Weight Bias among Health Professionals Specializing in Obesity

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Abstract

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Purpose: To determine the level of anti-fat bias in health professionals specializing in obesity and identify personal characteristics that correlate with both implicit and explicit bias.

Research Methods and Procedures: The Implicit Associations Test (IAT) and a self-report questionnaire assessing explicit attitudes, personal experiences with obesity, and demographic characteristics was administered to clinicians and researchers attending the opening session of an international obesity conference ($N = 389$). The IAT was used to assess overall implicit weight bias (associating "obese people" and "thin people" with "good" vs. "bad") and three ranges of stereotypes: lazy-motivated, smart-stupid, and valuable-worthless. The questionnaire assessed explicit bias on the same dimensions, along with personal and professional experiences with obesity.

Results: Health professionals exhibited a significant pro-thin, anti-fat implicit bias on the IAT. In addition, the subjects significantly endorsed the implicit stereotypes of lazy, stupid, and worthless using the IAT. Level of bias was associated with several personal characteristics. Characteristics significantly predictive of *lower* levels of implicit anti-fat bias include being male, older, having a positive emotional outlook on life, weighing more, having friends who are obese, and indicating an understanding of the experience of obesity.

Discussion: Even professionals whose careers emphasize research or the clinical management of obesity show very strong weight bias, indicating pervasive and powerful stigma. Understanding the extent of anti-fat bias and the personal characteristics associated with it will aid in developing intervention strategies to ameliorate these damaging attitudes.

Key words: stigma, discrimination, implicit attitudes

Introduction

Modern culture idealizes thinness and disparages obesity (1). Weight bias and discrimination have been documented in various areas of society, including employment practices, salary and promotion decisions, education and housing opportunities, and portrayal of obese persons in popular media (2,3).

Weight bias in medical care settings and among health professionals is a major concern. The relationship of obesity with higher medical use and health care costs (4,5) is obviously influenced by the pathophysiology of obesity but may also result from a vicious cycle: obese patients may be reluctant to seek health care because of weight bias, which prevents early detection, and, thus, increases the likelihood of medical problems and health care costs.

Most stigma research relies on questionnaires that require individuals to report personal beliefs or assign attributes to obese individuals. This information is useful but is subject to response bias from social desirability. One measure designed to minimize response bias is the Implicit Associations Test (IAT),[1] a timed measure of automatic associations of a target construct with particular attributes (6,7). Unlike self-report questionnaires, the IAT is designed to assess associations that exist beyond conscious evaluation

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[1] Nonstandard abbreviation: IAT, Implicit Associations Test.

and thus provides a unique measure of automatic biases of which people may be unaware or unwilling to report. This measure has been used to assess attributes associated with many characteristics, including age, race, gender, and weight (8–11).

Previous research has demonstrated implicit negative associations toward overweight individuals among health professionals. Teachman and Brownell (10) administered the IAT to health professionals who treat obesity and found strong implicit negative attitudes and stereotypes: "obese people" was strongly associated with "bad" vs. "good" and "lazy" vs. "motivated." The strength of the association seemed to be weaker than previously observed in the general population, suggesting that obesity specialists may have their bias tempered but certainly not eliminated.

The current study was designed to evaluate weight bias in a large sample of professionals engaged in research and/or clinical management of obesity. This research expands on earlier work by testing multiple stereotypes about obese people, including good-bad, motivated-lazy, smart-stupid, and valuable-worthless. These stereotypes were chosen because they capture some of the most common anti-fat beliefs identified in a review of the literature on explicit bias and discrimination (2). We hypothesized that a significant implicit bias would be found for all of these stereotypes. In addition, we conducted exploratory analyses to examine the influence of individual difference variables on implicit and explicit bias to understand more completely the personal characteristics associated with different levels of bias.

Research Methods and Procedures

Participants

Subjects ($N = 389$) were researchers and health professionals attending the opening session of a large scientific conference for the study of obesity, the Annual Meeting of the North American Association for the Study of Obesity, held in Quebec City in 2001. The sample includes 198 women and 191 men. The majority of subjects (89%) hold a graduate or professional degree. Nearly all of the subjects do obesity-related research (64%), work directly with obese patients (9%), or both (24%). The professions represented were physicians ($n = 122$), researchers working with humans ($n = 80$), researchers working with animals ($n = 54$), dietitians ($n = 31$), business people ($n = 28$), pharmacologists ($n = 15$), epidemiologists ($n = 14$), psychologists ($n = 12$), nurses ($n = 5$), other obesity clinicians ($n = 18$), and others ($n = 10$).

