

# Weight Stigma in Men: What, When, and by Whom?

Mary S. Himmelstein <sup>1</sup>, Rebecca M. Puhl <sup>1,2</sup>, and Diane M. Quinn <sup>3</sup>

**Objective:** This study assessed the weight stigma experiences of men, examining characteristics of men who experienced weight stigma versus men who did not.

**Methods:** Data from three samples of men were examined ( $N = 1,513$ ). Sample 1 consisted of men with obesity at elevated risk for weight stigma. Sample 2 comprised a convenience online panel. Sample 3 included men from a national online panel of US adults. Men in all samples completed almost identical questionnaires assessing demographics, anthropometrics, weight stigma, and dieting.

**Results:** Approximately 40% of men reported experiencing weight stigma. Weight stigma was associated with increased odds of having a BMI consistent with underweight or obesity relative to normal weight. Verbal mistreatment was the most common form of weight stigma experienced across all life stages for men. The most common sources of weight stigma were peers, family members, and strangers. Men reporting weight stigma were younger and less likely to be married, had higher BMIs, and were more likely to have tried to lose weight in the past year relative to men not reporting weight stigma.

**Conclusions:** Understanding differences among men as a function of weight stigma is important for practitioners, as it can identify men who may most benefit from intervention.

*Obesity* (2018) 00, 00–00. doi:10.1002/oby.22162

## Introduction

Experiencing weight stigma undermines health by contributing to obesity (1,2), metabolic disease (3), psychological disorders (4), and ultimately mortality (5). Few studies focus on the prevalence or consequences of weight stigma in men. When men are included in studies of weight stigma, analyses often focus on women; or more commonly, gender is included as a demographic control rather than as a meaningful variable for comparison of weight-stigmatizing experiences (e.g., as a moderator) (6–9). Further, it is common for studies involving weight stigma to be limited exclusively to women (4,10–12), but few studies examine weight bias exclusively in men (13). Indeed, the only sample in this area exclusive to men examines men's expressions of weight bias toward others as a function of sex, race, and body size (13). Thus, compared with women, less is known about different types of weight stigma experienced by men (e.g., teasing versus unfair treatment), the presence of these experiences at different time periods in men's lives, whom men perceive to be the most common perpetrators of weight stigma, or sociodemographic characteristics that may place men at heightened risk for experiencing weight stigma. Understanding the ways in which weight stigma is experienced in men is essential for creating effective weight stigma reduction interventions and for improving obesity-related

interventions to help reduce the harmful health consequences of weight stigma.

Women tend to be a primary focus in weight stigma research because many studies find higher vulnerability and/or prevalence of experienced weight stigma among women compared with men (7,8,14–16). A recent meta-analysis concluded that among individuals with obesity, women report greater prevalence of weight-based discrimination than men, but findings related to gender differences are inconsistent at the highest levels of BMI (i.e., class III obesity) (16). A meta-analysis on weight-based employment discrimination found that effect sizes may be more similar between men and women than previously thought, though the gender effects of weight-based employment discrimination vary based on how weight is manipulated in experimental studies (17). Regardless of gender differences in the prevalence of weight stigma, it is important to meaningfully understand experiences of weight stigma in both men and women (4,10–12). One reason for these discrepancies may be that men and women experience weight stigma at different levels of body weight. Among women, reports of weight stigma tend to follow a linear pattern, with women experiencing more weight stigma as they move into higher BMI categories (7,18,19). Conversely, the trajectory for men may be quadratic, or U-shaped, with men

<sup>1</sup> Rudd Center for Food Policy & Obesity, University of Connecticut, Hartford, Connecticut, USA. Correspondence: Mary S. Himmelstein (mary.himmelstein@gmail.com) <sup>2</sup> Department of Human Development & Family Studies, University of Connecticut, Storrs, Connecticut, USA <sup>3</sup> Department of Psychological Sciences, University of Connecticut, Storrs, Connecticut, USA.

**Funding agencies:** This research was supported from a donation by the Rudd Foundation.

**Disclosure:** The authors have no conflicts of interest to disclose.

**Received:** 26 September 2017; **Accepted:** 16 February 2018; **Published online** 00 Month 2018. doi:10.1002/oby.22162

experiencing the greatest stigma at BMI levels consistent with underweight or obesity (18,19).

Self-perceptions of weight also differ between men and women, which can be important for reports of weight-stigmatizing experiences. Relative to women, men perceive themselves as being overweight at a higher BMI (20). Some evidence shows that women perceive themselves as overweight at a BMI of 23.7, which is inconsistent with clinical definitions of overweight, whereas men's perceptions of overweight are more aligned with clinical guidelines (20,21). Among men, self-perception of weight (e.g., perceiving oneself with overweight or obesity) predicts increased reports of weight-based discrimination (14).

Improving our understanding of weight stigma among men can also provide insights about how weight stigma experiences may exacerbate men's health in similar or unique ways relative to women. Considerable literature demonstrates links between weight stigma and negative health outcomes in women (10,22,23); however, less research examines the extent to which men face similar health consequences. Some research reports that men feel more control over their body weight relative to women (24,25), yet prospective research shows that perceived weight discrimination in adulthood predicts obesity and weight gain over time, not only in women but also in men (2). Recent research demonstrates longitudinal associations between weight-based teasing in adolescence and increased maladaptive eating behaviors and obesity 15 years later for both women and men (26). In addition, two longitudinal studies examining the impact of perceived weight discrimination (independent of other forms of discrimination like sexism and racism) on obesity and mortality found no gender differences in the impact of weight stigma on poor health outcomes over time (2,5). Thus, obtaining a more comprehensive understanding of the nature and extent of weight stigma experienced by men may provide important insights about their weight-related health that typically receive less consideration in obesity-related discourse and intervention. In particular, identifying the time periods in life when men are most vulnerable to weight stigma, and the types of weight stigma they experience from different people, could inform research about their potential risk of health consequences emerging from these experiences.

