Personality dimensions in bulimia nervosa, binge eating disorder, and obesity

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Abstract

Objective: The purpose of this investigation was to examine differences in personality dimensions among individuals with bulimia nervosa, binge eating disorder, non–binge eating obesity, and a normal-weight comparison group as well as to determine the extent to which these differences were independent of self-reported depressive symptoms.

Method: Personality dimensions were assessed using the Multidimensional Personality Questionnaire in 36 patients with bulimia nervosa, 54 patients with binge eating disorder, 30 obese individuals who did not binge eat, and 77 normal-weight comparison participants.

Results: Participants with bulimia nervosa reported higher scores on measures of stress reaction and negative emotionality compared to the other 3 groups and lower well-being scores compared to the normal-weight comparison and the obese samples. Patients with binge eating disorder scored lower on well-being and higher on harm avoidance than the normal-weight comparison group. In addition, the bulimia nervosa and binge eating disorder groups scored lower than the normal-weight group on positive emotionality. When personality dimensions were reanalyzed using depression as a covariate, only stress reaction remained higher in the bulimia nervosa group compared to the other 3 groups and harm avoidance remained higher in the binge eating disorder than the normal-weight comparison group.

Conclusions: The higher levels of stress reaction in the bulimia nervosa sample and harm avoidance in the binge eating disorder sample after controlling for depression indicate that these personality dimensions are potentially important in the etiology, maintenance, and treatment of these eating disorders. Although the extent to which observed group differences in well-being, positive emotionality, and negative emotionality reflect personality traits, mood disorders, or both, is unclear, these features clearly warrant further examination in understanding and treating bulimia nervosa and binge eating disorder.

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1. Introduction

Personality characteristics have been hypothesized to be important variables in etiologic models of eating disorders and are potentially critical for both the development and maintenance of these symptoms [1-8]. Numerous studies have investigated the role of personality in eating disorders, with most reviews observing that eating disorder samples generally score higher than non–eating disorder comparison groups on measures of personality disorders, impulsivity, obsessive compulsive traits, and perfectionism [9-12]. The extent to which these results are due to underlying group differences, eating disorder maintenance factors, or a “scar” from the eating disorder symptoms is unclear.

In addition to comparisons between eating disorder and non–eating disorder samples, a number of studies have investigated personality differences between different eating disorder subgroups. These findings have been inconsistent with some observing differences among subgroups and others finding few or no such differences [9,11]. These inconsistencies may be due, in part, to different measurement strategies, definitions, and sampling procedures (eg, treatment-seeking vs community participants). Notably, most of these comparisons among eating disorder groups have been made between anorexia nervosa and bulimia nervosa (BN), or within subtypes of anorexia nervosa; few studies have examined personality differences using more broadly defined
eating disorder and weight disorder samples including obesity, binge eating disorder (BED), and other types of eating disorders, not otherwise specified [9]. For this reason, personality differences among a wider range of eating and weight disorder subgroups are not well understood.

Another source of confusion in understanding the role of personality in eating disorders is the issue of whether personality is conceptualized dimensionally or categorically. Although many studies have examined the co-occurrence of categorically defined personality disorders in those with eating disorders [9,13], this literature is complicated by inconsistent definitions and measurement. Numerous problems are associated with the categorical classification of personality (especially personality disorders), including heterogeneity within categories, high rates of comorbidity, and longitudinal instability [14]. As a result of these limitations, the advantages of measuring personality dimensionally rather than categorically (or using a combination of both approaches) have been increasingly emphasized [6,15,16]. In the context of the ongoing revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM), a number of researchers have argued for the adoption of a dimensional classification system of personality psychopathology as a way of increasing diagnostic validity [17,18].

