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Examining the Distinctiveness of Body Image Concerns in Patients with Anorexia Nervosa and Bulimia Nervosa

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ACKNOWLEDGEMENT: Dr. Grilo was supported, in part, by National Institutes of Health grants R01 DK114075, R01 DK112771, and R01 DK49587. Dr. Machado was supported, in part, by the Portuguese Foundation for Science and Technology and the Portuguese Ministry of Science, Technology and Higher Education through national funds and co-financed by FEDER through COMPETE2020 under the PT2020, and grant POCI-01-0145-FEDER-028145. Dr. Crosby is a paid statistical consultant for Health Outcomes Solutions, Winter Park, Florida, USA. The other authors report no relevant conflicts of interest.
WORD COUNT: 244 (abstract); 3632 (manuscript)

DATA STATEMENT: The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Abstract

Objective: This study examined the distinctiveness of specific constructs of body-image disturbance in patients with anorexia nervosa (AN) and bulimia nervosa (BN). We compared weight/shape dissatisfaction, weight/shape overvaluation, weight/shape preoccupation, and fear of weight gain in patients with AN and BN and examined how each specific body-image construct relates to clinical measures *within* and *between* AN and BN. **Method:** A clinical sample of 490 treatment-seeking patients diagnosed with *DSM-5* AN (N=310) or BN (N=180) by clinicians using structured interviews in Portugal completed the Eating Disorder Examination-Questionnaire to assess body image and eating-disorder psychopathology. **Results:** Both within and between AN and BN, the four body-image constructs varied in their strengths of association amongst themselves, with eating-disorder psychopathology, and BMI. Analyses revealed considerable variability in variance accounted for in clinical measures by body-image constructs. Body-image constructs predicted significant, albeit small, variance in BMI within BN (dissatisfaction, preoccupation significant) but not within AN. Body-image constructs predicted significant, albeit small, variance in the frequencies of binge eating and purging in AN (with preoccupation significant for both and fear for purging) but not within BN. Body-image constructs predicted significant variance in eating-disorder psychopathology (large amounts of variance for Eating Concern and Restraint) within both AN and BN (with overvaluation, preoccupation, and fear significant). **Conclusion:** Clinical manifestations of body-image disturbances are complex and show important differences across AN and BN. Understanding distinctions and differential salience of different body-image constructs across different eating disorders can inform refinement of specific case conceptualization.

KEY WORDS: anorexia nervosa, bulimia nervosa, body image, shape and weight concerns

Body image refers broadly to individuals' subjective experiences about their appearance and includes various perceptual, cognitive-evaluative, and affective aspects, which – in turn – influences behavioral and psychosocial functioning (Cash & Smolak, 2011). Disturbances in body image are part of the diagnostic criteria (American Psychiatric Association, 2013) for anorexia nervosa (AN) and bulimia nervosa (BN) and are conceptualized to play critical a role in the maintenance of other eating-disorder (ED) psychopathology such as extreme dietary restriction, binge eating, purging, low weight, and associated eating-related concerns (Fairburn, 2008). Understanding distinctions between different body-image constructs in EDs has long been confused despite centrality to cognitive-behavioral models (Fairburn, 2008) and relatively under-studied (Lydecker, White, & Grilo, 2017).

At the broadest level, body-image *dissatisfaction* (i.e., feeling badly about one's weight/shape) is so widespread among women in western societies to have long been described as a "normative discontent" (Rodin, Silberstein, & Striegel-Moore, 1984). Body dissatisfaction occurs, to varying degrees, across sex, racial/ethnic, age, and weight groups (Slevec & Tiggemann, 2011). Body-image dissatisfaction, while frequently present, should not to be equated with body-image disturbances characteristic of eating disorders. Research has indicated that disturbances in attitudinal aspects of body image more strongly distinguish eating disorders from control groups than do perceptual disturbances (Molbert et al., 2018) and that patients with BN tend to score higher on measures body-image disturbance than patients with AN (Blechert, Ansorge, Beckmann, & Tuschen-Caffier, 2011; Hrabosky, Cash et al., 2009). Amongst eating disorders, body-image disturbance is conceptualized as a core cognitive "transdiagnostic" feature (Fairburn, 2008) and specific constructs are a required diagnostic criterion (APA, 2013) for both AN ("Intense fear of gaining weight or of becoming fat" and "Disturbance in the way in which

one's body weight or shape is experienced [or] undue influence of body weight or shape on self-evaluation") and BN ("Self-evaluation is unduly influenced by body shape and weight").

