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Obesity

Body Size Perceptions among Overweight and Obese African American Women

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Objectives: Understanding body size perceptions and discrepancies among African American women may have implications for effective weight-loss interventions. The purpose of this study is to examine body size perceptions of economically disadvantaged, overweight and obese African American women.

Design: Cross-sectional using baseline data from a randomized controlled trial.

Setting: 18 census tracts in a central South Carolina city where ≥25% of residents were below poverty income.

Participants: 147 economically disadvantaged, overweight and obese African American women.

Main Outcome Measures: Using Pulvers' figure rating scale, participants chose the figure: 1) closest to their current figure; 2) they would be satisfied with; and 3) with a body weight that would be a health problem for the average person. Mean body mass indices corresponding to each figure were compared with those in a large sample of White women.

Results: Most participants wanted to be smaller (mean=2.6 figures smaller) than their current size. A majority (67%) chose the largest figure as representing a body size that could lead to a health problem, and most (60%) chose a current figure smaller than the figure they believed would be associated with health problems. The mean body mass index for women selecting any given figure as their current size was significantly larger (5.2-10.8 kg/m^2 larger, $P<.0001$) than those established in the sample of White women.

Conclusions: Although women desired a smaller body size, there nonetheless were misperceptions of body size and the associated health consequences. Body size misperceptions and/or satisfaction may pose barriers for effective weight-loss. *Ethn Dis*. 2015;25(4):391-398; doi:10.18865/ed.25.4.391

Introduction

Obesity is a large and growing public health problem; not only is excess body weight detrimental to health, it also has major economic[1] and quality-of-life[2] consequences. Among women, the prevalence of overweight and obesity is inversely associated with income and is highest among African Americans (82.1%).[3] Further, the prevalence of severe obesity among women is highest among African Americans. In 2009-2010, 30.7% of African American women were severely obese, having a body mass index (BMI) ≥35 kg/m^2.[2,3] Obesity is a complex phenomenon, with many contributors.[4] African American women may perceive less social pressure to be thin,[5] and obesity may be less stigmatized.[6] The greater acceptance of a larger body size may contribute to the higher obesity rates in African American communities.[7-9]

African American women tend to prefer a larger body size and to be more satisfied with their body size compared with women of other racial/ethnic groups.[5,9-11] Although Fitzgibbon and colleagues[8] found no difference in the proportion of African American, Hispanic, and White women reporting body image discrepancies (difference between ideal and current body image), the BMI level at which body image discrepancy was experienced differed. White women became dissatisfied with their body at an average BMI of 24.6 kg/m^2, Hispanic women at a BMI of 28.6 kg/m^2, and African American women at a BMI of 29.3 kg/m^2. The differences in the size or weight at which body dissatisfaction begins (ie, African American women do not become dissatisfied until they are nearly obese) may be associated with the varying levels of obesity across racial/ethnic groups.[8] Acceptance and approval of larger body sizes may reduce motivation to make lifestyle changes for weight loss,[11] while at the same time result in less psychological distress than overweight and obese White women experience.

Keywords: Body Image, Body Satisfaction, African American Women, Obesity

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African American women also tend to underestimate their body size[11,12] and to perceive their body size as being comparable to that of White women with lower BMIs[11] or smaller than that of White women with equivalent BMIs.[9,10] Bennett and colleagues[13] have suggested that the low rates of perceived overweight among African Americans may be in part due to the tendency to base one's perception of weight on social comparisons rather than clinical guidelines. Lay people, particularly people of lower socioeconomic status and African Americans, have different perceptions of what a "satisfactory" body size looks like, and factors not relevant to medical definitions clearly influence such perceptions.[9] Because African American women have a higher prevalence of overweight and obesity compared with Whites,[3] African American women may perceive body size at any given BMI as smaller than would White women.[9] Aligning their perceptions of a healthy body weight more closely with medical conceptions could assist with weight control efforts.[9]

