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ORIGINAL ARTICLE

Missing the target: including perspectives of women with overweight and obesity to inform stigma-reduction strategies

R. M. Puhl[1], M. S. Himmelstein[2], A. A. Gorin[3] and Y. J. Suh[4]

[1]Department of Human Development & Family Studies; Rudd Center for Food Policy & Obesity, University of Connecticut, Hartford, CT, USA; [2]Rudd Center for Food Policy & Obesity, University of Connecticut, Hartford, CT, USA; [3]Department of Psychological Sciences, University of Connecticut, Storrs, CT, USA; [4]University of Massachusetts Medical School, Worcester, MA, USA

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Address for correspondence: RM Puhl, PhD, Department of Human Development & Family Studies; Rudd Center for Food Policy & Obesity, University of Connecticut, One Constitution Plaza, Suite 600, Hartford, CT 06103, USA. E-mail: rebecca.puhl@uconn.edu

Summary

Objective

Pervasive weight stigma and discrimination have led to ongoing calls for efforts to reduce this bias. Despite increasing research on stigma-reduction strategies, perspectives of individuals who have experienced weight stigma have rarely been included to inform this research. The present study conducted a systematic examination of women with high body weight to assess their perspectives about a broad range of strategies to reduce weight-based stigma.

Methods

Women with overweight or obesity (N = 461) completed an online survey in which they evaluated the importance, feasibility and potential impact of 35 stigma-reduction strategies in diverse settings. Participants (91.5% who reported experiencing weight stigma) also completed self-report measures assessing experienced and internalized weight stigma.

Results

Most participants assigned high importance to all stigma-reduction strategies, with school-based and healthcare approaches accruing the highest ratings. Adding weight stigma to existing anti-harassment workplace training was rated as the most impactful and feasible strategy. The family environment was viewed as an important intervention target, regardless of participants' experienced or internalized stigma.

Conclusion

These findings underscore the importance of including people with stigmatized identities in stigma-reduction research; their insights provide a necessary and valuable contribution that can inform ways to reduce weight-based inequities and prioritize such efforts.

Keywords: Discrimination, stigma, weight bias.

Introduction

Stigmatization towards individuals with overweight and obesity is well established. Several decades of research show that weight-based stigma, prejudice and discrimination occur in many areas of daily living, including employment, health care, education, media, public accommodations, interpersonal relationships and the home environment (1). Among adults, weight discrimination persists as one of the most common forms of discrimination reported by Americans and is in some cases comparable with rates of racial discrimination, especially among women (2). Among youth, weight stigma is experienced as teasing, bullying and victimization and has been identified as one of the most prevalent forms of bullying in schools (3,4).

Research indicates a clear link between experiences of weight stigma and adverse health consequences such as an increased risk of depression, body dissatisfaction, lower self-esteem, increased physiological stress (5,6) and weight-related health behaviours like binge eating, increased caloric consumption and avoidance of physical

activity (7–9). Internalizing weight stigma (blaming oneself for societal devaluation and stigmatization because of one's weight) can also contribute to psychological distress, eating pathology and lower physical activity, compounding the adverse impact of stigma on health (10–12). This evidence provides insight into why some stigmatized individuals have heightened risk for increased weight gain and obesity (13). The social inequities and negative health outcomes incurred by weight stigma indicate a clear need for evidence-based strategies to reduce weight bias and eliminate weight-based inequities. Despite the amassing literature on weight stigma, comparatively few studies have examined strategies to reduce weight stigma. Interventions have included approaches such as addressing causal attributions about obesity, manipulating perceived social norms, evoking empathy, challenging negative stereotypes and providing education about the complex aetiology of obesity, difficulties of weight loss and inequities faced by targets of weight stigma (14–18). Although some strategies have demonstrated limited initial success, the effectiveness of most strategies remains unclear, especially for long-term improvements in stigma reduction (19). Two reviews of this literature indicate mixed or pessimistic findings regarding the effectiveness of stigma-reduction interventions (19,20); a narrative review of 16 studies demonstrated inconsistent effects of stigma-reduction interventions (19), and a more recent meta-analysis of 29 studies found generally small effects of successful interventions on stigma-related attitudes (20). In addition, existing interventions have examined differential outcomes of weight bias, including explicit bias (conscious and deliberate attitudes) and/or implicit bias (evaluations of others outside of conscious awareness/control), and it remains unclear what types of stigma-reduction interventions are most effective in reducing these different forms of weight bias. Furthermore, these reviews additionally highlight the paucity of studies examining real-world strategies that can be implemented in different societal settings outside the lab, or behavioural outcomes (and not just cognitive or attitudinal changes) following stigma-reduction intervention, such as reductions in differential treatment of individuals with obesity. With calls for societal efforts to reduce weight stigma (21), recent research has examined broader measures through policy and legislation to reduce weight-based inequities (e.g. state anti-bullying laws (22) and anti-workplace-discrimination laws to prohibit weight discrimination (21)). Despite substantial public support for these measures (23,24), implementation of such laws is primarily absent.