Recent research has attempted to understand the potential distinctiveness of different aspects of body-image disturbance from the eating-disorder literature (e.g., Lydecker et al., 2017). Most emerging research has relied on the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993), an established measure of specific ED psychopathology (Berg, Peterson, Frazier, & Crow, 2012), which includes four related, yet conceptually distinct, constructs of body-image disturbance: *dissatisfaction* with weight/shape (described above), *overvaluation* of weight/shape, *preoccupation* with weight/shape, and *fear* of weight gain. Overvaluation of weight/shape refers to when individuals' self-evaluation is unduly or excessively based on their weight/shape, or their perceived ability to control weight/shape. Preoccupation with weight/shape refers to spending excessive time thinking about weight/shape to the point that this interferes with functioning. Fear of weight gain is an intense and definite fear associated with gaining weight.

Research has consistently supported the distinction between dissatisfaction and overvaluation (Grilo et al., 2009; Wade, Zhu, & Martin, 2011) and the prognostic importance of overvaluation (Grilo, White, et al., 2013). More recently, studies have yielded empirical evidence regarding potential variations in associations between the other EDE-based specific body-image constructs and measures of eating-disorder psychopathology (Blechert et al., 2011; Grilo, Ivezaj, Lydecker, & White, 2019; Linardon, Fuller-Tyszkiewicz, de la Piedad Garcia, Messer, & Brennen, 2019; Linardon et al., 2018; Lydecker et al., 2017; Mitchison et al., 2017) and outcomes (Calugi & Dalle Grave, 2019). A few recent studies have jointly considered several body-image constructs. For example, Mitchison and colleagues (2017), compared three

body-image constructs in a study with adolescent high school students in Australia, and found preoccupation had stronger associations with restraint and binge eating among girls, whereas preoccupation, dissatisfaction, and overvaluation had similar associations with eating behaviors and psychopathology among boys. Lydecker and colleagues (2017) compared four body-image constructs in a clinical treatment-seeking sample of adults with binge-eating disorder (BED), which unlike AN and BN, does not require a body-image criterion (Grilo, 2013). Lydecker et al (2017) found that preoccupation was more strongly associated than the other body-image constructs with Eating Concern while overvaluation was more strongly negatively associated with self-esteem; interestingly, the four body-image constructs were not associated with either BMI or binge-eating frequency.

Thus, recent emerging research (Blechert et al., 2011; Lydecker et al., 2017; Mitchison et al., 2017) has highlighted the potential importance of finer grained understanding of the complexity and different specific aspects of body-image disturbances. However, generalizability of the emerging findings from these diverse samples, ranging from non-clinical community (Grilo et al. 2019), college (Linardon et al., 2019), high-school (Mitchison et al., 2017) to treatment-seeking adults with BED (Lydecker et al., 2017) and adolescents with AN (Calugi & Dalle Grave, 2019) to adult patients with AN and BN is unknown and represents an important gap in the literature. Blechert and colleagues (2011) found that overvaluation of shape/weight was associated with non-appearance-related self-evaluation domains in patients with AN and BN but that these associations were stronger in BN; this study, however, did not consider other body-image constructs.

Thus, the present study compared weight/shape dissatisfaction, weight/shape overvaluation, weight/shape preoccupation, and fear of weight gain in a clinical sample of

patients diagnosed with AN or BN and examined how each body-image construct relates to other measures of ED psychopathology and BMI. An improved understanding of the distinctions between different body-image constructs and their differential salience can inform refinement of specific case conceptualizations for patients with AN and BN. Should findings reveal significant distinctiveness of the body-image constructs with respect to either *between* diagnosis (i.e., AN versus BN) or *within* diagnosis (i.e., associations with other symptom presentation) (Mountford, Haase, & Waller, 2007), this would support the importance of "functional" analytic approaches (McManus & Waller, 1995; Slade, 1982) to identify highly specific targets for interventions.

