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Childhood Maltreatment, Depressive Symptoms, and Body Dissatisfaction in Patients with Binge Eating Disorder: The Mediating Role of Self-Criticism

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Abstract

Objective—We examined the mediating role of self-criticism in the relation between childhood maltreatment and both depressive symptoms and body dissatisfaction in patients with binge eating disorder (BED).

Method—Participants were 170 BED patients who completed measures of childhood maltreatment, self-criticism, self-esteem, depressive symptoms, and body dissatisfaction.

Results—Specific forms of childhood maltreatment (emotional abuse, sexual abuse) were significantly associated with body dissatisfaction. Path analyses demonstrated that self-criticism fully mediated the relation between emotional abuse and both depressive symptoms and body dissatisfaction. Specificity for the mediating role of self-criticism was demonstrated in comparison to other potential mediators (low self-esteem) and alternative competing mediation models.

Conclusion—These results highlight self-criticism as a potential mechanism through which certain forms of childhood maltreatment may be associated with depressive symptoms and body dissatisfaction in BED patients.

Keywords

body dissatisfaction; childhood maltreatment; self-criticism; depression; binge eating disorder

Binge eating disorder (BED), a research category in the DSM-IV (1), is characterized by recurrent binge eating without the compensatory weight-control methods that distinguish bulimia nervosa. BED is now recognized as a prevalent and important public health problem associated with obesity and heightened psychiatric and medical problems (2,3). However, relatively little is known about risk factors and the development of BED and its associated problems. In terms of potential environmental factors, childhood maltreatment is associated with a plethora of negative sequelae, including BED (4). Grilo and Masheb (5) found that two forms of childhood maltreatment, emotional abuse and sexual abuse, were significantly associated with body dissatisfaction in patients with BED. Although relations have been found between certain forms of childhood maltreatment and body dissatisfaction in patients

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with BED and diverse eating disordered patients (6), the mechanisms through which childhood maltreatment might lead to body dissatisfaction are unknown. It is important to study the mediators of these relations as a prerequisite step for understanding how body dissatisfaction might arise from childhood maltreatment. Knowledge of proximal factors that might explain the processes through which certain distal events (i.e., childhood maltreatment) can influence body dissatisfaction could guide prevention and intervention efforts that target the more malleable proximal explanatory factor(s) in people experiencing the distal childhood abuse.

One possibility is that people who experience excessive criticism, repeated insults, or some kind of physical/sexual abuse during childhood may come to develop a similarly critical view of themselves over time (7,8). This could be reflected in a self-critical cognitive-personality style that involves constant and harsh self-scrutiny and chronic concerns about others' criticism, and may eventually be expressed in a variety of dysfunctional attitudes and behaviors. For example, prior work by Glassman and colleagues (8) found support for the specific mediating role of self-criticism in the relation between childhood emotional abuse and non-suicidal self-injury in a sample of 86 adolescents. In the case of eating disorders, self-criticism may eventually be expressed in heightened concerns or dissatisfaction with appearance. We previously found that self-criticism was significantly associated with body dissatisfaction in BED patients and that self-criticism accounted for the relation of various perfectionism components with body dissatisfaction (9). Thus, we propose that self-criticism would mediate the relation between childhood maltreatment and body dissatisfaction in that pathological fixations on the body can be conceptualized, in part, as a manifestation of a critical view of the self and the felt failure to obtain others' approval (10,11).

In addition to demonstrating self-criticism as a mediator in the relation between childhood maltreatment and body dissatisfaction, it is important to rule out plausible alternatives in order to strengthen the case for the specificity of self-criticism as a mediator (8,12). For instance, childhood maltreatment has been linked to depression (5,13) and depression frequently co-occurs with eating disorders (2), including BED (2,3). It is possible that relations among childhood maltreatment, self-criticism, and body dissatisfaction could be explained by the presence of depressive symptoms. Indeed, much of the literature on the self-criticism construct (7,14) has focused on its role as a specific personality vulnerability factor for depressive phenomena (7), with evidence for the influence of personality vulnerability on depression more extensive and robust than evidence for the influence of depression on personality (15). The role of self-criticism as a specific mediator in the relation between childhood maltreatment and body dissatisfaction would be further bolstered if self-criticism was to maintain a relation with body dissatisfaction even after taking depressive symptoms into account. In a previous study of BED patients, Dunkley and Grilo (10) found that, even after controlling for depression levels, self-criticism was related to overvaluation of shape and weight, a related albeit distinct construct from body dissatisfaction (16,17).

