

# Understanding Self-directed Stigma: Development of the Weight Bias Internalization Scale

Laura E. Durso<sup>1</sup> and Janet D. Latner<sup>1</sup>

**Objective:** The present study developed the Weight Bias Internalization Scale (WBIS), an 11-item measure assessing internalized weight bias among the overweight and obese.

**Methods and Procedures:** An Internet sample was recruited through online community discussion groups and snowball sampling via e-mail. Women ( $n = 164$ ) and men ( $n = 34$ ) with a BMI  $>25 \text{ kg/m}^2$  completed the WBIS and the Antifat Attitudes Questionnaire (AAQ), as well as measures of self-esteem, body image, mood disturbance, drive for thinness, and binge eating.

**Results:** Results indicate that the WBIS had high internal consistency (Cronbach's  $\alpha = 0.90$ ) and correlated significantly with antifat attitudes but was not a completely overlapping construct ( $r = 0.31$ ). The scale showed strong partial correlations with self-esteem ( $r = -0.67$ ), drive for thinness ( $r = 0.47$ ), and body image concern ( $r = 0.75$ ), controlling for BMI. Internalized weight bias was also significantly correlated with measures of mood and eating disturbance. Multiple regression analyses were conducted using WBIS scores, antifat attitudes, and BMI as predictor variables of body image, mood, self-esteem, and binge eating. WBIS scores were found to significantly predict scores on each of these measures.

**Discussion:** The WBIS showed excellent psychometric properties and construct validity. The study highlights the importance of distinguishing antifat attitudes toward others from internalized weight bias, a construct that may be closely linked with psychopathology.

Weight bias has been shown to be a highly prevalent form of discrimination and is associated with a wide range of adverse effects for individuals who are overweight or obese. In a recent study, Carr and Friedman (1) reported that persons classified as obese were 40–50% more likely to experience major discrimination as a result of their weight status. Friedman *et al.* (2) found that  $>75\%$  of a sample of overweight and obese persons had experienced seven of eleven types of stigmatizing situations, ranging from being avoided to being physically attacked, at some point in their life. These stigmatizing situations have been shown to occur in a variety of contexts, including employment practices, medical and health settings, educational settings, and in housing markets and public accommodations (3).

Among those who are overweight or obese, the incidence of weight-based discrimination has been positively associated with depression, general psychiatric symptoms, and body image concern, and negatively associated with self-esteem (2,4,5). Among those overweight individuals who have faced discrimination, an association emerged between eating disturbance and a belief in weight-based stereotypes (6). However, this belief in weight-based biases may affect all overweight

individuals, not only those who have faced discrimination, through internalization of negative social messages about being overweight. Knowledge of how these internalized messages affect overweight individuals may help to address mixed results in our understanding of the development and/or maintenance of psychopathology seen in this group (e.g., refs. 7–9).

Much research examining weight bias has focused on the existence of antifat attitudes in the general population. Several measures of explicit antifat attitudes have been developed to examine the existence and correlates of weight bias, including the Antifat Attitudes Questionnaire (AAQ) (10), the Antifat Attitudes Test (11), and the Attitudes Toward Obese Persons and Beliefs About Obese Persons scales (12). These questionnaires have been used to measure weight bias in nonoverweight people, but they have begun to be used with samples of people who are overweight and obese (e.g., ref. 2). Studies using these scales have shown that antifat attitudes are held by both nonoverweight and overweight individuals (13) and that overweight persons do not hold more favorable attitudes toward other overweight persons (14). This finding of strongly held antifat attitudes among overweight adults has also been shown among overweight children (15).

<sup>1</sup>Department of Psychology, University of Hawai'i at Mānoa, Honolulu, Hawaii, USA. Correspondence: Laura E. Durso ([ldurso@hawaii.edu](mailto:ldurso@hawaii.edu))

In using traditional measures of weight bias for individuals who are themselves overweight, the assumption has been made that measuring these individuals' biased attitudes about obesity is synonymous with measuring self-stigma. Thus for someone who is overweight, a score on traditional measures of antifat attitudes which reflects a bias is seen as an internalized attitude about the self. However, the endorsement of an item on traditional antifat bias measures may simply indicate biased beliefs about other overweight individuals, as previous measures of antifat attitudes do not assess whether an individual believes that negative attributions about obesity are true of himself or herself.