Finally, personality studies of individuals with eating disorders have often neglected to examine the relationship between personality and mood disturbance, particularly depression. Given the high co-occurrence of mood disorders in eating disorders [19], investigating the relationship between depressive symptoms and personality is especially important for understanding both phenomena and their role in eating disorders. Although the complex interaction between depression and personality is unclear [20], the impact of depressive symptoms on self-report questionnaires including personality measures is an important consideration [21]. Of particular concern is the impact of depressive symptoms in biasing recall toward more negative global self-appraisals [22]. The potential impact of depressive symptoms in personality measurement may explain some of the inconsistent findings among previous studies of personality and eating disorders. In summary, several important issues remain unclear in the eating disorders and personality literature. The first issue is the extent to which personality characteristics differ among a wider range of eating and weight disorder subgroups including BED and obese individuals who do not binge eat. In addition, although many studies have evaluated personality disorders and personality disturbances in eating disorders using categorical definitions, fewer have measured personality dimensions using instruments that do not exclusively measure psychopathology. Finally, many studies have not examined measures of depression in the context of personality assessment.

The purpose of this investigation was to compare personality dimensions in eating and weight disorders among 4 groups of women: individuals with BN, individuals with BED, normal-weight control (NWC) participants, and obese participants without eating disorder symptoms. In addition, this study aimed to examine the impact of depression on personality dimensions by using depressive scores as a covariate.

2. Method

2.1. Participants

Study participants included 197 adult females (average age, 36.05; SD, 12.42; range, 18-64). Thirty-six females who were diagnosed with Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) purging BN were recruited at baseline from a BN treatment outcome study examining different types of group psychotherapy and body image [23,24]. Fifty-four women were recruited at baseline from a BED treatment outcome study comparing therapist-led and self-help group therapy [25,26]. These individuals were diagnosed with DSM-IV BED using the Structured Clinical Interview for DSM-IV [27]. The 77 NWC participants, who were recruited from an introductory psychology class and received class credit for their participation, were administered the Restraint Scale [28] and were required to score lower than 16 for inclusion as a nondieting control participant (average score, 9.46; SD, 4.06). The non–binge eating obese participants (OB, n = 30; defined as body mass index >30) were recruited from the community and paid $20 for their participation. As part of the screening, they were administered the eating disorder module of the Structured Clinical Interview for DSM-IV to ensure that they had no current or past eating disorder symptoms, including binge eating. Group differences were observed for age, with the BN (mean, 26.03; SD, 6.50) and NWC (mean, 22.71; SD, 4.90) samples significantly younger than the BED (mean, 42.43; SD, 10.07) and the OB (mean, 44.67; SD, 9.41) groups (F = 55.05, P < .000). For body weight, the BED (mean, 34.66; SD, 7.57) and OB (mean, 36.13; SD, 6.38) samples had higher average body mass indexes compared to the BN (mean, 22.33; SD, 2.89) samples (F = 62.02, P < .000). Participants in all 4 samples were primarily white (92.5%) with no group differences in ethnic status.

2.2. Instruments

The Multidimensional Personality Questionnaire (MPQ) [29] is a 300-item self-report questionnaire with responses presented in a true-false format. This instrument, derived iteratively using factor analytic and rational procedures, was designed as a dimensional measure of personality traits and temperament domains. The MPQ has 11 personality scales: well-being (ie, cheerful, optimistic), social potency (ie, decisive, persuasive, socially dominant), achievement (ie, ambitious, hard working), social closeness (ie, affiliative, sociable, warm), stress reaction (ie, nervous, easily upset), alienation (ie, experiences self as a victim, betrayed),
aggression (ie, vindictive, hurts others intentionally), control (ie, cautious, careful), harm avoidance (ie, cautious, does not like danger), traditionalism (ie, conventional, conservative), and absorption (ie, responsiveness to visual and auditory stimuli). The MPQ subscales load onto 3 higher-order factors: positive emotionality (PE), negative emotionality (NE), and constraint (CON). Individuals who score high on PE are prone toward positive emotions and positive engagement in various domains. Positive emotionality has also been found to be associated with reward sensitivity [30]. The PE factor is composed of scores from the well-being, social potency, achievement, and social closeness scales. The NE factor reflects stress, alienation, negative engagement, and negative affect [31,32] and consists of scores from the stress reaction, alienation, and aggression scales. It has been found to be associated with other measures of neuroticism [33]. CON measures self-control, caution, timidity, traditionalism, and avoidance of danger [29,31] and reflects scores on the harm avoidance, traditionalism, and control scales. Low levels of CON have been associated with high levels of sensation seeking and impulsivity [34].

