

## Weight stigmatization and bias reduction: perspectives of overweight and obese adults

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### Abstract

This study employed qualitative methods with a sample of overweight and obese adults to identify and describe their subjective experiences of weight bias. Participants (274 females and 44 males) completed an online battery of self-report questionnaires, including several open-ended questions about weight stigmatization. These questions asked them to describe their worst experiences of weight stigmatization, their perceptions of common weight-based stereotypes, their feelings about being overweight and their suggestions for strategies to reduce weight stigma in our culture. Participants reported experiencing weight stigma across a range of contexts and involving a variety of interpersonal sources. Close relationship partners (such as friends, parents and spouses) were the most common source of their worst stigmatizing encounters. Participants challenged common weight-based stereotypes (notably, that obese individuals are 'lazy') and reported that they would like the public to gain a better understanding of the difficulties of weight loss, the causes of obesity and the emotional consequences of being stigmatized. Education was reported as the most promising avenue for future stigma-reduction efforts. The experiences and opinions expressed were not significantly different for men versus women or overweight versus obese

individuals. A minority of participants expressed beliefs suggestive of self-blame and internalization of weight-based stereotypes. These results indicate that while obese individuals experience weight bias across many domains, more stigma-reduction efforts should target stigmatizing encounters in close relationships, including parents, spouses and friends of obese persons.

Obesity is associated with significant social consequences, and overweight and obese individuals are often the targets of weight-related stigmatization [1]. A person who is stigmatized possesses an attribute that is linked to a devalued social identity [2, 3] and is ascribed stereotypes or other deviant labels that can lead to unfair treatment, prejudice and even discrimination [4]. Multiple negative characteristics have been attributed to obese individuals, ranging from views that they are lazy and lacking in willpower to perceptions that they are incompetent, unclean and undisciplined [5–9]. Weight-related stigmatization takes multiple forms, including repeated teasing, bullying, harassment and hostility [10, 11]. Emerging evidence suggests that weight stigma is intensifying [12], even as obesity rates have increased, which has important implications for the well-being of overweight and obese individuals.

Weight bias has been documented across a range of life domains. When referring to weight stigma or bias in this article, we are referring to negative weight-related attitudes and beliefs that are manifested by stereotypes, rejection and prejudice towards individuals because they are overweight or obese. Weight stigma has been documented in

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educational settings toward obese students by peers, classmates, teachers and school administrators [13, 14]; in healthcare environments, where overweight and obese patients may be vulnerable to bias by healthcare professionals [15–22], and in workplace settings, where heavyweight employees are judged negatively by co-workers, supervisors and employers [23, 24]. Weight stigma creates adverse psychosocial consequences for victims, including increased vulnerability to depression, body image distress, psychiatric symptoms [25, 26] and decreased self-acceptance [27]. In addition, weight bias has negative implications for physical health including unhealthy eating patterns [28–31] and avoidance of physical activity [31–33]. Taken together, the amassing literature suggests that being the target of weight-related stigmatization is a common and detrimental experience for obese individuals.

Despite increasing attention to this topic in the scientific and medical community, few studies have identified and described weight bias from the perspective of overweight and obese individuals themselves. Qualitative research methods provide a unique opportunity to document the perceptions of stereotyping processes in recipients' own words and to evaluate the more subjective and personal elements of stigmatization experiences which may be missed in quantitative work [34]. For example, some research has suggested that obese individuals may internalize the stereotypes held against their group and demonstrate bias toward other overweight individuals [35–37]. Qualitative questions can be used to assess the extent to which overweight individuals engage in these internalization processes. As another example, a small number of studies have tested various methods for reducing weight stigma and improving attitudes [38–43]. However, no work to our knowledge has asked overweight and obese individuals for their suggestions of specific strategies that could be helpful in stigma-reduction efforts. Gathering this information from targets of weight stigma may inform educational interventions to reduce this form of bias.