To begin to address these gaps in the literature, the present study aimed to provide a comprehensive analysis of weight stigma in men to identify the prevalence and nature of their weight-stigmatizing experiences. Using three samples of men, including (1) members of the Obesity Action Coalition (OAC) with obesity (i.e., men involved in obesity-related advocacy), (2) a convenience online panel sample from Mechanical Turk (M-Turk), and (3) a national online panel, our study reflects the first, to our knowledge, systematic assessment of experienced weight stigma exclusively among men. Although the national sample is the largest and most representative of the three included samples, Sample 1 and Sample 2 were included because each makes a unique contribution to this literature. Sample 1 was included because prior research with female members of the OAC suggests that they experience higher rates of weight stigma compared with the general population (11); although this sample is small, it represents a unique sample of men with obesity, which may be helpful for comparison with samples of men seeking treatment or struggling with obesity. M-Turk (Sample 2) is increasingly used in studies involving obesity and weight bias; thus, this panel sample can provide a useful point of comparison for research in this area (27-29). Because these three samples are distinct, we compared

them on all key variables before combining them to examine differences based on weight stigma experiences. Focal analyses examined what kinds of weight stigma are most common for men, when men are most likely to experience weight stigma during their lives, and from whom men most commonly experience weight stigma. We also examined differences in demographics and weight-related characteristics between men reporting experiences of weight stigma versus those with no history of weight stigma.

## Methods

We combined data from three samples in which participants completed almost identical questions about demographics, anthropometrics, experiences with weight stigma, and weight control behavior. All procedures were approved by the University of Connecticut Institutional Review Board. The full sample consisted of 1,513 men, aged 44.41 years ( $SD = 15.87$ ), who reported a mean BMI of 27.63 ( $SD = 6.51$ ). Participants identified as White (57.7%), Hispanic or Latino (19.7%), Black (14.3%), Asian (6.10%), or other (2.1%). Tables 1 and 2 provide additional sample characteristics for the combined sample and each subsample.

### OAC sample

Sample 1 included 36 members of the OAC. The OAC is a national nonprofit organization of more than 54,000 adults who support individuals affected by obesity through education and advocacy. Prior work suggests that individuals in this group experience higher levels of weight bias internalization and perceive more stigma than the general population (11); thus, this sample may be useful for comparison with treatment-seeking samples of men with obesity. In September and October 2015, members of the OAC were invited to participate in a brief survey if they had previously reported struggling with their weight in an internal survey of the OAC's membership ( $N = 2,663$ ). The consent form described the study as an investigation about experiences with body weight and opinions on strategies to reduce stigma toward individuals with obesity. Participants who completed the survey were given the option to enter a raffle for \$25 gift cards to Amazon.com (11). The majority (more than 90%) of respondents were women ( $N = 456$ ), 91% of whom experienced weight stigma (11). Although the present study included only men, their experiences with weight stigma may be similarly higher compared with the general population. Sample methods and recruitment procedures are reported elsewhere (11).

### M-Turk sample

Sample 2 included 233 individuals recruited from M-Turk. M-Turk is a convenience online panel increasingly used by many researchers in social science; we included this sample as an additional comparison group that can provide a useful reference for future work on weight bias for researchers using this online panel. M-Turk is as reliable and diverse as similar online panels; prior work suggests that it is adequate for studies measuring attitudes related to body weight (27,28). In September and October 2016, participants completed a brief online survey in exchange for \$0.75, which is typical for M-Turk compensation of similar-length surveys (27). As in the OAC sample, the consent form described a study about experiences with body weight and opinions on strategies to reduce stigma toward

**TABLE 1** Differences in demographics and anthropometrics by sample

	Full sample (N = 1,513)		OAC (N = 36 men)		M-Turk (N = 233 men)		SSI (N = 1,244 men)		F	df	P
	M	SD	M	SD	M	SD	M	SD			
Age	44.41	15.87	53.78 <sup>a</sup>	8.88	37.03 <sup>b</sup>	11.04	45.52 <sup>c</sup>	16.35	35.98	2, 1,497	< 0.001
Current BMI	27.63	6.51	36.26 <sup>a</sup>	9.45	27.30 <sup>b</sup>	6.20	27.45 <sup>b</sup>	6.29	33.89	2, 1,511	< 0.001
Highest-ever BMI	30.52	8.14	47.87 <sup>a</sup>	11.42	30.54 <sup>b</sup>	8.19	30.01 <sup>b</sup>	7.43	89.49	2, 1,423	< 0.001

  

