Published in final edited form as:
Int J Eat Disord. 2012 April ; 45(3): 423–427. doi:10.1002/eat.20933.

Internalized Weight Bias in Obese Patients with Binge Eating Disorder: Associations with Eating Disturbances and Psychological Functioning

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Abstract

Objective—Widespread bias against obese individuals may lead to the internalization of weight bias in obese persons. This study examined correlates of internalized weight bias (IWB) in obese patients with binge eating disorder (BED)

Method—One hundred treatment-seeking obese patients with BED were administered the Eating Disorders Examination interview and questionnaires assessing IWB, fat phobia, depression, and self-esteem.

Results—The mean IWB score in this group of patients with BED was significantly greater than the mean IWB score observed previously in a community sample of overweight adults. IWB was positively associated with eating disorder psychopathology, fat phobia, and depression, and negatively associated with self-esteem. IWB made significant independent contributions to the variance in eating disorder psychopathology even after accounting for fat phobia, depression, and self-esteem.

Discussion—Treatment-seeking obese patients with BED demonstrate high levels of IWB. IWB may contribute to the variance in eating disorder psychopathology in BED patients, beyond the contributions of fat phobia, depression, and self-esteem.

Keywords

Binge eating disorder; weight bias; stigma; anti-fat attitudes; obesity; body image

Weight-based discrimination in the United States is pervasive[1] and its consequences for overweight and obese individuals are becoming increasingly clear. Obese persons who experience weight-based discrimination report a range of negative psychological and physiological outcomes, including increased depression, greater body image disturbance, decreased self-esteem[2–4] and elevated ambulatory blood pressure.[5] Little is known about how weight-based discrimination relates to these negative outcomes, or whether specific groups of obese persons are particularly vulnerable to the harmful effects of weight-based

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Biomedical Support Disclosures: The authors report no commercial or biomedical industry support or conflicts of interest. No additional funding was received for the completion of this work.

discrimination. Obese persons with binge eating disorder (BED) form may be particularly susceptible to weight-based discrimination. Recent research has found that weight-based discrimination is associated with binge eating among obese treatment-seeking adults.[6]

The internalization of weight bias,[7,8] defined as the degree to which an obese person believes in weight-based negative stereotypes, correlates strongly with the negative psychosocial outcomes that can follow acts of weight-based discrimination.[9] In a community sample of overweight men and women, a high level of internalized weight bias was associated with increased mood disturbance, body image concern, drive for thinness, binge eating, and decreased self-esteem.[7] Thus, some evidence suggests that internalized weight bias is associated with eating-related psychopathology, but this requires confirmation in clinical samples.

The present study examined associations between internalized weight bias, eating disorder (ED) psychopathology, and general psychological functioning in obese men and women seeking treatment for BED. We hypothesized that 1) greater internalized weight bias would be related to increased fat phobia, increased depression, and decreased self-esteem; and 2) greater weight bias internalization would be related to greater eating disorder psychopathology. We also explored the joint and independent contributions of internalized weight bias along with other variables associated with eating disorder psychopathology, [10] including depression and decreased self-esteem.

Methods

Participants

Participants were a consecutive series of obese patients recruited for a treatment study who met full *DSM-IV* research diagnostic criteria for BED. Participants were recruited via newspaper advertisements seeking obese men and women who eat “out of control” and “want to lose weight” for treatment studies at a medical school-based specialty clinic. Participants were aged 28 to 64 years (mean = 47.65 years, *SD* = 8.34), 65% were female, 79% were Caucasian, 14% were Black/African-American, and 4% were Hispanic. Seventy-one percent reported at least some college education, Mean body mass index (BMI) was 40.58 kg/m^2 (*SD* = 6.63) and ranged from 29.52 to 58.14.

Procedures and Assessment Measures

The study was approved by the Yale Institutional Review Board and all participants provided written informed consent. Assessment procedures were performed by trained doctoral-level research clinicians. BED diagnosis was based on the Structured Clinical Interview for *DSM-IV* Axis I Disorders[11] and confirmed with the Eating Disorder Examination interview.[12] Participants also completed a battery of self-report questionnaires described below. Participants’ height and weight were measured at the initial assessment appointment using a medical balance beam scale.

Weight Bias Internalization Scale (WBIS)—The WBIS measures the degree to which a respondent believes that negative stereotypes and negative self-statements about overweight and obese persons apply to himself or herself (e.g., “As an overweight person, I feel that I am just as competent as anyone.”)[7] Respondents were asked to rate their agreement with each item on a 7-point Likert scale ranging from “strongly disagree” to “strongly agree;” higher scores represent greater internalized weight bias. In the present sample, the 11-item WBIS was found to have high internal consistency (Cronbach’s alpha = 0.84).