The few qualitative studies that have addressed weight stigmatization provide some unique insights

on perceptions of bias among adolescents and adults [10, 11, 35]. The limitations in the literature to date are the use of small samples and restricted populations, as well as the reliance on face-to-face methods of data collection, such as interviews and focus groups [10, 11]. The lack of anonymity inherent in in-person methods may influence participants' willingness to disclose the more painful or personal details of their stigmatizing experiences. Existing qualitative work has primarily focused on one gender and narrow weight ranges [11, 44], precluding examination of the potential influence gender and weight status on the experience of weight bias. The findings on gender effects in the quantitative research have been mixed, with some studies detecting gender differences [45–48] and others not [25, 27]. Only one study has tested whether weight stigmatization worsens as a function of body weight [46] and the findings were suggestive of a positive effect.

The objective of the present study was to employ qualitative methods to address the literature limitations described above. We sought to examine the subjective experience of weight stigmatization in a large sample of overweight and obese men and women, using a method that allowed for anonymity. By exploring descriptions of weight stigmatization, perceptions of common weight-based stereotypes, feelings about being overweight and suggestions for stigma-reduction efforts, our aim was to gain a better understanding of participants' interpretations of their experiences as targets of stigma and to examine whether responses differ as a function of gender and degree of overweight.

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## Method and procedures

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The participants in the present study were adults who belonged to a national non-profit, non-commercial, weight-loss support organization with active chapters across the country. Recruitment involved advertising the study as a voluntary research project on the organization's website and in their monthly news magazine. Data were collected through a website that was constructed for

the present study, and completed surveys were submitted electronically and anonymously. (All electronic IP information in log files linked to participants' emails was deleted to protect their anonymity.) Participants completed a battery of quantitative self-report measures to assess weight-based stigmatization, coping responses to stigmatizing situations, psychological functioning, eating behaviors and beliefs and attitudes about weight. These measures were completed for the larger purpose of the study, which aimed to examine the relationship between weight stigma, eating behaviors and emotional well-being among overweight and obese adults. Descriptions of these measures and analyses of the quantitative data are reported elsewhere [28, 29]. As part of this battery, four open-ended questions designed to obtain qualitative data about weight stigma were included. These open-ended questions are the focus of the present study.

The initial total sample comprised 2671 adults (2560 females and 111 males). In order to test the potential role of weight status and gender on the responses, we created two subsamples from this larger data set for the purposes of the present study. Due to the intensive resources required to code qualitative data for such a large sample and because of the low number of men who participated in the study, we specifically created a smaller subsample (Sample 1) to match the male participants with a random sample of females of the same body mass index (BMI) and age so that meaningful gender comparisons could be made. To create Sample 1, we took 100% of the males in the original data set ( $N = 111$ ) and then matched them for age and BMI with 111 females who were randomly selected from the larger sample of females ( $N = 2560$ ). Selection criteria for inclusion in the final sample was determined by the presence of responses to the four qualitative questions (described below). Of the 222 adults matched for age and BMI, 44 men and 74 women responded to the qualitative questions, resulting in a sample size of 118 participants. This response rate for women (66%) was similar to the larger sample of participants (all females) who responded to the open-ended questions, which were completed by 64% of participants.

Sample 2 included overweight women and Class III obese women, so that the frequency and types of stigmatization reported could be compared across these distinct weight categories. To create Sample 2, continuous BMI scores of participants were re-coded into categories based on guidelines of the National Heart, Lung, and Blood Institute [49]. Individuals whose BMI placed them in the 'overweight' category ( $BMI = 25\text{--}29.9$ ) or 'obese Class III' category ( $BMI = 40$  or higher) were retained ( $N = 1258$ ), and those with other BMI categories or who did not complete responses to the qualitative questions were excluded. A sample of 100 women who were classified as overweight and 100 women in the obese Class III category were then randomly selected for Sample 2 ( $N = 200$ ). This sample size was chosen to provide a comparable sample size to Sample 1. Because only a subset of participants from the total sample completed all four questions (which may have been due to the fact that they were at the end of a series of longer measures), we tested the completers versus non-completers for differences in gender, age and weight. No differences were observed between these groups.