While experimental and intervention studies examining stigma reduction are increasing, very little research on stigma reduction has been directly informed by the perspectives of individuals with stigmatized identities. These voices are largely absent, despite recognition that stigma research should include the 'target's perspective' (25,26). For example, research to date has primarily examined support for stigma-reduction policies in the mainstream general public, of whom fewer people report experienced weight stigma (23) than more targeted samples of individuals with obesity. Limited qualitative research (27–29) provides some useful insights from stigmatized individuals, but lack of systematic investigation about stigma reduction from this population is both a glaring and unfortunate omission. It is important not only to study the nature and impact of weight stigma experienced by individuals with obesity but also to seek and understand their perspectives about what kinds of remedies may be most needed or what settings may be most important targets for stigma reduction. A comprehensive approach to understanding how stigmatized individuals view the relative importance and potential impact of stigma-reduction strategies would provide a valuable, rich and more-informed knowledge base that is lacking, but should be prioritized.

To address this gap, the present study examined perspectives of women with overweight and obesity (most who had experienced weight stigma) about a broad range of potential stigma-reduction strategies in diverse settings (i.e. home, school, workplace, health care, media, policy and legislation) reflecting both individual and societal levels of intervention. Additionally, the types of stigma-reduction strategies participants viewed to be most feasible to implement and most likely to have a positive impact were assessed. A secondary aim of the study examined the extent to which participants' experienced versus internalized weight stigma were associated with the importance they attributed to different stigma-reduction strategies.

Methods

Sample

All participants in the present study were members of the Obesity Action Coalition (OAC), a national non-profit organization of more than 54,000 adults who support individuals affected by obesity through education and advocacy. From the OAC's 2015 internal membership survey, 60% reported struggling with their weight (30). In 2015, approximately 10% of the total OAC membership responded to an internal demographic survey fielded by the organization. Those who responded to these internal surveys and self-identified as being personally affected by obesity or struggling with weight were invited for study

participation (*N* = 2,663) via e-mails, announcements in the OAC's monthly newsletter and advertisements on social media websites in September and October 2015. The study was advertised as a research project for adults with obesity or who were struggling with body weight. A direct web-link to the online survey was included in advertisements. Members who clicked on the web-link were transferred to the survey website (hosted by Qualtrics.com) and provided with information explaining the survey and inviting them to participate. After consenting to participate, individuals completed the survey and were given the option to enter a raffle to win a $25 gift certificate to Amazon.com. The survey software prevented users from completing the survey more than once. Participation was voluntary and anonymous, and all procedures were approved by the authors' Institutional Review Board.

Of those who were invited to complete the survey, 728 participants entered the survey, and 596 consented to participate. Exclusions were made for participants who did not respond to survey questions (*n* = 21) or were missing demographic and anthropometric data (*n* = 34), resulting in 541 participants. Of this sample, only 44 participants (8%) were men. This is similar to internal demographic data collected by OAC, which indicates that approximately 87% of their membership are women (30). Given that the small number of men would prohibit meaningful gender comparisons, they were excluded. Further, 36 participants with a normal or underweight body mass index (BMI) were excluded, resulting in a final sample of 461 women.