The present study sought to define and investigate the internalization of weight bias as a construct that may be distinct from antifat attitudes and one that may not be adequately measured by antifat attitudes scales. The key feature that may distinguish internalization of weight bias from antifat attitudes is the type of attribution made. Specifically, antifat attitudes are attributions made about the "other" whereas internalization of weight bias consists of attributions made about the "self." We hypothesize that these "self" attributions have a harmful influence on the individual who makes them.

Internalization of weight bias is also hypothesized in the present study to be distinct from body image, a multidimensional construct that includes evaluation of and investment in one's physical characteristics (16). Internalized weight bias is different from body image in that it is not a measure of one's internal feelings about one's body—for example, its individual characteristics or how it compares to other persons' bodies—but is a measure of belief in social stereotypes relating to obesity and negative self-evaluations due to one's weight. These stereotypes include evaluation of one's body weight and shape but are not limited to them. For example, an individual may have poor body image, but that individual may not associate that body image with his or her concept of identity or with a belief that he or she deserves respect from others. And while weight bias internalization may relate to self-esteem, it is a more specific measure of an individual's beliefs about himself or herself that relate directly to stereotypes about weight and shape. Internalization of weight bias may influence an individual's self-esteem but may be associated with different types or degrees of functional impairment and may have differential impact for different populations.

Given these operational definitions, the present study was undertaken to present psychometric data on a questionnaire designed to measure internalization of weight biases in persons who self-identify as overweight or obese, called the Weight Bias Internalization Scale (WBIS). In addition, this study examined several psychosocial correlates of internalization of weight bias, including mood and self-esteem, and expanded on previous research on internalized weight bias (2,5) by assessing its relationship to body image and eating disturbance. It was hypothesized that the WBIS would be a reliable and valid measure and that weight bias internalization would be associated with greater psychopathology.

## METHODS AND PROCEDURES

### Participants

Participants were 229 self-referred Internet users, aged >18 years, who completed an anonymous online survey. All participants were presented with a battery of questionnaires. However, only those participants who self-identified as being "slightly overweight," "overweight," or "extremely overweight" on the demographics questionnaire were presented with the WBIS.

### Procedure

All questionnaires for this study were uploaded and presented on the online service, SurveyMonkey.com (<http://www.surveymonkey.com>). The ability of the Internet to provide adequately random samples has been justified in previous research (17). Participants were recruited via e-mail announcement by targeted recruitment to obesity-related discussion groups on Yahoo.com and Google.com and to colleagues of the researchers asking them to forward it to their classes and/or social networks. Discussion groups were selected for size (>100 members) and, to reduce potential biases in sample characteristics, could not be a political or advocacy group for weight-related issues. Information about the survey was also posted to one of the most popular websites for Internet-based psychological research (according to Google.com and Yahoo.com), the Hanover College Department of Psychology's "Psychological Research on the Net."

### Measures

A demographics questionnaire gathered information about participants' age, gender, ethnicity, height, weight, and self-identified current weight status. Self-identified weight status was assessed using a 7-point Likert scale which asked the question, "How would you describe your weight" and gave responses ranging from 1 = "extremely underweight" to 7 = "extremely overweight."

**WBIS.** The WBIS was created by the authors to measure the degree to which a respondent believes that negative stereotypes and negative self-statements about overweight and obese persons apply to him or her. These items were modeled after questions from previously established measures of antifat attitudes (11) and internalized homonegativity (18–21), or the degree to which a gay person directs negative societal attitudes about homosexuality toward the self (22). Items were designed to address several content areas: acceptance or rejection of weight status, desire for change, effect of perceived weight status on mood, perceived personal value, ease of life, public appearance and social interaction, and recognition of the existence and unfairness of weight stigma. The original items were carefully reviewed by the authors and a number of their associates to assess their face validity and clarity. The final version administered to participants consisted of 19 items. Respondents were asked to rate their agreement with each item on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree."

