

ORIGINAL ARTICLE

Perceptions of weight discrimination: prevalence and comparison to race and gender discrimination in America

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Objective: Limited data are available on the prevalence and patterns of body weight discrimination from representative samples. This study examined experiences of weight/height discrimination in a nationally representative sample of US adults and compared their prevalence and patterns with discrimination experiences based on race and gender.

Method and procedures: Data were from the National Survey of Midlife Development in the United States, a 1995–1996 community-based survey of English-speaking adults aged 25–74 ($N=2290$). Reported experiences of weight/height discrimination included a variety of institutional settings and interpersonal relationships. Multivariate regression analyses were used to predict weight/height discrimination controlling for sociodemographic characteristics and body weight status.

Results: The prevalence of weight/height discrimination ranged from 5% among men to 10% among women, but these average percentages obscure the much higher risk of weight discrimination among heavier individuals (40% for adults with body mass index (BMI) of 35 and above). Younger individuals with a higher BMI had a particularly high risk of weight/height discrimination regardless of their race, education and weight status. Women were at greater risk for weight/height discrimination than men, especially women with a BMI of 30–35 who were three times more likely to report weight/height discrimination compared to male peers of a similar weight.

Discussion: Weight/height discrimination is prevalent in American society and is relatively close to reported rates of racial discrimination, particularly among women. Both institutional forms of weight/height discrimination (for example, in employment settings) and interpersonal mistreatment due to weight/height (for example, being called names) were common, and in some cases were even more prevalent than discrimination due to gender and race.

International Journal of Obesity advance online publication, 4 March 2008; doi:10.1038/ijo.2008.22

Keywords: discrimination; bias; gender; race

Introduction

Overweight individuals are frequent targets of weight stigmatization and prejudice.^{1,2} Weight bias occurs from employers,^{3,4} health-care professionals,^{5–9} educators^{10–12} and even family members.¹³ Its negative implications include impairments in psychological well-being^{14–15} and physical health, such as avoiding preventive health-care services,¹⁶ engaging in unhealthy eating patterns^{13,17–19} and avoiding physical activity.^{18,20–22}

Despite evidence of weight bias documented in case studies, experimental work, treatment and convenience

samples, limited information is available on the prevalence and patterns of weight discrimination in a nationally representative sample. Discrimination is distinct from prejudice and beliefs in that it refers to negative, unequal treatment of people because of their membership in a particular group.²³ Prejudice reflects attitudes, while discrimination depicts behavior, thus prejudiced attitudes do not necessarily translate into discriminatory behavior. There is abundant evidence illustrating prejudiced attitudes toward obese persons, but very little work has documented discrimination perceived by obese individuals or the prevalence of these experiences in the US population. Carr and Friedman²⁴ examined the frequency of institutional and interpersonal discrimination among a nationally representative sample of 3437 adults and found that compared to normal weight individuals, obese persons reported significantly more frequent daily discrimination, work-related discrimination and health-related discrimination. Individuals in the

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Received 13 September 2007; revised 25 November 2007; accepted 19 January 2008

highest obese categories were 40–50% more likely to report any discrimination than normal weight persons. The authors also estimated that the effect of obesity on perceived discrimination was similar across race, gender and age categories.

Important questions remain. First, specific forms of weight/height discrimination are important to document so that prevention programs and policies can be targeted to appropriate settings. The Carr and Friedman study was complicated in this respect by relying on a combination of weight and appearance (other than weight or height) discrimination in their analyses, despite no differences in body mass index (BMI) among people who reported appearance-based discrimination and the rest of the sample. Combining these variables into one measure assumes that discrimination based on appearance and weight is the same, even though appearance encompasses numerous physical attributes unrelated to weight.

Second, it is important to determine how weight discrimination compares in its strength and prevalence to discrimination based on other attributes such as gender and race. No work to our knowledge has compared prevalence rates of perceived weight/height discrimination to racial or gender discrimination.

It is also important to examine gender differences in perceived weight/height discrimination to determine unique vulnerabilities of men or women. Carr and Friedman reported that the effects of obesity on perceptions of general discrimination were similar for men and women, but gender was not addressed in the context of weight discrimination.²⁴ In contrast, previous work on prejudiced attitudes toward obese individuals has reported mixed findings on gender, with some studies detecting gender differences^{25–27} and other studies not.^{13,15} Thus, research examining differences among men and women in their perceptions of weight/height discrimination would be informative.