Body dissatisfaction has been thought to play a significant role in motivating people to lose weight.[14] Although having greater body satisfaction may be protective against engaging in unhealthy or inappropriate weight control behaviors,[15] studies have suggested that African Americans with greater body size satisfaction may be less motivated to lose weight.[8,9,11,16] Notably, African American women recount feelings of ambivalence because of the cultural pressures related to self-acceptance, thus creating additional barriers to behavior change. Therefore, a weight-driven or appearance-driven approach may not be an effective means for promoting behavior change and weight loss among women who are comfortable with their size or among those for whom there is a disconnect between weight and health.[11]

Understanding body size perceptions and discrepancies among economically disadvantaged African American women may have important implications for better understanding the disparities in obesity prevalence and for developing effective weight loss interventions that resonate with the population. The purpose of this study was to examine body size perceptions and discrepancies in a sample of overweight and obese African American women recruited from economically disadvantaged neighborhoods in a southeastern US urban setting. More specifically, using Pulvers'[17] silhouette drawings, this study examined: 1) current body size perceptions; 2) the body size participants would be satisfied with; 3) body size discrepancies; and 4) perceptions of body size associated with health problems. Furthermore, this study compared the mean BMI associated with each figure in our sample to the mean BMI established in a sample of White women.

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Methods

Sisters Taking Action for Real Success (STARS) was a randomized controlled weight loss trial (www.clinicaltrials.gov number NCT01172340) conducted among overweight and obese women recruited from economically disadvantaged neighborhoods. The intervention was a 16-week behavioral and social support, group-based program; participants were randomly assigned to the intervention or to a minimal intervention control group. In order to keep the group size to around 15 women, participants were enrolled and randomized in three cohorts (one per year, for three years). Primary outcomes of the study were weight, BMI, and waist circumference; secondary outcomes included physical activity and dietary intake. Baseline data were used for this paper and were collected from 2008-2010.

Participants

A detailed description of the study methods is provided elsewhere.[18] Women were recruited from 18 cen-

sus tracts in a central South Carolina city where ≥25% of residents were below poverty income. In order to take part, women had to be aged 25-50 years, have a BMI ≥25 kg/m^2, a waist circumference ≥88 cm, a blood pressure <140/90 mm Hg (unless written approval was provided by a health care provider), free of insulin-dependent diabetes, be English speaking, not pregnant, able to participate in some type of moderate intensity exercise, have no impairments that would preclude participation in group discussion, learning activities, or data collection interviews, and endorse no positive (risk) response(s) on the Physical Activity Readiness Questionnaire[19] or physician approval on the subsequent Physical Activity Readiness Medical Examination[20] if a positive response was endorsed.

Of the 746 telephone inquiries, 657 women were reached for telephone screening, and 307 remained initially eligible and were scheduled for a baseline visit. Reasons for ineligibility were: not residing in the targeted census tracts (n = 232); not in age range (n = 59); logistic or scheduling conflict (n = 23); not overweight (n = 21), medical exclusions (n = 12); and institutional residence with no food choice or cooking facility (n = 3). Informed consent and baseline measures were completed with 230 women. Of these, 26 women were excluded because of contraindications and other exclusion criteria. Twenty White women were excluded from this study, as the small n would prohibit valid subgroup comparisons with African American women. Data were available for 147 African American women in cohorts 2 and 3 of the parent study (the body image questions were not added until the second cohort) and used in this study.

Procedures

A community advisory board, consisting of women who lived and/or worked within the neighborhood advised on and assisted with recruitment, community trust, and cultural compatibility. Multiple recruitment strategies were used including word-of-mouth, posters and fliers in community settings and on buses, and recruitment presentations in community venues. Staff persons screened women for inclusion/exclusion criteria over the phone. Those who remained eligible after the phone screen were scheduled for an in-person visit. At this visit, study staff confirmed eligibility, and written and signed informed consent was obtained. The Institutional Review Board at the University of South Carolina approved the study. Staff persons took anthropometric measures and conducted an interview to collect sociodemographic, health status, behavioral, and psychosocial data. Participants received a $35 cash reimbursement for their effort.