	Full sample (N = 1,513)		OAC (N = 36 men)		M-Turk (N = 233 men)		SSI (N = 1,244 men)		$\chi^2$	df	P
	N	%	N	%	N	%	N	%			
Race									100.20	8	< 0.001
White	873	57.7	31	86.1	190	81.5	652	52.4			
Black	216	14.30	3	8.3	11	4.7	202	16.2			
Asian	93	6.10	0	0	19	8.2	74	5.9			
Hispanic/Latino	298	19.70	2	5.6	8	3.4	288	23.2			
Other	32	2.10	0	0	5	2.1	27	2.2			
Education									24.48	6	0.001
High school	212	14	1	2.8	19	8.2	192	15.4			
Some college	430	28.4	13	36.1	76	32.6	341	27.4			
College	563	37.2	13	36.1	105	45.1	445	35.8			
Postgraduate or higher	303	20	9	25	31	13.3	263	21.1			
Income									37.88	8	< 0.001
Under \$25,000	221	14.60	9	25.0	40	17.2	172	13.8			
\$25,000-\$49,999	351	23.20	6	16.7	71	30.5	274	22			
\$50,000-\$74,999	324	21.40	8	22.2	64	27.5	252	20.3			
\$75,000-\$99,999	265	17.50	2	5.6	30	12.9	233	18.7			
\$100,000 or more	344	22.70	10	27.8	27	11.6	307	24.7			
Marriage									46.12	4	< 0.001
Married	775	51.20	25	69.4	84	36.1	666	53.5			
Divorced/widowed/separated	152	10.00	6	16.7	16	6.9	130	10.5			
Never married	583	38.50	5	13.9	132	56.7	446	35.9			
Subjective weight									79.42	6	< 0.001
Underweight	100	6.60	1	2.8	16	6.9	83	6.7			
About the right weight	686	45.30	6	16.7	103	44.2	577	46.4			
Overweight	623	41.20	13	36.1	96	41.2	514	41.3			
Obesity	100	6.60	15	41.7	17	7.3	68	5.5			
BMI category									45.51	6	< 0.001
Underweight BMI	55	3.60	0	0.0	6	2.6	49	3.9			
Normal weight BMI	476	31.50	5	13.9	81	34.8	390	31.4			
Overweight BMI	584	38.60	5	13.9	92	39.5	487	39.1			
Obesity BMI	398	26.30	26	72.2	54	23.2	318	25.6			

Superscript letters denote mean differences between the samples. When the letters differ in each row, the means are different. When the letters are the same in each row, the means are equivalent. M, mean; M-Turk, Mechanical Turk; OAC, Obesity Action Coalition; SSI, Survey Sampling International.

individuals with obesity. A total of 618 individuals entered the survey, but 99 were excluded for failing to answer demographic or anthropometric questions (e.g., sex, height, weight). Of the remaining respondents (males = 233, females = 286), our analysis examined male respondents.

### Survey Sampling International sample

Sample 3 included 1,244 men drawn from Survey Sampling International (SSI), a national online survey panel. SSI participants are compensated with a variety of incentive options for general participation in the panel. The panel includes more than 2 million active

TABLE 2 Sample differences in weight stigma and dieting

	Full sample (N = 1,513)		OAC (N = 36)		M-Turk (N = 233)		SSI (N = 1,244)		F	df	P
	M	SD	M	SD	M	SD	M	SD			
Weight management efficacy	5.12	1.43	4.99	1.27	5.14	1.46			-0.61	263	.546
	Full sample (N = 1,513)		OAC (N = 36)		M-Turk (N = 233)		SSI (N = 1,244)		$\chi^2$	df	P
	N	%	N	%	N	%	N	%			
Current weight goals											
Lose weight	753	49.8	28	77.8	112	48.1	613	49.3	56.68	6	< 0.001
Gain weight	311	20.6	1	2.8	26	11.2	284	22.8			
Stay the same weight	309	20.4	3	8.3	50	21.5	256	20.6			
Doing nothing about weight	130	8.6	2	5.6	42	18.0	86	6.9			
Dieted last year									116.61	2	< 0.001
Yes	950	62.8	31	86.1	141	60.5	778	62.5			
No	179	11.8	2	5.6	90	38.6	87	7.0			
Weight stigma									43.24	2	< 0.001
Any	611	40.4	33	91.7	103	44.2	475	38.2			
None	902	59.6	3	8.3	130	55.8	769	61.8			
Teased									44.98	2	< 0.001
Yes	545	36.0	31	86.1	96	41.2	418	33.6			
No	967	63.9	5	13.9	137	58.8	825	66.3			
Treated unfairly									65.56	2	< 0.001
Yes	353	23.3	28	77.8	64	27.5	261	21.0			
No	1,158	76.5	8	22.2	169	72.5	981	78.9			
Discriminated against									65.63	2	< 0.001
Yes	285	18.8	25	69.4	52	22.3	208	16.7			
No	1,226	81.0	11	30.6	181	7.7	1,034	83.1			

M, mean; M-Turk, Mechanical Turk; OAC, Obesity Action Coalition; SSI, Survey Sampling International.

research respondents derived from more than 3,400 sources and employs validation processes that compare respondent demographic characteristics with multiple databases (29). Quotas were established for sex, income groups, and race, to approximate US Census characteristics. Data collection occurred in July 2015, as part of a larger online survey on weight and health, reported elsewhere (30). The consent form described a study related to health behaviors and body weight. This sample included only the male respondents, who made up approximately half of the sample.

## Measures

Overlapping measures across samples were chosen for their ability to describe sociodemographic and weight-relevant (e.g., dieting, weight goals, weight management efficacy) differences between men reporting weight stigma relative to men who do not. We also included variables to assess the types and sources of weight stigma experienced across developmental phases.