## Measures

### *Demographic and weight information*

Participants were asked to report their age, gender, ethnicity, height, weight, childhood weight status (using 'underweight', 'average' or 'overweight' as response choices) and age of first dieting attempt.

### *Qualitative questions*

Four open-ended questions pertaining to issues of weight stigmatization were developed for this study: (i) What has been your worst experience of weight stigmatization? (ii) In your opinion, what would you like other people to know about what it is like to be overweight or obese? (iii) In your opinion, what are the most common stereotypes about overweight and obese people? (iiib) Do you believe that these stereotypes are generally true or false? and (iv) In your opinion, what kinds of things need to be done to improve people's attitudes toward overweight and obese people? The instructions

emphasized that the experimenters were interested in participants' opinions to better understand experiences of stigma that overweight and obese people face, and that they should feel free to write as much or as little as they desired for each question.

### Data coding and analysis

The written responses to the open-ended questions submitted online were coded using a stage model of qualitative content analysis [34], which is a systematic technique for reducing written text into fewer content categories based on explicit rules of coding. First, the research team read responses for content and identified the primary analytic categories and themes that emerged in categories. A coding template was developed based on these responses and was pilot tested with a subsample to establish grounded categories and determine objective criteria for selection and sorting of content into identified categories. Categories are described in detail in Results, and included content such as the 'time period of stigma' (childhood, adolescence, adulthood), the 'type of stigma' (verbal, physical, relational, physical barrier), the 'context of stigma' (school setting, home, work, medical facility, public parks, outside, stores, theater, mode of transportation), the 'source of stigma' (parent, sibling, other family member, spouse, romantic partner, child, peer, friend, teacher/professor, health professional, boss/supervisor, stranger, sales clerk, restaurant server) and the 'stereotypes attributed to the individual' (lazy, lack of willpower/self-discipline, unintelligent, overeats/binges, eats junkfood, unattractive/ugly, poor hygiene, worthless, jolly and specific animal references). The investigators discussed the major themes in each category and modified the list until agreement was reached. For example, several themes emerged in response categories identified in Question 2, which asked participants what they would like others to know about being obese. One category of responses reflected weight-based responses and included several themes such as the difficulties of being obese and losing weight. Another category of responses included emotional consequences of stigma, with themes of

loneliness, embarrassment, humiliation and depression. A third category of responses involved specific challenges to weight-based stereotypes and contained themes of incompetence, overeating, appearance and laziness. Specific codes were assigned to all of the themes, and responses that contained more than one theme were coded for each theme present. The coding instructions were revised until the coders reached a high degree of consistency.

Twenty percent of the responses were double coded, and inter-coder reliability was assessed by calculating the number of agreements per total number of agreements plus disagreements [50]. Inter-coder reliability was 89%, indicating good consistency in categorization between the two coders for content analyses. After discussion of discrepancies in coding, agreement was increased to 100%, most often by clarifying specific language pertaining to a subtheme of a response category. In addition to presenting verbatim descriptions of examples of participant responses, frequencies from the response coding for major themes and subthemes are reported below to present the findings for each of the four questions.

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## Results

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Descriptive statistics for Sample 1 and Sample 2 are presented in Table I. For Sample 1, there were no significant differences between males and females for age, BMI, childhood weight status or ethnicity. However, a univariate analysis of variance indicated that females began dieting to lose weight at an earlier age than males [ $F(1, 106) = 9.88, P < 0.01$ ]. In Sample 2, the overweight individuals were also several years older in age than the obese individuals [ $F(1, 198) = 12.34, P < 0.01$ ]. Pearson chi-square analyses also showed that a higher percentage of the obese individuals were overweight in childhood compared with the overweight individuals [ $\chi^2(2, N = 200) = 15.73, P < 0.001$ ]. No other differences emerged.