To address these issues, and to better understand the demographic profiles of individuals who report discrimination due to weight vs other attributes like race or gender, the present study documents rates and patterns of weight/height discrimination in comparison to other forms of discrimination among adults in the United States. We examine the prevalence and types of self-reported weight/height discrimination in comparison to racial and gender discrimination, and compare patterns of sociodemographic predictors for these different types of discrimination. Data were drawn from the National Survey of Midlife Development in the United States (MIDUS), a nationally representative random sample of more than 3000 Americans aged 25–74 years in 1995–1996.

Methods and procedures

Sample

The National Survey of MIDUS is an interdisciplinary study of patterns, predictors and consequences of midlife health,

well-being and social interactions. Respondents were drawn from a nationally representative sample of community-based English-speaking adults aged 25–74 years in the United States. In the first stage, participating households were selected from working telephone banks via random digit dialing. In the second stage, disproportionate stratified sampling was applied to select individual respondents. Elderly people (ages 65–74) and men were oversampled along with oversampling in five metropolitan areas (Atlanta, Boston, Chicago, Phoenix and San Francisco). Those queried in the survey completed an initial telephone interview and a self-administered mail questionnaire, with data collected in 1995. The response rate was 70% for the telephone interview, 86.8% for completing the mail questionnaire among the telephone respondents, with an overall survey response of 60.8%.²⁵

Our study uses data from the MIDUS random core sample (the Main Data) (our 1995–1996 MIDUS data is from the 2006 MIDUS Release (30 March 2006). The most recent version of the MIDUS 1995–1996 data was released on 16 April 2007). The 1995–1996 MIDUS study included data from three samples: the Main Data ($N=4242$ with 3485 national random sample participants and 757 respondents from metropolitan oversamples), the Twins Data ($N=1996$ twins) and the Siblings Data ($N=1614$ pairs with 951 participants drawn from the Main Data). The survey assessed physical and psychological health throughout the respondent's adult life, substance abuse, well-being and personal beliefs, socioeconomic status, social support and various forms of perceived discrimination. Follow-up data were collected 9–10 years from baseline in 2004–2005. Further details on the MIDUS data and methodology are available elsewhere.²⁵

We applied several restrictions on the analytic sample. We excluded 980 people who had incomplete or inconsistent data on discrimination-related questions. Another exclusion (215 observations) applied to data with missing responses pertaining to covariates like BMI and sociodemographics. As a result of all exclusions, 2290 individuals (1104 men and 1186 women) remained eligible for the study. There were no significant differences between our sample and the excluded respondents for the key discrimination measures and individual characteristics such as BMI and some socio-demographic characteristics (for example, gender). The excluded participants, however, were more likely to be from minority population groups, younger and with lower educational attainment than an average respondent in our sample. Yet, given similar discrimination and body weight characteristics of the excluded and included respondents from the national random sample, it is unlikely that our data exclusions introduced bias into our estimates. We also conducted sensitivity analyses to check robustness of our results including respondents with inconsistent data on discrimination questions.

Measures

Weight/height discrimination. The MIDUS evaluates perceived discrimination by requesting participants to report

occurrences of discrimination over their lifetime and on a day-to-day basis in interpersonal relationships. While participants are asked about the primary reason for discrimination, they can report multiple reasons if applicable. Specifically, the survey asks 'What was the main reason for the discrimination you experienced? If more than one reason, circle all that apply', with response choices including 'Your Age, Gender, Race, Height or weight, Ethnicity or nationality, Physical disability, Some aspect of appearance other than weight or height, Sexual orientation, Religion, and Other reason'.

The key outcome of this study is perceived discrimination due to the respondent's weight or height. As the MIDUS survey used one category for weight discrimination combining height and weight, we refer to this variable as weight/height discrimination throughout the article. We compared average body weight, height and BMI (defined as weight in kg relative to height in m²) between the survey participants reporting weight/height discrimination and the rest of the sample to test if weight was more likely than height to be a source of discrimination. On average, body weight and BMI were significantly higher in the group reporting weight/height discrimination relative to other participants (BMI of 32 vs 27 for men and BMI of 33 vs 25 for women, $P < 0.01$). There was, however, no difference in height so that a short body stature was unlikely to be a source of weight/height discrimination. Among men, body height was even slightly higher in the group reporting weight/height discrimination ($P < 0.10$), so a short stature does not appear to drive weight/height discrimination responses among men. Finally, we verified that rates of weight/height discrimination did not change in any meaningful way if people with extreme height were excluded (bottom 1% or top 1% height). Therefore, we have reasonable evidence to believe that reports of discrimination due to weight or height primarily reflect higher body weight and obesity rather than height.