*Demographics.* Participants answered demographic questions to indicate their age, income, educational attainment, race/ethnicity, and marital status.

*Anthropometrics.* All participants indicated their current height and weight, their highest-ever body weight, and their subjective weight category. The question on subjective weight asked participants how they would describe themselves from the following list: “underweight,” “about the right weight,” “overweight,” or “obese” (12,31). BMI ( $\text{kg}/\text{m}^2$ ) was constructed based on self-reported height and weight. Highest-ever BMI was constructed based on self-reported highest-ever weight and height. BMI status was stratified into weight categories according to clinical guidelines from the Centers for Disease Control and Prevention (31).

*Experienced weight stigma.* Participants indicated whether they had ever been teased, treated unfairly, or discriminated against because of their weight using three yes-or-no questions (32). This measure reflects subjective rather than objective experiences of weight stigma. If participants indicated “yes” to any of the three questions, they were prompted with additional questions (modified from another measure (33)) asking about the phase of life (childhood, adolescence, adulthood) of their stigmatizing experiences using similar language to the initial questions (i.e., “In which phase(s) of your life have you experienced teasing, bullying, unfair treatment, or discrimination because of your weight?”). For each phase of life, participants could choose all that applied from three general types of stigmatizing incidents they had experienced, which were described simply as “verbal,” “physical,” or “physical barrier.” Participants were also asked about sources of their stigmatizing experiences, including peers, family members (e.g., parent, sibling), strangers, health professionals (e.g., doctor, nurse), significant others, bosses, or teachers (34).

*Dieting.* Participants reported whether they had dieted in the past year to intentionally lose weight as well as their current weight goals (33). Dieting in the past year was assessed using a single yes-or-no question. Weight goals were assessed using the question “Which of the following are you trying to do about your weight?” with the following options: “lose weight,” “gain weight,” “stay the

same weight,” and “I am not trying to do anything about my weight” (33).

*Weight management efficacy.* Participants in the OAC and M-Turk samples completed five items on weight management efficacy from a weight-modified version (35) of the perceived competence scale (36), which has been used widely in related health domains, including a large clinical trial on weight loss (35). These questions were not included in surveys with the national SSI sample. The questions assessed participants’ confidence in their ability to lose weight and maintain weight loss over time. Items were scored on a scale of 1 (not at all true) to 7 (very true). Higher scores indicated greater confidence in their ability to lose weight and keep it off (combined sample  $\alpha = 0.93$ , OAC sample  $\alpha = 0.90$ , M-Turk sample  $\alpha = 0.94$ ).

## Statistical analysis

Analyses were performed using SPSS Statistics version 22 (IBM Corp., Armonk, New York). Before combining the three samples, we used one-way analyses of variance (ANOVA) and  $\chi^2$  tests to examine differences among the samples (Tables 1 and 2). We used ANOVA and logistic regressions to examine the effects of weight stigma on sociodemographic and weight-related variables. Differences in BMI, age, and weight management efficacy as a function of weight stigma were tested using ANOVA and by controlling for sample, BMI (exception BMI model), education, income, and race (Table 3). Multinomial logistic regression examined odds of membership in a given category as a function of weight stigma for each of the following: race, marital status, weight goals, BMI category, and subjective weight. These analyses controlled for BMI (exception BMI category model), race (exception race model), income, education, and sample. Subjective weight and BMI were treated as nominal rather than ordinal variables because weight stigma may not occur in an ordinal fashion for men but may occur in a U-shape with higher levels among men with underweight and obesity relative to normal weight or overweight (18,19). Education and income as a function of weight stigma were examined using ordinal logistic regression controlling for education (except in the education model), income (except in the income model), BMI, sample, and race. Finally, binary logistic regression examined the odds of dieting as function of weight stigma independent of BMI, income, education, race, and sample.

## Results

### Sample differences

Differences between samples are displayed in Tables 1 and 2. Consistent with other studies (27,28), the M-Turk sample was slightly younger (M-Turk = 37.03, SSI = 45.52, and OAC = 53.78 years old), had a higher proportion of individuals in the lower two income categories relative to the other samples (M-Turk = 47.7%, OAC = 41.7%, SSI = 35.8%), had a lower proportion of individuals with a postgraduate education (M-Turk = 13.3%, OAC = 25.0%, SSI = 21.1%), and included a larger proportion of individuals who were never married (M-Turk = 56.7%, OAC = 13.9%, SSI = 35.9%). The SSI sample was more diverse than other samples (52% White relative to >80% White). Both online panels (M-Turk, SSI) had an average current BMI consistent with “overweight” (M-Turk: mean = 27.30, SSI:

**TABLE 3** Sociodemographic and weight-related differences as a function of weight stigma in men

	No stigma (N = 902)		Stigma (N = 611)		ANOVA			
	M	SD	M	SD	F	df	P	$\eta_p^2$
Age	46.83	16.43	40.60	14.05	81.14	1, 1,474	<.001	0.052
Current BMI	26.49	4.58	29.30	8.27	87.48	1, 1,474	<.001	0.056
Highest-ever BMI	28.66	5.48	33.21	10.35	54.27	1, 1,395	<.001	0.038
Weight management efficacy	5.33	1.32	4.92	1.51	1.02	1, 250	.313	0.004

  