Fat Phobia Scale – Short Form (FPS)—The FPS[13] measures a pathological fear of fatness by asking respondents to rate 14 adjective pairs (e.g., lazy/industrious; good self-control/poor self-control), choosing the adjective that best describes his/her beliefs about overweight people on a 5-point scale. Item scores are summed then converted to the 5-point scale to represent a global score of anti-fat attitudes; higher scores reflect greater fat phobia. In a community sample with participants across the weight spectrum, the short-form of the FPS demonstrated sound psychometric data and correlated strongly with the original scale.[13]

Rosenberg Self-Esteem Scale (RSE) and the Beck Depression Inventory-II (BDI-II)—The RSE,[14] a widely used measure of self-esteem, asks respondents' agreement with 10 statements on a 4-point Likert scale, with higher scores indicating higher self-esteem. The BDI-II[15] is a 21-item measure of symptoms of depression. Higher scores reflect higher levels of depression and negative affect. The BDI-II is widely used, well-established and has excellent reliability and validity.[16]

Eating Disorder Examination (EDE)—The EDE[12] is a well-established interview for assessing ED psychopathology[17,18] with established reliability.[19] Except for diagnostic items with specific duration criteria, the EDE focuses on the previous 28 days. Items are rated on a 7-point scale (0–6) with higher scores indicating greater frequency/severity. The EDE assesses binge eating ("objective bulimic episodes) and also comprises four subscales (Restraint, Eating Concern, Shape Concern, and Weight Concern) and an overall global score. Two EDE items, relative importance of shape and weight in self-evaluation, were averaged as a composite measure: shape and weight overvaluation.[20,21]

Results

WBIS in BED is Elevated Relative to WBIS in Community Sample

The mean of the WBIS for this study group of obese BED patients was 4.75 (*SD* = 1.22, range = 1.55 to 6.82). An independent samples t-test revealed that this observed WBIS mean was significantly higher than the mean of 3.95 (SD = 1.28, range = 1.33 to 6.50) found previously in a community sample of overweight and obese individuals[7] ($t(241) = 4.77$, $p < 0.001$). The mean BMI of the present group (40.58;SD = 6.63) was significantly higher than the mean BMI of the community comparison sample (M = 33.21 (SD = 8.58); $t(270) = 6.67$, $p<0.001$).

Correlates of IWB

Table 1 summarizes the Pearson product-moment correlations between the WBIS and the study measures. The WBIS was significantly correlated with BDI, RSE and FPS scores but not with BMI. . WBIS was significantly and positively correlated with the global EDE score, Eating Concern, Shape Concern, and Weight Concern, as well as the overvaluation of weight and shape composite score. WBIS was not significantly correlated with EDE restraint or the frequency of binge eating.

Regression Analyses

Table 2 summarizes the omnibus hierarchical multiple regression analyses examining the joint and independent contributions of the WBIS, FPS, BDI, and RSE to the variance in ED psychopathology. Models were designed to assess the proportion of variance in eating psychopathology variables accounted for by the WBIS relative to other independent predictor variables. Block 1 included BDI, RSE and FPS scores, and Block 2 included WBIS scores. WBIS scores significantly contributed to variance in scores on the global EDE, Eating Concern, Shape Concern, Weight Concern, and the overvaluation of weight and shape composite score over and above the variance contributed by the other

psychological measures. For these measures, R^2 change was significant ($p<0.05$). Only WBIS scores significantly contributed to the models for global EDE scores and the Eating Concern, Shape Concern and Weight Concern subscales. WBIS, BDI and RSE contributed significantly to overvaluation of weight and shape. The model was not significant for Restraint subscale scores.

Discussion

This study investigated the internalization of weight bias among treatment-seeking obese women and men with BED. As hypothesized, greater IWB was correlated with greater ED psychopathology, greater fat phobia, greater depression and lower self-esteem. IWB was strongly associated with different domains of ED psychopathology and accounted for a significant proportion of variance in those domains above and beyond that accounted for by other related measures (fat phobia, depression, and self-esteem). Only IWB, and not fat phobia, depression, or self-esteem, significantly contributed to variance in the EDE global and subscale scores.

This treatment-seeking group of obese patients with BED reported higher levels of IWB than levels reported previously by a community sample of overweight and obese individuals.[7] Similarly, obese persons with BED suffer from greater psychological distress and heightened eating disorder psychopathology than obese individuals without BED.[10,22] Of course, differences between the present study and a community-based study[7] limit the interpretation of the heightened WBIS scores in BED patients. Future research should compare matched groups of obese persons with and without BED.

