

# Revisiting Differences in Individuals with Bulimia Nervosa with and without a History of Anorexia Nervosa: Eating Pathology, Personality, and Maltreatment

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## ABSTRACT

**Objective:** Early research in subtyping bulimia nervosa (BN) by history of anorexia nervosa (AN) generally found more similarities than differences, but recent research and limitations of the early work suggest the need to revisit this approach. We examine differences between women with BN with and without a history of AN regarding eating pathology, personality, and childhood maltreatment.

**Method:** Participants were women (aged 18–55) recruited from the community and eating disorder clinics who met *DSM-IV* criteria for BN; 37 had a history of AN and 101 did not. Participants completed questionnaires related to eating disorder pathology, multidimensional perfectionism, multidimensional impulsivity, and childhood maltreatment.

**Results:** Women with BN and a history of AN had higher levels of dietary restraint and purging and lower body mass indices as well as higher levels of all forms of childhood neglect and abuse. In contrast, no group differences were found for perfectionism or impulsivity dimensions.

**Conclusion:** The group differences in terms of eating pathology and maltreatment have clinical implications. Further research is needed regarding if and how a history of AN among those with BN may reflect different etiological pathways and predict different outcomes. © 2008 by Wiley Periodicals, Inc.

**Keywords:** bulimia nervosa; anorexia nervosa; childhood maltreatment; eating pathology; perfectionism; impulsivity

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## Introduction

Heterogeneity in bulimia nervosa (BN) has motivated the search for meaningful subtypes, including the consideration of a history of anorexia nervosa (AN).<sup>1</sup> Although there are conceptual reasons and clinical anecdotes supporting subtyping by history of AN,<sup>2,3</sup> researchers have generally concluded that the similarities outweigh the differences.

However, there are reasons to revisit the potential relevance of a history of AN in individuals with BN. First, a significant minority of individuals with BN have at one point had AN, with rates of 25–41%.<sup>4,5</sup> Second, while some possible areas of differences have been examined in depth (e.g., comorbid psychopathology),<sup>5,6–8</sup> other areas have not (e.g., a history of maltreatment and personality), resulting in some limitations to our knowledge. Third, the majority of the work considering a history of AN in BN was conducted in the 1980s and 1990s when certain assessment tools, currently seen as among the best ways to assess their intended constructs, were not yet developed

or commonly used [e.g., Eating Disorder Examination Questionnaire (EDEQ)<sup>9</sup>; Multidimensional Perfectionism Scale<sup>10</sup>]. Relatedly, criteria from older versions of the *Diagnostic and Statistical Manual of Mental Disorders* (3rd edition, *DSM-III*<sup>11</sup>; 3rd edition-revised, *DSM-III-R*<sup>12</sup>) were used for diagnoses of eating disorders in these early works and thus included different criteria than are now used in *DSM-IV*.<sup>13</sup> Finally, more broadly, research considering potentially meaningful subtypes in eating disorders is needed in preparation for diagnostic criteria decisions for the new version of the *DSM*.<sup>14</sup> In this work, we revisit subtyping of BN by history of AN in three areas needing additional research: eating disorder symptomatology, personality, and maltreatment.<sup>a</sup>

Most of the evidence supports individuals with BN and a history of AN (BNhxAN) having a lower weight or body mass index (BMI) than those without a history of AN,<sup>3,5,15</sup> whereas there is less evidence for significant differences in specific behaviors and scores on eating disorder measures. There is generally no support for differences in body dissatisfaction,<sup>5,16,17</sup> but mixed findings in terms of differences in dietary restraint with some research finding higher levels of restraint among those with a history of AN<sup>3,5</sup> and other research finding no group differences.<sup>7</sup> Most research focusing on bulimic symptom scores has not found group differences.<sup>7,17,18</sup> The three studies examining binge-eating behavior found no evidence for differences in rates of binge eating.<sup>5,6,16</sup> For vomiting, however, there is evidence for both higher rates of vomiting<sup>15</sup> and lower rates of vomiting<sup>16</sup> among those with BNhxAN as well as null findings.<sup>5</sup> For laxatives, there is support for individuals with BNhxAN having higher rates of laxative abuse<sup>16</sup> and for no group differences.<sup>5</sup>

