Published in final edited form as:

Eat Weight Disord. 2013 December ; 18(4): . doi:10.1007/s40519-013-0072-5.

Stereotypical images and implicit weight bias in overweight/obese people

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Abstract

Purpose—In this brief report, an unanswered question in implicit weight bias research is addressed: Is weight bias stronger when obese and thin people are pictured engaging in stereotype consistent behaviors (e.g., obese—watching TV/eating junk food; thin—exercising/eating healthy) as opposed to the converse?

Methods—Implicit Associations Test (IAT) data were collected from two samples of overweight/obese adults participating in weight loss treatment. Both samples completed two IATs. In one IAT, obese and thin people were pictured engaging in stereotype consistent behaviors (e.g., obese—watching TV/eating junk food; thin—exercising/eating healthy). In the second IAT, obese and thin people were pictured engaging in stereotype inconsistent behaviors (e.g., obese—exercising/eating healthy; thin—watching TV/eating junk food).

Results—Implicit weight bias was evident regardless of whether participants viewed stereotype consistent or inconsistent pictures. However, implicit bias was significantly stronger for stereotype consistent compared to stereotype inconsistent images.

Conclusion—Implicit anti-fat attitudes may be connected to the way in which people with obesity are portrayed.

Keywords

Weight stigma; Implicit bias; Implicit Associations Test

Implicit weight bias and stereotype incongruent images

Body weight is a highly salient social category that is associated with weight bias (i.e., prejudiced attitudes, stereotypes, and discrimination). Weight bias is widespread and results in obese individuals being subjected to unfair and harmful treatment in nearly all domains of life [1]. Overweight and obese individuals also evidence weight bias and very little in-group favoritism [1]. Internalized weight bias among obese individuals contributes to psychological distress and poor weight loss outcomes [2, 3]. Some of the most common stereotypes of obese individuals include the belief that obese individuals are lazy, sedentary, and that they overeat [1]. Conversely, relative to their obese counterparts, thin people are viewed as more active, healthy, and hardworking [4]. Categorizing others, often unconsciously and rapidly, makes use of prevailing stereotypes to guide subsequent

judgments. These rapid stereotyped judgments of social groups are referred to as *implicit bias* and are independent predictors of prejudiced behavior [5].

The Implicit Associations Test (IAT) is a widely used method for assessing implicit anti-fat attitudes [2, 6]. The IAT requires participants to rapidly categorize stimuli related to two target concepts and two attributes (e.g., the target concepts Fat and Thin are paired with the attributes Bad and Good). Faster responses to pairings are interpreted as indicative of stronger associations in memory; similarly, slower responses to pairings are interpreted as indicative of weaker associations in memory [7]. People of various weight statuses show a significant anti-fat/pro-thin bias on the IAT [2, 6].

Beyond demonstrating the existence of significant anti-fat/pro-thin bias, the IAT is an ideal tool for examining how prevailing stereotypes influence subsequent judgments. For example, research with another stereotyped social group, African Americans, not only shows that people demonstrate anti-black/pro-white bias on the IAT, but also reveals that people associate African Americans with stereotypical attributes, such as violence [8]. In one study, people more quickly associated the target group, “African Americans” with the stereotypical attribute, “weapons”, than they associated “Caucasians” with “weapons” [8].

Likewise, obese individuals are commonly portrayed as gluttonous and lazy, and thin people as industrious and hardworking [1]. Therefore, it is plausible that the magnitude of the expression of anti-fat/pro-thin bias could be influenced by whether the obese or thin person is engaging in stereotypical or non-stereotypical behaviors. Recent experimental studies have found that viewing images of people with obesity engaged in stereotypical stigmatizing activities increased *explicit* bias toward obese people compared to viewing positive images [9, 10]. Similarly, in experimental research on media portrayals of obesity and weight-related medical policy, participants who view non-stigmatizing images were less supportive of a policy to deny obese women fertility treatment than participants who viewed stigmatizing images [11]. However, an unanswered question in implicit weight bias research remains: is weight bias stronger when obese and thin people are shown engaging in stereotype consistent behaviors (e.g., obese—watching TV/eating junk food; thin—exercising/eating healthy) as opposed to the converse? Most research utilizing the IAT to assess weight bias has been conducted with the target categories *fat* and *thin* being represented by words indicative of fatness (e.g., heavy) or thinness (e.g., skinny), or using silhouettes of thin and overweight individuals [12]. Thus far, IAT research has not examined various picture exemplars of individuals who are thin or overweight engaging in specific behaviors.

