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Eating Behaviors

Weight bias internalization in treatment-seeking overweight adults: Psychometric validation and associations with self-esteem, body image, and mood symptoms

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A B S T R A C T

Internalized weight bias has been previously associated with impairments in eating behaviors, body image, and psychological functioning. The present study explored the psychological correlates and psychometric properties of the Weight Bias Internalization Scale (WBIS) among overweight adults enrolled in a behavioral weight loss program. Questionnaires assessing internalized weight bias, anti-fat attitudes, self-esteem, body image concern, and mood symptoms were administered to 90 obese or overweight men and women between the ages of 21 and 73. Reliability statistics suggested revisions to the WBIS. The resulting 9-item scale was shown to be positively associated with body image concern, depressive symptoms, and stress, and negatively associated with self-esteem. Multiple linear regression models demonstrated that WBIS scores were significant and independent predictors of body image concern, self-esteem, and depressive symptoms. These results support the use of the revised 9-item WBIS in treatment-seeking samples as a reliable and valid measure of internalized weight bias.

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1. Introduction

Obesity stigma is well-documented as pervasive and harmful (Puhl & Heuer, 2009). One of the most harmful consequences of weight-based prejudice is obese individuals' internalization of society's negative beliefs about being overweight. Internalized weight bias, the degree to which overweight and obese persons believe that weight-based stereotypes are true of themselves, has been shown to be distinct from the biased attitudes that individuals may hold about other obese people (i.e. anti-fat attitudes; Durso & Latner, 2008). These negative self-beliefs are associated with impairments in eating behaviors, body image, and psychological functioning (Carels et al., 2010; Durso & Latner, 2008; Durso et al., 2012; Puhl, Moss-Racusin, & Schwartz, 2007).

The development of the Weight Bias Internalization Scale (WBIS) has enabled researchers to examine the implications of this important construct in overweight and obese individuals (Durso & Latner, 2008). The WBIS has been examined in studies with overweight and obese clinical populations, including adults seeking treatment for binge eating disorder (BED; Durso et al., 2012), adolescent bariatric surgery patients (Roberto et al., 2012), weight loss treatment-seeking adults (Carels et al., 2010), and adult patients with schizophrenia enrolled in weight

loss treatment (Barber, Palmese, Reutenauer, Grilo, & Tek, 2011). Collectively, these studies suggest that elevated internalized weight bias is related to body image concern (Carels et al., 2010; Durso & Latner, 2008), eating, weight/shape concerns (Durso et al., 2012; Roberto et al., 2012), depressive symptoms (Barber et al., 2011; Durso et al., 2012; Roberto et al., 2012), anxiety symptoms (Roberto et al., 2012), poor self-esteem (Durso & Latner, 2008; Durso et al., 2012), quality of life impairment (Barber et al., 2011; Roberto et al., 2012) and adolescent behavioral problems (Roberto et al., 2012). However, further research is needed to examine the psychometric properties, reliability, and construct validity of the WBIS in one of the populations for which it is arguably most relevant — individuals receiving treatment for obesity.

Research previously validated the WBIS by demonstrating its contribution to the variance in psychopathology above and beyond the contribution of general anti-fat attitudes, demonstrating the distinction between attitudes about the self and attitudes about others regarding weight (Durso & Latner, 2008). In addition, research has highlighted that negative attitudes about one's weight are more important than actual body weight in contributing to psychopathology and health (Muennig, Jia, Lee, & Lubetkin, 2008; Wilson, Latner, & Hayashi, 2013). Additional research is needed to examine the relative contributions of anti-fat attitudes, BMI, and internalized weight bias to psychopathology in treatment-seeking samples.

Therefore, the present study examined internalized weight bias among adults enrolled in behavioral weight-loss treatment. It is

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particularly important to validate the WBIS in clinical samples, as greater internalized bias may be a component of the elevated psychopathology that has been shown in clinical samples of obese patients relative to community samples of obese adults (e.g., Fitzgibbon, Stolley, & Kirschenbaum, 1993). We hypothesized that within a treatment-seeking sample of overweight adults, 1) the WBIS would be an internally consistent measure and represent a unidimensional construct as demonstrated previously (e.g., Durso & Latner, 2008); 2) levels of internalized weight bias would be elevated among those seeking behavioral weight loss treatment, as compared to a previously assessed community sample of overweight adults; 3) greater internalized weight bias would be related to higher levels of anti-fat attitudes, depressive symptoms, anxiety, body image concern, and to poor self-esteem; and 4) WBIS scores would significantly and independently predict self-esteem, depressive symptoms, anxiety, and body image concern, over and above the contribution of anti-fat attitudes (negative attitudes towards others) and body mass index (BMI; kg/m^2).

2. Materials and methods

2.1. Participants and procedures

2.1.1. Participants

Participants for this study were 90 obese or overweight men and women between the ages of 21 and 73, with a BMI over 27 kg/m^2, enrolling in a randomized controlled trial of behavioral weight loss treatment. Participants were recruited from community organizations, such as Young Men's Christian Association clubs, and local churches and other religious organizations. Participants were excluded from participation in the study if they were currently in another weight control program, if they had a current or past obesity-related or other medical health disorder (e.g., diabetes), if they were taking medications affecting weight and had not been on a stable dose for at least two months, if they had a current or past severe psychiatric disorder, or if they had been pregnant in the past year or were planning to become pregnant.