We evaluated lifetime experiences of institutionally based discrimination (employment, medical care, education) and interpersonal discrimination on a day-to-day basis. Lifetime experiences were reported in the question: 'How many times in your life have you been discriminated against in each of the following ways because of such things as your race, ethnicity, gender, age, religion, physical appearance, sexual orientation, or other characteristics?' Eleven forms of lifetime discrimination were evaluated, including: 'discouraged by a teacher or advisor from seeking higher education', 'denied a scholarship', 'not hired for a job', 'not given a job promotion', 'fired', 'prevented from renting or buying a home in the neighborhood you wanted', 'prevented from remaining in a neighborhood because neighbors made life uncomfortable', 'hassled by the police', 'denied a bank loan', 'denied or provided inferior medical care', and 'denied or provided inferior service by a plumber, car mechanic, or another service provider'.

Interpersonal discrimination experiences were evaluated with the question: 'How often on a day-to-day basis do you

experience each of the following types of discrimination?' with nine response items including: 'you are treated with less courtesy than other people', 'you are treated with less respect than other people', 'you receive poorer service than other people at restaurants or stores', 'people act as if they are afraid of you', 'people act as if they think you are dishonest', 'people act as if they think you are not as good as they are', 'you are called names or insulted', and 'you are threatened or harassed'. Participants said how frequently they had experienced these situations using the categories 'Often', 'Sometimes', 'Rarely' or 'Never'.

We constructed a measure of perceived discrimination indicating whether an individual reported at least a single occurrence of discrimination in any setting. For interpersonal discrimination, only responses that were endorsed Often or Sometimes counted as indicators of discrimination. We weighted multiple and single occurrences of discrimination equally so that a person reporting a single occurrence of discrimination would be treated like someone reporting several experiences. We also constructed a separate measure of lifetime discrimination occurrences and one of mistreatment in personal relationships.

We compared patterns of weight/height discrimination among US adults ages 25–74 with the profile of those discriminated by race and gender, the two most prevalent types of discrimination reported in the MIDUS data. Using the same measurement approach as for weight/height discrimination, we constructed indicators of race and gender discrimination in either daily interpersonal relationships or major lifetime settings. We also considered occurrences of multiple forms of discrimination (for example, self-reported discrimination due to race and weight/height).

Independent variables. The predictors of perceived weight/height discrimination included a set of sociodemographic variables and measures of relative body weight. We measured obesity based on the NIH clinical guidelines for the classification of overweight and obesity in adults,²⁶ distinguishing between underweight (BMI < 18.5), normal weight (BMI 18.5–24.9), overweight (BMI 25.0–29.9), obesity class I (BMI 30.0–34.9), obesity class II (BMI 35.0–40.0) and obesity class III (BMI 40.0+). We separated the obesity group (BMI ≥ 30) into moderate (BMI 30–35) and severe obesity (BMI ≥ 35) to account for potentially nonlinear effects of obesity on weight discrimination by degree of obesity. The sample size of people with BMI ≥ 40 was too small to enable meaningful estimation. Sociodemographic covariates included gender, age, race, educational achievement, marital status and current occupation. On the basis of statistical tests of interactions between gender and sociodemographic covariates, we did not include any interacting terms and conducted regression analyses for men and women jointly. Table 1 provides rates of weight/height discrimination across sociodemographic and body weight covariates for the total sample and by gender.