Measures

Sociodemographics

Participants self-reported their age, race, marital status, employ-

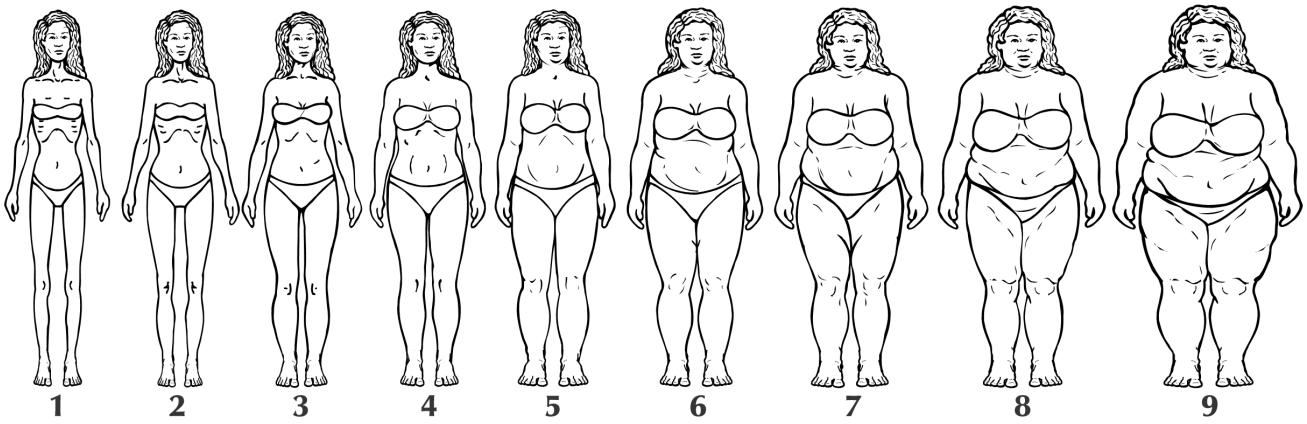

Figure 1. Culturally Relevant Body Image Scale (Pulvers et al,[17] reprinted with permission, John Wiley & Sons) and body image questions used in South Carolina study.
1. Which drawing is closest to your current figure?
2. Which drawing is a figure that you would be satisfied with?
3. Select the drawing that shows which weight would likely be a health problem for the average person?

ment status, and highest grade or year of school completed.

Anthropometrics

Height to the nearest quarter inch and weight to the nearest tenth of a kilogram were obtained by trained staff. BMI was calculated as kg/m^2 using standard procedures. Using the iliac crests as landmarks, waist circumference to the nearest tenth of a centimeter was measured by trained staff.

Pulvers' Figure Rating Scale

Participants were shown a series of nine body figures, varying in size, designed to represent multi-ethnic women (Figure 1).[17] Participants were asked to choose the drawing closest to their current figure (ie, "Which drawing is closest to your current figure?") and the drawing that they would be satisfied with (ie, "Which drawing is a figure that you would be satisfied with?"). To minimize the possibility of response bias, random ordered versions of the figures were used.[17] Responses were recoded prior to analysis so that "1" represented the smallest body figure and "9" represented the largest. A body size discrepancy score was created for each participant by subtracting the number of the figure selected as the satisfied body size from the number of the figure selected as the current body size. A larger body size discrepancy score indicates lower satisfaction with body size (ie, participants desired to be smaller). This measure has been shown to have strong psychometric properties in a sample of African American women.[17]

In addition to current and satisfied body size, participants were asked to choose a figure that shows when weight would likely be a health problem for average person (ie, "Select the drawing that shows which weight would likely be a health problem for the average person"). A discrepancy score between current body size and unhealthy body size was calculated by subtracting the number of the figure selected as the unhealthy body size from the number of the figure selected as the current body size. A negative discrepancy score indicates that participants believed their current body size was smaller than the body size indicating health problems (ie, unhealthy body).

