

# Residual Obesity Stigma: An Experimental Investigation of Bias Against Obese and Lean Targets Differing in Weight-Loss History

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This study investigated stigma directed at formerly obese persons who lost weight and became lean (through behavioral or surgical methods), or lost weight but remained obese, relative to weight-stable obese and weight-stable lean persons. This study also compared stigma directed at obese persons following exposure to descriptions of persons who lost weight vs. remained weight stable. In a between-subject experimental design, participants ( $n = 273$ ) were randomly assigned to read vignettes describing targets varying across two dimensions, weight stability (i.e., weight stable or weight lost) and current weight (i.e., currently obese or currently lean). Participants completed measures of stigma against specific targets and measures of stigma against obese individuals in general. Lean individuals who were formerly obese were stigmatized more on attractiveness than weight-stable lean individuals, and as much as currently obese individuals. Stigma across domains was greater among currently obese individuals (regardless of whether they had lost weight from a higher weight) than among currently lean individuals. After reading vignettes describing weight loss, participants demonstrated greater obesity stigma than after reading vignettes describing weight-stable individuals. These results suggest that residual stigma remains against people who have previously been obese, even when they have lost substantial amounts of weight and regardless of their weight-loss method. Exposure to portrayals of the malleability of body weight, such as those promoted in the popular media, may significantly worsen obesity stigma.

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## INTRODUCTION

Obesity stigma is widespread (1), increasing over time (2,3), and associated with poorer psychological functioning and academic, employment, and relationship problems (4). According to controllability theory, the belief that obesity is within personal control may underpin obesity stigma (5–7). Media messages imply that people can easily control their body weight (8). Participants shown images from before-and-after diet advertisements display greater obesity stigma (9). Accordingly, it is reasonable to expect that obesity stigma should subside following substantial weight loss (6). Limited prospective research in obese treatment-seeking patients indicates decreased discrimination (10), increased positive attitudes from others (11), and improved functioning in psychosocial and health outcomes following weight loss (12–16).

Some research shows that formerly obese individuals who had become normal weight were rated as less lazy, more competent, and more likely to exercise and eat healthily, than weight-stable obese individuals (17). However, weight-loss method influenced judgments, with bariatric surgery patients judged

as being more sedentary, lazy, unattractive, and unhealthy than woman who lost weight through diet/exercise (18). But both groups were still considered less healthy than a weight-stable, lean woman. Thus, “residual stigma” may remain despite weight-loss.

Studies using reliable, multifaceted, and well-validated measures of stigma are needed to establish whether “residual stigma” exists toward obese persons who have lost weight. The present study used the universal measure of bias (UMB; 19) to assess stigmatizing attitudes toward targets who were weight-stable obese, weight-stable lean, had lost weight and become lean (through behavioral or surgical methods), or had lost weight (from a heavier baseline weight) but remained obese. We predicted more negative attitudes toward formerly obese individuals who had become lean (residual stigma) than toward weight-stable lean individuals. We also hypothesized that moderately obese individuals who lost weight and became lean would be less stigmatized than extremely obese individuals who lost the same amount of weight but remained obese.

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## METHODS AND PROCEDURES

## Participants

Participants ( $n = 273$ , mean (SD) age = 20.7 (3.72) years, BMI = 23.22 (4.92) kg/m<sup>2</sup>, 68.5% women) were psychology students who self-identified as Asian-American (41.4%), white (20.9%), Pacific-Islander (1.5%), Hispanic (1.1%), African-American (0.7%), or mixed ethnicity (33.3%). Eleven percent were underweight (BMI <18.5), 60.2% normal weight (BMI = 18.5–24.9), 21.2% overweight (BMI = 25–29.9), and 7.1% obese (BMI >30).