Materials

IAT. The IAT is a widely used measure designed to assess implicit attitudes (6). There is evidence that IAT scores are valid indicators of implicit attitudes (9). Experimental research has found that IAT scores can predict prejudiced behavior toward target groups (12,13). This study used the paper and pencil version of the IAT, which is based on the computerized version that measures reaction time. This IAT has been used in previous research to assess implicit anti-fat bias among health professionals and the general population (10,11).

The IAT is a timed word classification task (Figure 1). Subjects are given a list of words that fit into one of four categories. In the practice task, the randomly ordered list of words includes: *daisy*, *tulip*, *daffodil*, *bugs*, *roach*, *mosquito, nasty*, *terrible*, *horrible*, *excellent*, *joyful*, and *wonderful.* These words belong to one of four categories: *flowers*, *insects*, *good,* or *bad*. On the first sheet, the categories are paired, with two on one side (e.g., *flowers and good*) and two on the other side (e.g., *insects and bad*). To classify the word, the individual makes a checkmark on either the left or right side of the word. On the next sheet, the pairings are switched, so the categories are "*flowers and bad*" on one side and "*insects and good*" on the other side.

People generally find is much easier to categorize the words quickly when the pairing of the categories matches their attitude (i.e., *flowers* is paired with *good* and *insects* is paired with *bad*) than when they are mismatched (i.e., *flowers* is paired with *bad* and *insects* is paired with *good*). When the task is easier, people are able to get farther down the list in 20 seconds and correctly categorize more words, resulting in a higher score. In this case, people were expected to classify more words when *fat people* was paired with negative characteristics (e.g., *slow, lazy, sluggish*) and *thin people* was paired with positive characteristics (e.g., *determined, motivated, eager*) as shown in Figure 1. The IAT is scored by subtracting the number of words correctly classified in the mismatched task (i.e., when *fat people* is paired with positive attributes) from the number of words correctly classified in the matched task (i.e., when *fat people* is paired with negative attributes). The difference score indicates the strength of the individual's implicit associations, with a higher score indicating a stronger association between fat people and negative traits than between fat people and positive traits.

After the practice task, participants performed the word classification tasks with the categories *thin people, fat people, good,* and *bad*. Each person did the task two times: once with *thin people* paired with *good* and *fat people* paired with *bad* and again with *thin people* paired with *bad* and *fat people* paired with *good*. Next, each subject completed one of three different versions of the IAT to assess the strength of the association between fat and thin people and the following stereotypes: *lazy-motivated*, *stupid-smart*, and *worthless-valuable*. Categories and words for each task are provided in Table 1. The order of the IAT measures was counterbalanced.

Thin People Motivated		Fat People Lazy
	obese	√
	sluggish	√
√	slim	
√	eager	
	large	√
	lazy	√
	fat	√
√	motivated	
√	thin	
√	determined	
√	skinny	

Fat People Motivated		Thin People Lazy
√	obese	
	sluggish	√
	slim	√
√	eager	
√	large	
	lazy	√
√	fat	
√	motivated	
	thin	√
√	determined	
	skinny	√

Figure 1: Sample portions of two completed IAT tasks measuring implicit associations of fat and thin people with lazy and motivated descriptors. The page on the left (thin people with motivated and fat people with lazy) would be easier to complete quickly for people who have implicit anti-fat bias, because the pairings match negative automatic associations with overweight. In contrast, the page on the right (fat people with motivated and thin people with lazy) would be more difficult to complete quickly for people who have implicit anti-fat bias.

Explicit Bias Scale. To assess explicit attitudes, participants rated their feelings about "fat people" and "thin people" as bad vs. good on a seven-point semantic differential scale. Participants were given a second seven-point scale to rate their beliefs about fat vs. thin people on the attributes included in their second IAT (i.e., motivated-lazy, smart-stupid, or valuable-worthless). All subjects rated their attitudes about fat people and thin people on a seven-point scale that ranged from "Very Bad" to "Very Good." Next, all subjects rated thin people and fat people on a seven-point scale for the specific stereotype assessed in the IAT they had just completed (i.e., "Very Lazy" to "Very Motivated;" "Very Stupid" to "Very Smart;" or "Very Worthless" to "Very Valuable").