Statistical Analyses

Descriptive statistics included means and standard deviations or frequencies and percentages of key sociodemographic and health-related variables. The frequency of participants selecting each body figure as her current size, along with the mean BMI associated with that figure was calculated. The mean BMI for our sample was compared to the BMI associated with each body figure established in a sample of White women by Bulik and colleagues[21] (N = 16,728). Independent sample t-tests examined whether there were significant differences in means. Next, the frequency of satisfied body figure and body size discrepancy (defined as current body size minus satisfied body figure) was calculated, followed by the mean body size discrepancy across current body size. Finally, the frequency of body size associated with health problems and the mean discrepancy between current and health problem figures (defined as current body size minus body size associated with health problems) was calculated.

Results

As shown in Table 1, participants were on average 39.3 ± 7.4 years of age and had a mean BMI of 41.8 ± 9.5 kg/m^2. A majority of participants

Table 1. Demographic and health-related characteristics of participants (N=147)

	N	Mean (SD)	Min	Max
Age, years	147	39.3 (7.4)	25.0	51.0
Body mass index, m/kg^2	147	41.8 (9.5)	26.9	70.4
Waist circumference, cm	147	117.6 (17.8)	89.5	172.0
			n	%
Education				
Less than high school graduate			6	4.1
High school graduate or GED			20	13.6
Some college			74	50.3
College graduate			47	32.0
Employment status				
Employed			105	71.4
Not employed			23	15.7
Student			8	5.4
Retired			3	2.0
Unable to work			4	2.7
Employed and student			4	2.7
Marital Status				
Married/cohabitating			40	27.2
Not married			107	72.8

Table 2. Body mass index and current body size figures selected, African American women, South Carolina (*N*=147)

	Study Sample				BMI Estimate White Women[21]		Difference between SC Study Mean and Bulik Mean [a]
Current Body Size Figure Selected	*n*	%	Mean ± SD	Min, Max	*n*	Mean ± SD	
1	_	_	_	_	115	18.3 ± 3.0	N/A
2	_	_	_	_	1273	19.3 ± 1.7	N/A
3	_	_	_	_	3850	20.9 ± 1.8	N/A
4	5	3.4	33.7 ± 2.4	31.5-36.6	5837	23.1 ± 2.2	10.6 [b]
5	26	17.7	34.0 ± 3.7	26.9-43.0	3576	26.2 ± 3.0	7.8 [b]
6	37	25.2	37.2 ± 3.7	31.4-47.4	1560	29.9 ± 3.8	7.3 [b]
7	28	19.1	39.5 ± 6.2	29.8-52.7	545	34.3 ± 4.7	5.2 [b]
8	25	17.0	46.1 ± 6.9	30.3-61.3	115	38.6 ± 6.2	7.5 [b]
9	26	17.7	56.2 ± 7.4	39.4-70.4	52	45.4 ± 7.8	10.8 [b]

a. Bulik's mean with White women subtracted from African American women's study mean
b. Significant difference between sample means, $P<.0001$

had at least some college education (82%) and were not married (73%). The frequency of current body size reported by participants is shown in Table 2. The most frequently chosen figure representing current body size was figure 6, and the mean current body size of participants was 6.8 ± 1.5 (range 4-9). BMI values across current body size figures are also shown in Table 2. Mean participant BMI increased across figure numbers. Sex-specific BMI estimates across body figures, established in a large White sample by Bulik and colleagues[21] are also shown in Table 2. The mean BMI for any given figure in our sample was significantly larger (mean difference 5.2-10.8 kg/m^2 larger, $P<.0001$) than the BMI estimates from Bulik and colleagues.[21]