The MPQ has well-established reliability, with internal consistency coefficients ranging from 0.79 to 0.89 [29,35] and test-retest reliability of 0.82 to 0.92 for 30 days [29]; more recent data suggest that the MPQ scales and factors also demonstrate longer-term stability over time [33]. The MPQ was designed to minimize overlap among the scales, ensuring fidelity, combined with a breadth of personality dimensions for good bandwidth [29,33]. Although the MPQ was designed to be used in nonclinical samples, its validity has been supported in psychiatric samples as well [36], and it has been used in several previous studies of eating disorder symptoms [37-39].

The overall MANOVA was significant for the MPQ subscales (F = 3.64, P < .001). Post hoc analyses shown in Table 1 indicate that the BN and BED groups scored significantly lower than the NWC group and the BN group scored significantly lower than the OB on the well-being subscale. On the stress reaction subscale, the BN group had a significantly higher score than the other 3 groups. The BED sample scored higher than the NWC group on the PE factor. The overall MANOVA was significant for the MPQ subscales (F = 3.64, P < .001). Post hoc analyses shown in Table 1 indicate that the BN and BED groups scored significantly lower than the NWC group and the BN group scored significantly lower than the OB on the well-being subscale. On the stress reaction subscale, the BN group had a significantly higher score than the other 3 groups. The BED sample scored higher than the NWC group on the PE factor. No differences were observed for the CON factor.

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3. Results

3.1. Multidimensional Personality Questionnaire higher-order factors

For higher-order factors, the overall MANOVA was significant (F = 3.32, P < .001). As shown in Table 1, post hoc analyses indicated that the BN group scored higher than the NWC group on the NE factor and lower than the NWC group on the PE factor. In addition, the BED sample scored lower than the NWC group on the PE factor. No differences were observed for the CON factor.

3.2. Multidimensional Personality Questionnaire subscales

The overall MANOVA was significant for the MPQ subscales (F = 3.64, P < .001). Post hoc analyses shown in Table 1 indicate that the BN and BED groups scored significantly lower than the NWC group and the BN group scored significantly lower than the OB on the well-being subscale. On the stress reaction subscale, the BN group had a significantly higher score than the other 3 groups. The BED sample scored higher than the NWC group on the PE factor. No differences were observed for the CON factor.

3.3. Covariate analyses

As shown in Table 1, significant group differences were observed for depression as measured by the BDI (F = 19.57, P < .001) with the BN and BED groups reporting higher scores than the NWC and OB groups. Using BDI score as the covariate, the overall group effect for the higher-order factors was no longer significant (F = 1.14, P = .333). However, the group effect for the MANCOVA using depression as the covariate for subscale scores did remain significant (F = 2.26, P < .001). Stress reaction remained significant (F = 6.24, P < .001), with the BN group scoring significantly higher than the other groups (estimated means: BN, 15.0; BED, 10.7; OB, 10.3; NWC = 11.9). Harm avoidance (F = 4.67, P = .004) also remained significant, with the BED sample scoring higher than the NWC group (estimated
In the covariate analysis, well-being was no longer significant for group effect ($F = 1.43, P = .236)$. To rule out the potential impact of age on group differences, post hoc MANCOVAs were conducted using age as a covariate for higher-order factors and subscales, and a post hoc ANCOVA was conducted using age as a covariate for BDI scores, all of which were nonsignificant.

