Racial/Ethnic Differences in Body Weight Perception Among U.S. College Students

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ABSTRACT

Objective: To examine racial/ethnic differences in weight perception by sex among U.S. college students.

Participants: A nationally representative sample (N = 70,267) of college students randomly selected from two- and four-year postsecondary institutions (N = 62) during the fall semester from 2011 to 2014.

Methods: This is a secondary data analysis using four years of American College Health Association-National College Health Assessment IIb data. Sex-stratified multinomial logistic regression was performed to investigate racial/ethnic differences in body weight perception.

Results: Compared with non-Hispanic whites, non-Hispanic black men and women were more likely to underestimate their body weight ($p < .01$). Asian men and women were more likely to overestimate their body weight than non-Hispanic whites ($p < .001$).

Conclusions: Weight-related interventions should take into account racial/ethnic differences in body weight perception.

Keywords: body weight perception; college students; weight overestimation; obesity.

The prevalence of overweight/obesity in the U.S. has reached alarming proportions.[1,2] The latest data indicate that out of ten adults, three are overweight and four are obese.[3,4] Furthermore, overweight/obesity is a public health problem because it is associated with an elevated risk of diverse chronic diseases including type 2 diabetes,[5,6] osteoarthritis, cardiovascular disease, and some types of cancer.[7,8] The Centers for Disease Control and Prevention defines adult overweight/obesity using a body mass index (BMI) measure.[9] However, this may be incongruous with how an individual may define themselves. Large variations between individuals' body weight and weight perceptions can occur throughout the life course and are shaped by many factors. They may be influenced by food habits, food environment, nutritional knowledge, physical activity, mass media depictions of what constitutes an ideal figure, and cultural norms and expectation. Many of these factors are driven by concurrent social interactions and can be particularly pronounced when young people enter college.

The notion of the "Freshman 15" may be enough testament that the college setting presents a particular challenge to a young person's weight as they transition into adulthood.[10] The setting can promote great changes in diverse aspects of a student's life, including diet and physical activity.[11] For example, dietary behaviors of college students can be negatively affected by various factors: personal factors (e.g., lack of self-discipline and insufficient time),[12] social environment (e.g., lack of parental control), and physical environment (e.g., limited accessibility to healthy foods and cooking supplies).[13-15] Moreover, maintaining healthy behaviors during college years is important because they generally track until adulthood and can provide long-term health benefits.[11]

Health disparities in overweight/obesity exist among U.S. college students.[16] In one national study, non-Hispanic black college students were found to have higher overweight or

obesity rates than other racial/ethnic groups.[16] The greatest difference was found between non-Hispanic blacks (38.3%) and non-Hispanic whites (26.7%).[16] Such differences may be accounted for by differing body weight perceptions by race.[17,18] In a study that examined racial/ethnic disparities of weight perception among U.S. adults in 1988-1994 and 1999-2008, more overweight/obese non-Hispanic whites perceived themselves as overweight/obese than non-Hispanic blacks.[18] Accurate perception of body weight may be a powerful determinant of maintaining healthy weight, as research has shown that weight perception can be related to the desire to lose weight.[19-23] A national study of adolescents found that weight control behaviors were more strongly influenced by body weight perception than actual body weight status.[20] Findings have also shown that undergraduates with inaccurate body weight perception were more likely to engage in inappropriate weight loss practices (e.g., vomiting and taking laxatives or diet pills) than those with accurate body weight perception.[19]

More research is needed regarding racial/ethnic as well as sex disparities in weight perception among U.S. college students. The lack of understanding about weight perception and possible health-related behaviors may be an obstacle to identifying vulnerable groups and designing tailored interventions. As such, the objective of the present study was to investigate racial/ethnic and sex differences in weight perception of college students. Identification of possible weight perception disparities by race/ethnicity and sex in U.S. college students may be an important bridge between children and adults in the lifecourse obesity/overweight literature. Based on this data and similar forthcoming studies, action plans for health-equity achievement may be created to halt the upward trend of obesity and overweight in priority populations.