The present study examined whether implicit weight biases are influenced by exposure to images of obese and thin people engaging in activities congruent and incongruent with stereotypes about obesity and thinness in two samples of overweight and obese treatment-seeking adults. Since stereotypical associations with the concept of obesity and weight are so engrained, it may be that seeing visual stimuli showing inconsistent weight stereotypes would delay responding due to being incongruent with stereotypical expectations. In other words, seeing people engage in stereotype inconsistent behavior would slow down the social categorization process. The study is warranted for several reasons. First, this study will contribute to our understanding of how prevailing stereotypes influence social judgments and whether the magnitude of anti-fat/pro-thin bias is influenced by the presentation of stereotypical images. Second, among overweight and obese treatment-seeking adults, implicit weight-based attitudes have been significantly associated with weight loss treatment outcomes [3; e.g., weight loss] as well as psychosocial adjustment [e.g., 2; binge eating; body image]. Therefore, increased understanding of weight bias has public health significance, particularly among overweight and obese treatment-seeking adults.

Methods

Participants

An initial sample of 42 overweight/obese participants was recruited after they completed an 18-week weight loss intervention (post-treatment sample). They were 71 % female and 81 % Caucasian, with a mean age of 46.9 (SD = 13.0) and a mean BMI of 36.0 (SD = 7.7). While it was not anticipated that weight loss treatment would have any influence on implicit bias, the findings were replicated on a second sample of overweight and obese adults before they began a weight loss intervention (pre-treatment sample) to remove the potential confound of weight loss treatment on implicit bias. These participants were 47 overweight/obese adults (82 % female; 95.7 % Caucasian), with a mean age of 53.7 (SD = 13.2) and a mean BMI of 37.58 (SD = 7.57). The two samples did not differ on baseline BMI or demographic characteristics, except that the initial sample was significantly younger than the second sample [$F(1, 89) = 6.68, p = 0.011$].

Implicit Associations Test

Two modified computerized versions of the IAT [13] were administered. Participants completed one IAT in which stereotype consistent photos for overweight and thin individuals were used, while the other IAT showed stereotype inconsistent photos (see description below). For each IAT, participants classified stimuli that represented weight status (i.e., photos of obese and thin people) and words that represented 'Good' and 'Bad' (e.g., joy, hate) into one of two categories displayed simultaneously on the computer screen, as quickly as possible. Stimuli appeared one at a time and the presentation order was randomized. Each category consisted of a pairing of two words, one word representing a weight status and one word representing an evaluation, resulting in four possible category pairs (i.e., 'Fat' or 'Good', 'Thin' or 'Bad', 'Fat' or 'Bad', 'Thin' or 'Good'). In half of the trials, the two pairings that were displayed matched anticipated negative associations with weight (e.g., 'Fat' or 'Bad', 'Thin' or 'Good'), while in the other half, the pairings were reversed (e.g., 'Fat' or 'Good', 'Thin' or 'Bad').

The IATs were scored using standard procedures [13]. Trials with reaction times greater than 10,000 ms were deleted and participant data for which greater than 10 % of trials were shorter than 300 ms were not included in analyses. For each participant, two difference scores were calculated, one for the stereotype consistent IAT and one for stereotype inconsistent IAT. Difference scores were created by subtracting selected trials with category pairings Fat/Bad and Thin/Good from trials pairing Fat/Good and Thin/Bad categories. Thus, high difference scores suggested that response times were significantly shorter when the category Fat was paired with the category Bad versus the category Good (again, all response times are relative to when the category Thin was paired with the categories Good and Bad, respectively). Higher difference scores for both IATs are indicative of increased implicit anti-fat attitudes [13].

Obese individuals' stereotype consistent and inconsistent photos were provided by the Yale Rudd Center for Food Policy and Obesity (http://www.yaleruddcenter.org/press/image_gallery.aspx). These images depicted obese individuals engaging in stereotype consistent 'unhealthy' behaviors (watching TV/eating junk food) and stereotype inconsistent 'healthy' behaviors (exercising/preparing fruits and vegetables). The photos of normal weight individuals were taken by our laboratory to match the Rudd Center photos on factors such gender, ethnicity, age, style of dress, poses, situations, and props used. These images depicted normal weight individuals engaging in stereotype consistent 'healthy' (exercising/preparing fruits and vegetables) and inconsistent 'unhealthy' behaviors (watching TV/eating

junk food). See Fig. 1 of Appendix for sample IAT pictures (Fat—stereotype consistent; Thin—stereotype inconsistent; Fat—stereotype inconsistent; Thin—stereotype consistent).