The frequencies of participant responses were calculated within each sample, and chi-square

**Table I.** Descriptive statistics of samples 1 and 2

Variable	Sample 1 (N = 118)		Sample 2 (N = 200)	
	Males, M (SD)	Females, M (SD)	Overweight, M (SD)	Obese III, M (SD)
BMI	38.63 (9.36)	39.70 (11.15)	27.75 (1.85)	47.85 (7.75)
Age	47.81 (12.07)	48.29 (12.55)	52.66 (14.34)	45.99 (12.41)
Age first dieted	28.21 (14.89)	20.07 (11.55)	23.12 (12.70)	18.79 (9.69)
Childhood weight (% overweight)	43%	38%	31%	54%
Ethnicity (% Caucasian)	88%	96%	96%	97%

The overweight category refers to individuals with a BMI of 25–29.9, and obese Class III category refers to those with a BMI of 40 or higher.

analyses were computed to determine whether there were differences between the percentage of males and females and between overweight and obese individuals, endorsing various coded responses to each stigma question. No gender or weight differences emerged in frequency of responses to any of the overall questions or in subthemes of response categories that were coded in each question. As a result of this finding, both samples were collapsed into one larger sample ( $N = 318$ ), which comprised 44 males and 274 females, ranging in age from 18 to 82 years. All additional analyses were performed with this collapsed sample.

### Descriptions of worst stigmatizing experience

The responses to the first qualitative question (What has been your worst experience of weight stigmatization?) were coded according to (i) the age of the individual when the event occurred, (ii) the type of stigma, (iii) the age of the perpetrator, (iv) the gender of the perpetrator, the relationship with the perpetrator, and (v) the setting of the event. The results of these analyses are depicted in Table II. The majority of participants reported that their worst stigma experience occurred in adulthood and were enacted by another adult. It was not possible to clearly determine whether perpetrators of stigma were more often male or female, as in 40% of participants' responses the gender of the stigmatizer was not evident (e.g. participants would describe being stigmatized by 'my doctor', 'my teacher', 'kids at school' or 'a stranger' without referencing

gender). Three-quarters of participants reported that their worst experience consisted of verbal bias, which included intentional negative comments, insults, derogatory names, teasing, ridicule or being made fun of because of their weight.

The participants' worst stigma experiences occurred in a range of different settings and by a variety of individuals. The most frequently reported sources of stigma were peers/friends, parents, strangers, spouses, other family members and health professionals. The most frequent setting where stigma occurred was in the home, followed by public places (e.g. stores, restaurants, theaters, parks), school settings and employment settings. Selected examples of responses by participants are presented below:

My father was always telling me I was fat because I was lazy. I have always been active but I didn't participate in athletics in school. I was in marching band, chorus and other more academic pursuits so therefore I was 'lazy'. To this day I feel guilty if I sit down to read a book or magazine. (75-year-old female)

My mother telling me in a loud voice at a family gathering that I should buy my clothes at the tent and awning supply store. (57-year-old female)

I think the worst was my family doctor who made a habit of shrugging off my health concerns ....The last time I went to him with a problem, he said, 'You just need to learn to push yourself away from the table'. It later turned out that not

only was I going through menopause, but my thyroid was barely working. (63-year-old female)

**Table II.** Characteristics of worst stigma experience described by respondents (*N* = 318)

Characteristics of worst stigma experience	Percentage of individuals endorsing responses
Time period of stigma	
Childhood	18.0
Adolescence	11.4
Adulthood	61.4
Not evident from response	9.0
Type of stigma	
Verbal	76.6
Physical (touch/grab)	1.3
Discrimination	6.3
Physical barriers	8.0
Other	7.6
Age of perpetrator	
Child	12.7
Adolescent	1.3
Adult	67.4
Not evident from response	12.6
Gender of perpetrator	
Male	33.3
Female	26.0
Not evident from response	40.6
Source of stigma	
Peer/friend	15.8
Parent	12.7
Stranger	9.8
Spouse	9.5
Other family member	8.5
Health professional	8.2
Boss/supervisor	7.0
Sales clerk/server	7.0
Child	4.7
Teacher/professor	3.5
Sibling	2.5
Boyfriend/girlfriend	2.2
Other	8.5
Location of stigma	
Home	34.5
Public place	25.6
School	12.7
Work	11.1
Medical facility	4.4
Mode of transportation	3.8
Other	7.8