METHODS

Instrument and Procedures

This is a secondary data analysis of the American College Health Association-National College Health Assessment (ACHA-NCHA) IIb, multi-year cross-sectional data. Four ACHA-NCHA datasets [Fall 2011 (N = 27,774 on 44 campuses), Fall 2012 (N = 28,237 on 51 campuses), Fall 2013 (N = 32,964 on 57 campuses), and Fall 2014 (N = 25,841 on 34 campuses)] were utilized in this investigation. The Spring 2012, 2013, 2014, and 2015 datasets were not included in this study because they were under embargo.[21] The ACHA-NCHA datasets included private and public two- and four-year postsecondary institutions that used random sampling techniques.[24] Of the participating campuses, 95.4% and 4.6% used the ACHA-NCHA Web version and paper version, respectively. Overall mean response rates for the four surveys were 24% in Fall 2011, 20% in Fall 2012, 20% in Fall 2013 and 17% in Fall 2014. The mean response rates for schools using paper-based surveys in randomly selected classrooms and for schools conducting randomized Web-based surveys ranged from 71% to 100% and 15% to 21%, respectively. The participating schools varied by school size (ranging from < 2,500 to > 20,000), geographic location (Northeast, Midwest, South, and West), and minority status (e.g., historically black college or university). ACHA-NCHA participants represent a national sample of U.S. college students.[25] An interdisciplinary team of college health professionals reported that the ACHA-NCHA is a valid and reliable tool that can be used to evaluate and represent the nation's college students.[26] This study was approved by the Institutional Review Board of the lead author's institution.

Participants

A total of 114,816 undergraduate and graduate students participated in the four surveys from Fall 2011 to Fall 2014. Exclusion criteria included: (1) transgender (n = 327), (2) biracial or multiracial (n = 13,209), (3) race/ethnicity not identified (n = 1,812), and (4) aged > 25 years at

time of survey (n = 19,537), as done elsewhere.[27,28] American Indian, Alaskan Native, or Native Hawaiian were not included in this investigation due to small sample size. In addition, 9,133 students with missing data on demographics (e.g., sex and race/ethnicity), BMI, health behaviors (e.g., physical activity), or self-perception of weight were excluded. The final sample size was reduced to 70,267 participants on 62 campuses.

Measures

Independent variables

Participants provided self-reported height and weight. BMI was categorized into four groups: underweight (BMI < 18.5), normal weight (18.5 ≤ BMI < 25.0), overweight (25.0 ≤ BMI < 30.0), and obesity (BMI ≥ 30.0). Participants answered questions regarding demographics such as age, sex, race/ethnicity, marital status, and type of residence. Health behaviors included cigarette use, alcohol use, weight management goals (e.g., lose weight or gain weight), weight loss practice (e.g., exercise or diet), fruit/vegetable intake, physical activity (e.g., meeting physical activity guidelines), and having enough sleep. Based on the physical activity guidelines from the American College of Sports Medicine,[29] physical activity was defined as engaging in moderate-intensity aerobic physical activity for a minimum of 30 minutes on five days or more each week or vigorous-intensity aerobic physical activity for a minimum of 20 minutes on three days or more each week.

Dependent variables

Self-perception of weight was assessed by the question, "How would you describe your weight?" with five response options (*very underweight, slightly underweight, about the right weight, slightly overweight,* and *very overweight*). The response options were collapsed into

three categories (underweight, normal, and overweight/obese) in line with previous research.[30,31] Body weight perception was coded into three categories comparing differences between perceived weight and BMI group: (1) overestimation (i.e., Perceived weight group is heavier than his/her BMI group); (2) accurate estimation (i.e., Perceived weight group is the same as his/her BMI group); and (3) underestimation (i.e., Perceived weight group is lighter than his/her BMI group), as done elsewhere.[30,31]