Table 1 Rates of perceived weight/height discrimination among US adults aged 25–74 by sociodemographic and body weight characteristics

Characteristic	Sample size	Weight/height discrimination (%)		
		Total sample	Men	Women
<i>Gender</i>				
Male	1104	4.9		
Female	1186	10.3		
<i>Age</i>				
25–34	464	9.4	7.3	10.9
35–44	533	9.9	5.6	14.1*
45–54	572	6.9	2.1	10.9*
55–64	449	5.3	3.9	6.1
65–74	272	4.0	3.9	4.1
<i>Race</i>				
White	2025	6.9	4.4	9.0*
Black	150	19.4	12.7	23.9
Other race/multiracial	115	9.0	5.0	12.9
<i>Highest education</i>				
Less than high school	211	8.4	3.5	12.6**
High school	671	6.4	3.9	8.1**
Some college	710	8.9	6.1	10.9**
College and above	698	8.1	5.1	11.3*
<i>Marital status</i>				
Married	1486	7.2	4.8	9.4*
Single/divorced/widowed	804	9.5	5.2	11.9*
<i>Weight status</i>				
Normal weight	905	2.2	2.2	2.2
Overweight	836	5.7	3.5	8.6**
Moderate obesity	339	13.5	6.1	20.6*
Severe obesity	165	39.8	28.1	45.4**
<i>Occupation</i>				
Managerial/professional	677	7.9	5.4	10.4**
Sales/clerk	512	10.3	5.0	12.5*
Service	196	7.7	6.4	8.5
Worker/mechanic	171	5.4	4.3	NA
Laborer/operator	177	7.3	3.3	NA
No occupation	557	6.5	4.5	7.2
Total	2290	7.9	4.9	10.3*

The reported estimates are weighted. NA, estimates not provided due to a very small sample in the group.*Significantly different rates of weight/height discrimination between men and women at 1% level.**Significantly different rates of weight/height discrimination between men and women at 5% level.

Statistical analysis

Our objective was to determine how weight/height discrimination was related to sociodemographic and body weight characteristics among US adults aged 25–74, and to compare patterns of these relationships to estimates for race and gender discrimination. To identify predictors of discriminatory experiences for an average adult American, we estimated a set of models on the MIDUS sample, with all analyses replicated separately for men and women as a sensitivity check. To account for the complex sampling design and obtain nationally representative estimates, we used individual sample weights in presenting sample statistics.

Multivariate logistic regression models were used to generate the odds ratio (ORs) for discrimination across body weight and sociodemographic characteristics. We checked robustness of results to the inclusion of annual personal income and spousal income in the sensitivity analysis. An additional sensitivity check was the inclusion of indicators for race and gender discrimination to account for multiple forms of discrimination. Since obesity may have a differential effect on the likelihood of weight/height discrimination by sociodemographic strata due to different perceptions of ideal body weight across social groups,^{27–29} we tested for interactions between obesity and sociodemographic characteristics. There was no difference in how obesity was related to the likelihood of weight/height discrimination across gender, race and education. Severe obesity, however, had a different effect with age and occupation, and moderate obesity did so with occupation (included in the model).

Results

Patterns in weight/height discrimination

The prevalence of weight/height discrimination in US adults was relatively high, particularly in certain population groups (Table 1). On average, 10.3% of women reported daily or lifetime discrimination due to weight/height, while men were half as likely to report such experiences (4.9%, $P < 0.01$). Younger cohorts among men and women had the highest rates of perceived weight/height discrimination (7.3% for men aged 25–34 years and 14.1% for women aged 35–44 years). Gender-related differences in the prevalence of weight/height discrimination varied greatly by age from a 5% difference among older adults (aged 65–74 years) to more than fivefold increase for 45- to 54-year-old women. There were also large gender differences in weight/height discrimination across education groups. For example, men with low educational achievement had few occurrences of weight/height discrimination, while women in this group showed the highest prevalence of this discrimination (3.5 and 12.6%, respectively, $P < 0.05$).

There were substantial differences across weight groups in the rates of weight/height discrimination among men and women. Whereas 2% of normal weight men and women reported weight/height discrimination (potentially due to a previously higher weight or measurement error), moderately obese women with a BMI of 30–35 were more than three times more likely than men in the same weight group to report weight/height discrimination (20.6 vs 6.1%, $P < 0.01$). The difference in higher rates of weight/height discrimination for women vs men narrowed but remained significant in people with BMI of 35+ (45.4 vs 28.1%, $P < 0.05$).

Among racial groups, weight/height discrimination was most prevalent among minorities, particularly African-American women (23.9%) and men (12.7%). Gender-related differences in discriminatory experiences were similar bet-

ween black and white groups with a somewhat higher prevalence of weight/height discrimination for Asian/multi-racial women as compared to men.