Table 3. Frequency of satisfied body size figures and discrepancy between current and satisfied body size, African American women (*N*=147)

	n	%
Figure satisfied with		
2	2	1.4
3	37	25.2
4	54	36.7
5	41	27.9
6	9	6.1
7	3	2.0
8	1	.7
Body size discrepancy [a]		
0	1	.7
1	22	15.0
2	46	31.3
3	51	34.7
4	20	13.6
5	6	4.1
6	1	.7

Mean body size discrepancy[a] across current body size figure selected

Current body size selected	Mean Discrepancy (SD)	Min, Max
4	.8 ± .4	0-1.0
5	1.8 ± .5	1.0-3.0
6	1.9 ± .7	1.0-3.0
7	2.9 ± .7	1.0-5.0
8	3.4 ± .6	2.0-5.0
9	3.6 ± 1.1	1.0-6.0

a. Defined as current body size minus satisfied body size

The frequencies of satisfied body sizes, as well as body size discrepancies are shown in Table 3. The most frequently chosen figure representing satisfied body size was figure 4; most reported a satisfied body size clustered around figures 3-5. The average satisfied body size was 4.2 ± 1.0 (range 2-8). On average, participants wanted to be 2.6 ± 1.1 figures smaller than their current body size (range 1-6). Body size discrepancy scores (ie, body dissatisfaction) increased as current body size increased (Table 4).

A majority of participants (67%) chose figure number nine, the larg-

Table 4. Body size figure associated with health problems, African American women, South Carolina, (*N*=147)

Figure women selected to be associated with health problems	*n*	%	
1	22	15.0	
2	0	0	
3	0	0	
4	0	0	
5	6	4.1	
6	9	6.1	
7	9	6.1	
8	2	1.4	
9	99	67.4	
Discrepancy current and health problems[a]	n	Mean (SD)	Min, Max
Negative discrepancy	88	-2.6 ± 1.2	-5.0, -1.0
No discrepancy	23	N/A	0, 0
Positive discrepancy	36	4.3 ± 2.4	1.0, 8.0

a. Defined as current body size – body size associated with health problems

est figure, as representing a body size that could lead to a health problem (ie, unhealthy body size), whereas 15% of participants chose figure number one. The absolute discrepancy between current body size and unhealthy body size was 2.6 ± 2.0. A majority (60%) of participants reported a current body size smaller than the body size they felt would cause health problems, and on average, it was 2.6 ± 1.2 figures smaller.

Discussion

This study examined body size perceptions and discrepancies in a sample of overweight and obese, African American women recruited from economically disadvantaged neighborhoods in a southeastern US urban setting. Although all the women except one were not satisfied with their body, the association of body size perceptions relative to related health problems was concerning.

The women in this study perceived their current body size as being between figure 4 and figure 9, with the most common being figure 6. The mean BMI among women who selected each figure was generally higher (range 1.2 kg/m^2–20.0 kg/m^2) than the mean BMIs found in a sample (*n*=354) of African American women from the Kansas City metropolitan area by Pulvers and colleagues,[22] with the exception of figure 7, where the mean BMI was smaller in our sample (ie, 39.5 kg/m^2 vs 40.6 kg/m^2). However, the mean BMI among women who selected each figure was significantly higher than the corresponding BMIs established by Bulik and colleagues,[21] suggesting that despite having larger BMIs, African American women perceive themselves as a smaller size than White women. Although these corresponding BMI values were established in a White population, with BMIs ranging from normal weight to obese (ie, not exclusively overweight or obese), comparisons offer insight into how different body perceptions may be among various groups of women. For example, the women in our study who chose figure 6 as their current size had a mean BMI of 37.2 kg/m^2, whereas Bulik and colleagues[21] found this figure to correspond to a BMI of 29.9 kg/m^2 in a White population. This supports previous research showing that African American women tend to perceive their body size as being smaller than that of White women with equivalent BMIs.[9,10]