Data Analysis

We employed the Pearson's chi-square test to identify differences in demographics, health behaviors, and weight perception among four racial/ethnic groups (non-Hispanic whites, non-Hispanic blacks, Asians, and Hispanics). Sex-stratified multinomial logistic regression models were fit, controlling for age, cigarette use in the past 30 days, alcohol use, daily fruit and vegetable consumption, and meeting physical activity guidelines based on prior literature.[32] In multinomial logistic regression models, the two categories (overestimation and underestimation) of the outcome variable (weight perception) were compared to the accurate estimation category (reference group) in a single model. We reported odds ratios (ORs) and 95% confidence intervals (CIs). According to sex, data were analyzed separately for each racial/ethnic group. All analyses were performed with STATA version 14 (STATA Press, College Station, TX). The level of significance was set at $p < .05$.

RESULTS

The mean age of the study sample was 19.9 years ($SD = 1.6$), and 32.2% were male students. Among men, the majority perceived their overall health as very good (Table 1). Hispanics (46.5%) and non-Hispanic blacks (46.0%) had the larger proportion of overweight/obesity than non-Hispanic whites (33.9%) and Asians (27.2%) ($p < .001$). For body

weight perception, the proportion of underestimation was highest in non-Hispanic blacks (29.5%) whereas the proportion of overestimation was highest in Asians (8.7%) ($p < .001$). In terms of weight management goal, weight loss was mentioned the highest among Hispanics followed by Asians, non-Hispanic blacks, and non-Hispanic whites (42.7% vs. 34.2%, 32.0%, 29.3%, respectively; $p < .001$). More non-Hispanic blacks reported weight gain as their weight management goal than Asians, non-Hispanic whites, and Hispanics (28.3% vs. 24.1%, 21.3%, 20.7%, respectively; $p < .001$). The most common weight loss practice among men was exercise followed by diet, taking diet pills, and vomiting or taking laxatives across all four racial/ethnic groups. Approximately 57% of men did not meet physical activity guidelines in all four racial/ethnic groups.

[Insert Table 1 about here]

Among women, the majority perceived their overall health as very good or good. Non-Hispanic blacks had the highest proportion of overweight/obesity (47.8%), followed by Hispanics (38.2%), non-Hispanic whites (26.4%), and Asians (15.4%) ($p < .001$) (Table 2). Asians had the highest proportion of weight overestimation (20.4%), while non-Hispanic blacks had the highest proportion of weight underestimation (12.7%) ($p < .001$). Hispanics reported the highest proportion of weight loss as their weight management goal, followed by non-Hispanic blacks, non-Hispanic whites, and Asians (62.3% vs. 57.4%, 56.8%, 54.3%, respectively; $p < .001$). Approximately 64% of women did not meet physical activity guidelines across all four racial/ethnic groups.

[Insert Table 2 about here]

We found racial/ethnic differences in weight perception among normal weight and overweight/obese men but not among underweight men (Table 3). Among normal weight men,

the proportion of accurate body weight estimation was lower in Asians (65.4%) than in non-Hispanic whites (72.4%), Hispanics (74.1%), and non-Hispanic blacks (75.4%) ($p < .001$). In normal weight men, more Asians overestimated their weight (11.4%) than Hispanics, non-Hispanic whites, and non-Hispanic blacks (11.4% vs. 9.0%, 6.7%, 5.5%, respectively; $p < .001$). Among overweight/obese men, Asians had the highest accurate estimation, followed by Hispanics, non-Hispanic whites, and non-Hispanic blacks (77.7% vs. 66.7%, 63.1%, 57.1%, respectively; $p < .001$). Overweight/obese non-Hispanic blacks showed the highest underestimation followed by non-Hispanic whites, Hispanics, and Asians (42.9% vs. 36.9%, 33.3%, 22.3%, respectively; $p < .001$).