Method

Participants

Participants were a clinical sample of 490 treatment-seeking patients diagnosed with *DSM-5*-defined AN (N=310) or BN (N=180) by clinicians using structured interviews in Portugal. The current participant group of 490 patients included most of the N=457 participants with AN and BN from a previous study of the factor structure of the EDE-Questionnaire (Machado, Grilo, & Crosby, 2018). In addition to the *DSM-5* criteria requirements for inclusion in this study, we required that AN have a BMI of less than 18.5 and that BN had a BMI of greater than or equal to 18.5. Overall, 97.1% (N=476) were female. The AN group was significantly younger than the BN group (mean=22.77 (SD=8.44) versus mean=26.69 (SD=7.89), respectively; $t = -5.17$, $p<.001$) and had a significantly lower BMI (mean=15.75 (SD=1.63) versus mean=22.30 (SD=3.42), respectively; $t = -24.17$, $p<.001$). Thus, age and BMI were included as covariates in the ANCOVAs comparing the AN and BN groups.

Procedures and Assessments

Patients were diagnosed in person by trained and experienced clinicians (i.e., staff psychiatrist or doctoral level clinical psychologist) at specialized eating-disorder treatment facilities in Portugal. The clinical interviews comprised the diagnostic items for each of the specific eating disorders taken from the EDE interview (Fairburn, 1993). In addition, participants completed a battery of self-report measures during intake process. The study was IRB approved and all participants provided informed consent.

Eating Disorder Examination-Questionnaire (EDE-Q) (Fairburn & Beglin, 1994) *Portuguese-Language Version* (Machado et al., 2014); the Portuguese EDE-Q has demonstrated good psychometric properties like the EDE-Q in clinical studies (Berg, Peterson, Frazier, & Crow, 2012). The EDE-Q was administered during intakes to assess the body-image disturbances constructs and ED psychopathology. The EDE-Q assesses the frequency of objective binge-eating episodes (OBEs; defined as feeling a loss of control while eating unusually large quantities of food) and extreme weight control and compensatory methods over the past 28 days. The EDE-Q also assesses ED psychopathology in four domains scored as subscales (Restraint, Eating Concern, Shape Concern, and Weight Concern). In the current study, we examined the *specific* variables related to body dissatisfaction (weight dissatisfaction and shape dissatisfaction items), overvaluation (overvaluation of weight and overvaluation of shape items), preoccupation with weight or shape (single item), and fear of weight gain (single item). **Table 1** footnote lists the specific items. Items are rated on a scale of 0 (none) to 6 (extreme). This approach follows the exact strategy used in the emerging literature on testing the distinctiveness of these specific body-image constructs (Grilo et al., 2019; Linardon et al., 2018; Lydecker et al., 2017; Mitchison et al., 2017). This strategy, which separates out the body-image variables instead of relying on the EDE-Q Weight Concern and Shape Concern scales is

supported by recent confirmatory factor analytic (CFA) studies (Grilo, Reas, Hopwood, & Crosby, 2015; Machado et al., 2018).

Statistical Analyses

General linear model (GLM) analysis of variance (ANOVA) was used to compare the AN and BN groups on demographic variables, the four body-image constructs (dissatisfaction, overvaluation, preoccupation, and fear of weight gain), and the clinical measures (BMI, binge-eating frequency, purging frequency, EDE-Q Eating Concern and EDE-Q Restraint). Note that we did *not* analyze the body-image constructs with respect to the EDE-Q Shape Concern and Weight Concern scales because the four body-image constructs were included in those scales.

Visual inspection of response distributions along with skew and kurtosis coefficients were used to evaluate normality assumptions prior to analyses; analysis of frequencies of binge eating and purging (see Table 1) were based upon a generalized linear model with a negative binomial distribution appropriate for count data. Overall, missing data on outcome measures was minimal, ranging from 0.3% (for dissatisfaction with weight and shape) to 2.0% (for purging frequency); thus, analyses were based on available data and without imputation for missing data.

A parallel series of analyses of covariance (ANCOVAs) was performed adjusting for significant demographic differences between the AN and BN groups on age and BMI. Additionally, partial eta-squared (η^2), an effect-size measure, was calculated; these values reflect the proportion of variance in the criterion measure accounted for by group membership in ANOVA/ANCOVAs (conventions for this effect-size measure are as follows: small (.01), medium (.06), and large (.14)). We used partial eta-squared, rather than Cohen's *d* because, unlike Cohen's d which is based on raw means, it can be used when there are covariates in the

statistical model to reflect the unique portion of the variance accounted for after adjusting for the covariates.