Most of the limited research on personality differences has taken a pathological perspective, assessing personality disorders or using measures like the Minnesota Multiphasic Personality Inventory<sup>19</sup> (MMPI). Although there is evidence that those with BNhxAN have MMPI profiles almost completely in the pathological range, in particular, exhibiting more obsessive-compulsiveness and impulsivity than those with BN and no history of AN,<sup>20</sup> these groups generally have not differed in personality disorder diagnoses.<sup>5,21</sup> From

a less pathological perspective, no differences were found in impulsivity using the impulse regulation subscale of the Eating Disorder Inventory<sup>22</sup> (EDI).<sup>5</sup> Similarly, research with the perfectionism subscale of the EDI<sup>22,23</sup> has yielded no group differences.<sup>5,17,18</sup> Thus, most of the evidence suggests no significant differences between these groups in terms of perfectionism and impulsivity. However, this literature has focused on unidimensional conceptualizations of these personality traits, whereas more recent empirical and conceptual work on these constructs suggests the importance of multiple underlying dimensions.<sup>24</sup>

Finally, the association between a history of AN in BN and childhood maltreatment has been examined in only two reports. One study assessed childhood sexual abuse and adverse family environment and found no significant differences in sexual abuse, but some evidence for lower rates of “indifference” (a possible proxy for neglect) and “violence” (a possible proxy for physical abuse) among BNhxAN.<sup>25</sup> Another study found no group differences across a variety of unwanted sexual experiences.<sup>26</sup> No published literature reports explicitly on whether those with and without a history of AN differ on other types of childhood adversity including emotional and physical neglect and abuse. The exclusion of these other forms of maltreatment has been noted as a weakness in the literature.<sup>26</sup>

Researchers have more recently revisited the conceptually appealing distinction of a history of AN in BN with some interesting findings. Focusing on body composition, researchers found that BNhxAN patients retained some physiological anorectic traits, with lower BMI, lower muscle mass, lower body fat, and a higher percentage of extracellular water.<sup>27</sup> With the strength of longitudinal data, other researchers found that individuals with BNhxAN were less likely to attain full recovery and more likely to exhibit diagnostic cross-over back to AN than those with BN but no history of AN.<sup>14</sup>

In this work, we compare women with BN based on presence/absence of a history of AN in areas not fully captured in prior work by using well-established measures reflecting greater breadth of constructs (e.g., maltreatment measure) and the field’s updated understanding of these constructs (e.g., multidimensional perfectionism measure). We address three questions: How do women with BN, subtyped by history of AN, compare on (1) eating pathology when using the EDEQ, which has become widely used since the majority of the prior work on the history of AN distinction was reported? (2) dimensions of perfectionism and impulsivity?

<sup>a</sup>Research examining history of AN subtypes in BN has focused primarily on comorbid psychopathology and eating disorder symptomatology. Although this work does not focus on comorbid psychopathology, we note that there is some support for lifetime anxiety disorders being associated with a history of AN.<sup>5</sup>

(3) a wide range of experiences of childhood maltreatment?

## Method

### Participants

Adult women were recruited through community advertising and local eating disorder clinics at five Midwestern sites. Inclusion criteria, as stated in the advertisements, were women ages 18 or older “with symptoms of BN (i.e., binge eating and purging).” Of the 144 who met *DSM-IV* criteria for current BN, six had a current BMI lower than 17.5 kg/m<sup>2</sup> (considered a cut-off for AN<sup>28</sup>) and were excluded, resulting in 138 participants for the current analyses.<sup>b</sup> Women ranged in age from 18 to 55 with a mean age of 25.9 years (SD = 8.9 years) and were mostly single, never-married (75%) and Caucasian (87%), with at least some college education (94%). Based on a telephone screening interview used to determine current and lifetime BN and AN diagnoses (see Procedure), 37 (26.8%) reported a history of AN (i.e., met *DSM-IV* criteria for lifetime history of AN; BN hx AN) and 101 (73.2%) reported no history of AN.

### Procedure

Potential participants interested in the research project contacted research personnel by telephone, at which point the study was described to them, verbal consent was obtained, and a brief diagnostic phone screen was completed by trained interviewers including questions from the eating disorder module of the *Structured Clinical Interview for DSM-IV, Patient Edition*<sup>30</sup> (SCID-P). The criteria for binge eating established in the Eating Disorder Examination<sup>31</sup> (EDE) were used to discern objectively large portions of food from smaller portions of food. Interested, eligible participants were then scheduled to attend an in-person assessment where they gave written informed consent and completed a set of questionnaires privately. Study participants were paid 50\$ for their involvement. This study was approved by the institutional review boards at each of the participating sites.