	No stigma (N = 902)		Stigma (N = 611)		Multinomial logistic regression			
	N	%	N	%	$\beta$ (OR)	P	Lower CI	Upper CI
Race (ref White)	507	33.5	366	24.2				
Black	128	8.5	88	5.8	0.800	0.195	0.57	1.12
Asian	65	4.3	28	1.9	0.550	0.016	0.34	0.89
Hispanic/Latino	178	11.8	120	7.9	0.711	0.028	0.53	0.96
Other	23	1.5	9	0.6	0.544	0.419	0.24	1.24
Marriage (ref married)	509	33.6	266	17.6				
Divorced/widowed/separated	94	6.2	58	3.8	1.27	0.261	0.835	1.95
Never married	297	19.6	286	18.9	1.32	0.048	1.003	1.73
BMI category (ref normal weight BMI)	318	21.0	158	10.4				
Underweight BMI	22	1.5	33	2.2	3.14	< 0.001	1.76	5.61
Overweight BMI	415	27.4	169	11.2	0.82	0.151	0.63	1.07
Obesity	147	9.7	251	16.6	3.37	< 0.001	2.52	4.49
Subjective weight (ref about the right weight)	502	33.2	184	12.2				
Underweight	50	3.3	50	3.3	2.81	<0.001	1.81	4.36
Overweight	336	22.2	287	19.0	2.32	< 0.001	1.83	2.94
Obesity	14	0.9	86	5.7	14.81	< 0.001	8.13	26.96
Current weight goals (ref doing nothing)	80	5.3	50	3.3				
Lose weight	362	23.9	391	25.8	1.71	0.015	1.11	2.64
Gain weight	237	15.7	74	4.9	0.71	0.159	0.44	1.14
Stay the same weight	216	14.3	93	6.1	0.50	0.500	0.54	1.35

  

	No stigma (N = 902)		Stigma (N = 611)		Ordinal logistic regression			
	N	%	N	%	$\beta$ (OR)	P	Lower CI	Upper CI
Education					0.27	0.009	0.07	0.48
High school	135	8.9	77	5.1				
Some college	242	16.0	188	12.4				
College	334	22.1	229	15.1				
Postgraduate or higher	188	12.4	115	7.6				
Income					-0.35	< 0.001	-0.55	-0.15
Under \$25,000	110	7.3	111	7.3				
\$25,000-\$49,999	198	13.1	153	10.1				
\$50,000-\$74,999	193	12.8	131	8.7				
\$75,000-\$99,999	171	11.3	94	6.2				
\$100,000 or more	227	15.0	117	7.7				
Dieted last year					2.15	< 0.001	1.47	3.16
Yes	481	31.8	469	31.0				
No	121	8.0	58	3.8				

OR, odds ratio; ref, reference.

mean = 27.45), while the OAC sample had a mean BMI of 36.26. Likewise, the highest-ever BMI category for both online samples (M-Turk, SSI) was consistent with obesity (~30), while the highest-ever BMI for the OAC sample was consistent with class III obesity (47.87). The OAC sample was more likely to perceive themselves as having obesity (41.7% in OAC vs. 5%-7% in M-Turk and SSI) and more likely to have a BMI consistent with obesity (OAC = 72.2% vs. 23%-27% in M-Turk and SSI) relative to the other two samples.

Table 2 shows sample differences in weight stigma and dieting variables. Approximately 38% of the SSI sample and 44.2% of the M-Turk sample reported experiencing weight stigma, compared with 91.7% of the OAC sample. Teasing was the most common form of weight stigma reported, followed by unfair treatment and discrimination. About half of men in both online samples (M-Turk, SSI) were currently trying to lose weight, versus 77.8% of men in the OAC sample. Most men in the SSI and OAC samples reported dieting in the past year, compared with fewer men in the M-Turk sample (60% vs. ~90% in the SSI and OAC samples). No differences in weight management efficacy emerged between the OAC and M-Turk samples; these questions were not asked of the SSI sample.

### Differences in experienced weight stigma

Table 3 summarizes differences between men who reported weight stigma versus those who did not across all samples. Independent of BMI, sociodemographics, and sample, men who experienced weight stigma were younger (40.60 vs. 46.83) and had lower income ( $\beta = -0.35, P < 0.001$ ) but had higher levels of education ( $\beta = 0.27, P = 0.009$ ). Independent of sample, BMI, and sociodemographics, men reporting weight stigma (relative to no weight stigma) were less likely to be married (17.6% vs. 33.6%) and less likely to identify as Asian (1.9% vs. 4.3%) or Hispanic/Latino (7.9% vs. 11.8%), relative to identifying as White.

Compared with men with no history of weight stigma, those who experienced weight stigma had a higher current BMI (29.30 vs. 26.49) and a higher highest-ever BMI (33.21 vs. 28.66), and they were 2.32 times more likely to perceive themselves as having “overweight” and 14.81 times more likely to perceive themselves as having “obesity,” relative to perceiving themselves as being “about the right weight.” These men were also more likely to have a current BMI consistent with obesity (16.6% vs. 9.7%) or underweight (2.2% vs. 1.5%) relative to normal weight and were 1.71 times more likely to be trying to lose weight relative to doing nothing about their weight; experiencing weight stigma was associated with 2.15 greater odds of dieting during the past year. No differences emerged in weight management efficacy as a function of weight stigma when controlling for BMI, sample, and sociodemographics.