## Measures

**Vignettes.** Participants were randomly assigned to read one of five vignettes (experimental conditions) describing a 31-year-old female target, with all nonweight-related details matched across vignettes: (i) the target had been overweight all her life and never lost weight (weight-stable obese; her height and weight were provided to equal a BMI of 35.44); (ii) the target was normal weight and had never been overweight (weight-stable lean; BMI = 23.24); (iii) the target had previously been overweight but lost weight through bariatric surgery and is no longer overweight (weight-loss surgery; prior BMI = 35.44, current BMI = 23.24); (iv) the target had previously been overweight but had lost weight through diet and exercise (weight-loss-behavioral; prior BMI = 35.44, current BMI = 23.24); and (v) the target was currently overweight but had lost weight from a higher weight (unspecified weight-loss method; prior BMI = 47.63, current BMI = 35.44). Vignettes involving weight loss all described a loss of 31.78 kg (70 lbs). Thus, vignettes represented two dimensions: weight stability (i.e., weight-stable or lost weight) and current weight (i.e., currently obese or currently lean).

**UMB (stigma).** The 20-item UMB (19) assessed stigma toward each vignette's target (sample item: "I find people like [target's name] pleasant to look at"). The UMB has good convergent validity and internal consistency (19). Item responses range from 1 = strongly agree to 7 = strongly disagree; higher scores indicate stronger negative attitudes. The attraction (current  $\alpha = 0.82$ ), negative-judgment ( $\alpha = 0.84$ ), and distance ( $\alpha = 0.78$ ) subscales were used. Total UMB score was computed as the mean of these subscales ( $\alpha = 0.86$ ).

**Antifat Attitudes Questionnaire (AFA).** Crandall's 13-item AFA (9) assessed attitudes toward obese persons in general (sample item: "I don't like fat people much"). Responses range from 0 = very strongly disagree to 9 = very strongly agree; higher scores indicate stronger antifat attitudes. The dislike (current  $\alpha = 0.85$ ) and willpower ( $\alpha = 0.87$ ) subscales assessed obesity stigma and controllability beliefs, respectively.

## Statistical analyses

First, independent samples *t*-tests compared weight-loss surgery and weight-loss-behavioral groups on UMB attraction, distance, and negative-judgment, total UMB, and on AFA dislike and willpower. No significant differences emerged, and these weight-loss groups were combined. Dummy variables were assigned to each vignette group using a 2 × 2 classification: current weight (currently obese vs. currently lean) and weight stability (weight-stable vs. weight-lost). 2 × 2 Analyses of covariance were run on UMB attraction, distance, and negative-judgment, total UMB score, and AFA dislike and willpower as dependent variables. Covariates included BMI and gender, demographic variables previously associated with obesity stigma (20,21).

## RESULTS

For UMB attraction, a significant main effect emerged for current weight ( $F(5,261) = 48.73, P < 0.001$ ); currently obese targets were more stigmatized than currently lean targets (Table 1). The main effect for weight stability (trending toward greater stigma directed at targets who lost weight)

**Table 1 Means and SD of Universal Measure of Bias subscales and total score, and Antifat Attitudes Questionnaire subscales**

	Weight-stable		Weight loss	
	Currently obese	Currently lean	Currently obese	Currently lean
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
<i>UMB</i>				
Attraction	4.51 <sup>a</sup> (1.08)	3.24 <sup>b</sup> (.76)	4.43 <sup>a</sup> (1.07)	3.83 <sup>a</sup> (1.11)
Negative-judgment	2.62 (1.24)	2.90 (1.26)	2.90 (1.23)	3.01 (1.11)
Distance	2.73 (1.03)	2.69 (0.92)	2.84 (0.99)	2.75 (1.00)
Total	3.29 <sup>a</sup> (0.84)	2.94 <sup>b</sup> (0.74)	3.39 <sup>a</sup> (0.79)	3.20 <sup>b</sup> (0.87)
<i>AFA</i>				
Dislike	2.64 <sup>a</sup> (1.27)	2.58 <sup>a</sup> (1.61)	3.27 <sup>b</sup> (1.64)	2.92 <sup>b</sup> (1.61)
Willpower	6.39 (2.83)	6.15 (2.39)	6.19 (2.94)	6.25 (2.85)

Higher scores denote greater stigma. Within rows, mean scores with different superscript letters are significantly different at  $P < 0.05$  level.