### Measures

**Eating Disorder Symptomatology.** Eating disorder symptomatology was assessed with the EDEQ-Version 4,<sup>9</sup> which contains 36 items related to a wide range of eating

disordered behaviors and attitudes. It has been used with increasing frequency in assessing eating disorder symptoms in both clinical and nonclinical samples<sup>32</sup> and has adequate reliability (Cronbach alphas for subscales of 0.78–0.93)<sup>33</sup> and validity.<sup>34</sup> The EDEQ yields four subscales, Restraint (coefficient  $\alpha$  0.68 in this study), Eating Concern ( $\alpha$  = 0.71), Weight Concern ( $\alpha$  = 0.72), and Shape Concern ( $\alpha$  = 0.84), in addition to information about the frequency of binge eating (objective and subjective) and purging (vomiting and laxative use) in the previous 4 weeks. Objective binge eating refers to eating an amount of food that is objectively unusually large and experiencing a sense of loss of control, whereas subjective binge eating refers to experiencing a sense of loss of control but with amounts of food not objectively considered large.

**Perfectionism.** Perfectionism was assessed with the Frost Multidimensional Perfectionism Scale<sup>10</sup> (MPS), which contains 35 items, rated on a five-point scale, that make up six subscales. The MPS is one of the most commonly used measures of multidimensional perfectionism and has adequate reliability (Cronbach  $\alpha$  of 0.77–0.93 for the subscales) and construct validity.<sup>10</sup> Given evidence for two underlying factors of maladaptive and adaptive perfectionism,<sup>35</sup> and given that the Concern Over Mistakes (e.g., “If I fail partly, it is as bad as being a complete failure”) and Personal Standards (e.g., “I have extremely high goals”) subscales, respectively, best represent each factor,<sup>24</sup> these two MPS subscales were used in the current study. Coefficient  $\alpha$  was 0.91 for Concern Over Mistakes and 0.86 for Personal Standards.

**Impulsivity.** Impulsivity was assessed with the Barratt Impulsivity Scale<sup>36</sup> (BIS), which contains 30 items rated on a four-point scale. This measure has adequate psychometrics<sup>37</sup> and conceptualizes impulsivity as multidimensional via three subscales: attention (coefficient  $\alpha$  0.65 in this study), motor ( $\alpha$  = 0.73), and nonplanning ( $\alpha$  = 0.75).

**Maltreatment.** Maltreatment was assessed with the Childhood Trauma Questionnaire<sup>38</sup> (CTQ), which contains 28 items, rated on a five-point scale from “never true” to “very often true,” about various forms of childhood neglect and abuse reflected in the subscales of Emotional Neglect, Physical Neglect, Emotional Abuse, Physical Abuse, and Sexual Abuse. This measure has a well-established factor structure, criterion validity when using corroborative data, and alphas, from lowest to highest, of 0.58 for physical neglect, 0.69 for physical abuse, 0.83 for emotional abuse, 0.85 for emotional neglect, and 0.94 for sexual abuse.<sup>38–40</sup>

### Statistical Analyses

Groups (with and without history of AN) were compared on demographic variables using *t*-tests for continu-

<sup>b</sup>Eligibility required a current diagnosis of BN or significant bulimic symptoms for the purposes of planned analyses for other research questions; indeed, other analyses using this dataset include both groups.<sup>29</sup> However, in order to better compare the current study's findings with prior work, analyses presented here were limited to those who currently met full criteria for BN.

**TABLE 1. Demographic characteristics by the presence or absence of a history of anorexia nervosa**

	BN without History of AN (n = 101)	BN with History of AN (n = 37)	Comparison
Age (mean, SD)	26.19 (9.24)	25.22 (7.77)	$t(136) = 0.57, p = .570$
BMI (mean, SD)	24.24 (5.30)	21.64 (6.05)	$t(134) = 2.45, p = .016$
White (% , n)	87.1% (n = 88)	86.5% (n = 32)	Fisher's exact $p = 1.00$
Single, never-married (% , n)	77.2% (n = 78)	70.3% (n = 26)	$\chi^2(1, N = 138) = .71, p = .401$
Post-high school education (% , n)	92.0% (n = 92)	100% (n = 37)	Fisher's exact $p = .108$

BN, bulimia nervosa; AN, anorexia nervosa; BMI, body mass index. Fisher's exact test was used in comparing groups on race/ethnicity and educational level attained due to small cell sizes.