**AAQ.** To test the construct validity of the WBIS, obese participants completed a traditional measure of antifat bias, the AAQ (10). This scale is a 13-item measure reflecting dislike of obese persons, fear of fat, and beliefs about the controllability of weight. Items include such statements as, “I have a hard time taking fat people too seriously,” and respondents are asked to rate their agreement with the statements on a 0–9 Likert scale. For the present study, the 7-item Dislike subscale was selected to test the construct validity of the WBIS. Internal consistency (Cronbach’s  $\alpha$ ) of the Dislike subscale in the present sample was 0.77, and the scale mean was 2.53 (s.d. = 1.42), marginally higher than the original sample of men and women (means = 2.47 and 1.85, respectively (10)).

**Self-esteem and mood.** Participants were given the Rosenberg Self-Esteem Scale (RSE) (23) and the Depression Anxiety Stress Scale (24) to test the WBIS’s convergent validity as well as to examine the relationship between internalized weight bias and self-esteem and mood disturbance. The RSE is a widely used measure of self-esteem which asks for respondents’ degree of agreement with 10 statements such as “I feel that I have a number of good qualities.” In the present sample, the RSE had a Cronbach’s  $\alpha$  level of 0.88 (mean = 3.06, s.d. = 0.55). A recent sample of overweight and obese persons reported a total score mean of 29.64 (s.d. = 6.12) (ref. 2), which when divided by item total is similar to the current sample mean. The 21-item version of the Depression Anxiety Stress Scale (DASS-21) was used as a measure of participants’ mood disturbance. It consists of three subscales and also produces a total score reflecting core symptoms of depression, anxiety, and stress. Cronbach’s  $\alpha$  for the present sample was 0.92 (mean = 1.80, s.d. = 0.57). Total score mean for the 21-item measure in a nonclinical sample has been reported at 2.28 (ref. 25).

**Body image and eating disorder pathology.** Participants also completed the Short Version of the Body Shape Questionnaire (BSQ) (26,27), the Eating Disorder Diagnostic Scale (EDDS) (28), and the Drive for Thinness subscale of the Eating Disorders Inventory (DFT) (29) to examine the relationship of internalized weight bias to eating-related pathology. The short version of the BSQ is a 14-item measure of satisfaction and concern with body shape using a 6-point response format ranging from *never* to *always* (sample item: “Have you felt ashamed of your body?”). In the present sample, Cronbach’s  $\alpha$  was 0.96 (mean = 4.01, s.d. = 1.34). This is the first use of the 14-item version of the BSQ in an overweight sample; Rosen *et al.* (30) report total score means for the 34-item measure among obese persons in body image therapy and obese dieters as 135.6 and 123.1, respectively. The EDDS is a brief self-report questionnaire that provides information about symptoms of eating disorders for diagnostic purposes. Frequency of binge eating was assessed by two EDDS questions—average number of times per week over the past 3 months and the average number of days per week over the past 6 months that an individual had a binge episode. Participants were also asked if ever in the past 6 months they had eaten an unusually large amount of food and/or experienced a

loss of control while eating. The Drive for Thinness scale is a 7-item scale that measures restrictive tendencies in eating and weight behaviors and cognitions (e.g., “I am terrified of gaining weight”). Cronbach’s  $\alpha$  for the DFT scale in the current sample was 0.85 (mean = 3.30, s.d. = 1.80). Using original scoring criteria (29), in the current sample the mean total score was 7.73 (s.d. = 6.42), comparable to the mean total score found in the original test sample of obese women (mean = 8.3 (ref. 29)).

These procedures were approved by the University of Hawaii Institutional Review Board, and all participants gave informed consent. To reduce the risk of Type I error, a test  $\alpha$  level of 0.01 was used for all analyses.