[Insert Table 3 about here]

We also found racial/ethnic differences in weight perception among normal weight and overweight/obese women but not among underweight women (Table 4). Among normal weight women, Asians had the lowest proportion of accurate body estimation (71.5%), followed by Hispanics (76.5%), non-Hispanic blacks (79.8%), and non-Hispanics whites (79.9%) ($p < .001$) (Table 4). More Asians (21.6%) considered themselves as overweight or obese than Hispanics, non-Hispanic whites, and non-Hispanic blacks (21.6% vs. 18.1%, 14.7%, 10.1%, respectively; $p < .001$). Among overweight/obese women, the proportion of accurate body weight perception was lowest in non-Hispanic blacks (83.5%), followed by non-Hispanic whites (85.8%), Asians (89.2%), and Hispanics (89.3%) ($p < .001$). In overweight/obese women, non-Hispanic blacks had the highest underestimation followed by non-Hispanic whites, Asians, and Hispanics (16.5% vs. 14.2%, 10.8%, 10.7%, respectively; $p < .001$).

[Insert Table 4 about here]

As shown in Table 5, among men, in comparison with non-Hispanic whites, non-Hispanic blacks were less likely to have overestimation but more likely to have underestimation, whereas the opposite patterns were observed among Asians ($p < .05$). Similarily, among women, compared with non-Hispanic whites, lower odds of overestimation and higher odds of underestimation were found in non-Hispanic blacks ($p < .001$). However, higher odds of overestimation were observed in Asians ($p < .001$).

[Insert Table 5 about here]

COMMENT

This paper examined differences in body weight perception across racial/ethnic groups using a sample size of 70,267 students across 62 college campuses in the U.S. For both men and women, non-Hispanic blacks underestimated their weight in greater proportions than did other racial/ethnic groups, and Asians overestimated their weight in greater proportions than did other groups. Additionally, non-Hispanic blacks reported the highest proportion of weight gain as their weight management goal, while Hispanics reported the highest proportion of weight loss as their weight management goal. Despite a low response rate, these findings suggest that body weight perception in college students is patterned differently by race/ethnicity, irrespective of sex. Yet, results also support previous findings regarding body image perceptions of U.S. college students.

That non-Hispanic black women underestimated their weight in greatest proportions may be explained by racial differences in body image perceptions. For example, other college studies have shown that black women have more positive body images than non-black women.[33-35] Thus, in this sample it may be that non-Hispanic black women who underestimated their weight have a positive body image that precludes them from feeling the pressure to lose weight. Hence, the significant findings that fewer non-Hispanic black women reported exercise and diet weight

loss practices, compared to Asians, Hispanics and non-Hispanic whites. Similar findings for non-Hispanic black males, compared to their counterparts, were evident in this study; however, it is unclear if their underestimation is also mediated by their body image. One of the few studies comparing non-Hispanic black male and female college students' body image perspectives reported that male freshmen at historically black colleges or universities perceive a larger body image as healthy and ideal more often than their female counterparts, which may increase the potential for their weight-related health risks.[36]

The present study findings have implications for college health practitioners and researchers especially in terms of eliminating health disparities. Given that non-Hispanic blacks underestimate their weight and Asians overestimate their weight in greater proportions than do other racial/ethnic groups, it is important to understand determinants of these race/ethnicity-associated weight misperceptions and provide tailored educational programs aimed at understanding what it means by "healthy weight." Neither perceving excess weight as *normal* nor perceiving underweight as *normal* is conducive to maintaining healthy lifestyles. Further research is needed to better understand determinants of these race/ethnicity-associated weight misperceptions. Correcting those misperceptions might be one of the first steps toward promoting health among college students. In so doing, college health practitioners should develop different interventions or messages depending on the type of misperceptions which may be either overestimation or underestimation.