### Characteristics of weight stigma experiences

As depicted in Table 4, men who experienced weight stigma were most vulnerable to these experiences in adolescence (58.9%), followed by childhood (52.0%) and adulthood (37.5%). Verbal mistreatment was the most common form of weight stigma reported, regardless of age (childhood = 49.6, adolescence = 54.0, adulthood = 37.5). Physical mistreatment was more common in childhood and adolescence (19.3% in adolescence and 19.0% in childhood) than adulthood (7.2%), and weight stigma in the form of physical barriers (e.g., medical facilities lacking appropriately sized medical equipment for

patients with high body weight) was uncommon at every stage of life (7.7% in childhood, 6.2% in adolescence, and 7.9% in adulthood). The most common sources of weight stigma across developmental periods were peers (61%), family members (41.7%), and strangers (35.7%).

## Discussion

This study provides a needed systematic assessment of weight stigma experienced by men in three unique samples: a sample with obesity at heightened risk for weight stigma, a convenience online panel, and a national sample. A substantial proportion of men reported experiencing weight stigma, and a greater proportion of men reported weight stigma at BMIs consistent with underweight or obesity relative to normal weight. Although prior research suggests that women experience more weight stigma than men (7,8,14,37), our results suggest that rates of experienced weight stigma among men in this sample (40%) mirror several national samples in which 40% to 44.6% of individuals in the United States experienced weight stigma, regardless of gender (2,5,30). Thus, the present findings lend support for increased research to examine men’s experiences of weight stigma beyond a comparison or control group to describe women’s weight stigma experiences.

Our study identified several demographic and anthropometric differences that may put men at increased risk for experiencing weight stigma. Specifically, younger, never-married men with higher levels of education, lower income, current obesity or underweight, or a history of high body weight were more likely to report experiences of weight stigma. Further, men reporting weight stigma were more likely to have dieted in the past year and to report currently trying to lose weight, although no differences emerged for weight management efficacy when controlling for BMI and sociodemographic characteristics. Given heightened weight loss efforts in men experiencing weight stigma, there may be opportunities for supportive clinical intervention to help men cope with weight stigma as part of weight management or weight loss programs. This is particularly important given that prior work suggests that men tend to cope with weight stigma via eating (30). These results also highlight a group of men (younger men, with high levels of education but relatively lower levels of income, with a history of high body weight) who may be more at risk for experiencing weight stigma. Understanding how men differ on sociodemographic characteristics is important for designing effective interventions. Supporting men and helping them adopt effective coping strategies to deal with experienced weight stigma may help buffer against otherwise adverse health behaviors or outcomes that can arise from weight stigma.

The present findings suggest that a larger proportion of men experience weight stigma at both ends of the BMI spectrum at levels of underweight and obesity relative to normal weight and overweight. Although the percentage of men reporting weight stigma increased with BMI category, the proportions within each BMI category varied, such that more men with underweight BMIs reported weight stigma versus no weight stigma. Likewise, more men with obesity reported weight stigma relative to no weight stigma. BMIs consistent with normal weight and overweight showed the opposite pattern; a greater proportion of men in both of these respective categories reported no weight stigma. This pattern of effects needs more

**TABLE 4** Types and perpetrators of weight stigma across age periods among men reporting any weight stigma (N = 611)

	n	%
<b>Reports of weight stigma</b>		
Childhood	318	52.0
Adolescence	360	58.9
Adulthood	229	37.5
<b>Type of weight stigma: childhood</b>		
Verbal	303	49.6
Physical	116	19.0
Physical barrier	47	7.7
<b>Type of weight stigma: adolescence</b>		
Verbal	330	54.0
Physical	118	19.3
Physical barrier	38	6.2
<b>Type of weight stigma: adulthood</b>		
Verbal	229	37.5
Physical	44	7.2
Physical barrier	48	7.9
<b>Weight stigma at any phase</b>		
Peer	373	61.0
Significant other	101	16.5
Family member	255	41.7
Stranger	218	35.7
Health professional	63	10.3
Teacher/boss	105	17.2
<b>Weights stigma in childhood</b>		
Peer	202	33.1
Significant other	36	5.9
Family member	138	22.6
Stranger	115	18.8
Health professional	33	5.4
Teacher/boss	45	7.4
<b>Weights stigma in adolescence</b>		
Peer	230	37.6
Significant other	43	7.0
Family member	133	21.8
Stranger	127	20.8
Health professional	30	4.9
Teacher/boss	55	9.0
<b>Adulthood</b>		
Peer	125	20.5
Significant other	50	8.2
Family member	99	16.2
Stranger	93	15.2
Health professional	40	6.5
Teacher/boss	58	9.5

research in men and women, as this may be a key gender difference in weight stigma. These results provide initial evidence to support the theory that men experience a quadratic or U-shaped relationship with weight stigma (18,19), while women tend to experience weight stigma in a linear fashion (i.e., weight stigma increases as BMI

increases). Men may experience less weight stigma at levels consistent with overweight because they perceive themselves as being overweight at higher levels of BMI relative to women. Research on weight stigma in individuals with underweight BMIs is lacking in the broader weight stigma literature, and the current findings suggest that examining this issue in men is warranted. While the overall percentage of men with underweight BMIs reporting weight stigma was low in this sample, the portion of men with underweight BMIs was also fairly low.