Other types of discrimination

Compared to other forms of discrimination among US adults, weight/height discrimination ranked as the third most prevalent cause of perceived discrimination among women (after gender and age discrimination), and the fourth most prevalent form of discrimination among all adults (after gender, age and race discrimination) (Figure 1). In general, rates of self-reported discrimination were high in this sample with almost every second person reporting at least one occurrence of any type of discrimination (46%), particularly among women. Gender discrimination was the most prevalent type of discrimination reported due to particularly high rates reported by women (27%), exceeding by a margin other common causes of discrimination like race, age and weight/height.

Race-attributed discrimination was reported by 17% of men and 9% of women, whereas the prevalence of age discrimination was the same for men and women (10–11%). Other common causes of discrimination reported by men were some aspect of appearance other than weight/height (8.3%), and ethnicity/nationality (6.2%), but women reported these causes half-as-often. Causes of discrimination like sexual orientation, religion and physical disability were relatively uncommon (1–3%).

Lifetime experiences of discrimination

Lifetime experiences of discrimination occurred primarily in employment settings. Almost 60% of participants reporting

weight/height discrimination experienced employment-based discrimination (for example, not hired for a job) on average four times during their lifetime. This is similar to experiences of people reporting race discrimination (53%), and higher compared to individuals reporting gender discrimination (40%). Other forms of employment discrimination were similarly prevalent among participants reporting weight/height, gender or race discrimination, such as not given a job promotion reported by approximately a third of respondents in each category and those who were wrongly fired by approximately 11–14% of the survey respondents.

Discriminatory experiences outside of employment settings were prevalent across race, gender and weight/height discrimination, particularly from service providers through the denial or provision of poorer service, and in educational institutions through discouragement by a teacher or advisor from seeking higher education and denial of scholarship. In general, the distribution of lifetime experiences of discrimination was similar across types and settings of discrimination. The number of lifetime experiences among participants reporting weight/height discrimination was almost identically distributed, with 20% of the group falling into one of the five frequencies: 0 time, 1 time, 2–3 times, 4–9 times or 10+ experiences.

Discrimination in interpersonal relationships

Discrimination due to weight/height was commonly reported in daily interpersonal relationships and was comparable to rates of race discrimination and somewhat more prevalent than gender discrimination. Being treated with less respect and courtesy than other people and being perceived

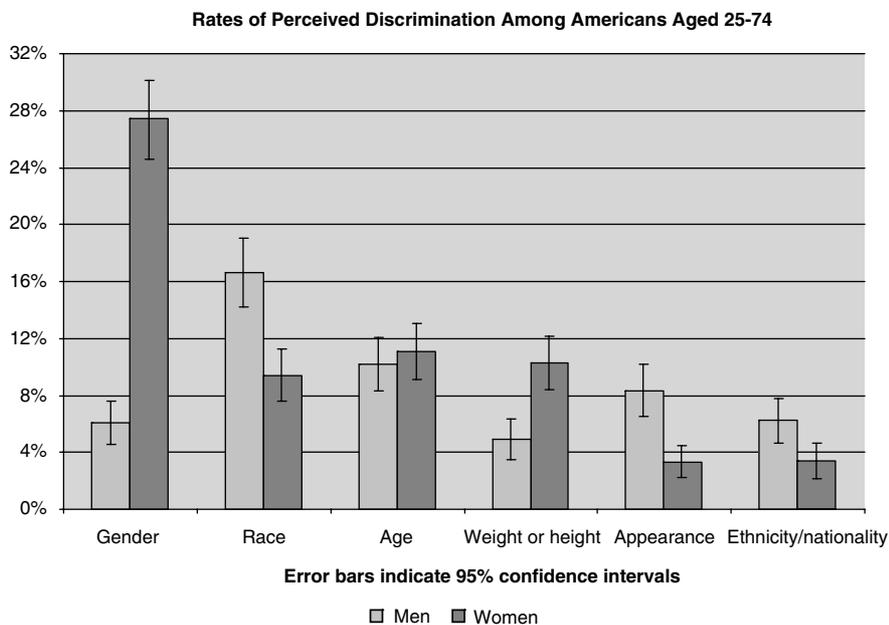


Figure 1 Rates of perceived discrimination among Americans aged 25–74 years.