In addition, we wanted to rule out other plausible alternative mediators. For example, low self-esteem is one of the most frequently considered psychological predisposing factors in eating disorders (16). Emotional abuse has been found to be associated with lower self-esteem in patients with BED (5). Thus, one plausible alternative possibility is that it is not self-criticism per se, but the more global negative view of the self (i.e., low self-esteem) that could also explain the relation between childhood maltreatment and body dissatisfaction. The demonstration of such a relation would weaken the case for proposing self-criticism as a specific mediator.

The first goal of this study was to examine the relations between various kinds of childhood maltreatment (emotional, physical, and sexual abuse, and emotional and physical neglect) and body dissatisfaction in BED patients. The second goal was to test a model in which self-criticism mediates the relation between childhood maltreatment and body dissatisfaction in BED patients. Our study extends previous work (8) supporting the specific mediating role of self-criticism in the relation between childhood emotional abuse and non-suicidal self-injury in adolescents by examining whether self-criticism potentially mediates the relation between childhood maltreatment and both depressive symptoms and body dissatisfaction in BED patients. Figure 1 shows the hypothesized mediational model of relations as follows: 1) childhood maltreatment will be linked to self-criticism; 2) self-criticism will be linked to each of depressive symptoms and body dissatisfaction; and 3) depressive symptoms will be linked to body dissatisfaction. The findings of this study could illuminate the potential determinants of depressive symptoms and body dissatisfaction in BED patients and suggest potential mechanisms through which body dissatisfaction in people with BED can arise.

Method

Participants

Participants were a consecutive series of 170 treatment-seeking overweight ($BMI \geq 25$) adults who met *DSM-IV* (APA;1) research criteria for BED based on the *Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/P;18)*. This consecutive series was drawn from a larger series of subjects from published studies in which zero-order correlations were reported among self-criticism, self-esteem, depressive symptoms, and body dissatisfaction (9,10). The present study group was selected solely based on the availability of childhood maltreatment data.

Exclusionary criteria included: any concurrent treatment for weight or eating, medical conditions that influence weight or eating (e.g., diabetes or thyroid disease), and severe current psychiatric conditions (e.g., psychosis, bipolar disorder) requiring different treatments. Participants' mean age was 43.49 years ($SD = 8.85$). The participant group was predominantly female (78%) and Caucasian (88%). Eighty-five percent ($N = 145$) attended or finished college. Mean body mass index (BMI : weight (kg) divided by height (m^2)) was 36.6 ($SD = 8.8$).

Procedure

The study received full human subjects review and approval by the appropriate institutional review board and participants provided written informed consent. Participants were respondents to advertisements seeking volunteers for research studies at a medical school. Diagnostic assessments (*SCID-I/P*) were performed by doctoral-level research-clinicians. In addition, participants completed questionnaires that included the measures of childhood maltreatment, self-criticism, self-esteem, depressive symptoms, and body dissatisfaction.

Measures

Childhood Trauma Questionnaire (CTQ;19)—The CTQ is a widely-used, 28-item, self-report instrument that assesses childhood maltreatment in 5 areas: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Reliability and validity of the CTQ, including their stability over time and convergent and discriminant validity, have been documented (19-21). The CTQ has been previously used in studies of diverse clinical groups of obese (22,23) and disordered eating including BED patients (5,22). In the present study, coefficient alphas for emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect were .85, .82, .95, .88, and .57, respectively, which are consistent with alphas reported in prior research with other patient groups (20).

Depressive Experiences Questionnaire (DEQ;14)—The 66-item DEQ was used to assess self-criticism. The self-criticism factor of the DEQ is highly stable, has high internal consistency (24), and has shown good convergent and discriminant validity across a variety of samples (7,15). In the present study, coefficient alpha was not computed for DEQ self-criticism because the DEQ was not scored in the conventional fashion of summing a series of items; rather, as recommended by Zuroff et al. (24), we scored self-criticism using the factor weights derived from the initial female sample (14).

Rosenberg Self-Esteem Scale (RSES; 25)—The RSES is a 10-item widely used measure of self-esteem. The scale has established adequate internal consistency and validity across diverse samples (25). In the present study, coefficient alpha for self-esteem was .91.

Beck Depression Inventory (BDI; 26)—The BDI is a 21-item measure of depressive symptoms with considerable support for its internal consistency and validity across a variety of samples (27). In the present study, coefficient alpha for depressive symptoms was .89.

Body Shape Questionnaire (BSQ;28)—The BSQ is a 34-item instrument that assesses the frequency of preoccupation with and distress about body size/shape. The psychometric properties of the BSQ have been well-established (29) and the BSQ has been used extensively to measure body dissatisfaction in clinical studies of BED patients (30). In the present study, coefficient alpha for body dissatisfaction was .94.