Pearson correlation coefficients were used to examine associations among the body-image constructs and between each body-image construct and the clinical measures (BMI, binge-eating frequency, purging frequency, EDE-Q Eating Concern, and EDE-Q Restraint). These correlation coefficients were calculated *within* each of the two patient groups (AN and BN) and then the correlations were compared *between* AN and BN using Fisher's *r*-to-*z* test (i.e., to test whether the associations differed in magnitude across AN and BN). Multiple regression analyses were performed separately for AN and BN using the four body-image constructs as independent variables to predict variance in each of the clinical measures. Semi-partial correlations allowed for comparison of each body-image construct *within* each clinical variable in the context of the remaining body-image constructs. Conventions for interpreting effect sizes with multiple regression are as follows: R-squares of .01, .13, and .26 reflect small, medium, and large effects.

Parallel set of (post hoc) analyses were repeated with the N=14 men excluded given potential gender differences in body-image measures. Any differences in patterns are noted.

Results

Table 1 summarizes descriptive statistics and findings from ANOVAs comparing the AN and BN groups on the four body-image disturbance constructs and the clinical measures. ANOVAs revealed that BN had significantly higher scores than AN for all four body-image constructs; the differences reflected small effect-sizes and remained significant in ANCOVAs adjusting for age and BMI. Similarly, for the clinical variables, the BN group had significantly higher frequencies of binge eating and purging behaviors and significantly higher scores on

EDE-Q Eating Concern and Restraint scales; these differences reflected small effect-sizes and remained significant in ANCOVAs adjusting for age and BMI. A parallel series of analyses restricted to females only (N=476) revealed the same pattern and magnitude of findings.

Table 2 summarizes the correlations among body-image constructs shown separately for AN and BN. Correlations were all significant (at $p < .001$) *within* AN (r ranged .303 - .650) and BN (r ranged .437 - .618). Fisher's r-to-z tests revealed that fear of weight gain was correlated significantly lower with dissatisfaction and overvaluation in the AN than BN group. A parallel series of analyses restricted to females-only revealed the same pattern and magnitude of findings.

Table 3 summarizes correlations between the body-image constructs and the clinical measures separately *within* AN and BN. *Within* the AN group, correlations were all significant ($p < .01$), except for those with BMI. *Within* BN, correlations showed a variable pattern. All four body-image constructs were significantly correlated ($p < .001$) with EDE-Q Eating Concern and Restraint scales but showed divergent patterns of significance and much lower correlations with the other clinical measures. Dissatisfaction was the only body-image construct correlated significantly with BMI ($p < .05$) and Preoccupation was the only construct correlated significantly with binge-eating frequency ($p< .01$). The four body-image constructs were significantly correlated with purging frequency: dissatisfaction r=.19 (p< .05) and the other three other constructs (at $p < .01$) correlations ranged .253 -.274. Fisher's r-to-z tests, used to examine whether the correlations between the body-image constructs and the clinical measures differed *between* AN and BN, revealed two statistically significant differences (see **Table 3)**. Dissatisfaction was less strongly associated with BMI in AN than in BN whereas Preoccupation was more strongly associated with Restraint in AN than BN. A parallel series of analyses restricted to females only revealed the same pattern and magnitude of findings.

Table 4 summarizes the multivariable analyses, including semi-partial correlations and the contributions of each of the four body-image constructs to the variance to each of the clinical variables performed *separately* for AN and BN. The body-image constructs accounted for highly variable amounts of the variance across the clinical variables. The body-image constructs did not account for significant variation in BMI in AN or for binge-eating frequency in BN and (albeit statistically significant) for only 1.6% of variation in purging frequency in BN. In BN, the body-image constructs accounted for 6.5% of the variance in BMI, with dissatisfaction and preoccupation making significant contributions. In AN, the body-image constructs accounted for 6.0% of the variance in binge-eating frequency (with preoccupation and fear making significant contributions) and for 10.0% variance in purging frequency (with preoccupation and fear making significant contributions). For both AN and BN, the body-image constructs accounted for substantial amount of the variance in Eating Concern (68.6% and 62.5%, respectively); in AN, all four body-image constructs contributed significantly (preoccupation had highest contribution (beta=.569, $p < .001$)) and in BN, three of the four constructs (except for dissatisfaction) contributed significantly (preoccupation had highest contribution (beta=.498, $p<.001$)). For both AN and BN, body image constructs accounted for substantial amount of variance in Restraint (53.3% and 45.3%); three of the four constructs (except dissatisfaction) contributed significantly with preoccupation showing the highest contribution (beta=.424, $p< .001$) in AN, with fear showing the highest contribution (beta=.367, $p<.001$) in BN. A parallel series of analyses restricted to females only revealed the same pattern and magnitude of findings.