## RESULTS

### Sample characteristics

In total, 519 people responded to the online recruitment efforts. Forty-four of these individuals had misclassified themselves as overweight when their BMI indicated that they were not; to ensure sample homogeneity, these individuals were excluded from the sample. Twenty-one individuals whose BMI was  $\geq 25 \text{ kg/m}^2$  rated themselves as “slightly underweight” or “normal weight” and were not presented the WBIS items. Using these criteria, 198 participants were retained for the final study sample, which consisted of 164 women and 34 men between the ages of 18 and 67 (mean age = 30.53). Males and females did not differ on WBIS scores ( $t(154) = 1.89$ , n.s.). Given the much larger number of female participants, the correlation and regression analyses were run with and without the male participants. These tests yielded identical results and thus all participants were run together.

Mean BMI in this final sample was 33.21 (s.d. = 8.58; range: 25.02–79.71). On the basis of the World Health Organization classification of BMI, 86 participants were classified as overweight, and 112 as obese. Sixty-seven participants rated themselves as being “slightly overweight,” 81 participants said they were “overweight,” and 28 as “extremely overweight.”

The sample was 75.4% white, 14.7% African American, 3.7% Biracial or Mixed Race, 3.7% Hispanic, 2.1% Asian American, and 0.5% Native American. Participants came from 38 US states and the District of Columbia, with eight participants from Canada, three from the United Kingdom, and one participant each from Norway, India, and New Zealand.

### Test construction: reliability

Cronbach’s  $\alpha$  for the 19-item measure was calculated at 0.85. Item-total correlations were calculated and items were removed from the analysis if the item-total correlation was  $\leq 0.40$  (ref. 31) (Table 1). Using the empirically derived method discussed in Smith and McCarthy (31), six of the items were deleted from the measure, and the remaining 13 items yielded an internal consistency estimate of 0.90.

To further test whether the scale items were assessing the same construct, principal component analysis with a VARIMAX rotation was conducted on the 13-item scale (based on criteria described in (32)) using the SPSS Statistical Software package (SPSS, Chicago, IL). Items clustered around two components

**Table 1 Scale items**

Scale item	Item mean	s.d.	Item-total correlation	Final scale Item-total correlation	Final scale factor loading
1. It's my fault that I am overweight	5.62	1.39	0.24	—	—
2. As an overweight person, I feel that I am just as competent as anyone <sup>a,b</sup>	2.43	1.69	0.47	0.43	0.50
3. I am less attractive than most other people because of my weight <sup>b</sup>	4.96	1.88	0.54	0.60	0.68
4. I feel anxious about being overweight because of what people might think of me <sup>b</sup>	4.94	1.90	0.64	0.72	0.79
5. I wish I could drastically change my weight <sup>b</sup>	5.83	1.48	0.53	0.57	0.65
6. If only I had more willpower I wouldn't be the weight that I am	5.14	1.76	0.34	—	—
7. Whenever I think a lot about being overweight, I feel depressed <sup>b</sup>	5.03	1.92	0.63	0.71	0.78
8. I feel that being overweight doesn't interfere with my ability to be a good and decent person <sup>a</sup>	1.83	1.43	0.17	—	—
9. I hate myself for being overweight <sup>b</sup>	3.53	2.14	0.70	0.73	0.80
10. My weight is a major way that I judge my value as a person <sup>b</sup>	3.27	1.98	0.69	0.70	0.77
11. I don't feel that I deserve to have a really fulfilling social life, as long as I'm overweight <sup>b</sup>	2.28	1.66	0.63	0.56	0.63
12. I am OK being the weight that I am <sup>a,b</sup>	5.02	1.82	0.48	0.54	0.62
13. As an overweight person, I feel that I am just as deserving of respect as anyone <sup>a</sup>	1.74	1.31	0.44	—	—
14. It really bothers me that people look down on overweight people <sup>a</sup>	2.17	1.41	−0.04	—	—
15. Because I'm overweight, I don't feel like my true self <sup>b</sup>	4.58	2.00	0.67	0.68	0.75
16. I feel that being an overweight person does not make me unworthy of a loving relationship <sup>a</sup>	2.40	1.93	0.10	—	—
17. Because of my weight, I don't understand how anyone attractive would want to date me <sup>b</sup>	3.85	2.19	0.61	0.67	0.74
18. I believe that society's prejudice against overweight people is unfair <sup>a</sup>	2.23	1.39	0.07	—	—
19. If other people don't treat me with respect, I should put up with it because of my weight	1.73	1.28	0.40	—	—