**TABLE 2. Comparison of eating disorder symptoms across women with bulimia nervosa subtyped by the presence or absence of a history of anorexia nervosa**

	BN without History of AN	BN with History of AN	Significance	Cohen's <i>d</i>
EDEQ subscales			<b><math>F(4, 132) = 2.30</math>; Wilks' Lambda = 0.94; <math>p = .063</math>; partial <math>\eta^2 = 0.07</math></b>	
Restraint	3.84 (1.27)	4.48 (.99)	$F(1, 135) = 7.63; p = .007$	-0.56
Eating Concern	3.63 (1.32)	4.02 (1.15)	$F(1, 135) = 2.47; p = .118$	-0.32
Shape Concern	4.64 (1.22)	4.75 (1.10)	$F(1, 135) = .25; p = .619$	-0.09
Weight Concern	4.30 (1.28)	4.46 (1.17)	$F(1, 135) = .49; p = .484$	-0.13
EDEQ binge behaviors			<b><math>F(2, 135) = 1.25</math>; Wilks' Lambda = 0.98; <math>p = .289</math>; partial <math>\eta^2 = 0.02</math></b>	
Objective binge eating episodes	18.33 (28.42)	22.62 (23.86)		-0.16
Subjective binge eating episodes	11.50 (13.07)	16.46 (18.86)		-0.31
EDEQ purge behaviors			<b><math>F(2, 134) = 3.20</math>; Wilks' Lambda = 0.95; <math>p = .044</math>; partial <math>\eta^2 = 0.05</math></b>	
Vomiting episodes	22.50 (34.61)	37.54 (55.85)	$F(1, 135) = 2.76; p = .099$	-0.32
Laxative episodes	2.89 (6.59)	4.59 (7.22)	$F(1, 135) = 2.86; p = .093$	-0.25

BN, bulimia nervosa; AN, anorexia nervosa; EDEQ, Eating Disorder Examination Questionnaire-Version 4. Results from multivariate tests are indicated in bold. Means and (standard deviations) are based on untransformed variables, but analyses are based on log-transformed variables for the binge and purge behaviors.

ous measures and chi square or Fisher's exact test for dichotomous categorical measures. A multivariate analysis of variance (MANOVA) was performed for the four EDEQ subscales as well as for the binge eating behaviors (objective and subjective) and for the purging behaviors (vomiting and laxative abuse). A logarithmic transformation was applied to the disordered eating behaviors because of extreme positive skew. MANOVAs were also performed for the two MPS subscales (perfectionism), the three BIS subscales (impulsivity), and the five CTQ subscales (childhood maltreatment). Multivariate effects at the level of trends ( $p < .10$ ) were followed up with univariate analyses to see what component was driving the effect.

## Results

### Demographics

Table 1 contains demographic information indicating that the groups were largely similar with the expected exception of BMI, where the BNhxAN group was significantly lower.

### Eating Pathology

Women with BNhxAN were marginally more symptomatic on the EDEQ subscales (see Table 2). The multivariate effect represented a nonsignificant trend ( $p = .06$ ), with follow-up analyses demonstrating that the difference was driven primarily by the Restraint subscale, with women with BNhxAN reporting higher levels of dietary restraint (medium effect size, where Cohen's  $d = 0.2$  is a small effect size, 0.5 medium, and 0.8 large).<sup>41</sup> There were no differences in binge eating frequencies across groups, but there were differences in purging frequencies. However, follow-up analyses showed that no one purging method was driving the multivariate effect; women with BNhxAN reporting marginally higher rates of both vomiting and laxative abuse (small effect sizes).

### Personality

There were no significant differences between groups for the perfectionism dimensions of maladaptive and adaptive perfectionism ( $F(2,135) = 1.89$ ,

**TABLE 3. Comparison of maltreatment across women with bulimia nervosa subtyped by the presence or absence of a history of anorexia nervosa**

	BN without History of AN	BN with History of AN	Significance	Cohen's <i>d</i>
CTQ subscales			<b><math>F(5, 131) = 3.02</math>; Wilks' Lambda = 0.90; <math>p = .013</math>; partial <math>\eta^2 = 0.10</math></b>	
Emotional neglect	10.98 (5.60)	13.51 (5.81)	$F(1, 135) = 5.42$ ; $p = .021$	-0.44
Physical neglect	7.05 (3.69)	8.57 (3.80)	$F(1, 135) = 4.50$ ; $p = .036$	-0.41
Emotional abuse	10.72 (5.40)	13.46 (5.53)	$F(1, 135) = 6.87$ ; $p = .010$	-0.50
Physical abuse	6.49 (2.54)	8.73 (4.11)	$F(1, 135) = 14.65$ ; $p < .001$	-0.66
Sexual abuse	6.91 (4.06)	8.86 (6.18)	$F(1, 135) = 4.63$ ; $p = .033$	-0.37