### Personal messages about being overweight

For Question 2 (What would you like others to know about what it is like to be overweight or obese?), participants' responses were coded into three themes that emerged: (i) weight-based responses, which focused on difficulties of weight loss and causes of obesity, (ii) emotional consequences of being stigmatized and (iii) responses which challenged common weight-based stereotypes (see Table III). Over one-third of participants indicated that they would like others to know how difficult it is to lose weight, which included the statements that weight loss is constant struggle, multiple diets have been attempted to lose weight and descriptions of ongoing frustration with failed

**Table III.** Responses to Question 2: 'What would you like others to know about what it is like to be overweight or obese?'

What would you like others to know about being overweight/obese?	Percentage of individuals endorsing responses
Weight-based responses	
Difficulty of weight loss	35.8
Physical challenges of excess weight	16.4
External attribution of blame	15.1
Obesity has a complex etiology	15.1
Food is addictive	9.1
Personal attribution of blame	5.3
What it feels like to be an obese person	3.8
Consequences of stigma	
Depressive feelings	18.6
Relationship suffered	7.5
Feelings hurt	6.3
Humiliation/embarrassment	5.7
Sadness/sorrow	5.3
Ate more food in response to stigma	4.7
Challenging stereotypes	
Do not judge me based on appearance	10.1
I do not overeat/binge	9.1
I have feelings too	9.1
I am a good person	8.5
I do not want to be heavy	8.2
I am not lazy	7.5
I am not incompetent	5.0

Respondents could endorse more than one category response to this question.

dieting attempts. In addition, 51 participants emphasized the physical challenges of being overweight, in particular, not being able to fit into seats in theaters, restaurants, amusement rides and modes of transportation. Other physical challenges reported included difficulty finding attractive clothes that fit, or experiencing physical pain when walking.

A variety of responses emerged regarding messages about the causes of obesity. Forty-eight respondents indicated that they would like others to know that there is a complex etiology of obesity, and that environmental, genetic, biological, metabolic and other medical factors should be recognized as contributing causal factors. Another 29 participants wrote about the addictive nature of food (e.g. obsession, cravings and loss of control with food) and made parallels to other forms of addiction such as alcohol and tobacco. The issue of personal responsibility emerged, with 48 participants specifically stating that they should not be blamed for being overweight, while 16 people reported the opposite; being overweight was their fault.

Participants also wished that others would understand the range of emotional consequences of stigmatizing experiences. Primarily, individuals reported feeling depressed and down following stigmatizing encounters. Some noted that their relationship with the person stigmatizing them suffered over time. Others reported feeling hurt, embarrassed and sad after the event and reacted by eating more food.

Finally, in response to Question 2, a number of participants directly challenged common weight-based stereotypes and said that they would like others to recognize that these generalizations are false. Participants requested that they not be judged based on their appearance, and some explicitly stated that they would like others to know that they do not overeat or binge eat, they are not lazy or incompetent, they are worthy of respect and kindness and they do not want to be heavy. These themes are illustrated by the following examples:

It is very difficult to lose and especially maintain my weight. I am not lazy nor am I stupid. Re-

peated dieting has not helped. If anything, it has intensified my weight problem. (51-year-old female)

...Losing weight is hard and you are hard enough on yourself without the ongoing criticism of others. Food is an addiction to me and unlike an alcoholic or drug addict, I cannot remove food from my environment. (54-year-old female)

