Body Size Perception Among African American Women
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ABSTRACT
Objective: To assess body size perception among African American women using cultural definitions of body size terms.
Methods: Sixty-nine African American women classified Body Image Scale figures as overweight, obese, and too fat, and independently selected the figure they considered closest to their current body size.
Results: Body size classifications of figures did not vary by participant weight status. Overweight figures were not considered too fat. For 86% of overweight (body mass index [BMI], 25–29.9) women and 40% of obese (BMI > 30) women, the self figure was not defined as overweight, obese, or too fat. Among participants with BMI ≥ 35, 65% did not classify their self figure as obese and 29% did not classify their self figure as overweight.
Conclusions and Implications: The difference between cultural (folk) and medical definitions of body size terms may serve as a barrier to effective communication between patients and providers about health effects of excess adiposity.
Key Words: overweight, body mass index, body image, weight perception, African American women (J Nutr Educ Behav. 2014;46:412-417.)

INTRODUCTION
The prevalence of obesity is significantly higher among non-Hispanic African American women than white women, but African American women are more likely to underestimate their body weight. Underestimation of weight is associated with poor weight management behavior, greater weight gain over time, and an underestimation of health risk. Weight underestimation may serve as an important barrier to effective weight management and prevention of obesity-related chronic diseases in African American women.

Most evidence for weight underestimation in African American women comes from studies in which women are asked to judge their own weight. Overweight and obese African American women are almost twice as likely to consider their weight as overweight and obese as white women to respond that they are “about the right weight” or “underweight.” Assessments of body image that rely on women judging their own weight are vulnerable to self-preservation bias. African American women may be more prone to self-preservation bias, and thus display more weight underestimation. Alternatively, weight underestimation may be higher in African American women than in white women owing to different cultural norms about body size. The current study was designed to distinguish between these 2 explanations for weight underestimation. If women agree about the meaning of body size terms independent of their own weight, this suggests that body size judgments may be driven by a common set of cultural norms rather than by self-preservation bias. Another question that has not been addressed by prior research regards the colloquial meaning of the terms overweight and obese. This was assessed by comparing body sizes that women define as overweight and obese with body sizes that women define as being too fat.
The main goal of this study was to understand how African American women define colloquial and medical body size terms independent of judgments about their own weight. African American women were targeted in this study because they and their female children have the highest obesity prevalence of any demographic group.

METHODS
Study Design
The current study was a cross-sectional survey design conducted in an individual interview format.

Participants and Recruitment
Participants were a convenience sample recruited by flyers posted in a low-income African American neighborhood in Chicago. Inclusion criteria were that participants: (1) self-identified as African American, (2) were female, (3) resided in the North Lawndale neighborhood of Chicago, and (4) were full-time caretakers of at least 1 child. All participants provided informed consent and all procedures followed guidelines of the Northwestern University Institutional Review Board.

Instruments
Participants were asked to define body size terms using the Body Image Scale,
a figure-rating scale that consists of 9 drawings of female figures, ranging from very thin to very obese (Figure). This scale has excellent inter-rater reliability (Cronbach’s α = .95 across 3 observers) and validity, and researchers found that African Americans preferred this scale over 2 other popular body image instruments. The scale was designed to span a BMI range from 16 to 40 in increments of approximately 3 BMI units, but when women rated themselves using the scale, their ratings did not correspond to the BMI assignments intended by the researchers. The figure rating scale is a subjective rather than an objective measure of BMI.

Measures
Demographics were measured by questionnaire. Body mass index was calculated from self-reported weight and height. Definitions of body weight terms and self body size were measured using the Body Image Scale.

Procedures
Women were asked to use the Body Image Scale to complete 2 distinct tasks: (1) classify figures on the scale as overweight, obese, or too fat; and (2) select self body size. First, women were asked to classify the Body Image Scale figures using these 3 weight categories. The following question was used to elicit classification of figures as overweight and obese: “Doctors use the word ‘overweight’ (obese) to describe body sizes that are too large for the health of the body. Please tell me which figures you think are overweight (obese).” The question was asked separately for overweight and obese. Participants were also asked to select the “figures you think are too fat.” After classifying the Body Image Scale figures, women were asked to select “the figure that looks most like you currently.”

