional paths was a surprise. However, upon examining the items in the Weight Concern and Shape Concern subscales of the EDE-Q, it became apparent that they inquire about feelings of dissatisfaction, distress, discomfort, and self-judgment with regard to one's shape and weight. Therefore, high scores on both of these subscales would be indicative of negative affect, which is specific to how one feels about one's body shape and weight (i.e., negative self-evaluation). The fact that weight and shape overconcern may lead to binge eating is consistent with other data supporting the aforementioned relationship between negative affect/self-evaluation and binge eating (Heatherton & Baumeister, 1991). In addition, experimental findings have confirmed this connection in samples of BED participants (Agras & Telch, 1998; Telch & Agras, 1996b). The association of negative affect and decreased dietary restraint can be explained in terms of an emotional regulation model of binge eating. That is, emotional dysregulation leads to maladaptive attempts to regulate mood (i.e., binge eating). It follows that if one uses food to regulate emotion, then negative affect would be associated with an increase in food intake and a decrease in dietary restraint. Further research is needed to determine how this association is important in our conceptualization of BED.

As expected, the proposed association between dietary restraint and binge eating was not confirmed. Neither of the two models with good fit included a significant path from dietary restraint leading to binge eating. The BED sample showed significantly less restraint than the BN group (2.29 ± 1.38 vs. 4.11 ± 1.32 , p < .01) on the EDE-Q Restraint subscale. This is consistent with the body of literature that has found lower levels of dietary restraint in BED samples (Marcus, 1997).

The predicted path from negative affect (BDI) to binge eating was not confirmed in this study. For our sample of women with BED, it appeared that instead of negative affect (BDI) precipitating binge eating, specific negative feelings associated with one's shape and weight (EDEQWTSH) were significantly associated with binge eating. Binge eating has been described as a habitual response to negative affect in women with BED (Fairburn, 1997). Negative self-evaluation, said to be a core cognitive characteristic in BN, stems from a negative view of the self that leads to perpetual dissatisfaction. The distress experienced is principally related to negative feelings about one's appearance and weight, which then results in persistent attempts at restriction and weight loss. There is a strong connection between negative self-evaluation and weight and shape concerns. It follows that without any mediating pathways (i.e., via restraint or negative affect), extreme weight and shape concerns may lead to binge eating in BED. Future research should

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examine the specific negative affective experiences that are associated with binge eating in women with BED.

The limitations of this research should be noted. First, this study relied solely on self-report questionnaires. Multimethod data collection would improve confidence in our findings. Second, because our study was cross-sectional in design, causal inferences cannot be surmised from SEM. Prospective studies of perfectionism that control for other variables are needed to determine the potential causal nature of the associations we found to be significant. Third, generalization of these findings is limited to non-treatment-seeking women with BED because we did not include men in our sample.

The findings from our study may have important clinical implications. First, the results of the SEM emphasize the importance of developing treatments that are specific to BED versus simply using modified interventions originally developed for BN. Model A included some components that are similar to a modified model of BN. It also consisted of some novel pathways that may prove to be important in BED specifically. Unfortunately, our BN sample was not large enough to use SEM to test whether these pathways are specific to BED. Future studies should explore this possibility.

Second, the significant pathway between weight and shape overconcern and binge eating highlights the necessity of broadening our models of binge eating to include variables related to weight and shape-specific negative self-evaluation and negative affect when considering the maintenance of BED. Along these lines, treatment that targets negative self-evaluation and affect that stem from extreme weight and shape concerns may add additional benefit. Finally, the role of SOP in initiating or maintaining negative affect and binge eating needs further exploration and may prove an important clinical target.

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