Body size figures 3-5 were the most commonly selected figures to represent a body size participants would be satisfied with. These figures represent BMIs ranging from 20.9 kg/m^2 to 26.2 kg/m^2 according to the data collected by Bulik and colleagues.[21] With the exception of one woman whose preferred and current body size were not discrepant, all participants wanted to be smaller than their current size. Participants, on average, wanted to be 2.6 figures smaller than their current body size. Body image discrepancy was greater than what has been reported in other samples.[8-11] This may be

Although all the women except one were not satisfied with their body, the association of body size perceptions relative to related health problems was concerning.

due in part to the fact that our entire sample was overweight or obese and enrolled in a weight loss trial.

Despite being overweight or obese, 60% of women thought they were smaller than the body size they believed would be associated with health problems. Interestingly, over two-thirds believed that figure 9 (the largest body figure) was the figure associated with health problems. There seems to be a disconnect between 1) where, within the body size continuum, health issues occur, and 2) the potential negative health consequences associated with being overweight or obese. Our findings support Lynch and colleagues'[9] suggestion that medical professionals and African American laypersons have different perceptions of what represents a satisfactory body size. Further, moderately overweight African American women may not recognize the health consequences of their body sizes and are seldom told by health professionals that their weight is a cause for concern.[23] Clearly, there is a need to disseminate clear and concise information (messages) to patients regarding the range and scope of adverse outcomes attributable to excess body weight.

Body size discrepancy in our sample was fairly high, particularly when compared with previous studies of African American women.[8-12] Because these women were enrolled in a weight loss trial, it is not surprising that they desired to be smaller, sometimes much smaller, than their current size. However, because studies have shown that African American women tend to be more satisfied with their body size[6,7,9,11] and thus maybe less motivated to lose weigh,[8,9,11,16] motivators other than for "pure weight loss reasons" may need to be emphasized in order to encourage healthy lifestyle behaviors and to achieve a healthy body weight. Although body dissatisfaction is not desirable, it may be useful for motivating lifestyle changes, particularly among individuals who could really benefit from them. Perhaps creating some level of "healthy" body disatisfaction through increased awareness of the health risks associated with excess body weight would provide motivation to change.

Study Limitations

This study provides valuable insight into body size perceptions and discrepancies among economically disadvantaged African American women. However, we recognize study limitations. First, the purpose of this study was descriptive, not explanatory, and used baseline data from a randomized controlled trial (ie, cross sectional). Second, our findings may not generalize beyond the study sample. Women of other races/ethnicities and of higher socioeconomic statuses were not included. Further, all participants in this study were overweight or obese, and therefore we could not compare body image discrepancy to women with lower BMIs. Women enrolled in a weight loss intervention may have lower body size satisfaction than their eligible overweight or obese peers who did not enroll.

Conclusions

Although there was a desire to have a smaller body size, there seemed to be some misperceptions of body size and the potential health consequences of having a larger body size. This was particularly evident when comparing mean BMIs across figures to those established by Bulik and colleagues.[21] Body size misperceptions and/or satisfaction may pose barriers for effective weight-loss strategies. Weight loss interventions focused on African American women should be mindful of the importance and value placed on weight loss as the motivator for making lifestyle changes; other strategies beyond weight loss may need to be used and stressed in an effort to produce the desired behavior changes.

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Author Contributions

Research concept and design: Sharpe, Wilcox, Magwood. Acquisition of data: Sharpe, Wilcox, Magwood. Data analysis and interpretation: Baruth, Sharpe, Wilcox, Magwood, Schlaff. Manuscript draft: Baruth, Sharpe, Wilcox, Magwood, Schlaff. Statistical expertise: Baruth, Sharpe, Wilcox, Magwood, Schlaff. Acquisition of funding: Sharpe, Wilcox, Magwood. Administrative: Sharpe, Wilcox, Magwood. Supervision: Sharpe, Wilcox, Magwood

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