There were a number of interesting findings in certain groups that need further investigation because those groups may be considered as "at risk" of future health problems and comorbidities. First, while Asian men had the highest proportion of underweight, they also had the highest proportion of not getting any moderate or vigorous exercise during the week or

meeting physical activity guidelines, compared to their counterparts. Exercise is promoted to the general population regardless of weight status. Therefore, it is uncertain if the lack of exercise for this group of men will increase risks for other negative health outcomes. Second, among underweight men and women, no racial/ethnic difference in body weight perception was found. The majority of underweight students accurately perceived their weight status, regardless of race/ethnicity. Replication studies will be needed to confirm this finding and to explain the underlying reasons. Third, compared to other racial/ethnic groups, non-Hispanic blacks had a significantly higher proportion of having no days of getting enough sleep in the past 7 days of the study. A growing body of research suggests that there is a link between how much people sleep and how much they weigh. In general, adults who get too little sleep tend to weigh more than those who get enough sleep.[37,38] Therefore, while the nature of being a college student often assumes long study days and sleepless nights; it beacons further inquiry into what accounts for differing sleep patterns in non-Hispanic black students that put them at elevated risks for overweight/obesity. Collectively, our findings on differences across racial/ethnic groups corroborates the idea that uniform prescriptions, uninformed by race and ethnicity, may inadequately address weight-related issues that students may face.

Limitations and Conclusions

This study has several strengths and limitations that warrant attention. An important strength is the large sample size of students coming from 62 college campuses in the U.S. These 62 campuses included both two- and four-year institutions; this inclusive quality of the data means that our sample may better reflect the diversity that exists across types of institutions. Furthermore, this study is the first, to our knowledge, to investigate body weight perception in college students across racial/ethnic groups.

We also acknowledge the following limitations. The cross-sectional nature of the data precludes inferences about causality or temporality. It also forbids us from tracking if the college experience brings about changes in weight perception and if weight perception is steady for some racial/ethnic groups throughout college. Additionally, the self-reported nature of the data is subject to social desirability and recall biases. The low response rate in the present study is another limitation in terms of generalizability of the findings toward the target population. Finally, due to our exclusion criteria, we cannot generalize the findings to transgender students or biracial and multiracial students.

In summary, findings from this study showed that non-Hispanic blacks tend to underestimate their weight in greater proportions, and Asians tend to overestimate their weight in greater proportions compared to other racial/ethnic groups. Future studies using longitudinal research designs are needed to determine whether non-Hispanic black students are more likely to develop health complications compared with other racial/ethnic groups due to their body weight underestimation.

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CONFLICT OF INTEREST DISCLOSURE

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of the United States and received approval from the Institutional Review Board of the lead author's institution.

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TABLE 1. Characteristics of Men by Race/Ethnicity (n = 22,621)

Demographics and Health Behaviors	Non-Hispanic white (n = 17,086)	Non-Hispanic black (n = 1,043)	Non-Hispanic Asian (n = 2,589)	Hispanic (n = 1,903)	*p* value
	%	%	%	%	
Age					
18-19 years	45.5	51.1	46.0	45.0	.005
20-25 years	54.5	48.9	54.0	55.0	
Marital status					
Single	96.1	95.0	96.9	94.4	< .001
Married/Partnered	2.3	2.2	1.9	2.9	
Other	1.6	2.8	1.2	2.7	
Type of residence					
Campus residence hall	49.9	56.8	47.9	31.9	< .001
Fraternity/Sorority hall	3.2	1.0	1.7	1.4	
Other campus housing	6.4	6.6	4.6	3.4	
Parent/Guardian's home	10.2	15.7	20.6	39.8	
Other off-campus housing	28.6	18.1	23.4	19.9	
Other	1.7	1.8	1.7	3.6	
Perceived overall health					
Excellent	21.2	20.8	18.2	19.1	< .001
Very good	46.6	41.8	40.9	44.1	
Good	25.6	28.5	30.3	26.8	
Fair	5.5	7.0	8.9	8.0	
Poor	0.8	1.4	1.3	1.4	
Don't know	0.3	0.5	0.4	0.6	
Cigarette use in the last 30 days					
Never used	69.1	85.5	78.0	69.4	< .001
Used, but not in the last 30 days	13.9	7.6	10.3	16.9	
Used 1-9 days	10.3	4.9	6.4	9.3	
Used ≥ 10 days	6.7	2.0	5.3	4.4	
Alcohol use in the last 30 days					
Never used	23.1	37.9	43.2	28.0	< .001
Used, but not in the last 30 days	11.1	14.8	14.7	16.9	
Used 1-9 days	46.7	39.3	34.8	43.1	
Used ≥ 10 days	19.2	8.1	7.3	12.0	
BMI[a]					
Underweight	3.8	3.0	7.5	3.2	< .001
Normal weight	62.3	51.0	65.4	50.3	
Overweight	24.6	26.2	20.7	30.7	
Obese	9.3	19.8	6.5	15.8	