### 4. Discussion

This comparison of personality dimensions among eating- and weight-disordered groups suggests that individuals with BN are prone to experience more negative emotions and less contentment, as well as be more reactive to stress, than individuals with BED, obese individuals who do not binge eat, and normal-weight individuals without eating disorders. Elevated scores of stress reactivity in BN were independent of depression scores, suggesting that these individuals are generally more nervous, upset, and troubled by guilt than the other groups [29]. These findings are consistent with previous studies that have observed higher stress reactivity and neuroticism scores in BN compared to non–eating disorder samples using the MPQ and other personality assessment instruments [37,38,43-46].

The results of this investigation also indicate that individuals with BED reported higher harm avoidance scores than the nondieting, NWC sample, suggesting that individuals with BED may be more averse to danger and adventure. This difference was independent of current depression and is consistent with previous findings of high harm avoidance in other eating disorder diagnostic groups [47-48]. The reason for elevated harm avoidance is unclear but may be related to attempts to avoid painful situations, which has been hypothesized to explain high harm avoidance scores among individuals with borderline personality disorder [20]. The absence of group differences other than harm avoidance between individuals with BED and obese nonbinge eaters is consistent with previous findings [49] and suggests that those with BED may be similar in many respects to those of comparable weight who do not binge eat.

In this study, individuals with BN reported lower PE, lower well-being, and higher NE compared to NWC participants (as well as lower well-being scores compared to the OB group), and individuals with BED reported lower well-being scores compared to the NWC group. However, these differences were not independent of depression in the subsequent covariate analyses. The extent to which measures of NE and PE traits are influenced by self-reported depressive symptoms is unclear. Although it is possible that the apparent differences in NE, PE, and well-being are simply artifacts of depression, it is likely that measures of depression and personality used in this study overlap in their measurement of both “state” and “trait” aspects of negative affect. The extent to which these group differences are best understood as personality traits, mood disorders, or both is unclear; however, NE, PE, and well-being clearly should be targeted in the treatment of BN and BED and should be continued to be examined for their role in the etiology and maintenance of these disorders.

Several limitations should be considered in interpreting the results of this study. First, the BN and BED samples...
include participants in 2 different treatment trials, meaning that the 2 eating disorder groups were treatment seeking. Berkson’s bias [50] indicates that individuals with psychopathology who seek treatment may have greater co-occurring psychopathology than those who do not seek treatment. Thus, the participants with BN and BED in this study may not be representative of individuals in the community with these eating disorders who do not seek treatment. In addition, data from all 4 groups were obtained at different time points, which may have exaggerated between-group differences. A significant consideration in the current study is the difficulty in reliably assessing personality in individuals with eating disorders due to the effect of these symptoms on personality measures [6]. An additional concern is the extent to which these personality “traits” are stable over time. For example, elevated harm avoidance scores in patients with borderline personality disorder have been found to be reduced over the course of treatment [20]; for this reason, future research should investigate the stability of personality dimensions among different eating and weight disorder subgroups over time. In addition, future studies should examine the impact of controlling for anxiety as well as depression on personality measures in eating disorders. Finally, because this investigation is correlational and not longitudinal, no direction of causality can be inferred: whether these personality dimensions are etiologic or maintenance factors, by-products of the eating disorder or of “maladjustment” [51], or some combination is unclear and needs further study using repeated measure designs.

In summary, stress reactivity appears to be especially important in understanding and treating BN, and harm avoidance is crucial to understanding and treating BED. In addition, high NE, low PE, and low well-being are notable features of BN and BED; and although the extent to which these variables are independent of depression is unclear, they clearly necessitate focus in treatment. Treatments for eating disorders that focus on mood tolerance and coping skills may be particularly effective, including dialectical behavior therapy [52-54] and the revised version of cognitive-behavior therapy [55], as well as integrative cognitive-affective therapy [56,57], a newly developed treatment that focuses on self-directed style, interpersonal patterns, and emotion. The potential efficacy of these types of interventions on personality dimensions and treatment outcome requires future study among all types of eating disorder subgroups.

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