2.1.2. Procedure

The present study measures were collected during baseline assessment. All individuals completed the questionnaires described below, and participant weight was measured using a digital scale (Tanita, Inc.), and height was measured using a stadiometer.

2.2. Measures

2.2.1. The Weight Bias Internalization Scale (WBIS)

The WBIS (Durso & Latner, 2008) measures the degree to which a respondent believes that negative stereotypes and negative self-statements about being overweight or obese apply to oneself. Respondents are asked to rate their agreement with each of 11 items on a 7-point scale from "*strongly disagree*" to "*strongly agree*" (e.g., "Because I'm overweight, I don't feel like my true self"). The WBIS was found to have high internal consistency (Cronbach's alpha = .90) and good convergent validity in a community sample of overweight and obese adults (Durso & Latner, 2008).

2.2.2. The Antifat Attitudes Questionnaire (AAQ)

The AAQ Dislike scale (Crandall, 1994) is a 7-item measure reflecting dislike of obese persons. This scale was chosen as a measure of weight bias in the current study in order to replicate the analyses from the first examination of the psychometric properties of the WBIS (Durso & Latner, 2008). 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 to 9 Likert scale. Initial validation indicated good reliability and construct validity of this scale (Crandall, 1994). Cronbach's alpha in the present sample was 0.77 for the Dislike scale. Only the dislike subscale was used; the other two subscales in

this measure, Willpower and Fear of Fat, assess other aspects of weight-related attitudes (blame, and personal fear of weight gain, respectively) and were not considered relevant to the current study.

2.2.3. The Rosenberg Self-Esteem Scale (RSE)

The RSE (Rosenberg, 1979) is a widely used measure of self-esteem that asks for respondents' degree of agreement with 10 statements such as "I feel that I have a number of good qualities," using a 4-point scale ranging from "*strongly disagree*" to "*strongly agree*." Extensive research has been conducted on the psychometric properties of the RSE, including demonstrations of its discriminant and convergent validity (Lucas, Diener, & Suh, 1996) and external validity (Schmitt & Allik, 2005). Cronbach's alpha was 0.88 in the present sample.

2.2.4. Depression Anxiety Stress Scales (DASS)

The DASS (Lovibond & Lovibond, 1995) was used as a measure of participants' depressive symptoms, level of anxiety, and perceived stress. Respondents rate the degree to which each of 21 statements applied to him/her over the past week. Item responses fall along a 4-point Likert scale, with agreement ranging from "*Did not apply to me at all*" to "*Applied to me very much, or most of the time*." Previous research has demonstrated the concurrent validity of the 21-item version of the DASS by reporting significant associations between the DASS and established measures of depression and anxiety (Antony, Bieling, Cox, Enns, & Swinson, 1998). In the present sample, Cronbach's alpha was 0.87 for the Depression subscale, 0.78 for the Anxiety subscale and 0.84 for the Stress subscale.

2.2.5. The Body Shape Questionnaire (BSQ)

The 14-item version of the BSQ is a measure of satisfaction and concern with body shape which has shown good construct validity (Cooper, Taylor, Cooper, & Fairburn, 1987; Dowson & Henderson, 2001). Item responses fall on a 6-point scale ranging from "*never*" to "*always*" (sample item: "Have you felt ashamed of your body?"). Cronbach's alpha in the present sample was 0.95.

These procedures were approved by the University of Hawai'i Institutional Review Board, and all participants gave informed consent.

2.3. Statistical analyses

To address the study's first hypothesis, Cronbach's alpha estimate of internal consistency was calculated to assess the reliability of the WBIS in the present sample. Confirmatory factor analysis using maximum likelihood estimation was conducted to test whether the WBIS items represent a unidimensional construct. To address the study's second hypothesis, that mean WBIS scores would be higher among a treatment-seeking sample as compared to a community sample, the mean WBIS score from the present study was compared to mean scores from a community sample using an independent samples t-test (Durso & Latner, 2008). Two demographic variables, age and BMI, were also compared across the two samples.

To address the study's third and fourth hypotheses, Pearson product–moment correlations were calculated between mean WBIS scores and mean AAQ Dislike scores, mean DASS scores, mean BSQ scores, and mean RSE scores to examine the correlations between internalized weight bias and anti-fat attitudes, depressive symptoms, anxiety, body image concern, and self-esteem.

Finally, hierarchical linear regression analyses, using a block entry method, were used to test the study's fifth hypothesis by assessing the relative contributions of WBIS scores, AAQ Dislike scores, and BMI to the prediction of RSE scores, DASS scores, and BSQ scores. Specifically, a series of regression models were tested using WBIS mean scores, BMI, and AAQ Dislike subscale scores as independent predictors. BMI and AAQ Dislike subscale scores were entered in Block 1 and WBIS scores were added in Block 2 to determine the proportion of variance accounted for by the WBIS, relative to the other predictors. All statistical