Discussion

This study provides new findings regarding the distinctiveness of four different aspects of body-image disturbance—weight/shape dissatisfaction, weight/shape overvaluation, weight/shape preoccupation, and fear of weight gain —in a clinical treatment seeking sample of patients with AN or BN in Portugal. Overall, patients diagnosed with BN had statistically greater body-image disturbances and ED pathology than patients with AN. These findings, which might reflect partly self-report report to the ego-syntonic natures of AN (Gregertsen, Mandy, & Serpell, 2017), are generally consistent with the empirical literature (Blechert et al., 2011). These findings regarding differences in body-image *between* the AN and BN diagnoses and the novel findings regarding distinctiveness of the specific body-image constructs in their varying patterns of associations with other clinical variables *within* the diagnoses suggest the importance of a "functional" analytic approach (McManus & Waller, 1995; Slade, 1982) to EDs to target specific aspects of body-image disturbance.

Both within and between AN and BN, the four body-image constructs varied in their strengths of association amongst themselves, with other eating-disorder psychopathology, and with BMI. Analyses revealed considerable variability in variance accounted for in the other clinical measures by the four body-image constructs. Body-image constructs predicted significant, albeit small, variance in BMI within BN (dissatisfaction, preoccupation significant) but not within AN; the later finding might perhaps reflect the restricted range of BMI for AN. Body-image constructs predicted significant, albeit small, variance in frequencies of binge eating and purging behaviors in AN (with preoccupation and fear significant for both) but not within BN for binge eating and only minimally for purging. Body-image constructs predicted significant variance in other eating-disorder psychopathology (large amounts of variance for

Eating Concern and Restraint) in both AN and BN (with overvaluation, preoccupation, and fear making significant contributions in the multivariate analyses).

The findings suggest that clinicians assess for specific body-image concerns when conducting assessments and formulating treatments for patients with AN and BN. Our analyses provide clear support for clinical views regarding the importance of fear of weight gain in both AN and BN. Importantly, our findings highlight the importance of preoccupation with weight/shape which seemed to be most strongly associated with other aspects of ED psychopathology in both AN and BN. Thus, the findings indicate the potential importance of specific body-image concerns beyond overvaluation of shape/weight (a core diagnostic construct). Diagnostically, the findings might suggest that future revisions of the *DSM-5* might consider expanding their coverage of body-image disturbance (see Grilo, 2013) to also include fear and preoccupation as possible examples of body-image criterions. Clinically, the findings also carry potential implications. in CBT (Fairburn, 2008), such conceptualizations are shared with patients during the early stages of treatment and serve as a "road-map" for guiding changes. The shared assessment and formulation serves to help patients understand better the factors that may contribute to maintaining their eating-related psychopathology. The findings regarding the distinctiveness of specific aspects of body-image disturbance points to the importance of a "functional analysis" (McManus & Waller, 1995; Slade, 1982) of each of the constructs and their potential associations with other symptomatic behaviors and psychopathology. This approach facilitates the processes of creating specific hypotheses to test and guide behavioral "homework" assignments intended to normalize eating patterns while reducing maladaptive behaviors and cognitions. This approach might help patients to better or more quickly recognize when they are about to engage in symptomatic behaviors and how this might either be triggered or follow

specific body-image cognitions, which in turn could help uncouple factors maintaining the EDs. The findings regarding the distinctiveness of the specific