BN, bulimia nervosa; AN, anorexia nervosa; CTQ, Childhood Trauma Questionnaire. Results from multivariate test are indicated in bold. Means and (standard deviations) are listed.

Wilks' Lambda = 0.97,  $p = .155$ , partial  $\eta^2 = 0.03$ ) or for the impulsivity dimensions ( $F(3,134) = 0.64$ , Wilks' Lambda = 0.99,  $p = .592$ , and partial  $\eta^2 = 0.01$ ).

### Maltreatment

Women with BNhxAN were more symptomatic on the subscales of childhood maltreatment, with follow-up analyses indicating that these women reported significantly higher levels of abuse (physical, emotional, and sexual) and neglect (physical and emotional) than those with BN and no history of AN (see **Table 3**). Although this difference was driven primarily by physical abuse (medium-large effect size), the other forms of maltreatment also showed significant group differences (medium effect sizes).

### Conclusion

This study revisits subtyping BN according to history of AN. By using measures that were developed and have become well-established since the majority of the research in this area was conducted and by more extensively examining personality and childhood maltreatment, this work makes new contributions to understand the potential relevance of a history of AN among women with BN. The current findings revealed that women with BN differed in their levels of current eating pathology, with those with a history of AN endorsing higher levels of dietary restraint and purging. A significant group difference also emerged for childhood maltreatment where those with a history of AN reported higher levels of all types of neglect and abuse. In contrast, no personality differences were identified for dimensions of perfectionism or impulsivity.

The current eating pathology findings support the notion that core behavioral features of AN may

persist at more elevated levels for individuals with BNhxAN, compared to those with BN and no history of AN.<sup>14</sup> In particular, dietary restraint, which is central to AN, was higher among those with a history of AN, as has been found by some prior work,<sup>3</sup> although it is noted that this finding emerged from follow-up analyses of a marginally significant multivariate effect for the EDEQ subscales. Also, individuals with a history of AN reported higher frequencies of unhealthy weight-control methods (vomiting and laxative abuse), behaviors, which may be motivated by intense fear of gaining weight, a diagnostic criterion for AN. The use of purging also may serve to create a sense of control and, thus, be especially important to those with a history of AN who, having had experiences of perceived control through severe dietary restriction and maintenance of a low body weight, may find the loss of control associated with binge eating especially aversive. Thus, it appears that a history of AN may influence the experience of BN by emphasizing behaviors intended to lose weight or counteract weight gain.

The personality findings suggest that, from both a unidimensional<sup>5,17</sup> and a multidimensional perspective (the current work being the first report on multidimensionality), perfectionism and impulsivity do not differ between BN groups subtyped by history of AN. Given some evidence that perfectionism, in particular, the adaptive dimension, appears to be higher among women with AN than women with BN,<sup>42</sup> one wonders whether perfectionism levels change due to the transition from AN to BN. Transitioning from being closer to "perfection" in terms of behavioral goals (e.g., more severe restriction of calories) and weight to an eating disorder characterized by gross "imperfections" in terms of behavior (i.e., binge eating) and increased weight may be experienced as a fall from grace, with women feeling that their failure to meet perfectionistic standards related to weight and eat-

ing is reflective of a broader decrease in personal standards. At this point, this is purely speculative, but longitudinal work assessing perfectionism along with eating disorder symptoms and diagnostic status could empirically test this.

The maltreatment findings were especially intriguing, because group differences were found across all forms of abuse and neglect and because the current findings stand in contrast to the generally null findings from the limited prior work.<sup>25,26</sup> Although replication is needed, the use of a well-established and psychometrically sound measure that captured a broad range of abuse and neglect experiences provides confidence in the current findings. Recent work on childhood trauma and eating pathology suggests that maltreatment may be associated with certain aspects of bulimic pathology.<sup>43</sup> These authors found that vomiting and laxative abuse were associated with sexual abuse and that emotional abuse was associated with eating pathology severity among women with BN; however, they did not report data related to a history of AN. It is possible that those suffering abuse and/or neglect growing up may be more willing to try various ways to numb their distress, for example, extreme food restriction, which may foster feelings of control in contrast to the abuse/neglect context over which one has/had no control, and binge eating, which has been described as a behavior that can provide escape and mood modulation.<sup>44,45</sup> Interestingly, emotional abuse, arguably the least studied form of maltreatment,<sup>46</sup> emerged as an important factor.