Men reported experiencing weight stigma the most during adolescence, but they experienced multiple forms of weight stigma from multiple sources at several phases of life. Men in this study reported weight-based teasing as the most common type of weight stigma they experienced, followed by unfair treatment and discrimination, which mirrors research involving weight stigma in women (11,30). Men also reported verbal mistreatment as the most common form of weight stigma across life phases. The most common sources of weight stigma were family members, peers, or strangers. These findings demonstrate that men may experience similar rates of weight stigma from sources similar to those reported by women (38), which highlights the need for inclusion and closer examination of men in the broader weight stigma literature. For example, in light of the high rates of weight-based teasing and interpersonal sources of weight stigma reported by men in our study, an important area for weight stigma reduction for men should focus on interpersonal relationships, to help increase awareness of weight stigma and teasing and its harmful consequences for men, not just women. Furthermore, the extent to which men experience the same psychological, behavioral, and physiological health consequences of weight stigma as women warrants increased attention in future research in men.

Several limitations of this study should be noted. While the sample of OAC members provides an important and unique opportunity to examine men who may be at heightened risk of weight stigma, this sample is small and not necessarily generalizable to larger groups of men with obesity. The M-Turk sample, though comparable to other online samples, is a convenience sample; users of M-Turk tend to be younger, more educated, and underemployed relative to other national samples (28). Still, the M-Turk panel is becoming a common data source of participants for researchers and has been previously used for studies involving self-reported height and weight (28,39). Our measures relied on retrospective reports of experienced weight stigma, and BMI relied on self-reports of height and weight, though self-reports have been shown to be adequate and comparable to measured height and weight (40). Because of the retrospective nature of the reports, we did not examine these variables beyond simple descriptions. Future work should provide a more comprehensive examination of developmental periods at which men are most vulnerable to weight stigma and examine what, if any, effects experiencing weight stigma at different time points might have on future health outcomes. The types of stigmatizing incidents assessed were not defined beyond the following terms: “verbal,” “physical,” “physical barrier.” It is possible that some participants did not understand the meaning of one or more of these terms, particularly what constitutes a physical barrier; this could in part reflect the low response rate to this type of incident. Future research using similar terms should provide participants with more comprehensive explanations or examples of similar terms.

## Conclusion

This study systematically examined experienced weight stigma exclusively in men. A substantial portion of men reported experiencing weight stigma. Men were more likely to experience weight stigma at BMI levels consistent with obesity and underweight relative to normal weight, with the most common sources being weight-based teasing from family, peers, and strangers. Men reporting weight stigma tended to be younger and unmarried with a history of high body weight. Our findings have implications for targeting weight stigma reduction, particularly for implementing strategies that focus on reducing weight stigma in interpersonal relationships. Given that most men reporting weight stigma in our study were actively trying to lose weight, our findings also have implications for weight management and obesity intervention, which provide important opportunities to address weight stigma in men and help them effectively cope with these experiences. This study highlights the importance of recognizing men as common targets of weight stigma and the importance of including men in studies of weight stigma as a vulnerable population rather than a comparison group. **O**