Model Testing

Path model testing was performed using Analysis of Momentary Structure 5.0 (AMOS Version 5.0; 31). Consistent with Hoyle and Panter's (32) recommendations, we considered multiple indexes of fit. We considered the ratio of the chi-square value to the degrees of freedom in the model (absolute fit), with ratios in the range of 2 to 1 suggesting better fitting models (33). We also considered the goodness-of-fit index (GFI; 34; absolute fit), incremental-fit index (IFI; 35; incremental fit), and the comparative-fit index (CFI; 36; incremental fit), with values .90 or over indicating better fitting models (32). In addition, we considered the Root Mean Square Error of Approximation (RMSEA; 37; parsimony-adjusted fit), with values of .08 or less indicating adequate fit (38). Finally, we performed sequential comparisons between pairs of nested, competing models with χ^2 difference tests. In each comparison where there was no significant difference, the more parsimonious of the two models was tentatively accepted.

Results

As shown in Table 1, correlation analyses revealed that childhood emotional abuse and sexual abuse were significantly associated with body dissatisfaction, whereas childhood physical abuse, physical neglect, and emotional neglect were not significantly associated with body dissatisfaction. Considering potential mediators in the relation between childhood emotional abuse and body dissatisfaction, correlation analyses showed that self-criticism, self-esteem, and depressive symptoms were each significantly associated with emotional abuse and body dissatisfaction, which suggested that these variables met initial criteria to be considered potential mediators (39). Further, the intercorrelations among the three potential mediators were all significant: self-criticism and self-esteem ($r = -.67, p < .001$), self-criticism and depressive symptoms ($r = .58, p < .001$), and self-esteem and depressive symptoms ($r = -.69, p < .001$).

Path analyses were used to test the hypothesized relations among childhood emotional abuse, self-criticism, depressive symptoms, and body dissatisfaction. The fully mediated

hypothesized model (see Figure 1) examined self-criticism as a mediator in the relation between childhood emotional abuse and each of depressive symptoms and body dissatisfaction. This model was estimated and resulted in an excellent fit: $\chi^2 (2, N = 170) = 1.02, ns$; $\chi^2 / df = .51$; GFI = 1.00; IFI = 1.00; CFI = 1.00; RMSEA = .00. To test whether the relation between childhood emotional abuse and depressive symptoms was fully mediated, this fully mediated model was compared to a partially mediated model, which included a path from childhood emotional abuse to depressive symptoms (40). The partially mediated model was not a significantly better fit to the data than the fully mediated model, $\chi^2_{diff} (1, N = 170) = 0.29, ns$, and the path from childhood emotional abuse to depressive symptoms, $\beta = .04, ns$, was not significant. Next, to test whether the relation between childhood emotional abuse and body dissatisfaction was fully mediated, the fully mediated model was compared to a partially mediated model, which included a path from childhood emotional abuse to body dissatisfaction. The partially mediated model was not a significantly better fit to the data than the fully mediated model, $\chi^2_{diff} (1, N = 170) = 0.70, ns$, and the path from childhood emotional abuse to body dissatisfaction, $\beta = .06, ns$, was not significant. Thus, based on the parsimony principle, the fully mediated hypothesized model was accepted.

The bootstrap procedure was used to test the indirect effects from childhood emotional abuse to depressive symptoms and body dissatisfaction (41,42). First, we created 1,000 bootstrap samples by random sampling and replacement of the original data set ($N = 170$). The significance tests were based on bias-corrected 95% confidence intervals (CIs) for the size of each indirect effect derived from the bootstrapped estimates. If the values of a 95% CI for mean indirect effect do not include zero, it indicates that the specific indirect effect is significant at a $p < .05$ level. The 95% CI (.07, .27) from emotional abuse to depressive symptoms supported the conclusion that the indirect effect of childhood emotional abuse on depressive symptoms through the mediator of self-criticism was statistically significant ($p < .01$). The 95% CI (.05, .23) from emotional abuse to body dissatisfaction also supported the conclusion that the indirect effect of childhood emotional abuse on body dissatisfaction through the mediators of self-criticism and depressive symptoms was statistically significant ($p < .01$).

Figure 2 presents the standardized parameter estimates of the final model explaining the relations between childhood emotional abuse and each of depressive symptoms and body dissatisfaction. The relation between emotional abuse and depressive symptoms was fully mediated by self-criticism. The relation between emotional abuse and body dissatisfaction was also fully mediated by self-criticism, with self-criticism both directly related to body dissatisfaction and indirectly related to body dissatisfaction through depressive symptoms.