Measures

Demographic information

At the beginning of the survey, participants were asked to report their sex, age, race/ethnicity, highest educational attainment, household income, current weight (in pounds) and height (feet/inches).

Views about stigma-reduction strategies

A 35-item survey was developed by the authors to quantify participants' perspectives about potential strategies to reduce weight-based bullying, stigma and discrimination. The content and wording of these proposed strategies were modified from a number of survey items developed and tested previously by the authors (31), including research pertaining to proposed legislation to prohibit weight discrimination (24) and studies evaluating public opinions about policy-level remedies to reduce weight stigma (32). The final survey (an untested adaptation) included a combination of items that were previously tested, modified for the present study or developed as new items for this study.

Stigma-reduction strategies were focused in seven content areas including the home setting (α = 0.90), schools (α = 0.88), the workplace, health care (α = 0.88), the media (α = 0.91), legislation (α = 0.88) and other (α = 0.85; see Table 2 for specific items). The survey asked participants to rate the importance of each of the 35 stigma-reduction strategies on a 5-point scale ranging from 1 (*not at all important*) to 5 (*extremely important*). Scale items were later recoded as ordinal items to assess the percentage of participants who indicated 'high importance', (rating of 4 or 5) 'moderate importance', (rating of 3) and 'low/no importance' (rating of 1 or 2) (31).

After rating the level of importance for each strategy, participants selected five strategies from the total list of 35 strategies that they believed would have the highest positive impact for reducing weight bias. Participants then selected five strategies from the full list that they believed would be the most achievable (e.g. feasible to implement). Participants were not asked to rank order their top 5 selected strategies. Question wording for assessing perceived impact and feasibility was tested previously (31) and provides an additional approach to assess, compare and prioritize stigma-reduction strategies. Finally, participants were asked their opinions of the extent to which different groups (family, friends, educators, health professionals, employers, media and government) can play a role in helping to reduce weight-based bullying and/or stigma and discrimination (with three response choices: 'major role', 'minor role' or 'no role'). These items were previously developed and tested by study authors (31,33).

Personal experiences of weight bias

Personal experiences of weight bias were assessed with three items (tested previously) asking participants if they had ever been teased, treated unfairly or discriminated against because of their weight (yes/no) (34). If participants responded 'yes' to at least one of these forms of weight stigma, they were classified as having experienced weight stigma.

Internalization of weight bias

A modified, 10-item version (35) of the Weight Bias Internalization Scale (WBIS-M) (36) assessed the extent to which people apply weight-based stereotypes to themselves and evaluate themselves negatively because of their weight. Responses were rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*),

with higher averaged scores indicating greater weight bias internalization ($\alpha = 0.91$).

Analysis

Descriptive statistics were used to examine participants' ratings of the importance of stigma-reduction strategies, and the role that different groups of individuals can play in reducing weight stigma. Feasibility and impact ratings reflect frequencies for the number of individuals rating the item in their top five. Multiple linear regression models were used to determine salient predictors of stigma-reduction strategies. Demographic variables, BMI, history of weight stigmatization and weight bias internalization were tested in each of the models. Stigma-reduction strategies were categorized by content areas (i.e., home, school, workplace, healthcare/medical settings, media, laws and other) and were used as the primary outcome variables. Reported level differences are less than $p = 0.05$. All analyses were conducted using SPSS software (version 22.0.0.0).

Results

Sample characteristics

A summary of sample characteristics is presented in Table 1. The average age was 50.39 years (SD = 11.28). Most participants identified as Caucasian (86.7%), were married (57.7%) and held a college degree or higher (59.8%). Consistent with internally collected demographic data on OAC membership (30), 78.7% of the sample had obesity and 21.3% had overweight (mean BMI: 37.20, SD = 8.35). Nearly all participants (91.5%) reported past history of weight-based stigmatization in the form of teasing (88.4%) unfair treatment (78.3%) or discrimination (65.1%) because of their weight status.