Table 1. Categories and associated subordinate stimuli for IAT tasks

Stimuli to be classified			
Target category labels			
Fat people	Fat	Obese	Large
Thin people	Slim	Thin	Skinny
Attribute category labels			
Bad	Terrible	Nasty	Horrible
Good	Wonderful	Joyful	Excellent
Lazy	Slow	Lazy	Sluggish
Motivated	Determined	Motivated	Eager
Smart	Intelligent	Smart	Bright
Stupid	Dumb	Stupid	Dense
Valuable	Deserving	Valuable	Important
Worthless	Insignificant	Worthless	Useless

Demographic Questionnaire. The demographic questionnaire included age, sex, race, height, weight, education, occupation, degree of clinical and research contact with patients, personal experience with obesity, personal contact and experiences with obese people personally and professionally, dieting and weight history, general emotional outlook, and political beliefs.

Procedure

The IAT was administered to the entire audience at the introductory session of the scientific conference. Participants were invited by the speaker (KDB) to participate in a study on attitudes about obesity. The initial pages of the packet included demographic questions that participants were instructed to complete. The speaker then provided the instructions, and several research assistants were available to hand out materials, answer questions, and monitor adherence to the instructions. Subjects were instructed to begin when prompted and to work quickly but as accurately as

possible. They were told not to skip items and to stop when instructed. Participants then completed explicit ratings for each of the variables included in the IAT. By observation of the audience, it appeared that nearly all attendees participated in the study. We do not have data on how those who did not participate may differ from those who did.

Statistical Analyses

Because of the complex nature of the IAT and the limitations on individual explanations in a group administration, other research using this method excluded subjects whose data seemed invalid (i.e., because of a large number of errors or very few items completed) (10). In this study, subjects who categorized fewer than four words or skipped more than four words on the IAT are considered nonresponders. There were 53 such subjects, which is 13.6% of the total sample. This is commensurate with previously published exclusion rates of 17% to 18% for a group-administered IAT (10). These subjects were excluded only from the IAT analyses.

Overall IAT effects were examined using one-sample Student's t tests. The primary comparison for each of the four attributes was the number of words correctly classified when fat was paired with the positive vs. negative attribute. Implicit scores for the four attributes will be called the implicit good-bad, motivated-lazy, smart-stupid, and valuable-worthless scores. Higher scores indicate a stronger anti-fat bias.

Explicit attitudes were calculated by subtracting the score on the seven-point scale for "fat people" from the rating on the scale for "thin people." A score of zero would indicate an equal rating for fat people and thin people for a given attribute. For the remainder of the paper, the explicit scores for the four attributes will be called the explicit good-bad, motivated-lazy, smart-stupid, and valuable-worthless scores. Higher scores indicate a stronger anti-fat bias.

To understand the individual variables that are associated with bias, we conducted correlation analyses between the implicit and explicit measures and the individual variables (i.e., sex, age, BMI, general emotional outlook, professional experiences, and personal experiences).

The current sample's IAT scores were also compared with those of two other published samples. IAT scores were converted to d scores as a measure of effect size and compared with each other using z tests (10,11).

Results

Implicit Attitudes and Beliefs

There was a significant implicit anti-fat bias on each of the four attribute categories: bad-good, $t_{(335)} = 18.7$ ($p < 0.0001$); lazy-motivated, $t_{(124)} = 12.6$ ($p < 0.0001$); stupid-smart, $t_{(139)} = 11.4$ ($p < 0.0001$); worthless-valuable, $t_{(94)} = 5.9$ ($p < 0.0001$). The numbers of words correctly classified when each attribute was linked with "fat people" are shown in Figure 2.

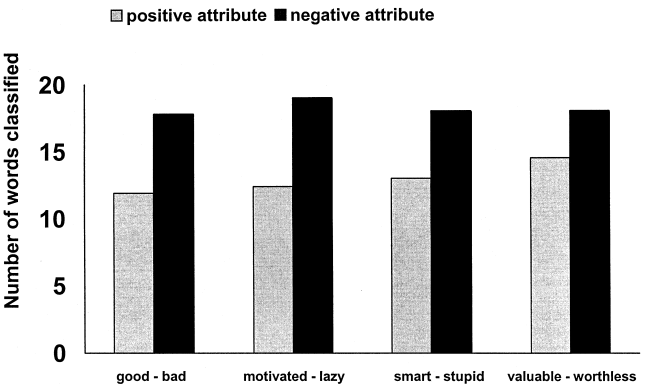

Figure 2: Comparison of the number of items classified when "fat people" was paired with positive and negative attributes.