as inferior (for example, not as smart, not as good as others) were the most common types of daily interpersonal weight/height discrimination. About one-third of respondents experienced such occurrences Often or Sometimes. More direct forms of interpersonal mistreatment, such as being called names or insulted were particularly common among people discriminated against due to weight/height compared to other causes (18 vs 9% for gender discrimination). Poorer service at restaurants and stores was also highly prevalent (36% due to race, 31% due to weight/height and 18% due to gender). The distribution of interpersonal discrimination settings was relatively similar in the weight/height discriminated group: about 1/4 reporting mistreatment in 1, 4–5 or 6–9 settings, and 25% in 2–3 settings.

Multiple forms of discrimination

As survey respondents could select multiple categories for the reasons of lifetime discrimination and interpersonal mistreatment, there is some overlap in rates of discrimination due to multiple causes. In total 46% of the sample reported discrimination due to at least one reason, and 18% of the respondents provided multiple reasons (11% of the sample giving two reasons, and 7% reporting more than two reasons). The most common multiple sources of discrimination were gender, age, race and weight/height. We compared characteristics of people reporting multiple reasons for discrimination, and found that men, minorities, individuals with higher education and lower obesity were more likely to report multiple reasons of discrimination. Almost a quarter of respondents reporting weight/height discrimination also had discriminatory experiences due to race or age. The same estimate for gender discrimination was above 40%.

Regression analysis

We assessed predictors of discrimination due to weight/height, gender and race. Although age discrimination was included in sensitivity analyses, there were too few significant patterns to include this form of discrimination. Results are summarized in Table 2.

Weight/height discrimination. Younger individuals and women were at particularly high risk for weight/height discrimination even after controlling for their weight status. None of the other examined socioeconomic identifiers, however, had an independent effect on the likelihood of weight/height discrimination. In contrast, the most important predictor of weight/height discrimination was increasing body weight, with dramatically higher odds of discrimination among individuals in the heaviest weight category. Significant changes in the probability of discrimination were already present in the overweight group (OR = 3.45, $P < 0.01$). There was a further substantial increase in the odds of weight/height discrimination with increasing obesity (OR = 5.01, $P < 0.01$ for BMI of 30–35 and OR = 9.01,

Table 2 Results from multivariate regression analysis: significant predictors of discrimination due to weight/height, gender and race

	Odds ratio	95% CI
<i>Weight/height discrimination</i>		
Female	2.84	(1.85–4.36)
Age 45–54	0.34	(0.18–0.64)
Age 55–64	0.26	(0.13–0.52)
Age 65+	0.29	(0.12–0.71)
Overweight	3.45	(1.93–6.17)
Moderate obesity (BMI 30–35)	5.01	(1.79–14.04)
Severe obesity (BMI 35+)	9.01	(2.37–34.26)
Severe obesity at age 45–54	3.65	(1.09–12.15)
Moderate obesity among sales/clerks	3.74	(1.06–13.23)
Severe obesity among sales/clerks	4.61	(1.23–17.18)
<i>Gender discrimination</i>		
Female	9.58	(6.73–13.63)
Black women	0.15	(0.05–0.45)
Married/partnered	0.65	(0.51–0.84)
Age 45–54	0.63	(0.44–0.88)
Age 55–64	0.44	(0.29–0.66)
Age 65–74	0.15	(0.07–0.29)
Some college	2.26	(1.20–4.26)
College and above	4.44	(2.31–8.53)
<i>Race discrimination</i>		
Female	0.38	(0.27–0.54)
Black	28.66	(12.47–65.87)
Asian/multiracial	6.09	(2.74–13.52)
Age 45–54	0.59	(0.35–0.99)
Age 55–64	0.42	(0.22–0.80)
Age 65–74	0.42	(0.19–0.94)
Black aged 45–54	4.31	(1.21–15.27)
College and above	2.96	(1.48–5.91)
Occupied in service sector	1.94	(1.02–3.72)

Abbreviation: BMI, body mass index. We report estimation results that are statistically significant at 5% level. Results are adjusted for age (ages 25–34), education (less than high school), race (white), gender (male), body weight status (normal weight) and occupation (no occupation).

$P < 0.01$ for BMI 35+). Obese adults aged 45–54 and those in sales and clerical professions were at additional risk for weight/height discrimination. We found no difference in the relationship between obesity and weight/height discrimination by race, education and marital status.