Table 1 Sample characteristics ($N = 461$)

Variable	N	Percentage (%)	
Race			
Caucasian	397	86.7	
African–American	25	5.5	
Hispanic/Latino	20	4.3	
Other	16	3.5	
Highest education			
High school or less	69	15.0	
Some college	116	25.2	
College or higher	275	59.8	
Income			
Under $25,000	59	13.0	
$25,000–$49,999	111	24.4	
$50,000–$74,999	82	18.1	
$75,000–$99,999	87	19.2	
≥100,000	115	25.3	
Weight status			
Overweight	98	21.3	
Obese	363	78.7	
History of experienced weight bias			
Teased about weight	352	88.4	
Treated unfairly because of weight	311	78.3	
Discriminated against because of weight	259	65.1	
	N	Mean (SD)	Range
Age (in years)	461	50.39 (11.28)	19–81
Body mass index (kg/m^2)	461	37.20 (8.35)	25.09–70.47

Perceived importance of stigma-reduction strategies

Table 2 shows the percentage of participants who assigned various levels of importance to each of the 35 stigma-reduction strategies. Percentages reflect those participants who rated each reduction strategy of high importance (representing a '4' or '5' on the 5-point Likert scale), moderate importance (representing a '3' on the 5-point Likert scale) or low importance (representing a '1' or '2' on the 5-point Likert scale). A large majority of participants (76%–95%) assigned high importance to 31 of the 35 stigma-reduction strategies, with strategies focused on school ($M = 4.51$, SD = 0.65) and health care ($M = 4.58$, SD = 0.54) settings rated as the most important, on average. Over 95% of participants assigned high importance to training school staff on strategies to address weight-related bullying in youth, and 94.6% assigned high importance to schools adopting anti-bullying policies aimed at protecting students from weight-based bullying. Regarding stigma-reduction strategies in health care, the highest importance was assigned to implementing comprehensive education about obesity in medical schools (94.5%) and training for healthcare providers on providing respectful, compassionate care to patients with obesity (94.3%). The family environment also received high ratings as an important target for stigma-reduction, with 94.4% of participants assigning high importance to providing parents with access to resources to adequately support a child facing weight-based bullying.

Six out of seven proposed strategies to reduce weight stigma in the media were assigned high importance by over three-quarters of participants (78.2%–86.5%), such as implementing more respectful portrayals of people with obesity depicted in television and films. Finally, five out of six policy-level remedies

Table 2 Women's extent of support for strategies to address weight stigma

Item number	Strategies to address weight stigma	Mean (SD)	High importance (%)*	Moderate importance (%)†	Low/no importance (%)‡
	At home				
1	Parents need education about weight stigma and bullying and its harmful impact on children with obesity	4.45 (0.77)	88.6	8.7	2.7
2	Parents should be given access to resources so that they can provide support to their child if he/she is being teased or bullied about weight	4.60 (0.67)	94.4	4.0	1.6
3	Spouses/partners need education about weight stigma, including ways to avoid blaming or shaming their partner about weight	4.36 (0.85)	85.5	10.7	3.8
4	Spouses/partners should be given access to resources so that they can positively support their partner who is trying to lose weight	4.48 (0.78)	89.7	7.6	2.7
5	Anti-stigma initiatives should include a focus on reducing weight stigma by family members	4.26 (0.89)	82.6	12.1	5.4
	In schools				
6	Schools should promote awareness about weight-related teasing and bullying	4.43 (0.79)	89.6	7.5	2.9
7	School-based curriculum should include content aimed at reducing weight-related bullying	4.29 (0.91)	83.7	10.9	5.4
8	Schools should have anti-bullying policies that protect students from being bullied about their weight	4.63 (0.69)	94.6	2.9	2.5
9	School staff should receive training on how to address weight-related bullying at school	4.68 (0.61)	95.7	3.4	0.9
	In the workplace				
10	Weight stigma should be included in existing workplace discrimination and harassment training	4.37 (0.82)	85.8	11.3	2.9
	In healthcare and medical settings				
11	Healthcare providers should be educated about weight stigma and its harmful impact on people who have obesity	4.61 (0.67)	93.9	4.3	1.8
12	Healthcare providers should receive training to provide more respectful, compassionate care to patients with obesity	4.63 (0.67)	94.3	3.9	1.8
13	Medical schools should be required to provide a comprehensive education about obesity to medical students	4.64 (0.65)	94.5	3.9	1.6
14	Medical school education should be required to teach students about weight stigma	4.50 (0.76)	88.9	8.4	2.7
15	Obesity treatment and intervention programs should avoid using approaches that stigmatize or blame people affected by obesity	4.51 (0.77)	90.0	7.7	2.3
16	Weight loss programs should include services that help people cope with weight stigma in their lives	4.50 (0.74)	90.9	7.3	1.8
17	Insurance companies should be required to reimburse for obesity treatment	4.69 (0.70)	93.4	4.1	2.5
	In the media				
18	Television shows and films should avoid offensive portrayals of people with obesity	4.22 (0.96)	81.0	13.1	6.0
19	Social media (like Facebook and Instagram) should have policies to make sure that people with obesity are not the target of hate speech or prejudice	4.20 (1.00)	78.2	14.4	7.3