Overall Explicit Attitudes

For the "very bad" to "very good" attitude scale, a significant anti-fat bias was observed (0.30 ± 1.1; $t_{(383)} = 5.3$; $p < 0001$). The ratings of the three explicit stereotype beliefs also indicated a significant anti-fat bias. Compared with thin people, fat people were considered more lazy (0.68 ± 1.4; $t_{(129)} = 5.7$; $p < 0.0001$), stupid (0.19 ± 0.60; $t_{(148)} = 3.8$; $p < 0.0001$), and worthless (0.26 ± 1.2; $t_{(102)} = 2.3$; $p < 0.05$).

Demographic Variables

Sex. Women expressed a significantly stronger bias than men on the implicit fat-bad, fat-lazy, and fat-stupid measures but not on the fat-worthless measure. Specifically, on the good-bad IAT, the mean score for women was 6.8 ± 6.1 compared with 5.1 ± 5.4 for men ($t_{(333)} = -2.6$; $p = 0.01$). On the lazy-motivated IAT measure, the mean score for women was 7.7 ± 5.5 compared with 5.5 ± 6.1 for men ($t_{(123)} = -2.0$; $p < 0.05$). On the smart-stupid IAT measure, the mean score for women was 6.2 ± 5.6 compared with 4.0 ± 4.8 for men ($t_{(138)} = -2.4$, $p < 0.05$). There was no association between sex and explicit rating scores.

Age. The average age of the sample was 42 ± 11.6 years. There was a significant relationship between age and bias, with younger people showing greater bias on the good-bad IAT ($r = -0.11$, $p < 0.05$), smart-stupid IAT ($r = -0.28$, $p < 0.0001$), and valuable-worthless IAT ($r = -0.27$, $p < 0.01$). Age was not significantly related to scores on the other IAT task or the explicit measures.

BMI. We calculated BMI from self-reported height and weight to examine the influence of body size on bias. A higher BMI related to lower anti-fat smart-stupid ($r = -0.29$, $p < 0.01$) IAT scores. BMI was not significantly

associated with the other IAT scores. A higher BMI also related to lower explicit anti-fat good-bad scores ($r = -0.14$, $p = 0.01$) but not any of the other explicit scores.

The variables of sex, age, and BMI are related to each other in this sample. The women in the sample were significantly younger (mean, 39.3 vs. 44.8 years; $t_{(387)} = 4.8$; $p < 0.001$) and smaller than the men (BMI mean, 23.3 vs. 25.0; $t_{(324)} = 3.7$; $p < 0.001$). BMI was also correlated with age ($r = 0.26$, $p < 0.001$). Because of these associations, the implicit smart-stupid scores were regressed on the linear combination of sex, age, and BMI. The equation containing these three variables accounted for 12% of the variance in smart-stupid bias ($F_{(3116)} = 6.5$, $p < 0.001$, adjusted $R^2 = 0.12$), but only age was significantly related to anti-fat bias when the influence of BMI and sex were taken into account.

General Outlook. We asked people to rate their general emotional outlook on life using a five-point scale ranging from "often very depressed" to "usually very happy and optimistic." We found that people who report being happier have significantly lower anti-fat bias scores on the good-bad IAT ($r = -0.13$, $p < 0.05$).

Professional Experience

About one-third of the sample provided direct clinical care to obese patients, whereas most other participants were researchers or students. People who work directly with obese patients exhibited less anti-fat bias on the IAT lazy-motivated measure (5.1 ± 5.7) than people who do not work directly with these patients (7.4 ± 5.9; $t_{(123)} = 2.1$; $p < 0.05$). There were no significant differences on the other IAT measures or ratings of explicit bias between clinicians and nonclinicians. In addition, the percentage of a professional's patient population that was obese did not relate to implicit or explicit scores.