I think that many people have an automatic disgust reaction to people who are severely overweight, like they are diseased or disabled, and they should know that people who look different on the outside are not so different on the inside. (39-year-old female)

### Perceptions of weight-based stereotypes

In response to Question 3a (In your opinion, what are the most common stereotypes about overweight and obese people?) and Question 3b (Do you believe that these stereotypes are generally true or false?), participants identified a range of pervasive stereotypes. Many respondents reported more than one stereotype being common, so cumulative frequencies are reported in Table IV. The most commonly perceived stereotype was that obese individuals are lazy, which was endorsed by 62% of the sample. For instance, one participant stated, 'The view is that fat people are lazy or eat too much. I'm not lazy and I weigh and measure every bite I put in my mouth. I don't eat cake, cookies, or pasta. My body just doesn't cooperate' (51-year-old female). The next most frequently perceived stereotypes included views that overweight individuals overeat/binge, are unintelligent, have poor self-discipline/lack of willpower and poor hygiene.

Of the total sample, 265 participants (83%) included commentary in their responses regarding their beliefs about whether weight-based stereotypes were true or false. Among those who responded, 223 people (84%) reported that they believed stereotypes were false, and 42 participants (15%) indicated (via yes/no responses) that they believed stereotypes were true. Participants who believed stereotypes to be true were primarily

**Table IV.** Perceptions of most common weight-based stereotypes reported by participants

Perceptions of most common stereotypes	Percentage of individuals endorsing responses
Lazy	62.5
Overeats/binges	27.0
Unintelligent	18.8
Lack of willpower/self-discipline	18.2
Poor hygiene	12.9
Worthless	9.4
Unattractive/ugly/disheveled	6.4
Jolly/happy	5.7
Eats junkfood	4.1
Animal references (e.g. pig, cow)	1.6
Other	10

Respondents could endorse more than one category response to this question.

female (88%), Caucasian (97%), with an average age of 49 years (SD = 14.09) and mean BMI of 39.36 (SD = 11.02). The average age of first dieting attempt in this group was 22 years old (SD = 12.06), and 36% reported being overweight in childhood. These characteristics are similar to the overall sample.

### Suggestions for stigma-reduction efforts

Question 4 (In your opinion, what kinds of things need to be done to improve people’s attitudes toward overweight and obese people?) generated several distinct themes, reported in Table V. Again, participants were free to endorse more than one suggestion, so cumulative frequencies were added for each response reported. The most common suggestion for stigma-reduction interventions was increased education, specifically about the causes of obesity, the difficulty of losing weight and the inaccuracy of common stereotypes. As an example, one respondent suggested the need for ‘(e)ducation concerning weight loss problems that people encounter and setbacks that people have and the reasons why these happen. Education so that others will begin to see that the excess weight is not the only thing to consider when meeting an overweight person’ (44-year-old male).

**Table V.** Suggestions for stigma-reduction strategies among participants

Suggestions for stigma-reduction efforts	Percentage of individuals endorsing responses
Education about the causes of obesity and weight stigma	40.6
Increased sensitivity and support for obese persons	33.0
Changes in media/advertising (e.g. heavier role models)	17.0
Bias and negative attitudes cannot be changed	10.0
Spend some time ‘Walking in my Shoes’	8.1
Increased efforts to publicly accommodate obese persons	4.7
No one needs to change but myself	2.8
Other	5.7

Respondents could endorse more than one category response to this question.