<sup>a</sup>Reverse scored. <sup>b</sup>Retained in final scale.

(as defined by Eigenvalues >1), with component 1 explaining 44.86% of the variance in scores (Eigenvalue = 5.83) and component 2 accounting for 13.14% of the variance (Eigenvalue = 1.70). Though designed to access several content domains, internalized weight bias was hypothesized to be a single construct. Because of the low variance accounted for by component 2 and the hypothesized unidimensional construct, confirmatory factor analysis was used to examine whether the two components could be collapsed into a single factor. Component extraction was set for one factor. Factor loadings for each item as well as visual analysis of the scree plot demonstrated that the 13-items could be represented by a single factor. Two items (13 and 19) were dropped from the scale because of low-to-moderate factor loadings (<0.50) resulting in a final 11-item scale representing a single component (Eigenvalue = 5.42). The mean (s.d.) of the final 11-item scale was 3.95 (1.28), with a range of 1.33–6.50 and an internal consistency of 0.90.

#### Test construction: validity

Using Pearson product-moment correlation, the 11-item WBIS was significantly correlated with the Dislike subscale of

the Crandall AAQ (10) ( $r = 0.31$ ,  $P < 0.01$ ). To further demonstrate the construct validity of the WBIS, the correlations of both the WBIS and the Dislike subscale of the AAQ with other study measures were also examined. WBIS scores were significantly correlated with scores from the Drive for Thinness subscale of the Eating Disorders Inventory, the BSQ, and the RSE and showed no significant correlation with BMI. Pearson correlations and partial correlations (controlling for BMI) between the WBIS and each measure are presented in [Table 2](#).

#### Correlations with psychopathology

[Table 2](#) also shows correlations between WBIS scores and the measures of psychopathology. WBIS scores showed a significant and strong positive relationship to total mean score on the DASS-21. WBIS mean scores showed positive correlations with both the 3-month and 6-month ratings of binge eating frequency. Results from an independent samples *t*-test demonstrated that those participants who endorsed having had an episode of binge eating in the past 6 months had significantly higher WBIS scores than those participants who had never had a binge episode ( $t(146) = 4.17$ ,  $P < 0.001$ ).

### Regression analyses

The results of multiple regression analyses are presented in Table 3. Hierarchical linear regression was used to demonstrate the proportion of variance accounted for by the WBIS

**Table 2 Correlations and partial correlations—Weight Bias Internalization Scale (WBIS) with Study measures**

Scale	Correlation	Partial correlation <sup>a</sup>
Antifat Attitudes Questionnaire Dislike subscale	0.31*	0.32*
Body Shape Questionnaire	0.74*	0.75*
Drive for Thinness subscale	0.47*	0.48*
Rosenberg Self-Esteem scale	−0.68*	−0.67*
Depression Anxiety Stress scales	0.51*	0.50*
Frequency of Binge Eating		
Past 3 months	0.25*	0.24*
Past 6 months	0.32*	0.31*
BMI	0.15	

<sup>a</sup>Controlling for BMI. \* $P < 0.01$ , two-tailed test.

and its significance relative to the other independent variables (BMI and the AAQ Dislike subscale scores). Block 1 included BMI and Dislike subscale scores, and Block 2 included BMI, AAQ Dislike subscale scores, and WBIS scores. As shown in Table 3, the model predicted 57% of the variance in scores on the BSQ, 26% of the variance on DASS-21 scores, and 47% of the variance in RSE scores. When the model was used to predict frequency of binge eating, the model predicted 7% of the variance in binge eating frequency over the past 3 months and 11% of the variance in binge eating frequency over the past 6 months. Table 3 also presents data showing that WBIS scores significantly contributed to variance in scores on each measure of psychopathology and self-esteem over and above the variance contributed by AAQ scores and BMI. For all dependent measures,  $R^2$  change was significant ( $P < 0.01$ ).