TABLE 1. (Continued)

Demographics and Health Behaviors	Non-Hispanic white (n = 17,086)	Non-Hispanic black (n = 1,043)	Non-Hispanic Asian (n = 2,589)	Hispanic (n = 1,903)	*p* value
	%	%	%	%	
Body weight perception					
Underestimation	25.5	29.5	21.2	24.0	< .001
Accurate estimation	69.6	67.0	70.1	70.6	
Overestimation	4.9	3.5	8.7	5.4	
Weight management goal					
Do nothing	22.2	16.7	18.0	13.7	< .001
Stay the same weight	27.2	23.0	23.7	22.9	
Lose weight	29.3	32.0	34.2	42.7	
Gain weight	21.3	28.3	24.1	20.7	
Weight loss practice					
Exercise	38.3	36.7	42.5	50.3	< .001
Diet	22.7	18.3	25.9	30.5	< .001
Vomit or take laxatives	0.7	0.7	1.0	0.7	.394
Take diet pills	1.4	1.5	1.3	2.6	.001
Fruit/vegetable intake					
0 serving/day	7.9	15.1	8.9	11.6	< .001
1-2 servings/day	61.9	64.7	64.5	67.1	
≥ 3 servings/day	30.3	20.2	26.7	21.3	
Moderate-intensity exercise for ≥ 30 minutes					
0 day/week	21.5	26.8	27.9	23.8	< .001
1-4 days/week	53.6	52.7	53.6	56.3	
≥ 5 days/week	24.8	20.4	18.5	19.9	
Vigorous-intensity exercise for ≥ 20 minutes					
0 day/week	32.2	35.9	37.7	35.3	< .001
1-2 days/week	32.4	30.7	35.5	30.5	
≥ 3 days/week	35.4	33.5	26.8	34.3	
Meeting physical activity guidelines[b]					
Met	42.6	38.3	33.8	39.4	< .001
Not met	57.4	61.7	66.2	60.6	
Enough sleep in the past 7 days					
0 day	7.6	11.9	10.2	10.6	< .001
1-2 days	28.0	30.7	31.2	31.6	
≥ 3 days	64.4	57.4	58.6	57.8	

Note. The percentages may not add to 100 because of no responses or rounding errors. BMI = body mass index.

[a] Underweight (BMI < 18.5), normal (18.5 ≤ BMI < 25.0), overweight (25.0 ≤ BMI < 30.0), and obese (BMI ≥ 30.0).

[b] Moderate-intensity cardio or aerobic exercise for at least 30 minutes on 5 or more days per week, or vigorous-intensity cardio or aerobic exercise for at least 20 minutes on 3 or more days per week.

TABLE 2. Characteristics of Women by Race/Ethnicity (n = 47,646)