One-third of participants suggested interventions to increase sensitivity and weight tolerance toward obese persons. Other recommendations included targeting media and advertising sources, specifically to increase exposure to more plus-size models and actors, discourage ridicule and teasing of overweight characters on media programs and place less emphasis on the ‘thin’ ideal body type. For instance, one participant suggested the following: ‘Start using larger people in magazines and on TV. Quit showing only skinny people on everything and making us feel like we won’t ever succeed at anything being overweight ...’ (56-year-old female). Other suggestions included the statement to ‘walk in my shoes’ so that others can experience daily life as a heavy person and recognize how the physical environment (e.g. theater seats, restaurant booths) does not accommodate overweight persons. One participant stated ‘I would love "thin" people to walk in overweight people’s shoes for the day to see how we are treated and how we live our lives’ (29-year-old male). A minority of people (10%) felt that negative attitudes cannot be changed, and a small percentage of participants said that no

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stigma-reduction efforts are needed, instead, they themselves need to change by losing weight.

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## Discussion

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The findings of this exploratory research provide several insights into the complexities of obesity stigmatization. Whereas much of the existing research to date on weight bias has documented stigma in settings such as employment, educational and medical facilities [1, 9, 24], our findings suggest that for many obese individuals (~46% of the present sample), the worst stigma experiences occurred at home with family members (e.g. parents, spouses and other relatives) or friends. This finding highlights the importance of examining weight stigma in the context of close interpersonal relationships and identifying the nature, extent and consequences of bias when it comes from friends and familial sources.

Initially, the idea that the worst experiences of stigma were with friends and family may be counterintuitive. One might expect close friends or relatives of a stigmatized person to be sympathetic and supportive, and not to further perpetuate stigma. However, there are several potential explanations for this phenomenon. First, it is possible that weight bias has become so normative that even parents, spouses and other close relatives are not immune to negative attitudes toward obesity. It may also be that individuals report more weight bias from family members because they have increased exposure to these interactions in home settings where more time may be spent compared with other settings where bias could occur. Second, some comments, though hurtful, may reflect desperate attempts to motivate weight loss efforts among obese relatives or friends. Family members of obese individuals may genuinely be worried about their loved one's health and may believe that they need to push him/her harder to lose weight. Third, it has been suggested that family members may express criticism or negative attitudes as a result of stress induced in their own lives from living with an overweight person [51]. For example, family members may be re-

quired to change their eating patterns or provide personal or medical care for loved ones depending on the health of the overweight person. Fourth, it could be that comments made by friends and family members are experienced as more hurtful, and therefore recalled more often, than weight-based comments from others or strangers. Fifth, some research suggests that weight bias is not only directed at obese persons but also extends to individuals associated with them[52]. Perhaps the visibility of weight, in contrast to other social stigmas, leads friends and close relatives of obese individuals to feel vulnerable to criticism stemming from anti-fat attitudes simply for their association with that person. A hypothesis that needs to be tested is whether friends and others associated with obese individuals attempt to distance themselves from negative stereotypes by becoming perpetrators of weight stigma. Finally, it is possible that close relatives of the obese person feel that they are viewed as partially responsible for his or her weight gain. For example, the spouse or parent of an obese person may feel that others wonder why they are not doing something more to help their spouse or child lose weight. This perceived responsibility combined with the practical inability to make someone else lose weight could create a climate of frustration and anger that could lead to stigmatizing behavior. This hypothesis needs to be tested in future research.

Regardless of which explanation is correct, it is critical to identify intervention strategies that reduce the contribution of friends and families of overweight people to the experience of weight bias, especially for children [53]. At the same time, it is important to develop tools to help obese individuals cope with weight stigma, which might include identifying specific strategies for talking to loved ones about their biased attitudes or including family members as part of standard weight management treatments to help improve familial attitudes in addition to eating patterns.

The findings of this study also lend further insight into weight stigma in the context of gender and body weight. Participants in this study, regardless of their gender or whether their BMI was categorized in the overweight range or highest level of

obesity, reported similar experiences, perceptions and stereotypes about obesity and the stigma attributed to them. This finding is inconsistent with some research reporting gender differences with certain types of weight stigma [45–48] and higher rates of weight bias experienced by persons with a higher BMI [46], but supports other recent work which has not found gender differences in levels of stigma [25, 27]. While it is likely that variables of gender and weight play some role in the context of weight bias, our findings indicate that these roles are not as straightforward as might be predicted. Unfortunately, it appears that anyone who is overweight—whether male or female and whether modestly overweight or morbidly obese—is vulnerable to weight bias and its negative consequences.