We asked subjects to rate their experiences with obese people in their professional work on a seven-point scale that ranged from "negative" to "positive," with a score of four meaning "neutral." People who work directly with obese patients in a clinical setting reported significantly more positive experiences (5.3 ± 1.5) with obese people in their professional work compared with people who do not work with obese patients (4.7 ± 1.5; $t_{(372)} = -3.9$; $p < 0.0001$). There was not a significant relationship between individuals' experiences with obese people in their professional work on their IAT scores, but positive experiences were significantly associated with lower explicit bias ratings on three of the measures: good-bad ($r = -0.14$, $p < 0.01$), lazy-motivated ($r = -0.19$, $p < 0.05$), and valuable-worthless ($r = -0.22$, $p < 0.05$).

Personal Experience

Rating of Personal Experience with Obese People. We also asked subjects to rate their experiences with obese people in their personal lives on a seven-point scale that ranged from "negative" to "positive," with a score of four for "neutral." People who work with obese patients reported significantly more positive experiences (5.0 ± 1.6) with obese people in their personal lives compared with people who do not work with obese patients (4.6 ± 1.4; $t_{(369)} = -2.6$, $p = 0.01$). There was not a significant relationship between individuals' personal experiences with obese people and IAT scores, but positive experiences were significantly associated with lower explicit bias ratings on three of the measures: good-bad ($r = -0.17$, $p < 0.01$), lazy-motivated ($r = -0.31$, $p < 0.01$), and valuable-worthless ($r = -0.23$, $p < 0.05$).

Understanding Obesity. We asked subjects to rate the degree to which they felt they understood what it is like to be obese from "not at all" to "extremely well." The more someone felt they understood the experience of obesity, the lower their bias was as measured by the stupid-smart ($r = -0.20$, $p < 0.05$) IAT measure. Understanding obesity was also associated with lower explicit bias for the good-bad ($r = -0.15$, $p < 0.01$) and lazy-motivated ($r = -0.23$, $p < 0.01$) ratings. Subjects who provided clinical care to obese patients demonstrated higher levels of understanding the experience of obesity (3.5 ± 1.0) than nonclinicians (3.2 ± 0.98; $t_{(373)} = -2.7$; $p = 0.01$).

Obese Friends and Family. We examined the relationship between the percentage of friends and family members who are obese and implicit and explicit anti-fat bias. The percentage of obese family members did not significantly relate to the implicit or explicit measures of bias. Having more obese friends, however, did predict a lower anti-fat implicit bias on the smart-stupid ($r = -0.19$, $p < 0.05$) IAT measure. Percentage of obese friends was not significantly associated with the other IAT scores or explicit bias.

Discussion

The obesity specialists in our study exhibited a significant implicit anti-fat bias. These findings are consistent with those of two other published studies that have used the paper-pencil anti-fat pro-thin IAT with medical and community samples (10,11). The findings in this study replicate and expand this prior research by using a larger sample, testing new attributes, and measuring the associations between bias and personal and professional experiences with obesity.

On both implicit and explicit measures, health professionals associated the stereotypes lazy, stupid, and worthless with obese people. These findings are noteworthy given that the sample was comprised of professionals who treat and study obesity, a group that understands that obesity is caused by genetic and environmental factors and is not simply a function of individual behavior (14). Hence, the stigma of obesity is so strong that even those most knowledgeable about the condition infer that obese people have blameworthy behavioral characteristics that contribute to

their problem (i.e., being lazy). Furthermore, these biases extend to core characteristics of intelligence and personal worth.

The belief that obese people are lazy, stupid, and worthless has several potential implications for the care of obese individuals. It is important to know whether these implicit and explicit biases affect behavior. It is possible, for instance, that perceptions of laziness will lead to blaming a person for his or her obesity, which may influence the professionals' behavior in both overt and subtle ways. Factors such as time spent with patients, empathy, quality of interactions, optimism about improvement, and willingness to provide support might be affected.