Demographics and Health Behaviors	Non-Hispanic white (n = 35,588)	Non-Hispanic black (n = 3,090)	Non-Hispanic Asian (n = 4,602)	Hispanic (n = 4,366)	*p* value
	%	%	%	%	
Age					
18-19 years	47.0	49.3	50.3	46.6	< .001
20-25 years	53.0	50.7	49.7	53.4	
Marital status					
Single	95.6	95.2	95.7	92.0	< .001
Married/Partnered	2.8	2.3	2.7	5.0	
Other	1.6	2.4	1.6	2.9	
Type of residence					
Campus residence hall	47.5	55.1	50.6	32.8	< .001
Fraternity/Sorority hall	2.4	0.7	1.0	0.5	
Other campus housing	7.0	7.8	5.9	4.0	
Parent/Guardian's home	11.2	15.1	19.8	40.2	
Other off-campus housing	29.5	19.0	21.4	18.9	
Other	2.4	2.3	1.3	3.7	
Perceived overall health					
Excellent	12.3	10.8	11.8	11.6	< .001
Very good	46.6	34.2	39.8	35.5	
Good	32.5	39.3	35.5	38.4	
Fair	7.1	12.5	11.0	11.9	
Poor	1.2	1.9	1.3	2.0	
Don't know	0.3	1.2	0.7	0.7	
Cigarette use in the last 30 days					
Never used	74.6	88.9	86.5	77.8	< .001
Used, but not in the last 30 days	13.7	6.7	7.4	13.8	
Used 1-9 days	6.9	2.6	4.1	6.1	
Used ≥ 10 days	4.8	1.8	2.0	2.4	
Alcohol use in the last 30 days					
Never used	20.8	35.7	44.3	31.5	< .001
Used, but not in the last 30 days	12.8	17.4	14.9	17.3	
Used 1-9 days	52.9	39.8	35.5	43.5	
Used ≥ 10 days	13.5	7.1	5.3	7.6	
BMI[a]					
Underweight	5.6	4.3	13.5	4.9	< .001

Normal weight	68.1	47.8	71.1	56.8	
Overweight	17.5	24.2	11.1	22.7	
Obese	8.9	23.6	4.3	15.5	

TABLE 2. (Continued)

Demographics and Health Behaviors	Non-Hispanic white (n = 35,588)	Non-Hispanic black (n = 3,090)	Non-Hispanic Asian (n = 4,602)	Hispanic (n = 4,366)	*p* value
	%	%	%	%	
Body weight perception					
Underestimation	7.4	12.7	6.6	7.2	< .001
Accurate estimation	80.5	81.2	73.0	80.9	
Overestimation	12.1	6.1	20.4	11.9	
Weight management goal					
Do nothing	14.2	13.8	17.2	13.0	< .001
Stay the same weight	26.9	20.5	23.1	20.3	
Lose weight	56.8	57.4	54.3	62.3	
Gain weight	2.0	8.3	5.4	4.4	
Weight loss practice					
Exercise	58.9	46.4	51.9	56.0	< .001
Diet	42.1	31.7	38.1	41.2	< .001
Vomit or take laxatives	3.6	2.5	2.4	3.3	< .001
Take diet pills	3.7	4.3	2.1	5.1	< .001
Fruit/vegetable intake					
0 serving/day	5.3	14.0	7.6	12.2	< .001
1-2 servings/day	60.2	68.8	65.6	67.6	
≥ 3 servings/day	34.5	17.2	26.8	20.2	
Moderate-intensity exercise for ≥ 30 minutes					
0 day/week	22.0	38.4	32.8	31.1	< .001
1-4 days/week	57.1	46.0	52.4	54.9	
≥ 5 days/week	20.9	15.6	14.8	14.0	
Vigorous-intensity exercise for ≥ 20 minutes					
0 day/week	40.1	58.8	50.6	49.0	< .001
1-2 days/week	30.7	24.0	30.0	29.1	
≥ 3 days/week	29.2	17.2	19.4	21.9	
Meeting physical activity guidelines[b]					
Met	36.2	25.5	26.3	26.9	< .001
Not met	63.8	74.5	73.7	73.1	
Enough sleep in the past 7 days					
0 day	9.7	14.5	11.7	13.1	< .001

1-2 days	32.4	36.4	36.6	38.6
≥ 3 days	57.8	49.0	51.7	48.3

Note. The percentages may not add to 100 because of no responses or rounding errors.