Self-classification of body size was determined indirectly by assessing how each participant had previously classified the figure she selected as her current body size. For example, if a woman selected Figure 7 as her current body size and previously had classified Body Figure 7 as overweight, she was considered to have (indirectly) classified herself as overweight. Participants were never directly asked to classify their own body size. This method allowed every participant to define body size terms independently of her own body, and used participants’ own definitions of body size terms to indirectly classify their own body size.

Data Analysis
For each figure, the researchers calculated the proportion of participants who classified that figure as overweight, obese, and too fat. Each participant could select multiple figures as corresponding to each of the body size classifications. The authors used McNemar exact test to compare pairwise proportions of participants who selected Figures 5–9 as overweight, obese, and too fat.

The researchers used ANOVA (parametric or nonparametric, as appropriate) to assess the relationship between the weight class of the participant (normal, overweight, obese class 1 and obese class 2) and the figures classified as overweight, obese, and too fat. The distribution of model residuals was assessed graphically (scatterplots, histograms, and QQ-plots) as well as formally via the Shapiro–Wilk test. A mean of all figures selected for each body size term was calculated for each participant. Separate ANOVAs were performed for each body size term to assess the relationship between the body size of the participant and the mean, smallest, and largest figures selected as definitions of that body size term. An ANOVA was also performed to assess the relationship between the weight class of the participant and the figure selected as self body size. All analyses were repeated using simple linear regression with BMI as a continuous predictor variable where appropriate. Results were the same as analyses using weight class as a variable, so results are reported using the weight class variable only. Indirect classification of self body size as overweight, obese, or too fat was analyzed with Fisher exact test owing to small sample sizes.

RESULTS
A total of 69 African American women participated. Table 1 shows
demographics. The mean age was 38 years (SD, 12 years). Participants had low income and a majority did not have college education and were unemployed. Mean BMI was 32.0 (SD, 7.6). Participants were divided into 4 weight categories: 13% were normal weight (BMI 18.5–24.9), 31% were overweight (BMI 25–29.9), 31% were obese class 1 (BMI 30–34.9), and 25% were obese class 2 or 3 obesity (BMI ≥ 35). Aside from 1 participant who classified Body Figure 4 as overweight and 1 who classified Body Figure 1 as obese, only Body Figures 5–9 were classified as overweight, obese, or too fat. Two participants stated that none of the figures was obese because an obese body size was larger than any of the figures shown in the scale. Table 2 shows the proportion of participants who classified each figure using each weight category. A majority of participants (> 50%) classified Body Figures 6–9 as overweight and Body Figures 8 and 9 as obese and too fat. Body Figures 6–8 were more likely to be classified as overweight than obese or too fat (all P < .05). Body Figure 5 was more likely to be classified as too fat or overweight than obese.

Across participants, the mean (SD) smallest and largest and mean figures classified as overweight were 6.5 (1.2), 8.9 (0.3), and 7.7 (0.6), respectively. The smallest, largest, and mean figures for obese were 7.6 (1.4), 8.8 (1.0), and 8.2 (1.1), and the smallest, largest, and mean figures selected as too fat were 7.5 (1.4), 9.0 (0.0), and 8.3 (0.7). Only the self and overweight average variables were normally distributed. Neither the categorical weight class nor the continuous BMI of the participant was associated with the smallest, largest, or mean figures classified as overweight, obese, or too fat (all P > .05).

The weight class of participants predicted selection of self body size (F[3, 65] = 26.02; P < .001). For normal weight participants, the mean (SD) figure selected as representing current self body size was 2.9 (0.8); for overweight participants, 4.3 (1.0); for class 1 obese participants, 5.5 (1.4); and for class 2 and 3 obese participants, 6.8 (1.3). Continuous BMI also predicted self body size (F[1, 67] = 117.84; δ = .18; P < .001).