Continues

Table 2. *Continued*

Item number	Strategies to address weight stigma	Mean (SD)	High importance (%)*	Moderate importance (%)†	Low/no importance (%)‡
20	Children's television programs should be required to positively portray children of diverse body sizes and avoid stigmatizing youth with obesity	4.41 (0.83)	86.5	10.3	3.2
21	The news and entertainment media should include portrayals of people with obesity that challenge and defy common weight-based stereotypes	4.24 (0.92)	82.0	12.7	5.3
22	The news and entertainment media should show more accurate examples of what it's like to have obesity, including the harmful stigma that people experience because of their weight	4.27 (0.88)	84.1	11.0	4.8
23	Television, radio and social media campaigns that address obesity should avoid content that stigmatizes people affected by obesity	4.28 (0.84)	83.1	13.5	3.4
24	There should be public service announcements on television to increase public acceptance and compassion of people affected by obesity	3.71 (1.17)	58.4	25.7	15.9
25	Fashion magazines should include more representation of people with diverse body sizes	4.35 (0.87)	86.0	9.4	4.6
	Laws				
26	Civil rights laws exist that protect people from being discriminated against because of their race, color, religion, sex and national origin. Currently, body weight is not a protected category in existing civil rights laws. Existing civil rights laws should include body weight to protect people from weight discrimination	4.16 (1.04)	76.3	15.3	8.4
27	It should be illegal for an employer to refuse to hire a qualified person because of his/her body size	4.43 (0.91)	86.1	8.1	5.8
28	Employees who have obesity are more likely to be denied promotions, receive unequal pay and be terminated from their job because of their weight. The government should have laws in place to protect people from these types of weight discrimination in the workplace	4.43 (0.84)	86.0	10.5	3.5
29	People with obesity should be subject to the same legal protections and benefits offered to people with physical disabilities	3.88 (1.25)	67.3	16.9	15.8
30	Obesity should be considered a disability so that people will be protected from weight discrimination in the workplace	3.51 (1.40)	55.3	19.1	25.6
31	Existing anti-bullying laws in the United States should be updated to include protections for youth who are bullied about their weight	4.43 (0.89)	85.8	9.5	4.6
	Other				
32	Public education is needed to improve understanding about the complex causes of obesity that obesity is not a simple issue of willpower or laziness	4.59 (0.67)	93.6	4.7	1.6
33	Public education is needed so that people are aware that obesity is a real disease	4.48 (0.82)	90.4	6.4	3.3
34	Society should start using people-first language for obesity so that a person with obesity is treated like a whole person and not just labeled as being 'obese	4.35 (0.92)	86.4	8.0	5.6
35	More advocacy groups are needed to fight discrimination and defend the rights of people who have obesity	4.07 (1.11)	73.3	16.5	10.2

*High importance was defined as reporting of '4' (very important) or '5' (extremely important) on the 5-point Likert scale.
†Moderate importance was defined as reporting of '3' (moderately important) on the 5-point Likert scale.
‡Low/no importance was defined as reporting of '2' (somewhat important) or '1' (not at all important) on the 5-point Likert scale.

were assigned high importance by at least two-thirds of participants. The strategy that the fewest participants (55.3%) assigned as 'high importance' was the proposed policy to consider obesity a disability as a measure to protect people from weight discrimination in the workplace.