AFA, Antifat Attitudes Questionnaire; UMB, universal measure of bias.

failed to reach significance ( $F(5,261) = 3.45, P = 0.065$ ). However, a significant interaction emerged for UMB attraction between current weight and weight stability ( $F(5,261) = 6.71, P = 0.014$ ), indicating that any targets depicted as ever having been obese, either currently or previously, were subject to increased stigma (or residual stigma) relative to those who had never been obese. Neither the main effects nor the interaction effect were significant for UMB negative-judgment or UMB distance.

For total UMB score, the main effect of current weight was significant ( $F(5,261) = 6.10, P = 0.014$ ), indicating greater weight stigma against currently overweight targets than against currently lean targets, but the main effect for weight stability (trending toward greater stigma directed at targets who lost weight) failed to reach significance ( $F(5,261) = 2.99, P = 0.085$ ); the interaction was not significant.

For AFA dislike, a significant main effect emerged for weight stability ( $F(5,261) = 5.74, P = 0.017$ ) indicating greater obesity stigma after participants read vignettes describing weight loss. For AFA willpower, neither the main effects nor the interaction effect were significant.

## DISCUSSION

Currently lean individuals with a history of obesity are judged as less attractive than weight-stable lean individuals. The finding that weight loss does not erase the stigma of obesity is consistent with prospective long-term studies showing lower earnings and occupational attainment in women who were previously overweight (22,23). However, stigma was reduced on the total UMB scale for obese individuals who had lost weight relative to weight-stable obese individuals. Participants exposed to descriptions of weight loss also demonstrated greater dislike of obese people in general. Thus, consistent with controllability theory, participants reminded of the malleability of body weight appear to

subsequently stigmatize obese individuals more than participants presented with weight-stability.

The finding that a formerly extremely obese individual who has reduced to moderate obesity is stigmatized as much as a weight-stable, moderately obese individual is seemingly inconsistent with controllability theory (24). Exerting control over body weight should theoretically be viewed as a positive achievement; accordingly, formerly obese people should be less stigmatized than those remaining weight-stable (failing to lose weight). However, reported stigmatization experiences are greater among individuals with higher BMIs ( $\geq 40 \text{ kg/m}^2$ ) than those with lower BMIs ( $< 40 \text{ kg/m}^2$ ; 25); residual stigma could occur because participants envision targets in their previous, heavier state (a state that may indicate a past lack of control) or envision targets as likely to regain weight. Depictions of weight loss may validate participants' belief that weight is easily controllable, and thus increase weight stigma (15).

Alternatively, and consistent with recent research that has similarly not supported controllability theory (26,27), other mechanisms based on physical attractiveness ideals may underpin obesity stigma. Greater valuation of physical appearance/attractiveness is consistently related to greater obesity stigma (28,29). Thus, the attraction-based residual stigma reported here, against those who have lost considerable amounts of weight and have either become thin or remained obese, may result from participants' valuation of physical appearance. Stigma regarding the attractiveness of heavier women is widespread (30,31). Finally, evolutionary theory (32,33) suggests that detection of a past or present pathogen-indicating trait in potential romantic partners could signal flawed genetic fitness. Pathogen avoidance might persist even when phenotypic expression of the underlying trait varies over time.

Targets who lost weight surgically or behaviorally elicited similar reactions, inconsistent with previous research where participants favored dieters over surgery patients (17,18). However, the present study was the first to use a well-validated, multi-dimensional questionnaire designed to assess stigma across targets, and to depict targets that differed systematically in both current weight and weight stability, in a diverse sample. Higher-BMI participants showed marginally lower AFA dislike ( $r = -0.11$ ,  $P = 0.07$ ), but expressed stronger belief that obesity is controllable ( $r = -0.14$ ,  $P = 0.03$ ), consistent with the frequent weight-loss attempts reported by obese persons (34).

The experimental stimuli used here included brief, written vignettes about females, rather than images (to avoid specifying targets' racial background and potentially confounding the results). Future research should examine male targets or targets from different ethnic backgrounds. Prospective studies should explore stigmatizing experiences of individuals who have lost weight, including those who have lost weight, but remain overweight.

In summary, the current results demonstrate significant residual obesity stigma directed at individuals who have lost weight. Furthermore, obesity stigma significantly increases following even brief descriptions of weight loss. These findings underscore the potency and persistence of obesity stigma.

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#### DISCLOSURE

The authors declared no conflict of interest.

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