For each participant, indirect classification of self body size was assessed by determining participants’ body size classifications of the figure selected for self body size. Not surprisingly, there was an association between weight class and classification of the self figure as too fat, overweight, and obese (P = .002, P < .001, and P < .04, respectively). Participants with higher body weight were more likely to classify their self figure into one or more of these weight categories.

Table 3 shows the proportion of overweight and obese participants who selected a self figure that they also classified as overweight, obese, or too fat, as well as the proportion of participants who selected a self figure that they did not classify as any of these weight categories. No normal weight participant selected a self body size figure from figures she classified as overweight, obese, or too fat. Only 3 overweight participants (14%) selected a self body size they had classified as obese, and only 24% of obese participants selected a self body size they had classified as obese, as well as the proportion of participants who selected a self figure that they did not classify as any of these weight categories.
DISCUSSION

Regardless of their weight, women in this study agreed on which Body Image Scale figures were overweight, obese, and too fat. Study participants used the term obese to refer to larger body sizes than the term overweight, but did not consider overweight body sizes to be too fat. This finding provides further documentation of the dramatic discrepancy that exists between lay and medical definitions of body size.

In prior studies in which women were asked to classify their own weight, about 40% of overweight African American women (BMI > 25) and 10% of obese African American women (BMI > 30) stated that their weight was “about right” or underweight.6,7 In the current study, 56% of overweight women (BMI > 25) and 40% of obese women (BMI > 30) did not classify their body size as overweight, obese, or too fat. The indirect method of body size classification used in this study did not result in a decrease in the proportion of under-perceivers, as one might expect if weight under-perception were related to self-preservation bias. Rather, findings from this study suggest that weight misperception may result from the use of cultural body size norms that differ from medical definitions.

Results suggest that the cultural threshold for overweight among women in this study may be a (self-reported) BMI of 30 or 35. Whereas medical definitions define overweight as BMI > 25,14 evidence increasingly suggests a BMI threshold of > 35 (grades 2 and 3 obesity) at which body weight begins to increase all-cause mortality.15 Also, evidence suggests that cardiovascular risk may be associated with a higher BMI for African Americans than whites.16 Therefore, the cultural definition of overweight, as beginning at a BMI of 30 or 35, may be more closely associated with health risks than is the medical definition (BMI > 25).

The current findings should be viewed within the context of a long history of research documenting differences in body image between non-Hispanic whites and African Americans, and the relationship of these differences to eating behavior.17 Studies using figure rating scales have consistently shown that African Americans are more satisfied with their body size than are whites, and that this difference is independent of BMI and socioeconomic status.3,18,21 This finding has been cited as 1 potential explanation for the lower prevalence of eating disorders and the higher prevalence of obesity among African Americans relative to whites.4,11,18,20,22-24 A limitation of prior research has been reliance on self-perception to measure beliefs about body size. The current study extends findings from prior research by showing that for low-income African American women, cultural norms for body size perception exist independently of self-perception. The current study also goes beyond prior research in revealing that the term overweight designates a culturally acceptable body size (ie, overweight bodies are not too fat).

As this study suggests, the same word (eg, overweight or obese) may be used differently among different groups (ie, clinicians and lay adults). It is important to understand cultural definitions because it is likely that cultural definitions have more influence than biomedical classifications on health behaviors such as attempting to lose weight.25,26 When the same term means something different for clinicians and lay people, doctor-patient communication may suffer.

Limitations

A limitation of this study is the use of self-reported height and weight data to calculate BMI. Although the use of self-reported data is a limitation, it is unlikely that this led to an artificially high prevalence of weight underestimation in this study. Because use of self-report data provides an underestimation of BMI,27 the actual BMI of participants in this study was likely higher than the authors reported. Therefore, it is likely that the use of measured data to calculate BMI would have resulted in an increased prevalence of underestimation. Results of this study cannot be generalized to all African American women. The lower socioeconomic status of women in this study may have influenced the findings. However, evidence suggests that weight underestimation is greater in African Americans than whites across levels of socioeconomic status.3,9 Child caregiver status of women in this study may also have affected the findings. Despite their child caregiver status, obesity prevalence among study participants matched national prevalence estimates of obesity among low-income African American women.2

