BRIEF
REPORTS

Brief Intervention Effective in Reducing Weight Bias in Medical Students

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BACKGROUND: Medical students are exposed to a growing number of obese patients in clinical encounters. Many medical students harbor negative attitudes and stereotypes regarding obese patients, which lead to negative interpersonal behaviors. This study pilot tested the effectiveness of an educational intervention in reducing bias toward obese patients.

METHODS: Second- and third-year medical students (n=64) watched a 17-minute video, "Weight Bias in Health Care," and participated in interactive discussion to share experiences with encountering obese patients. The Beliefs About Obese Persons (BAOP), Attitudes Toward Obese Persons (ATOP), and Fat Phobia Scales (FPS) were administered before and after intervention. Change in mean scores from before to after the intervention was tested for statistical significance using the paired samples *t* test. General linear models were used to examine associations of subject characteristics with mean scores for each scale.

RESULTS: The intervention increased beliefs that genetic and environmental factors play an important role in the cause of obesity as opposed to lack of personal control (mean BAOP increased from 16.53 to 19.27). It also decreased students' negative stereotypes regarding obese patients (mean FPS decreased from 3.65 to 3.45). There were independent associations of subject characteristics with post-intervention ATOP scores, with more positive attitudes in younger, male, and white participants.

CONCLUSIONS: Implementing a short educational intervention was effective in improving medical students' beliefs and stereotypes regarding obese patients. This widely accessible and easily replicable program can serve as a model and springboard for further development of educational interventions to reduce weight bias among medical students.

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The prevalence of obesity is steadily increasing as is the stigma and discrimination faced by obese individuals.[1] Obese individuals are particularly vulnerable to encountering discrimination in health care settings. Despite evidence that obesity is caused by multiple genetic, environmental, and psychosocial factors, health care providers often maintain negative stereotypes toward obese patients, characterizing them as lacking willpower, self-control, or motivation to change or as being lazy and noncompliant.[2-5] Up to 69% of obese women report experiencing weight bias from health care professionals, and this leads to unhealthy eating and lower physical activity, psychological disorders, and lower rates of preventive health care.[6,7] Manifestations of weight bias include negative/disrespectful attitudes of health care professionals, embarrassing weighing procedures, lack of appropriately sized medical equipment, and unsolicited advice to lose weight.[8]

Many medical students harbor negative attitudes and stereotypes regarding obese patients, which lead to negative interpersonal behaviors.[9-11] There is a lack of medical educational interventions to decrease weight bias toward obese patients. One 1992 study found that medical students who were randomized to receive weight-bias training were less likely to report negative stereotypes and blame patients for their obesity.[12] However, the measures of attitude change used in the study were not psychometrically validated, and after accounting for group differences at baseline, the results may not be statistically significant.

The purpose of this project was to pilot test the feasibility and determine effect sizes of an easily replicable educational intervention with

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validated instruments in reducing weight bias among medical students.

Methods

This pilot research study was conducted by a third-year medical student as part of a Distinction in Medical Education program. A convenience sample of second-year medical students attending a nutrition course and third-year medical students in a family medicine clerkship during a 2-month period participated in this study (n=64). The approximately 1-hour intervention consisted of watching a 17-minute video about weight bias developed by the Yale Rudd Center for Food Policy and Obesity (available at www.yaleruddcenter.org/what_we_do.aspx?id=10) and participating in a facilitated interactive discussion about their experiences with encountering obese patients. The video includes short presentations from obesity experts and dramatic simulations depicting difficult situations obese patients face in health care settings. It attempts to induce empathy toward obese patients and provides strategies for bias-free practices. This intervention was chosen because it is freely available and has already been widely disseminated to bariatric surgery centers, hospitals, and medical facilities. However, the intervention has not been used in the medical school curricula, and its efficacy has yet to be evaluated.

All participants completed three validated and reliable surveys to measure weight bias pre- and post-intervention (available at http://yaleruddcenter.org/what_we_do.aspx?id=193).

The eight-item "Beliefs About Obese Persons" (BAOP) scale[13] measures beliefs about the underlying reasons for obesity. Items are scored on a 6-point Likert scale (strongly disagree to strongly agree, score range 0–48). Higher scores indicate the belief that obesity is driven by genetic/environmental causes as opposed to lack of personal control (Cronbach's α before and after the intervention were 0.66 and 0.72). The 20-item "Attitudes Toward Obese Persons" (ATOP) scale[13] measures perceptions and attitudes regarding obese persons (6-point Likert scale, score range 0–120). Higher scores indicate more positive attitudes toward obese persons (Cronbach's α before and after the intervention, 0.86 and 0.88). The 14-item "Fat Phobia Scale" (FPS)[14] requires participants to indicate on a 5-point scale which adjective better describes obese people, eg, lazy to industrious. Higher scores indicate more negative stereotypes (Cronbach's α for before and after the intervention, 0.83 and 0.89).