Gender discrimination. In addition to the finding that women were significantly more likely to report gender discrimination than men, there were important differences in the patterns of gender discrimination by age, education, race and marital status (Table 2). Similar to weight/height discrimination, younger cohorts were more likely to report gender discrimination, perhaps reflecting increased awareness of discriminatory practices. High education also predicted gender discrimination (OR = 2.26, $P < 0.01$ for some college education and OR = 4.44, $P < 0.01$ for college and above). Being married/partnered was associated with lower odds of gender discrimination (OR = 0.65, $P < 0.01$) and white women were significantly more likely to report gender discrimination than women from other racial groups.

Race discrimination. African Americans experienced considerably more discrimination due to race compared to whites (OR = 28.66, $P < 0.01$), with an additional increase in the risk for 45- to 54-year-old blacks. Other racial minority groups (Asian or Pacific Islander, Native American, Aleutian Islander, multiracial) were also at higher risk for race discrimination compared to whites (OR = 6.09, $P < 0.01$). As with discrimination due to weight/height and gender, younger people had higher odds of being discriminated due to race. High education was another independent predictor of more prevalent race discrimination, although in contrast to gender discrimination it applied only to college graduates (OR = 2.96, $P < 0.01$).

Discussion

This study documents the prevalence and patterns of perceived weight/height discrimination in a national sample of adults, and compares them to experiences of more widely known forms of discrimination based on gender and race. Discrimination due to weight/height is common among Americans, with prevalence rates among women close to the prevalence of race discrimination. Weight/height discrimination is the third most common type of discrimination among women, and the fourth most prevalent form of discrimination reported by all adults. Weight/height discrimination occurs in employment settings and daily interpersonal relationships virtually as often as race discrimination, and in some cases even more frequently than age or gender discrimination. Interpersonal mistreatment, such as name-calling, is most common among people discriminated against due to their weight/height.

The risk of weight/height discrimination increases significantly with higher obesity for all adults in the MIDUS sample, irrespective of their sociodemographic background. Obese adults are six-times more likely to report weight/height discrimination compared to normal weight people, and younger obese people are at particular risk. Our findings parallel previous research in adult samples³⁰ and recent work demonstrating greater vulnerability to weight bias among youth at higher levels of obesity.^{31–34} It is important to recognize the heightened risk for weight discrimination in certain subgroups of obese individuals, such as youth, who are in need of effective coping strategies to help combat negative emotional and physical effects of discrimination.

Our findings also demonstrate that women are more vulnerable to weight/height discrimination than men. This supports previous work documenting gender differences in perceptions of weight bias.^{30,35–37} Women in the MIDUS sample were twice as likely as men to report weight/height discrimination, with large gender differences observed across education and age groups. Also, gender differences in the BMI levels at which weight/height discrimination began to affect participants were particularly striking: while men were not at serious risk for discrimination until they reached

a BMI of 35 or higher, women experienced a notable increase in weight/height discrimination risk at a lower BMI level of 27. However, at extreme BMI levels (for example, 40 and higher), these gender differences disappeared.

Our findings have important implications. Although weight stigma has been documented previously, we illustrate just how prevalent perceived weight/height discrimination is, and indicate the need to address this problem on a large scale. Federal legislation and civil rights laws that prohibit discrimination based on race, gender and age have been in effect in the United States for over 40 years. There are no federal laws that prohibit weight discrimination. Currently, only one state (Michigan) prohibits discrimination based on weight. Thus, victims of weight discrimination have few options available if they wish to seek redress in court.³⁸

The heightened vulnerability of weight/height discrimination in women warrants attention in efforts to increase awareness of weight bias. Given Western ideals of thinness for females, women may experience an especially harsh burden if they do not conform to physical ideals, even at lower weight categories. Negative effects of weight prejudice on overweight and obese women have been increasingly documented, including poorer body image and psychosocial functioning³⁹ and unhealthy eating behaviors including binge eating.^{13,19} It is especially concerning that weight/height discrimination may be pronounced for obese women whose body weight already places them at risk for negative health and quality of life outcomes.