Perceived impact and feasibility of stigma-reduction strategies

Table 3 displays the percentage of participants who rated each stigma-reduction strategy in their top 5 strategies for having the greatest potential impact and feasibility. Strategies in workplace, public education, health care and school settings were rated as most impactful and most feasible. Over one-third of participants believed that including weight stigma in existing workplace discrimination and harassment training would both have the greatest impact (46.9%) and be the most feasible to implement (35.8%). The second highest rated strategy for impact and feasibility was improving public education about the complex causes of obesity; that obesity is not a simple issue of willpower or laziness (impact: 40.6%, feasibility 27.1%). Slightly more than one-third of participants assigned the highest ratings for impact and feasibility to anti-bullying policies in schools aimed at protecting students from weight-based bullying (impact: 37.3%, feasibility: 29.3%) and requirements for insurance companies to reimburse obesity treatment (impact: 37.7%, feasibility: 23.0%). Finally, the fifth most impactful stigma-reduction strategy was providing training for healthcare providers on respectful and compassionate care to patients with obesity (impact: 33.0%, feasibility 24.1%).

Group involvement in stigma-reduction strategies

Participants indicated their beliefs regarding how much of a role various groups in society could play to reduce weight-based bullying, stigma and discrimination (Table 4). At least three-quarters of participants rated family members (86.2%), friends (81.7%), educators (76.8%) and health professionals (79.2%) as groups who could play a major role in efforts to reduce weight stigma. Media was identified by 73.7% of participants as a domain that could play a major role, and just under half

Table 3 Women's perceptions of impact and feasibility of strategies to address weight stigma

Strategies*	Percentage of women who selected strategy amongst top 5 strategies with *highest impact*	Percentage of women who selected strategy amongst top 5 strategies *most achievable*
Weight stigma should be included in existing workplace discrimination and harassment training	46.9	35.8
Public education is needed to improve understanding about the complex causes of obesity that obesity is not a simple issue of willpower or laziness	40.6	27.1
Schools should have anti-bullying policies that protect students from being bullied about their weight	37.3	29.3
Insurance companies should be required to reimburse for obesity treatment	37.7	23.0
Healthcare providers should receive training to provide more respectful, compassionate care to patients with obesity	33.0	24.1
Parents need education about weight stigma and bullying and its harmful impact on children with obesity.	31.7	24.7
Parents should be given access to resources so that they can provide support to their child if he/she is being teased or bullied about weight	32.5	29.1
School staff should receive training on how to address weight-related bullying at school	30.2	22.6
Civil rights laws exist that protect people from being discriminated against because of their race, color, religion, sex and national origin. Currently, body weight is not a protected category in existing civil rights laws. Existing civil rights laws should include body weight to protect people from weight discrimination	31.0	23.0

*Only strategies endorsed as 'highest impact' or 'most achievable' by ≥25% of women are shown.

Table 4 Participants' perceptions of what role different groups can play (major, minor or no role) to help reduce weight-based bullying and/or stigma and discrimination

	Percentage indicating major role	Percentage indicating minor role	Percentage indicating no impact
Family members	86.2	13.5	0.3
Friends/peers	81.7	18.0	0.3
Educators/teachers	76.8	21.4	1.8
Health professionals	79.2	19.5	1.3
Employers	46.2	44.7	9.0
Media	73.7	23.6	2.8
Government	47.6	40.0	12.4

of participants viewed employers (46.2%) or the government (47.6%) to play a major role in stigma reduction, despite 85.8% of participants assigning high importance to including weight stigma in workplace harassment training, and more than two-thirds of participants (67.3%–86.1%) assigning high importance to most legislative measures as strategies to reduce weight stigma (as depicted in Table 2).