Respondents described several clear messages that they wished to communicate to others about their weight. Over one-third of participants commented specifically about the difficulty of achieving and maintaining weight loss despite ongoing efforts to do so. In a diet-saturated culture, this health message seems important, especially as increasing research illustrates the limits of existing commercial and self-help weight loss programs to achieve long-term success [54]. Many respondents also highlighted the importance of recognizing multiple causes of obesity, emphasized the addictive nature of food and stated that they should not be held personally responsible or at fault for their weight. These responses illustrate a discrepancy between how many obese persons may view their weight compared with broader societal perceptions and media messages, which tend to emphasize personal responsibility for obesity [55,56]. The fact that the vast majority of participants identified being lazy as the most common and inaccurate stereotype attributed to them also highlights this distinction, as the literature indeed suggests that many people assume that obese individuals are lazy [1, 9].

It is important to note that a minority of participants did attribute personal blame for their weight. Sixteen participants stated that they accepted blame for their weight, 48 people indicated that they believed that at least some common stereotypes about obese individuals are true and 10 par-

ticipants stated that stigma-reduction efforts are not needed because they themselves are the ones who need to change by losing weight. Although the majority of respondents challenged these notions, this finding parallels recent work that suggests that some overweight and obese persons may internalize societal attributions of blame and stereotypes toward their group [36]. The pervasive belief that people need to take personal responsibility for their weight can be tested by examining these individuals more closely. Are people who blame themselves more or less likely to successfully change their eating behavior? Are these individuals healthier psychologically? These questions remain unexplored, and require further investigation.

There are several limitations of this research. The sample largely comprised Caucasian females, making it difficult to generalize to individuals of different ethnic backgrounds and to larger samples of overweight men. Similarly, the lack of gender differences found in this study could possibly reflect the composition of the sample, rather than an absence of true differences in stigma experienced between these groups. While the female participants in the study may generally be representative of overweight women, the sample of men is less likely to be representative and more likely reflects a selective sample. It is possible that there are certain characteristics and attributes of men who participate in weight loss organizations that increase their similarity to women, such as their attitudes or beliefs about weight loss, or the salient role that weight plays in their lives.

Another limitation is the reliance on cross-sectional self-report data of participants about their experiences of stigma, as their perceptions or recollections of stigma could be influenced by contemporaneous attitudes or different than actual circumstances. Finally, the sample comprised members of a weight loss organization who are motivated to lose weight, which may not be typical of the general population. We did not have data pertaining to the general membership of the weight loss organization, and so it is not known how representative our sample was compared with the larger membership. Those who volunteered to

participate were a self-selected sample of adults who were aware that the topic of the study was weight stigmatization. Thus, this nature of this sample limits the generalizability to other populations of obese persons, including those seeking treatment for weight loss.

Finally, the current study has important implications for stigma-reduction interventions. To our knowledge, this is the first study to ask overweight and obese individuals about their recommendations and ideas for potential strategies to reduce weight stigma. Respondents suggested a range of educational strategies that could be used to improve attitudes, some of which parallel efforts that have been attempted in the literature [39, 40, 43]. The ideas offered by participants suggest that multiple strategies may be needed to combat this problem, and that education about obesity and weight stigma may be key. However, education about the causes of obesity has shown mixed results in improving attitudes [6, 39, 40], and it may be imperative to pair educational efforts with other suggestions by participants such as larger media campaigns that depict heavier individuals more positively which can help to dispel common stereotypes. Limited work has focused on stigma reduction for obesity, and a clear priority for research is to test the impact and feasibility of these strategies to find an optimal method, or combination of strategies, that is most effective in eradicating negative attitudes and bias.

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### Conflict of interest statement

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None declared.

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