We note the study's strengths and weaknesses as context for the findings. One strength includes the relatively large sample size of treatment-seeking patients with AN and BN which allowed for group comparisons and fine-grained analyses. The AN and BN diagnoses were determined by experienced and trained clinicians using structured diagnostic methods; however, we did not perform inter-rater reliability analyses for the ED diagnoses and that represents a potential limitation given the complexities of achieving reliable and valid diagnoses (Udo & Grilo, 2019). Our study analyses utilized a separate widely-used self-report measure of body-image disturbance and eating-disorder psychopathology. Although self-report measures may be biased (Udo & Grilo, 2019), research has supported certain psychometric aspects of the self-report EDE-Q including reliability and stability, as well as adequate convergence with the EDE interview (Berg et al., 2011; Berg et al., 2012). Self-report assessment of body image and of eating-disorder psychopathology may facilitate honest reporting of such sensitive or embarrassing behaviors. Although the body-image constructs were assessed using just one or two items each, research has shown the advantages of using single-item questions that are clear and concrete over multiple measures for complex constructs (Bergkvist, 2015; Bergkvist & Rossister, 2007; Fuchs & Diamantopoulos, 2009) and previous factor-analytic work has strongly indicated the separation of the body-image items (Grilo et al., 2015; Machado et al., 2018).

We did not include measures of perceptual aspects (e.g., distortions) of body image which have been reviewed elsewhere for their significance in AN and BN (Molbert et al., 2017); we emphasize, however, that (1) the distinction between perceptual and attitudinal components of body image is well established and that (2) attitudinal aspects more strongly distinguish eating

disorders from control groups and discriminate AN and BN than do perceptual disturbances. We also did not include other potentially relevant clinical variables such as, for example, body checking and avoidance behaviors which have been found to be salient across ED diagnoses (Calugi, el Ghoch, & Dalle Grave, 2017; Lavender et al., 2013; Mountford, Hease, & Waller, 2007; Reas, Grilo, Masheb, & Wilson, 2005) and thought to play roles in the maintenance of EDs (Fairburn, 2008). Body checking and avoidance behaviors have also shown significance variations by diagnosis and with ED symptoms (Mountford et al., 2007); these behaviors, however, were not found to contribute variance above and beyond that of body-image constructs to variance in other eating-disorder psychopathology (Linardon et al., 2019).

Our findings pertain to treatment-seeking patients with AN and BN in Portugal and may not generalize to other forms of eating disorders, to community samples, or to those who do not seek treatment. Participants were primarily women and generalizability of our findings to men or to groups with different demographic and cultural composition is uncertain. Our findings, which pertain to treatment-seeking primarily female patients with AN and BN in Portugal complement and extend those previously reported for treatment-seeking patients with BED in the US (Lydecker et al., 2017) and for adolescent students in Australia (Mitchison et al., 2017). Our findings are cross-sectional and therefore cannot speak to directionality or causality among the variables. Future studies should use prospective (e.g., Tabri, Murray, Thomas, Franko, Herzog, & Eddy, 2015) and experimental designs, including controlled treatment trials (e.g., Grilo, White et al., 2013) to further understand the significance, distinctiveness, and directionality of these body-image constructs and correlates across different eating and weight disorders.

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Table 1. Means and standard deviations of body-image constructs and clinical variables among patient groups diagnosed with anorexia nervosa (AN) or bulimia nervosa (BN)

	AN n=310		BN n=180			ANOVA	ANCOVA	
	M	*SD*	*M*	*SD*	*Sig.*	Partial η^2	Sig	Partial η^2
Dissatisfaction with Weight and Shape	4.00	1.80	4.83	1.53	<.001	.053	.014	.012
Overvaluation of Weight and Shape	3.54	2.13	4.54	1.75	<.001	.055	.037	.009
EDE-Q Restraint	2.53	1.89	3.27	1.65	<.001	.038	.002	.019
Preoccupation with Weight and Shape	3.00	2.39	3.69	2.19	.002	.020	.006	.015
Fear of Weight Gain	3.56	4.36	5.17	1.67	<.001	.045	.027	.010
EDE-Q Eating Concern	2.47	1.76	3.48	1.55	<.001	.077	<.001	.030
Binge-eating Frequency*	3.50	6.77	10.05	9.30	<.001	.040	<.001	.006
Purging Frequency*	8.55	14.94	20.05	17.94	<.001	.023	<.001	.012

Note: Dissatisfaction variable assessed using EDE-Q items "How dissatisfied have you felt about your weight? …about your shape?; Overvaluation variable assessed using items "How your weight (Has your shape…) influenced how you think about (judge) yourself as a person?"; Preoccupation variable assessed using item "Has thinking about shape or weight made it much more difficult to concentrate on things you are interested in?; Fear variable assessed using item "Have you had a definite fear that you might gain weight or become fat?; Purging frequency included sum of self-induced vomiting and laxative abuse.