Although Figure 2 represents one plausible representation of the data, it was important to test other plausible alternative competing models that could fit the observed data equally well, particularly because the data were collected concurrently (43). First, we tested an alternative model where depressive symptoms and body dissatisfaction mediated the relation between childhood emotional abuse and self-criticism. This alternative model resulted in a less parsimonious, partially mediated alternative model, which included a significant path from childhood emotional abuse to self-criticism, $\beta = .17, p < .01$, and had a poorer fit, $\chi^2 (1, N = 170) = 2.01, ns$; $\chi^2 / df = 2.01$; GFI = .99; IFI = .99; CFI = .99; RMSEA = .08, relative to the fully mediated target model (Figure 2). Thus, these results provided further support for the specificity of the fully mediated model with self-criticism mediating the relation between childhood emotional abuse and both depressive symptoms and body dissatisfaction (Figure 2).

Because lower self-esteem was associated with emotional abuse (Table 1), another alternative model tested self-esteem in place of self-criticism as the mediator in the hypothesized model (Figure 1). This addressed whether it is a more global negative view of the self as opposed to self-criticism per se that mediates the relation between emotional abuse and both depressive symptoms and body dissatisfaction. This fully mediated model had a reasonable fit to the data, $\chi^2 (2, N = 170) = 4.67, ns$; $\chi^2 / df = 2.34$; GFI = .99; IFI = .98; CFI = .98; RMSEA = .09. However, in contrast to self-criticism, self-esteem was not significantly related to body dissatisfaction when controlling for depressive symptoms, $\beta = -.15, ns$. This model with a direct path from self-esteem to body dissatisfaction was not a significantly better fit than a more parsimonious, competing model where the relation between self-esteem and body dissatisfaction was set to zero, $\chi^2_{diff} (1, N = 170) = 2.68, ns$. This indicated that the relation between lower self-esteem and body dissatisfaction was fully explained through depressive symptoms. Thus, self-criticism but not self-esteem was a unique mediator in the relation between emotional abuse and body dissatisfaction, further supporting the specificity of self-criticism.¹

Discussion

Body image dissatisfaction is well-established as an important clinical characteristic and treatment target across eating disorders (44). In BED, body-image dissatisfaction is variable and is strongly associated with multiple measures of severity (17,30). Depressive/negative affect occurs in a subset of patients with BED and its presence signals a more disturbed variant or subtype of BED including greater body dissatisfaction (45). Consistent with previous findings (5), our findings suggest that both emotional abuse and sexual abuse are associated with greater body dissatisfaction and emotional abuse is associated with greater depressive affect in BED patients.

A strength of the present study was the relatively large sample of BED patients ($N = 170$) that allowed for use of path analyses to test the mediational hypotheses and indirect effects. The path analyses of the present study expanded on previous findings by revealing that the relations between childhood emotional abuse and both depressive symptoms and body dissatisfaction in BED patients are fully mediated by the presence of a self-critical cognitive-personality style. Individuals who report experiencing emotional abuse (e.g., excessive criticism) during childhood tend to adopt a similar harsh and punitive stance toward the self (7,8). Self-criticism, in turn, is associated with depressive symptoms (7,15) and body dissatisfaction (10,11). Additional confidence in self-criticism as a mediator in the relation between childhood emotional abuse and body dissatisfaction was provided by this model's demonstrated superiority over alternative competing structural models. In contrast to self-criticism, lower global self-esteem was not found to be a specific mediator in the relation between childhood abuse and body dissatisfaction in that it was not significantly related to body dissatisfaction controlling for depressive symptoms. These results are consistent with previous findings distinguishing self-criticism from low self-esteem in relation to eating disorder psychopathology (10). These findings build substantively on Glassman et al.'s (8) previous study of a relatively much smaller sample demonstrating

¹A second set of path analyses were used to test the applicability of the hypothesized model (see Figure 1) to the relations among childhood sexual abuse, self-criticism, depressive symptoms, and body dissatisfaction. The relation between sexual abuse and body dissatisfaction was partially mediated by self-criticism, with self-criticism both directly related to body dissatisfaction and indirectly related to body dissatisfaction through depressive symptoms. Childhood sexual abuse had a significant relation with body dissatisfaction, controlling for the effects of self-criticism and depressive symptoms. Further, we tested an alternative model with body dissatisfaction and depressive symptoms as the mediators between childhood sexual abuse and self-criticism. This also resulted in a partially mediated model that had a comparable fit to the data as the final partially mediated model derived from our target model. Thus, these findings are consistent with the possibility of alternative directions of relations among childhood sexual abuse, self-criticism, depressive symptoms, and body dissatisfaction.

support for self-criticism as a specific mechanism through which childhood emotional abuse is associated with subsequent non-suicidal self-injury.