There are several strengths in this study. First, the measures used are some of the most well-established and commonly used assessments reflecting the current understanding of eating pathology, personality, and childhood maltreatment. For example, the perfectionism and impulsivity measures assessed specific dimensions of these constructs whereas prior work did not. Also, rather than focus on one type of maltreatment, we used a measure that provided a range of various forms of abuse and neglect, which has long been advocated by trauma researchers.<sup>47</sup> Second, the entire sample met criteria for a diagnosis of BN as established by a valid semistructured interview. Third, many of the studies reviewed had fairly small samples sizes, which could have limited power to detect differences. Although half of the studies considering history of AN subtypes of BN in eating pathology, personality, and/or maltreatment had sample sizes of ~50 or fewer, this study improved upon this with a larger sample size. Finally, while previous work on the distinction between BN subtypes based on history of AN has yielded mixed results, this study

consolidated findings from the literature to present a clearer picture of what is known (and what the limitations of that knowledge are) and to identify areas where further research was needed.

The study's findings should be understood in the context of the following limitations. First, this study relied on self-report, including self-reported height and weight, and, in some cases, retrospective recall. Second, the sample was fairly homogenous in terms of race/ethnicity and education, meaning that generalizability to samples with different demographics is unclear. Third, while the current sample size was larger than the majority of prior work examining a history of AN in BN, future studies should seek to increase the sample size of individuals with BNhxAN. Finally, some limitations related to measurement deserve mention. Although the CTQ is a well-established, psychometrically sound measure, it does not include the age(s) at which the maltreatment occurred, which may be relevant to better understanding connections with eating pathology. Also, the assessment of objective binge eating with the EDEQ may be a limitation, because individuals with AN (and potentially those with BNhxAN) may have different perceptions of what constitutes a large amount of food.<sup>48</sup> The lower than ideal alphas (<0.70) for some measures (e.g., EDEQ Restraint, BIS Attention) is also a limitation. Last, although we selected measures that arguably improve upon earlier measures of these constructs, the use of the EDE interview<sup>31</sup> instead of the questionnaire version and the use of even more recently developed multidimensional impulsivity measures (i.e., UPPS<sup>49</sup>) would have been preferable.

Clinical implications emerge from this study based on the maltreatment and eating pathology findings. As recommended by other researchers, clinicians working with patients with BN need to be alert to the possibility that maltreatment contributed to the development of the eating disorder (perhaps especially for patients with a history of AN), and, in those cases, should examine the function that disordered eating serves in relation to experiences and memories of maltreatment.<sup>26</sup> Also clinically relevant is the finding that individuals with BNhxAN exhibited higher levels of dietary restraint, more purging, and lower BMIs. Previous work has shown that maintenance at lower weights (via restriction, purging) may help maintain obsessive cognitions,<sup>50,51</sup> which, in turn, may impede successful treatment.

In conclusion, this study provides some support for reconsidering the meaning of a history of AN among women with BN, although more research is needed before considering diagnostic revisions.

Longitudinal work related to subtyping BN by history of AN should continue to examine impact on outcome, where recent work,<sup>14</sup> but not prior work,<sup>52</sup> has suggested that a history of AN is a negative prognostic indicator in BN. Future work, examining the relevance of this subtyping, should test for differences in treatment response and in psychosocial quality of life indices. Researchers should also seek to explain why outcomes may differ, for example, due to ongoing dietary restriction and low weights and/or due to a history of maltreatment. Combining the current findings with findings related to comorbid psychopathology such as the evidence for associations between BNhxAN and anxiety disorders<sup>8</sup> may be illuminating. For example, the finding that pure generalized anxiety disorder, but not pure major depressive disorder, was associated with more maltreatment<sup>53</sup> suggests that anxiety disorders and BNhxAN may be connected via associations with maltreatment. Better understanding the meaning of a history of AN in BN will inform both research and practice, because individuals with BN and individuals with BNhxAN may have different etiological pathways and may respond differently to different treatment approaches.

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