[a] Underweight (BMI < 18.5), normal (18.5 ≤ BMI < 25.0), overweight (25.0 ≤ BMI < 30.0), and obese (BMI ≥ 30.0).

[b] Moderate-intensity cardio or aerobic exercise for at least 30 minutes on 5 or more days per week, or vigorous-intensity cardio or aerobic exercise for at least 20 minutes on 3 or more days per week.

TABLE 3. Body Weight Perception by BMI Category and Race/Ethnicity Among Men (n = 22,621)

	Non-Hispanic white (n = 17,086)	Non-Hispanic black (n = 1,043)	Non-Hispanic Asian (n = 2,589)	Hispanic (n = 1,903)	*p* value
	n (%)				
Underweight					
Overestimation	124 (19.0%)	7 (22.6%)	31 (16.1%)	16 (26.7%)	.304
Accurate estimation	528 (81.0%)	24 (77.4%)	162 (83.9%)	44 (73.3%)	
Normal weight					
Overestimation	715 (6.7%)	29 (5.5%)	193 (11.4%)	86 (9.0%)	< .001
Accurate estimation	7706 (72.4%)	401 (75.4%)	1107 (65.4%)	710 (74.1%)	
Underestimation	2219 (20.9%)	102 (19.2%)	393 (23.2%)	162 (16.9%)	
Overweight/Obesity					
Accurate estimation	3655 (63.1%)	274 (57.1%)	546 (77.7%)	590 (66.7%)	< .001
Underestimation	2139 (36.9%)	206 (42.9%)	157 (22.3%)	295 (33.3%)	

TABLE 4. Body Weight Perception by BMI Category and Race/Ethnicity Among Women (n = 47,646)

	Non-Hispanic white (n = 35,588)	Non-Hispanic black (n = 3,090)	Non-Hispanic Asian (n = 4,602)	Hispanic (n = 4,366)	*p* value
	n (%)				
Underweight					
Overestimation	760 (38.4%)	39 (29.1%)	232 (37.4%)	72 (33.3%)	.099
Accurate estimation	1220 (61.6%)	95 (70.9%)	389 (62.6%)	144 (66.7%)	
Normal weight					
Overestimation	3558 (14.7%)	149 (10.1%)	706 (21.6%)	449 (18.1%)	< .001
Accurate estimation	19358 (79.9%)	1180 (79.8%)	2339 (71.5%)	1898 (76.5%)	
Underestimation	1308 (5.4%)	149 (10.1%)	226 (6.9%)	134 (5.4%)	
Overweight/Obesity					
Accurate estimation	8055 (85.8%)	1234 (83.5%)	633 (89.2%)	1490 (89.3%)	< .001
Underestimation	1329 (14.2%)	244 (16.5%)	77 (10.8%)	179 (10.7%)	

TABLE 5. Gender-specific Multinomial Logistic Regression of Body Weight Misperception by Gender and Race/Ethnicity (N = 70,267)

	Men (n = 22,621)		Women (n = 47,646)	
	Overestimation AOR (95% CI)[a]	Underestimation AOR (95% CI)[a]	Overestimation AOR (95% CI)[a]	Underestimation AOR (95% CI)[a]
Non-Hispanic white	Reference	Reference	Reference	Reference
Non-Hispanic black	0.68 (0.48, 0.96)*	1.23 (1.07, 1.42)**	0.49 (0.42, 0.57)***	1.68 (1.49, 1.88)***
Non-Hispanic Asian	1.64 (1.40, 1.93)***	0.86 (0.77, 0.95)**	1.82 (1.68, 1.98)***	0.96 (0.85, 1.09)
Hispanic	1.05 (0.84, 1.30)	0.93 (0.84, 1.05)	0.97 (0.88, 1.07)	0.95 (0.84, 1.07)

Note. AOR = adjusted odds ratio; CI = confidence interval.

[a]Odds ratio that was adjusted for age, cigarette use in the last 30 days, alcohol use, daily fruit and vegetable consumption, and meeting physical activity guidelines.

$^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.