ANCOVA controls for Age and BMI

*denotes analyses based upon negative binomial model with pseudo-R^2

Table 2. Correlations among body-image constructs shown separately for anorexia nervosa and bulimia nervosa.

	Dissatisfaction *r*	Overvaluation *r*	Preoccupation *r*
Anorexia Nervosa (N = 310)			
Overvaluation	.650		
Preoccupation	.505	.542	
Fear of weight gain	.303ǂ	.341ǂǂ	.386
Bulimia Nervosa (N = 180)			
Overvaluation	.604		
Preoccupation	.437	.471	
Fear of weight gain	.479	.618	.507

Note. All correlations significant at $p < .001$
ǂ $r_{AN} < r_{BN}$ $p = .027$
ǂǂ $r_{AN} < r_{BN}$ $p < .001$

Table 3. Correlations among body-image constructs and clinical variables shown separately for anorexia nervosa and bulimia nervosa

	Dissatisfaction *r*	Overvaluation *r*	Preoccupation *r*	Fear *r*
Anorexia Nervosa (N = 310)				
Body Mass Index	-.071	.043	.006	.036
Binge-eating Frequency	.153**	.177**	.266***	.173**
Purging Frequency	.242***	.256***	.353***	.243***
EDE-Q Eating Concern	.542***	.587***	.779***	.508***
EDE-Q Restraint	.449***	.543***	.645***	.517***
Bulimia Nervosa (N = 180)				
Body Mass Index	.162*	.110	-.089	.044
Binge-eating Frequency	.137	.110	.216**	.142
Purging Frequency	.190*	.253***	.274***	.262**
EDE-Q Eating Concern	.490***	.572***	.720***	.628***
EDE-Q Restraint	.426***	.536***	.510***	.623***

Note.
*$p < .05$; **$p \leq .01$; ***$p \leq .001$.

Shaded cells indicate significant difference between r_{AN} and r_{BN} $p < .05$

Table 4. Multivariable linear regression analyses of the four body-image constructs to the clinical features for the anorexia nervosa and bulimia nervosa groups.

		Anorexia Nervosa			Bulimia Nervosa		
Clinical Variable	Body-Image Construct	R^2	Beta	Sig.	R^2	Beta	Sig.
Body Mass Index		**.021**		**.166**	**.065**		**.019**
	Dissatisfaction		-.176	.023		.217	.024
	Overvaluation		.155	.052		.102	.331
	Preoccupation		-.003	.962		-.213	.017
	Fear		.039	.534		-.037	.713
EDE-Q Eating Concern		**.686**		**<.001**	**.625**		**<.001**
	Dissatisfaction		.098	.026		.088	.146
	Overvaluation		.145	.001		.143	.032
	Preoccupation		.569	<.001		.498	<.001
	Fear		.209	<.001		.228	>.001
EDE-Q Restraint		**.533**		**<.001**	**.453**		**<.001**
	Dissatisfaction		.010	.848		.053	.466
	Overvaluation		.206	<.001		.174	.031
	Preoccupation		.424	<.001		.219	<.001
	Fear		.279	<.001		.367	<.001

Table 4 continued.

		Anorexia Nervosa			Bulimia Nervosa		
Clinical Variable	Body-Image Construct	*Pseudo* R^2	B/SE	Sig.	*Pseudo* R^2	B/SE	Sig.
Binge Eating Frequency		**.060**		**<.001**	**.010**		**.124**
	Dissatisfaction		-0.137	.890		0.718	.472
	Overvaluation		0.552	.587		-0.111	.911
	Preoccupation		4.455	<.001		2.004	.045
	Fear		2.474	.013		-0.096	.925
Purging Frequency		**.100**		**<.001**	**.016**		**.003**
	Dissatisfaction		0.118	.906		-0.586	.558
	Overvaluation		0.840	.401		1.024	.306
	Preoccupation		4.205	<.001		1.698	.089
	Fear		6.807	<.001		1.458	.145