### DISCUSSION

Results from the present study demonstrate the excellent psychometric properties of the WBIS in an overweight and obese community sample. Scale and item analysis demonstrated that the WBIS is a highly internally consistent questionnaire that

**Table 3 Summary of multiple regression analyses**

Dependent variable	Model $R^2$	$F$	Block	$R^2$ change	$F$ change	Independent variables	Standardized $\beta$
BSQ	0.57	60.80*	1	0.04	2.96	BMI	0.02
						Dislike	0.20
			2	0.53	169.40*	BMI	−0.10
						Dislike	−0.04
DASS-21	0.26	16.49*	1	0.05	3.71	WBIS scores <sup>a</sup>	0.77*
						BMI	0.13
			2	0.21	39.95*	Dislike	0.19
						BMI	0.05
RSE	0.47	41.31*	1	0.11	8.58*	Dislike	0.03
						WBIS scores <sup>a</sup>	0.49*
			2	0.36	95.21*	BMI	−0.18
						Dislike <sup>a</sup>	−0.27*
Binge Eating Frequency (past 3 months)	0.07	3.48*	1	0.03	2.05	BMI	−0.09
						Dislike	−0.07
			2	0.04	6.21*	WBIS scores <sup>a</sup>	−0.64*
						BMI	0.07
Binge Eating Frequency (past 6 months)	0.11	5.85*	1	0.03	2.03	Dislike	0.15
						WBIS scores <sup>a</sup>	0.21*
			2	0.08	13.15*	BMI	0.04
						Dislike	0.08
						WBIS scores <sup>a</sup>	0.13
						Dislike	0.10
						WBIS scores <sup>a</sup>	<0.01
						BMI	0.31*

Binge Eating Frequency measured by Eating Disorder Diagnostic Scale items for frequency of binge eating over past 3 months and 6 months.

Block 1, BMI and Dislike subscale; Block 2, BMI, Dislike subscale, Weight Bias Internalization scores; BSQ, Body Shape Questionnaire; DASS-21, Depression Anxiety Stress Scales; Dislike, Dislike subscale of the Antifat Attitudes Questionnaire; RSE, Rosenberg Self-Esteem Questionnaire; WBIS, Weight Bias Internalization Scale.

<sup>a</sup>Significant predictor. \* $P < 0.01$ .

provides a concise measure of internalized weight bias in individuals who are overweight or obese. Validity testing suggests that internalized weight bias is a construct that is related to but distinct from antifat attitudes, and that it correlates with additional measures thought to relate to antifat attitudes, body image, and drive for thinness.

An objective of the present investigation was to explore the relationship between internalized weight bias and several measures of psychopathology. This study showed similar results to previous research by demonstrating a relationship between weight bias and self-esteem, mood states, and body image concern (2,5). While previous studies only measured attitudes toward other people who are overweight, the present results suggest that the more highly one has internalized weight bias, the greater one's body image concern, depression, anxiety, stress, and self-esteem. Extending previous research, this study also demonstrated that higher levels of weight bias internalization are related to greater eating disturbance, including higher levels of drive for thinness as well as more frequent binge eating episodes. An additional interesting finding was that WBIS scores did not correlate with BMI, suggesting that the degree of internalization of weight bias does not depend on an individual's degree of overweight.