Our findings raise questions concerning race and weight/height discrimination. Among racial groups, weight/height discrimination was most prevalent in minorities, particularly among African-American women (23.9%) and men (12.7%), suggesting that this ethnic group may be at an increased risk compared to Caucasians. However, these descriptive findings did not hold in regression analyses, where being African American did not significantly increase the odds of experiencing weight/height discrimination. More work is needed to clarify the nature and prevalence of ethnic differences in the stigmatization of obesity, including comparisons across gender, age and various weight categories. Few studies have examined the vulnerability to weight bias among different ethnic groups, and a limitation of most existing research is the overrepresentation of Caucasians and low representation of different ethnic backgrounds. Our study may also have limited statistical power given a relatively small number of minority respondents. Some previous research has demonstrated more favorable attitudes toward obese individuals among African Americans within their own culture,⁴⁰ but it remains unclear whether this higher level of acceptance for body size can provide a buffer from weight discrimination in larger society.

There are several limitations of the present study. First, the survey combined weight and height in one category of discrimination, making it impossible to separate these two variables. However, drawing from evidence of significantly

higher weight and BMI, but not shorter height, among the MIDUS participants reporting weight/height discrimination, we expect this category to reflect primarily discrimination due to weight. Second, data pertaining to body weight and height in this sample were self-reported, known to provide underreported estimates of weight and overestimates of height.^{41–43} The estimates of obesity based on subjective assessment of body weight and height are likely to be underestimates, which could influence the measured effect on weight discrimination attributed to obesity.

Further, the measure of lifetime discriminatory experiences may not take into account the ways in which changes in body weight over time affect perceptions of discrimination, or the accuracy of recalling more recent vs distant experiences of discrimination, especially among older individuals. Our measures of discrimination weighed equally single and multiple discrimination experiences across different settings. We had to exclude a substantial portion of the MIDUS sample due to data limitations. However, the lack of systematic differences in key characteristics of the excluded and included participants suggests that such exclusions were unlikely to bias the results. In addition, the cross-sectional nature of this study precludes causal interpretations of the links between perceived discrimination and other variables. Future longitudinal studies are necessary.

Our analysis is based on self-reported perceptions of weight/height discrimination. While perceptions of unfair treatment can have negative consequences for health,^{15,16,19} the distinction between perceived vs actual discrimination should be noted. Despite potential limitations of self-report data, existing knowledge for most forms of discrimination relies heavily on people's reports of discriminatory experiences.^{44–47} Certainly, in order to gain an accurate understanding of weight bias, we also need studies that observe people's reactions to stigmatizing situations, investigations that assess weight-based disparities in distributions of inferior economic or health outcomes and experiments that randomly assign individuals to realistic discrimination exposure scenarios. But these methodological approaches also have limitations and challenges of feasibility, and studies of different types are needed to address questions that the other cannot. The findings of the present study, though self-report, contribute new knowledge about weight discrimination that cannot be achieved with other approaches.

The landscape of obesity has been subject to many changes over the past decade, but there is reason to believe that the rates and types of weight discrimination reported in the 1995–1996 MIDUS data set remain valid today. The accumulation of science during this time has consistently documented weight bias in multiple settings, including employment settings and interpersonal relationships.¹ Our own recent research examining 10-year follow-up data of the MIDUS sample also indicates that perceived weight discrimination continues to be common 10 years later, and may be on the rise.⁴⁸

It is possible that the current assessment of weight/height discrimination in this study may be an underestimation of its actual prevalence in American society. A number of stigma and discrimination experiences that may be particularly salient among obese individuals were not assessed, ranging from being avoided or shunned in social relationships because of one's weight, to being required to pay additional fees in public modes of transportation (for example, airplanes) for occupying the space of two passenger seats. In general, more sensitive assessment procedures are needed to capture different types of weight discrimination and to assess potential differences across age cohorts, both of which can help determine accurate prevalence rates for weight discrimination, and provide additional clarification about ways in which weight discrimination may differ from other forms of discrimination.

Weight discrimination is both a social justice problem and a significant public health issue. Our findings indicate that the prevalence of weight/height discrimination is high in the United States, and is comparable to rates of racial discrimination. If this form of prejudice continues without sanction or interventions to shift societal attitudes, weight bias will likely remain socially acceptable and will harm future generations of overweight children and adults. Organized efforts to reduce weight bias are needed.

Acknowledgements

This research was funded by the Rudd Center for Food Policy and Obesity at Yale University.

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