Consistent with previous findings,[7] IWB was not correlated significantly with BMI, thus suggesting that the WBIS captures negative cognitions associated with psychological features rather than with just weight. Research should examine if IWB is stable, changes with weight, or impacts treatment outcome. A recent study reported decreases in WBIS among overweight patients during behavioral weight loss[23] although WBIS levels remained higher than in a non-treatment seeking overweight/obese samples.[7] The associations between IWB and depression and body dissatisfaction in BED patients are consistent with previous findings for overweight and obese persons.[7,8]

Unlike previous research, the present study did not find a significant association between binge eating and IWB, though this may be due to the more frequent binge eating seen in a BED sample as compared to a community sample. Previous studies suggesting this correlation[7–9,23] examined non-BED samples. Collectively, the present findings suggest that one contributor to the poor psychological functioning and distress in obese patients with BED may be IWB, though the cross-sectional nature of the present study precludes any conclusions about causality.

Acknowledgments

This research was supported, in part, by grants from the National Institutes of Health (R01 DK49587, K24 DK070052, and K23 DK071646).

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Table 1

Mean Scores of All Study Measures and Correlations with WBIS

Measure	Mean (SD)	Correlation with WBIS
Body Mass Index	40.58 (6.63)	−0.03
WBIS	4.75 (1.22)	n/a
BDI	15.48 (8.62)	0.65†
RSE	29.43 (6.53)	−0.68†
FPS	3.70 (0.63)	0.50†
EDE Total	2.84 (0.88)	0.43†
EDE Restraint	1.92 (1.28)	0.09
EDE Eating Concern	2.16 (1.26)	0.37†
EDE Shape Concern	3.80 (1.12)	0.48†
EDE Weight Concern	3.38 (1.16)	0.37†
Overvaluation of Weight and Shape Composite	4.11 (1.40)	0.53†
Binge eating frequency/week	5.20 (4.35)	−0.05

† $p < 0.01$, two-tailed test

Note: WBIS = Weight Bias Internalization Scale; BDI = Beck Depression Inventory-II; RSE = Rosenberg Self-Esteem Scale; FPS = Fat Phobia Scale; EDE = Eating Disorder Examination; OBE = Objective Bulimic Episodes per week; SBE = Subjective Bulimic Episodes per week

Table 2

Summary of Multiple Regression Analyses

Dependent Variable	Model R^2	F	Block	R^2 Change	F Change	Independent Variables	Standardized Beta
EDE Total Score	0.19	4.45**	**1**	0.1	2.79*	**BDI**	0.19
						RSE	−0.01
						FPS	0.12
			2	0.09	8.64**	**BDI**	0.09
						RSE	0.13
						FPS	0.02
						WBIS	0.45**
EDE Restraint	0.04	0.69	**1**	0.01	0.35	**BDI**	0.19
						RSE	0.16
						FPS	−0.21
			2	0.02	1.7	**BDI**	0.13
						RSE	0.24
						FPS	−0.07
						WBIS	0.22
EDE Eating Concern	0.14	3.12*	**1**	0.09	2.68	**BDI**	0.21
						RSE	−1.23
						FPS	0.09
			2	0.05	4.12*	**BDI**	−0.04
						RSE	−0.1
						FPS	0.22
						WBIS	0.32*
EDE Shape Concern	0.24	6.11**	**1**	0.13	3.93*	**BDI**	0.25
						RSE	0
						FPS	0.18
			2	0.11	11.16**	**BDI**	0.13
						RSE	0.2

Dependent Variable	Model R^2	F	Block	R^2 Change	F Change	Independent Variables	Standardized Beta
						FPS	0.07
						WBIS	0.49**
EDE Weight Concern	0.13	2.75*	**1**	0.08	2.18	**BDI**	0.11
						RSE	−0.09
						FPS	0.13
			2	0.05	4.16*	**BDI**	0.03
						RSE	0.03
						FPS	0.06
						WBIS	0.32*
Overvaluation of Weight and Shape Composite	0.34	9.74**	**1**	0.22	7.46**	**BDI**	−0.26
						RSE	−0.55**
						FPS	0.18
			2	0.11	13.11**	**BDI**	−0.39*
						RSE	−0.35*
						FPS	0.07
						WBIS	0.50**

* $p<0.05$

** $p<0.01$

Note: EDE = Eating Disorder Examination; BDI = Beck Depression Inventory-II, RSE = Rosenberg Self-Esteem Scale; FPS = Fat Phobia Scale; WBIS = Weight Bias Internalization Scale