This study is also limited by a small sample size. A larger, more diverse sample would allow an exploration of the influence of factors such as age, education, and income on body

Table 3. Participants in Each Weight Class Whose Self Figure Overlapped With a Figure They Independently Classified as Overweight, Obese, or Too Fat (n = 69)

<table>
<thead>
<tr>
<th>Participant Weight Class</th>
<th>None (Not Overweight, Obese, or Too Fat)</th>
<th>Overweight</th>
<th>Obese</th>
<th>Too Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (BMI &lt; 25)</td>
<td>9 (100)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Overweight (BMI 25–29.9)</td>
<td>21 (86)</td>
<td>3 (14)</td>
<td>1 (5)</td>
<td>0</td>
</tr>
<tr>
<td>Obese (BMI &gt; 30)</td>
<td>38 (40)</td>
<td>23 (61)</td>
<td>9 (24)</td>
<td>12 (32)</td>
</tr>
<tr>
<td>Class 1 (BMI 30–34.9)</td>
<td>21 (48)</td>
<td>11 (52)</td>
<td>3 (14)</td>
<td>5 (24)</td>
</tr>
<tr>
<td>Classes 2 and 3 (BMI &gt; 35)</td>
<td>17 (29)</td>
<td>12 (71)</td>
<td>6 (35)</td>
<td>7 (41)</td>
</tr>
</tbody>
</table>

BMI indicates body mass index.
Note: Row numbers do not add to total number because columns are not mutually exclusive. The same person could be listed in the overweight, obese, and too fat columns if she selected a figure she had defined as overweight, obese, and too fat.
size definitions and body size perception. Also, a similar methodology should be used to compare cultural definitions of body size across different ethnic groups.

IMPLICATIONS FOR RESEARCH AND PRACTICE

The most important implication of the current findings is that they suggest that perceptions of appropriate body size are shared within a cultural group and do not depend on individual body size. Also, the fact that women felt that overweight body sizes were not too fat suggests that being told they are overweight, even by a physician, may not be sufficient motivation for them to attempt to lose weight.

Although BMI < 35 is not associated with increased mortality, risk for a number of chronic diseases increases with BMI > 25.28 Findings from the current study suggest that cultural norms for body size may prevent awareness among many women about the potential health benefits they and others in their cultural group might achieve through weight loss. That is, overweight and obese women may know that obesity and overweight is associated with increased health risk, but if cultural norms dictate that they are not obese or overweight, they will not perceive themselves to be at higher risk. This suggests that nutrition educators and other health professionals addressing diet-related behaviors may need to address motivational issues for weight loss before teaching methods for achieving weight loss.

Health messages about the implications of large body size might be more effective if communicated using visual rather than purely verbal information. If messages about the health risk of overweight and obesity were communicated with pictures of body size rather than the terms overweight and obese, women may realize that health impacts of excess weight start at smaller body sizes than they previously thought. Biomedical definitions of body size should be explicitly taught using a visual aid such as a figure scale, to help bridge the conceptual gap between cultural and biomedical definitions of body size terms.

Research interest in body image is driven by the presumed relationship between body image and health behavior. That prevalence of weight underestimation and obesity is higher in African Americans than other groups suggests that there may be a relationship between the 2. However, most evidence for the link between body image and health behavior is correlational; a longitudinal relationship between body image and weight change was established in only 1 study.11 Environmental and structural barriers to healthy weight-related behaviors also have an important role in increasing prevalence of obesity among African Americans, and should be considered in any model of obesity disparities.29,30

The current study used a novel approach to examine women's understanding of body size terms. By exploring women's definitions of body size terms independently of their self-classification, this study was able to show that cultural definitions of body size terms are independent of participant body size. Having women classify their own body size according to these cultural definitions revealed a large chasm between biomedical and cultural definitions of body size. The divergence between cultural and biomedical definitions of body size may serve as an important barrier to effective communication about the health risks of large body size.

ACKNOWLEDGMENTS

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