Regression data demonstrated that internalized weight bias can significantly predict individual variation on measures of psychopathology and self-esteem. In this sample, an individual's level of internalized weight bias predicted binge eating frequency, self-esteem, dysfunctional mood states, and most strongly predicted body image concern. Importantly, these results demonstrated that internalized weight bias contributed to the variance on these measures above and beyond the variance accounted for by a measure of antifat attitudes or BMI. Indeed, internalized weight bias was the only significant predictor in each of the models tested. These results support the hypothesis that internalized weight bias is not a redundant construct with antifat attitudes and may in fact be a better gauge than traditional antifat attitude questionnaires of the negative effects of biased attitudes among individuals who identify as overweight or obese.

Though the sampling method yielded a wide variety of participants, two important limitations should be noted. First, the sample was made up of significantly more female than male participants. This may have resulted from the description of the study being more appealing to female than male participants, leading to more self-selection by women. Second, in order to gather participants for this survey, recruitment efforts were targeted to obesity-related discussion groups in addition to more general postings. There may be differences between those overweight persons who choose to affiliate themselves with an online forum and those who do not, and the data may not be generalizable to the latter group. That the WBIS scores were of a wide range suggests that the present participants did vary in their levels of internalization and that the results may therefore be generalizable to the larger population of individuals who identify as overweight or obese. Still, replication of these results in additional samples is necessary to be assured of the scale's external validity.

Though confirmatory factor analysis indicated that internalized weight bias could be considered unidimensional, there may still be distinct components to the construct which may have different relationships with psychological functioning. For example, research is needed to test whether scale items which address social stereotypes of obesity can be considered to be part of the same construct as items which address affective responses to being overweight and whether these components have different relationships to psychopathology. Future research using this scale may target specific overweight groups, such as treatment-seeking individuals or members of organizations such as the National Association for the Advancement of Fat Acceptance, and examine the correlates of internalized weight bias. Other research may look to identify protective factors which prevent internalization or moderate its effects. Still other designs may examine histories of weight-based discrimination to see whether internalized weight bias is associated with actual events and whether it makes an individual more vulnerable to the negative effects of discrimination. Linking internalized weight bias to actual discriminatory experiences would further validate this construct; internalization might also help to explain why some individuals may be at greater risk than others of harmful consequences resulting from discrimination. Results presented here offer some parallels to research examining correlates of other forms of internalized bias, such as the finding that internalized homophobia is related to binge eating among gay men (33). Future research is needed to explore the relationship between internalized weight bias and health outcomes, in line with research conducted on internalized racism and cardiovascular disease (34). At present, the results discussed here suggest the importance of further examination of internalized weight bias as a construct that may have a significant impact on the mental health of persons who self-identify as overweight or obese.

#### DISCLOSURE

The authors declared no conflict of interest.

© 2008 The Obesity Society

#### REFERENCES

1. Carr D, Friedman MA. Is obesity stigmatizing? Body weight, perceived discrimination, and psychological well-being in the United States. *J Health Soc Behav* 2005;46:244–259.
2. Friedman KE, Reichmann SK, Costanzo PR *et al*. Weight stigmatization and ideological beliefs: relation to psychological functioning in obese adults. *Obes Res* 2005;13:907–916.
3. Puhl R, Brownell KD. Bias, discrimination and obesity. *Obes Res* 2001;9:788–805.
4. Crocker J, Cornwell B, Major B. The stigma of overweight: affective consequences of attributional ambiguity. *J Pers Soc Psychol* 1993;64:60–70.
5. Myers A, Rosen JC. Obesity stigmatization and coping: relation to mental health symptoms, body image, and self-esteem. *Int J Obes Relat Metab Disord* 1999;23:221–230.
6. Puhl R, Moss-Racusin CA, Schwartz MB. Internalization of weight bias: implications for binge eating and emotional well-being. *Obesity (Silver Spring)* 2007;15:19–23.
7. Scott KM, Bruffaerts R, Simon GE *et al*. Obesity and mental disorders in the general population: results from the world mental health surveys. *Int J Obes (Lond)* 2008;32:192–200.
8. Telch CF, Agras WS. Obesity, binge eating and psychopathology: are they related? *Int J Eat Disord* 1994;15:53–61.