Results

For the initial sample, a one sample t test, comparing difference scores to zero, indicated significantly high difference scores and thus the presence of implicit anti-fat attitudes. High difference scores emerged regardless of whether participants viewed stereotype consistent [$M = 0.78$, $SD = 0.67$; $t(41) = 7.60$, $p < 0.01$] or inconsistent pictures [$M = 0.49$, $SD = 0.46$; $t(41) = 0.71$, $p < 0.01$]. This was also confirmed with the second sample [viewed stereotype consistent: $M = 1.09$, $SD = 0.53$; $t(44) = 13.83$, $p < 0.01$; inconsistent pictures: $M = 0.65$, $SD = 0.46$; $t(44) = 9.39$, $p < 0.01$].

Paired-sample t tests were used to analyze differences between implicit attitudes when responding to stereotype consistent versus stereotype inconsistent pictures. For the initial sample, there was greater weight bias (i.e., higher difference scores) when participants responded to stereotype consistent images compared to stereotype inconsistent images, $t(41) = 2.75$, $p < 0.01$. Again, these findings were replicated in the second sample, $t(44) = 4.60$, $p < 0.01$.

ANOVAs controlling for age were conducted to analyze differences in implicit attitudes between the two samples. Weight bias in the stereotype consistent IAT for the post-treatment sample ($M = 0.78$, $SD = 0.67$) was significantly lower compared to the pre-treatment sample [$M = 1.09$, $SD = 0.53$; $F(1, 89) = 6.14$, $p = 0.015$]. No significant differences were found in difference scores for the stereotype inconsistent IAT [post-treatment: $M = 0.49$, $SD = 0.46$; pre-treatment: $M = 0.65$, $SD = 0.46$; $F(1, 89) = 0.89$, $p = 0.35$].

Discussion

As predicted, implicit weight bias was greater when participants viewed pictures of obese individuals engaging in stereotype consistent activities. Portraying individuals with obesity in ways inconsistent with common stereotypes (e.g., doing healthful activities) may have momentarily disrupted participants' ability to quickly pair the mental construct *person with obesity* with the mental construct *bad*. In other words, it is easiest to make negative attributions when stereotypical pictures "help" the viewer make the association.

Once formed, implicit anti-fat attitudes are difficult to change [14], may influence future prejudice behaviors [5], and may interfere with successful weight loss among treatment-seeking adults [3]. These findings suggest that the formation, maintenance, and expression of implicit anti-fat attitudes may be at least somewhat sensitive to common media depictions of people with obesity. Recent experimental studies have found that viewing images of people with obesity engaged in stereotypical stigmatizing activities increased *explicit* bias toward obese people compared to viewing positive images [9–11]. The present study suggests that implicit attitudes may be strengthened by visual media portrayals of obese individuals engaging in stereotypical behaviors (e.g., overeating/watching TV). Indeed, news and entertainment media have been implicated as a potent source of weight stigmatizing material [1]. Conversely, depicting people with obesity as active, capable, and health-oriented should be studied further as an avenue for attitude change. These portrayals may not only reduce implicit attitudes toward obese individuals, but also encourage weight loss efforts among obese individuals, whose automatic associations would include images consistent with weight loss, such as exercising and healthy eating.

The findings presented in this study should be interpreted as preliminary. This investigation used two small convenience samples of adults enrolled in a behavioral weight loss program. Replicating these findings with a larger sample of non-treatment-seeking individuals and with a wider range of body size would be important. However, the measurement and evidence of similar levels of implicit anti-fat biases at two different time points (baseline and post-treatment) of two weight loss interventions provide support for this investigation's findings. With the exception of age, the two samples tested in the present study were not significantly different. However, the sample that had recently completed a weight loss intervention (with some components targeting stigma) showed significantly lower levels of stereotype consistent weight stigma. It is unclear whether sample differences or intervention effects contributed to the observed differences in stereotype consistent weight bias. Future studies should investigate whether these attitudes' sensitivities to stereotypical images are modified through weight loss treatment or other intervention aimed at bias reduction.

Overall, the present study provides important preliminary findings that implicit anti-fat attitudes are connected to the way in which people with obesity are presented. This study suggests that negative weight-based implicit attitudes may be strengthened by stereotypical portrayals of obesity. Therefore, given that implicit anti-fat attitudes are resistant to change [14], associated with prejudiced behaviors [5], and may have a negative impact on successful weight loss among treatment-seeking adults [3], visual media portrayals of obese individuals engaging in stereotypical behaviors (e.g., overeating/watching TV) may result in a number of significant consequences. This study provides preliminary support for the recommendation that changes in media practices toward more positive portrayals of obesity could have an impact on public attitudes and health [9].

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Appendix

See Fig. 1.

Fig. 1.
Sample stereotype consistent and inconsistent pictures. *Top left* Fat—stereotype consistent, *top right* Thin—stereotype inconsistent, *bottom left* Fat—stereotype inconsistent, *bottom right* Thin—stereotype consistent