Regression analyses

Table 5 presents results from linear regressions for participants' ratings of importance of stigma-reduction strategies in each setting (i.e. home, school, workplace, health care, media, laws and other) by demographic predictors (age in years, race/ ethnicity, education and income), BMI (continuous), history of weight-based stigmatization and weight bias internalization. Each model accounted for approximately 5% to 9% of the variance in strategy importance (R^2 = .05 to 0.09, p = 0.000 to 0.060). History of experiencing weight stigma predicted higher importance ratings of stigma-reduction strategies in every setting (B = 0.32 to 0.74, β = 0.15 to 0.35, p = 0.000–0.005), except in the media. Weight bias internalization predicted higher importance attributed to stigma-reduction strategies in the home (B = 0.06, β = 0.13, p = 0.018) and media (B = 0.06, β = 0.11, p = 0.040) settings only. Although not consistent across strategies, higher BMI scores were positively associated with greater support for legislative (B = 0.01, β = 0.14, p = 0.011) and other strategies (B = 0.01, β = 0.11, p = 0.045) to reduce weight stigma. No other consistent predictors emerged across settings for stigma-reduction strategies.

Table 5 Perceived importance for stigma-reduction strategies across seven strategy content areas among women with overweight and obesity

	Home	School	Workplace	Health care	Media	Laws	Other
Age (in years)	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Race/ethnicity (ref. non-Caucasian)							
Caucasian	−0.13	−0.02	−0.02	0.06	0.03	0.04	0.09
Highest education(ref. high school or less)							
Some college	0.05	0.06	0.03	−0.05	0.01	0.23*	0.03
College or higher	−0.03	0.06	0.02	−0.02	0.14	0.08	−0.02
Income (ref. <$50,000)							
$50,000–$99,999	−0.04	−0.05	0.03	0.12	0.00	−0.03	0.00
>$100,000	−0.16	−0.19*	−0.05	0.03	−0.06	−0.04	0.05
Body mass index	−0.01	0.00	0.00	0.00	0.00	0.01**	0.01*
Personal history of weight stigmatization	0.38**	0.35**	0.74***	0.32**	0.26	0.51***	0.40**
WBIS-M	0.06*	0.05	0.00	0.03	0.06*	0.04	0.04
Constant	3.99***	4.24***	3.76***	3.83***	3.31***	2.54***	3.30***
R^2	0.06**	0.05*	0.06**	0.05*	0.04	0.09***	0.05*

The values shown are raw coefficients from linear regression models; 'ref.' means reference category. WBIS-M refers to the modified 10-item version of the Weight Bias Internalization Scale.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

Discussion

This study aimed to expand the limited knowledge of ways to reduce weight stigma through the views of women with overweight and obesity. Findings provide initial evidence that women with high body weight and/or a history of weight stigma attribute high importance to a range of different strategies to reduce weight bias, bullying and discrimination, including individual-level approaches in the home to community level strategies in schools and health care and broader policy-level remedies. The broad support expressed for multiple strategies across diverse settings suggests that individuals with stigmatized identities view a need for comprehensive approaches to effectively reduce weight stigma. Given the documented occurrence of weight stigma in many different domains of living (1), and the lack of systematic efforts to reduce weight bias in these settings (19,20), participants' views in the present study may be justified**.** In addition, the high level of importance assigned to most stigma-reduction strategies in this study is similar to high levels of support for policy measures to address weight stigma documented in more mainstream general population samples. (22,24,32)

The present findings point to several specific strategies perceived to be high in both potential impact and feasibility that could be prioritized in stigma-reduction research and advocacy. These strategies include addressing weight stigma in workplace harassment training, increasing public education about the complex causes of obesity, implementing anti-bullying policies in schools aimed at protecting students from weight-based bullying, requiring insurance companies to reimburse obesity treatment and providing training for healthcare providers on respectful and compassionate care to patients with obesity. While more research is needed to clarify the probable impact and feasible implementation of such strategies, they nevertheless suggest some initial opportunities for advocates, researchers, educators, employers and health professionals to become more involved in improving the quality of life for children and adults affected by weight stigma.