9. Wardle J, Cooke L. The impact of obesity of psychological well-being. *Best Prac Res Clin Endocrinol Metab* 2007;19:421–440.
10. Crandall CS. Prejudice against fat people: ideology and self-interest. *J Pers Soc Psychol* 1994;66:882–894.
11. Lewis RJ, Cash TF, Jacobi L, Bubbs-Lewis C. Prejudice toward fat people: the development and validation of the antifat attitudes test. *Obes Res* 1997;5:297–307.
12. Allison DB, Basile VC, Yunker HE. The measurement of attitudes toward and beliefs about obese persons. *Int J Eat Disord* 1991;10:599–607.
13. Crandall CS, Reser AH. *Attributions and Weight-Based Prejudice*. Guilford Publications: New York, NY, 2005.
14. Wang SS, Brownell KD, Wadden TA. The influence of the stigma of obesity on overweight individuals. *Int J Obes Relat Metab Disord* 2004;28:1333–1337.
15. Puhl RM, Latner JD. Stigma, obesity, and the health of the nation's children. *Psychol Bull* 2007;133:557–580.
16. Cash TF. Body-image attitudes: evaluation, investment, and affect. *Percept Mot Skills* 1994;78:1168–1170.
17. Gosling SD, Vazire S, Srivastava S, John OP. Should we trust web-based studies? A comparative analysis of six preconceptions about internet questionnaires. *Am Psychol* 2004;59:93–104.
18. Herek GM, Cogan JC, Gillis JR, Glunt EK. Correlates of internalized homophobia in a community sample of lesbians and gay men. *J Gay Les Med Assoc* 1997;2:17–25.
19. Mohr J, Fassinger R. Measuring dimensions of lesbian and gay male experience. *Meas Eval Couns Devel* 2000;33:66–90.
20. Ross MW, Rosser BRS. Measurement and correlates of internalized homophobia: a factor analytic study. *J Clin Psychol* 1996;52:15–21.
21. Szymanski DM, Chung YB. The lesbian internalized homophobia scale: a rational/theoretical approach. *J Homosex* 2001;41:37–52.
22. Meyer IH. Minority stress and mental health in gay men. *J Health Soc Beh* 1995;36:38–56.
23. Rosenberg M. *Conceiving the Self*. Basic Books: New York, 1979.
24. Lovibond PF, Lovibond SH. The structure of negative emotional states: comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behav Res Ther* 1995;33:335–343.
25. Antony MA, Bieling P, Cox BJ, Enns MW, Swinson RP. Psychometric properties of the 42-item and 21-item versions of the depression anxiety stress scales in clinical groups and a community sample. *Psychol Assess* 1998;10:176–181.
26. Dowson J, Henderson L. The validity of a short version of the body shape questionnaire. *Psychiatry Res* 2001;102:263–271.
27. Cooper PJ, Taylor MJ, Cooper Z, Fairburn CG. The development and validation of the body shape questionnaire. *Int J Eat Disord* 1987;6:485–494.
28. Stice E, Telch CF, Rizvi SL. Development and validation of the eating disorder diagnostic scale: a brief self-report measure of anorexia, bulimia, and binge-eating disorder. *Psychol Assess* 2000;12:123–131.
29. Garner DM, Olmstead MP, Polivy J. Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *Int J Eat Disord* 1983;2:15–34.
30. Rosen JC, Jones A, Ramirez E, Waxman S. Body shape questionnaire: studies of reliability and validity. *Int J Eat Disord* 1996;20:315–319.
31. Smith GT, McCarthy DM. Methodological considerations in the refinement of clinical assessment instruments. *Psychol Assess* 1995;7:300–308.
32. Floyd FJ, Widaman KF. Factor analysis in the development and refinement of clinical assessment instruments. *Psychol Assess* 1995;7:286–299.
33. Reilly A, Rudd NA. Is internalized homonegativity related to body image. *Fam Consum Sci Res J* 2006;35:58–73.
34. Wyatt SB, Williams DR, Calvin R et al. Racism and cardiovascular disease in African Americans. *Am J Med Sci* 2003;325:315–331.