© 2018 The Obesity Society

## References

1. Tomiyama AJ. Weight stigma is stressful: a review of evidence for the cyclic obesity/weight-based stigma model. *Appetite* 2014;82:8-15.
2. Sutin AR, Terracciano A. Perceived weight discrimination and obesity. *PLoS One* 2013;8:e70048. doi:10.1371/journal.pone.0070048
3. Pearl RL, Wadden TA, Hopkins CM, et al. Association between weight bias internalization and metabolic syndrome among treatment-seeking individuals with obesity. *Obesity (Silver Spring)* 2017;25:317-322.
4. Major B, Eliezer D, Rieck H. The psychological weight of weight stigma. *Soc Psychol Personal Sci* 2012;3:651-658.
5. Sutin AR, Stephan Y, Terracciano A. Weight discrimination and risk of mortality. *Psychol Sci* 2015;26:1803-1811.
6. Puhl RM, Brownell KD. Confronting and coping with weight stigma: An investigation of overweight and obese adults. *Obesity (Silver Spring)* 2006;14:1802-1815.
7. Puhl RM, Andreyeva T, Brownell KD. Perceptions of weight discrimination: prevalence and comparison to race and gender discrimination in America. *Int J Obes (Lond)* 2008;32:992-1000.
8. Roehling M V., Roehling P V., Pichler S. The relationship between body weight and perceived weight-related employment discrimination: the role of sex and race. *J Vocat Behav* 2007;71:300-318.
9. Friedman KE, Ashmore JA, Applegate KL. Recent experiences of weight-based stigmatization in a weight loss surgery population: psychological and behavioral correlates. *Obesity (Silver Spring)* 2008;16:S69-S74.
10. Hunger JM, Tomiyama AJ. Weight labeling and obesity: a 10-year longitudinal study of girls aged 10-19. *JAMA Pediatr* 2014;168:579-580.
11. Puhl RM, Himmelstein MS, Gorin AA, Suh YJ. Missing the target: including perspectives of women with overweight and obesity to inform stigma-reduction strategies. *Obes Sci Pract* 2017;3:25-35.
12. Himmelstein MS, Incollingo Belsky AC, Tomiyama AJ. The weight of stigma: Cortisol reactivity to manipulated weight stigma. *Obesity (Silver Spring)* 2015;23:368-374.
13. Hebl MR, Turchin JM. The stigma of obesity: What about men? *Basic Appl Soc Psych* 2005;27:267-275.
14. Dutton GR, Lewis TT, Durant N, et al. Perceived weight discrimination in the CARDIA study: Differences by race, sex, and weight status. *Obesity (Silver Spring)* 2014;22:530-536.
15. Hatzenbuehler ML, Keyes KM, Hasin DS. Associations between perceived weight discrimination and the prevalence of psychiatric disorders in the general population. *Obesity (Silver Spring)* 2009;17:2033-2039.
16. Spahlholz J, Baer N, Konig HH, Riedel-Heller SG, Luck-Sikorski C. Obesity and discrimination - a systematic review and meta-analysis of observational studies. *Obes Rev* 2016;17:43-55.
17. Roehling M V., Pichler S, Bruce TA. Moderators of the effect of weight on job-related outcomes: A meta-analysis of experimental studies. *J Appl Soc Psychol* 2013;43:237-252.
18. Hansson LM, Näslund E, Rasmussen F. Perceived discrimination among men and women with normal weight and obesity. A population-based study from Sweden. *Scand J Public Health* 2010;38:587-596.
19. Judge TA, Cable DM. When it comes to pay, do the thin win? The effect of weight on pay for men and women. *J Appl Psychol* 2011;96:95-112.
20. Crawford D, Campbell K. Lay definitions of ideal weight and overweight. *Int J Obes Relat Metab Disord* 1999;23:738-745.
21. Yancey AK, Simon PA, McCarthy WJ, Lightstone AS, Fielding JE. Ethnic and sex variations in overweight self-perception: relationship to sedentariness. *Obesity (Silver Spring)* 2006;14:980-988.
22. Puhl RM, Suh Y. Health Consequences of weight stigma: implications for obesity prevention and treatment. *Curr Obes Rep* 2015;4:182-190.
23. Hunger JM, Major B, Blodorn A, Miller C. Weighed down by stigma: how weight-based social identity threat contributes to weight gain and poor health. *Soc Personal Psychol Compass* 2015;9:255-268.
24. Klaczynski PA, Goold KW, Mudry JJ. Culture, obesity stereotypes, self-esteem, and the "thin ideal": a social identity perspective. *J Youth Adolesc* 2004;33:307-317.
25. Sikorski C, Luppa M, Kaiser M, et al. The stigma of obesity in the general public and its implications for public health - a systematic review. *BMC Public Health* 2011;11:661. doi:10.1186/1471-2458-11-661
26. Puhl RM, Wall MM, Chen C, Bryn Austin S, Eisenberg ME, Neumark-Sztainer D. Experiences of weight teasing in adolescence and weight-related outcomes in adulthood: a 15-year longitudinal study. *Prev Med* 2017;100:173-179.
27. Buhrmester M, Kwang T, Gosling SD. Amazon's Mechanical Turk: a new source of inexpensive, yet high-quality, data? *Perspect Psychol Sci* 2011;6:3-5.
28. Paolacci G, Chandler J. Inside the turk: understanding Mechanical Turk as a participant pool. *Curr Dir Psychol Sci* 2014;23:184-188.
29. Survey Sampling International website. <http://www.surveysampling.com/>. Accessed September 1, 2017.
30. Himmelstein MS, Puhl RM, Quinn DM. Intersectionality: an understudied framework for addressing weight stigma. *Am J Prev Med* 2017;53:421-431.
31. Centers for Disease Control and Prevention. Defining adult overweight and obesity. Centers for Disease Control and Prevention website. <http://www.cdc.gov/obesity/adult/defining.html>. Updated June 16, 2016. Accessed September 17, 2017.
32. Puhl RM, Heuer CA, Sarda V. Framing messages about weight discrimination: impact on public support for legislation. *Int J Obes (Lond)* 2011;35:863-872.
33. Venditti E, Wing R, Jakicic J, Butler B, Marcus M. Weight cycling, psychological health, and binge eating in obese women. *J Consult Clin Psychol* 1996;64:400-405.
34. Sharma S, Wharton S, Forhan M, Kuk JL. Influence of weight discrimination on weight loss goals and self-selected weight loss interventions. *Clin Obes* 2011;1:153-160.
35. Gorin AA, Powers TA, Gettens K, et al. Project TEAMS (Talking about Eating, Activity, and Mutual Support): a randomized controlled trial of a theory-based weight loss program for couples. *BMC Public Health* 2017;17:749. doi:10.1186/s12889-017-4732-7
36. Williams GC, Freedman ZR, Deci EL. Supporting autonomy to motivate glucose control in patients with diabetes. *Diabetes Care* 1998;21:1644-1651.
37. Puhl RM, Latner JD, O'Brien K, Luedicke J, Danielsdottir S, Forhan M. A multinational examination of weight bias: predictors of anti-fat attitudes across four countries. *Int J Obes (Lond)* 2015;39:1166-1173.
38. Puhl RM, Heuer CA. The stigma of obesity: a review and update. *Obesity (Silver Spring)* 2009;17:941-964.
39. Gardner R, Brown D, Boice R. Using Amazon's Mechanical Turk website to measure accuracy of body size estimation and body dissatisfaction. *Body Image* 2012;9:532-534.
40. Pursey K, Burrows T, Stanwell P, Collins C. How accurate is Web-based self-reported height, weight, and body mass index in young adults? *J Med Internet Res* 2014;16:e44. doi:10.2196/jmir.2909