A secondary aim of the present study was to examine the extent to which participants' experienced versus internalized weight stigma were associated with the importance they attributed to different stigma-reduction strategies. Findings showed that experienced weight stigma was associated with higher importance ratings in all stigma-reduction settings, except in the media. The visibility and prevalence of weight stigma in the media (37) may make it sufficiently evident as a target for stigma reduction among individuals with overweight and obesity, regardless of whether they have personally experienced stigma. In contrast, internalized stigma was associated with higher importance ratings of stigma-reduction strategies only in the domains of home and media. As previous work has identified family members to be one of the most common sources of weight stigma reported by women (38), it may be that women are more likely to internalize stigma if it comes from family members, and in turn perceive a heightened need for support and stigma reduction in the family environment. With respect to the media, the pervasive negative portrayals of individuals with obesity in television and film may heighten women's vulnerability to internalizing societal devaluation and increase their sensitivity to stigmatizing media content and the need for efforts to improve media portrayals. Links between internalized stigma and exposure to stigma from family members or the media have received little attention, and more research is needed to examine these relationships and their potential influence on perceptions about stigma reduction.

The family setting was viewed as an important target for stigma reduction regardless of whether participants experienced or internalized stigma. Furthermore, family members were identified by 86% of participants to play a major role in efforts to reduce weight stigma, more so than any other group of individuals. There is scant research assessing stigma-reduction strategies in the family environment, and much remains to be known about the nature and impact of weight stigma communicated by parents, siblings and other family members. The present findings reinforce the need for research attention to the family setting as an important target for stigma-reduction strategies.

An important and complex issue for future research consideration is the alignment between public support for implementation of certain stigma-reduction strategies, and the demonstrated effectiveness (or lack thereof) of these strategies in existing research. For example, while 94% of participants assigned high importance to public education to improve understanding about the complex causes of obesity, research has demonstrated mixed effectiveness of this approach in reducing weight bias. Although no single strategy is likely to be sufficient in addressing societal weight stigma, these findings raise the question of what to do about stigma-reduction strategies that garner strong public support but have demonstrated limited effectiveness or have not been tested. Indeed, the impact of broader-level stigma-reduction strategies such as legislation or regulation of media content is difficult, and often impossible, to assess prior to implementation. As research efforts continue to assess ways to reduce weight bias, it will be important to consider these challenges and to determine how to prioritize stigma reduction in light of public views and research evidence.

While the present study offers novel insights that inform new research on strategies to address weight stigma, it is not without limitations. First, the primary measure used to assess stigma-reduction strategies was developed for this study and requires further testing and replication to establish psychometric properties and construct validity. Second, the sample reflected views of primarily Caucasian women, making it difficult to generalize to individuals of different ethnic and diverse socioeconomic backgrounds, who may have different views about stigma-reduction strategies. The gender composition of the sample also precluded meaningful comparisons between men and women; future research is needed to examine perspectives about stigma reduction among men. Third, the sample comprised members of the OAC, and while the sample characteristics are similar to the general membership of this organization, this is a self-selected sample of adults whose views about stigma-reduction strategies may differ from individuals affected by weight stigma or obesity in the general population, or members of other national organizations committed to fighting size discrimination. Still, it is noteworthy that recent studies with general population samples have documented high levels of support for policy remedies to address weight stigma and discrimination (22,24,32), suggesting that views of the present sample may be consistent with more mainstream groups, at least with respect to policy-level measures. These findings reflect views of individuals whose experiences are highly relevant and important for informing stigma-reduction research, but alone these views are insufficient. Seeking perspectives and including voices of individuals from multiple and diverse groups is critical to inform research efforts on methods for reducing weight stigma. Finally, weight and height were self-reported by participants. Although this introduces potential reporting bias, research has demonstrated high concordance rates between objective and self-reported measures of height and weight in adults (39).

Conclusion

The limited systematic research to date seeking input about strategies to reduce weight stigma from women with overweight and obesity is concerning and may itself be an extension of stigma towards people with overweight and obesity. Researchers need to ensure that their studies include the target's perspective that they actively seek to include the views of individuals who are most knowledgeable about, and affected by, weight stigma. Increased inclusion of these important perspectives in quantitative research can help to establish a comprehensive and more-informed knowledge base to help identify, test and prioritize strategies that can effectively reduce weight-based stigma, bullying and discrimination. Findings from the present study offer an initial step in these efforts, providing new insights that can guide future work to help reduce this pernicious form of stigma.

Conflict of Interest Statement

The authors declared no conflicts of interest.

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