In a recent survey of obese patients, nearly two-thirds indicated that "most doctors don't understand how difficult it is to be overweight" (15). Negative attitudes about obese individuals have been documented among medical students, dietitians, physicians, and nurses (16–21). In a study where medical students were given sample clinical case presentations, they described obese patients as less attractive, more depressed, and less compliant compared with normal weight patients (16). A significant number of family practice physicians describe obese patients with negative terms such as lacking self-control (18). In a study comparing physician reactions to case reports of patients that differed only in weight, physicians reported they would feel more negatively toward overweight patients and spend less time with them but would order more tests (19). In one survey, 24% of nurses reported that they are "repulsed" by obese persons (20). In another study, 35% to 48% of nurses said they felt uncomfortable caring for obese patients; 31% to 42% said they would prefer not to care for obese patients at all (21). Even when patients report satisfaction with medical personnel, equipment and facilities are often inadequate, contributing to negative experiences (22).

If patients are uncomfortable in health care settings, it would not be surprising if they avoided care. Two cross-sectional observational studies found decreased likelihood of obtaining preventive health services among obese women, after controlling for the effect of other known barriers to care. Fontaine et al. surveyed nearly 7000 women and found that obese women were less likely than normal weight women to obtain preventive services (i.e., clinical breast examinations, gynecologic examinations, and Pap smears) but had a greater number of overall physician visits (23). In a similar study, Wee et al. examined the relationship between obesity and screening with Pap smears and mammograms among 11,435 women and found that overweight and obese women were less likely than normal weight women to be screened for cervical and breast cancer (24).

Some attempts have been made to explain this phenomenon. One study assessing patients and physicians found that heavier women had more negative feelings about their bodies, which led to reluctance to obtain pelvic exams and decreased likelihood of having annual exams (25). Furthermore, most physicians (83%) reported that they were less likely to perform exams on women who were reluctant, and 17% indicated that they were reluctant themselves to perform pelvic exams on obese women. Understanding and addressing situations of weight bias may be one step toward helping obese individuals obtain proper preventative health care.

The strongest predictor of implicit anti-fat bias in the current study was being young. This finding held true when controlling for sex and BMI. This may reflect a cohort effect, as societal pressures to be thin have increased in the past decades. Alternatively, lower anti-fat bias among older individuals may reflect maturity and life experience with people of all sizes. Whatever the reason, obesity stigma should be addressed in medical school and other health professional education programs where inexperience and youth are most evident.

We found some indication that individuals who provide direct clinical care to obese individuals have less bias. The full sample, however, exhibited higher levels of lazy-motivated bias and comparable levels of good-bad bias as other published samples (10,11). This suggests that a professional interest in obesity does not necessarily confer protection against bias.

Positive professional and personal experiences with obese individuals were associated with some lower explicit, but not implicit, bias. It is possible that positive experiences improve explicit attitudes or that positive attitudes lead to positive experiences. The lack of influence on implicit attitudes suggests that these attitudes are not linked as closely to outside experiences.

This study has some important limitations. First, the subjects were drawn from a convenience sample of individuals attending the opening session of a large conference. We do not know how those who chose to participate differ from those who did not or how representative our sample is of health professionals in the obesity field. Second, a large group administration of the IAT prohibits answering individual questions, which may have contributed to the rate of missing items that led to the exclusion of nearly 14% of the sample. Third, this study only measures attitudes and does not provide information about actual behavior toward obese individuals. Although some experimental research has found that IAT scores predict biased behavior against other groups (12,13), this has not yet been studied with implicit anti-fat bias and discriminatory behavior toward obese individuals. Until this is done, we cannot conclude that implicit bias among professionals will lead to poorer treatment of obese patients.

The limited research to date suggests that changing weight bias is much more difficult than changing other types of implicit bias. Teachman et al. tried two strategies: manipulating beliefs about causes of obesity and inducing

empathy for obese persons (11). In the first study, they told subjects that either 1) obesity is caused primarily by genetics or 2) obesity is caused primarily by the person's behavior. They found that implicit anti-fat bias was *increased* in the behavior explanation group but was not reduced in the genetic explanation group. In the second study, subjects read a story of an obese person's experience of prejudice and social rejection. Evoking empathy reduced implicit bias only when the subject himself or herself was overweight. In our study, subjects who reported a greater understanding of what it is like to be obese and subjects with more obese friends exhibited lower implicit and explicit biases on some of the measures. Thus, interventions that enhance personal appreciation of the experiences of obese individuals may be useful in changing attitudes.

Weight-related bias and stigma contribute to the physical and psychosocial consequences of obesity. The strength of social bias against obese individuals is evident from the fact that even health professionals who specialize in the obesity area are not immune. Much more work is needed to understand and ameliorate this bias.

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