Surveys were analyzed with SAS 9.1 software (SAS Institute Inc, Cary, NC). Change in survey scores from before to after the intervention was assessed for statistical significance using paired samples *t* tests. General linear models were used to examine associations of subject characteristics (age, gender, race, BMI, year in medical school) with mean scores for each scale. *P* values <.05 were considered statistically significant. This study was approved by the University of Medicine and Dentistry of New Jersey Institutional Review Board as exempt from review.

Results

Table 1 describes characteristics of the medical students. Table 2 presents mean scores of the BAOP, ATOP, and FPS before and after the intervention reported for the entire group. The post-intervention BAOP mean score was significantly higher (*P*=.0006), indicating greater belief that obesity is driven by genetic/environmental causes as opposed to lack of personal control. There was no significant change in the ATOP mean score after the intervention. The post-intervention FPS

Table 1: Characteristics of Study Population*

Characteristic	n** (%)
Age	
22–24	40 (66.7)
25–27	16 (26.6)
28–31	4 (6.7)
Gender	
Male	20 (31.8)
Female	43 (68.2)
Race	
White, non-Hispanic	30 (49.2)
Black, non-Hispanic	3 (4.9)
Hispanic or Latino	7 (11.5)
Asian or Pacific Islander	18 (29.5)
Other	3 (4.9)
Body mass index (BMI)	
Normal (BMI 18–24)	47 (78.3)
Overweight or obese (BMI ≥ 25)	13 (21.7)
Medical student year	
Second year	36 (59.0)
Third year	25 (41.0)

* n=64
** Numbers may not add to 64 due to missing data

Table 2: Mean Scores on BAOP, ATOP, and FPS, Before and After the Intervention*

	Before Intervention Mean (SD)	After Intervention Mean (SD)	*P* Value
BAOP score Range	16.53 (6.09) 7–35	19.27 (6.5) 6–39	.0006
ATOP score Range	66.14 (15.62) 40–96	64.90 (16.14) 25–98	.1907
FPS score Range	3.65 (0.40) 2.29–4.57	3.45 (0.42) 2.0–4.5	<.0001

BAOP—Beliefs About Obese Persons
ATOP—Attitudes Toward Obese Persons
FPS—Fat Phobia Scale
SD—standard deviation

* n=64

mean score was significantly lower (*P*<.0001) indicating a decrease in negative stereotypes. Based on multivariate analysis there was no association between subject characteristics and baseline and post-intervention BAOP and FPS mean scores or baseline ATOP mean scores (data not shown). However, there were significant differences in post-intervention ATOP scores by age (under 25 years, 68.70 versus ≥ 25 years, 54.33; *P*=.001), gender (males, 68.85 versus females, 62.29; *P*=.009), and race (white, 68.84 versus other race, 59.17; *P*=.047).

Discussion

This intervention, consisting of watching the freely available "Weight Bias in Healthcare" video and engaging in discussion, increased the belief that genetic and environmental factors play an important role in the cause of obesity and decreased negative stereotypes about obese patients. This study confirms prior research showing that changing attributions of causality and controllability of weight can improve beliefs and stereotypes toward obese individuals.[15,16] Highly rated by faculty and students, this intervention provides educators with tools to measure attitudes about obesity in students and to have conversations about and training in how to care for obese patients with sensitivity. Incorporating this intervention into a primary care clerkship may be the best way to ensure that all students receive this training. We did not find a significant difference in results based on medical student year, although our sample size may not have been large enough to detect a difference. However, we found independent associations of subject characteristics with post-intervention ATOP scores, with more positive attitudes in younger, male, and white participants. Further research is needed to measure whether the intervention is more effective for certain subgroups.

Although limited in scope and size, this study's success in using a relatively simple and widely accessible intervention and validated surveys makes this program conducive to replication and implementation by medical educators. While these findings are promising, it is unknown if changes in beliefs and attitudes are sustainable and if they represent changes in actual behavior. Results of this study will be used to design a larger study to test the longer-term impact in medical students and community primary care physicians.

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