Although depressive symptoms partly accounted for the relation between self-criticism and body dissatisfaction, self-criticism continued to relate to body dissatisfaction even controlling for depressive symptoms. This extends our previous research (10) showing that after controlling for depressive symptoms self-criticism maintained a relation with overvaluation of shape and weight (a specific cognitive feature of eating disorders that is distinct from body dissatisfaction (30)). Although self-criticism has been primarily studied in the context of depression-related phenomena (7,15), our findings suggest that self-criticism has broader relevance that extends beyond depression-related problems to various forms of eating disorder psychopathology. Other researchers have similarly highlighted the clinical relevance of related self-critical perfectionistic features across eating, mood, and anxiety disorders (46). Future research should examine the possibility that self-criticism might reflect an important part of a cognitive-personality vulnerability dimension that could shed light on the nature of the frequent co-occurrence of these different clinical disorders (10,11).

Although this study used a relatively large number of BED patients and sophisticated data analytic procedures, there are limitations that warrant attention in future research. Findings are based on cross-sectional data and, thus, preclude statements of causality. Longitudinal repeated-measures research is needed to determine the directionality of the relations observed in this study and, in particular, whether childhood abuse triggers self-criticism, which, in turn, acts as a vulnerability factor for body dissatisfaction. Our results are based on self-report which has well-known limitations, such as biased recall. Although valuable data can be obtained from retrospective recall of childhood events, instances of maltreatment tend to be under-reported (47,48). Thus, replication with other methods of data collection would be beneficial. Since our participants were overweight treatment-seekers at a university-based program, our results may not generalize to general clinics or to community samples. Although our study focused on BED, and requires extension to and replication in other eating disorder patient groups, we cautiously speculate that the mediational model proposed in our study is not specific to BED and may apply to individuals with other forms of disordered eating. Although different eating disorder diagnostic groups differ considerably on certain physical (e.g., weight status) and behavioral features (e.g., degree of restraint, binge eating, purging), body image dissatisfaction and concerns are salient and clinically-challenging problems across ED diagnoses (16,44,49). Similarly, self-critical and depressive features are common in the clinical presentations across EDs (44,46).

With this context of relative strengths and weaknesses in mind, our findings represent a preliminary step toward understanding the relations among childhood maltreatment and depressive symptoms and body dissatisfaction in BED patients. Knowledge of which proximal factors (e.g., self-criticism) might explain the processes through which distal events (e.g., childhood maltreatment) might eventually influence body dissatisfaction in BED patients can help clinicians better identify intervention targets in people experiencing the distal event. Our findings suggest the importance of assessing self-criticism (and closely related constructs such as clinical perfectionism) as well as the multi-dimensional construct of body image dissatisfaction in addition to the core behavioral and attitudinal (i.e., overvaluation of shape/weight) features of eating disorders. Our findings support recent “enhancements” proposed for CBT that include specific modules targeting self-critical perfectionism and severe body dissatisfaction in an attempt to further improve outcomes (44).

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Figure 1. Hypothesized structural model relating childhood maltreatment, self-criticism, depressive symptoms, and body dissatisfaction.

Figure 2. Standardized parameter estimates of the final structural model relating childhood emotional abuse, self-criticism, depressive symptoms, and body dissatisfaction. The residual arrows denote the proportion of variance in the variable that was unaccounted for by other variables in the model. Note. $^{**} p < .01$; $^{***} p < .001$.

Table 1
Zero-order correlations of self-criticism, self-esteem, and depressive symptoms with childhood maltreatment and body dissatisfaction

Variables	M	SD	Self-Criticism	Self-Esteem	Depressive Symptoms	Body Dissatisfaction
Emotional Abuse	11.29	5.17	.29***	-.16*	.20**	.19*
Physical Abuse	7.76	3.61	.06	-.03	.08	.14
Sexual Abuse	7.17	4.73	.18*	.02	-.09	.18*
Emotional Neglect	13.36	5.56	.17*	.06	-.09	.03
Physical Neglect	8.53	3.50	.12	.02	-.03	.09
Body Dissatisfaction	138.53	27.65	.45***	-.43***	.51***	--

Note. N = 170.

*
p < .05;

**
p < .01;

***
p < .001.