CONCORDANCE BETWEEN SELF-REPORTED HEIGHTS AND WEIGHTS AND CURRENT AND IDEAL BODY IMAGES IN YOUNG ADULT AFRICAN AMERICAN MEN AND WOMEN

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Satisfaction with overweight and obesity purportedly contribute to greater weight gain in African American women than men, yet relatively little data on perceived (PBI) and ideal body image (IBI) are available for young adult African Americans.

In this survey, 509 self-identified African American freshmen in 2003 and 669 in 2006 at a historically Black university completed a survey that included self-reported height, weight and IBI.

In 2003 and 2006, 42.2%−48.8% of men and women were overweight (body mass index [BMI] 25.0–29.9 kg/m^2) or obese (BMI ≥30). In both surveys, >75% of overweight women and >90% obese women selected a smaller IBI. In contrast, a greater proportion of overweight men was satisfied (~50%) than the proportion who had larger than IBI (<40%). Among students with a normal BMI (<25), men were more likely than women to report being smaller than ideal (>45% vs <26%). However, overweight women were more likely than overweight men to select a normal PBI (48.5% vs 36.0%).

The data in African American college freshman do not suggest that greater weight gain in women than men is driven by a desire to be heavier. The high proportion of overweight women with a normal PBI may contribute to greater weight gain. Of concern, nearly half of men with normal BMI want to be heavier, while ~5/8 of overweight men are satisfied with being overweight or want to be heavier. (*Ethn Dis*. 2007;17:617–623)

Key Words: Body Mass Index, Body Image, Overweight, Obesity, African Americans

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INTRODUCTION

Data from the National Health and Nutrition Examination Survey (NHANES) reveal that the prevalence of obesity in the United States, defined as a body mass index (BMI) ≥30, is 30.5%. The prevalence of obesity is higher among non-Hispanic Black females, predominantly African Americans, than among their non-Hispanic White counterparts, ie, Caucasians.[1] The prevalence of obesity has increased from 22.9% observed in NHANES III (1988–1994) to 30.5% in NHANES 1999–2000. While the prevalence of obesity increased for all race/sex groups from NHANES III to NHANES 1999–2000, the largest increase occurred in African American women, from 38.2% to 49.7%.

Several factors influence the excess prevalence of obesity among African Americans including physical inactivity, diets high in fat, socioeconomic status and family history of obesity.[2–7] Recent studies exploring ethnic differences in body image have revealed similar patterns found in obesity. Significant ethnic differences in ideal body sizes and overall body dissatisfaction among women have been observed, with African Americans having larger ideals and more satisfaction with their current body size, even when overweight, than Whites.[8–11] Ethnic differences in body image are less evident among men. These body image differences are thought to contribute to the higher prevalence of obesity among African American women.

Several studies have examined differences in body image among African Americans but these studies were limited by small sample size[12,13] or were conducted in an older population of African Americans.[14–16] Most of the studies have used data from Caucasians as the standard for evaluating African American women rather than lean African American women and African American men as the control group. The accuracy of perceived body size, ideal body image, and the discrepancy between current perceived and ideal body image have not been systematically evaluated among young adult African American women and men. This information may be important in understanding the greater rate of weight gain among African American women than men from young adulthood to mid-life. Therefore, our survey of freshman students at a historically Black university, while not necessarily representative of all individuals in this age group, was designed to address this important gap in the literature.

The accuracy of perceived body size, ideal body image, and the discrepancy between current perceived and ideal body image have not been systematically evaluated among young adult African American women and men.

METHODS

The written health survey used in our study, which included questions on

self-reported demographic and anthropometric characteristics as well as perceived and ideal body image, was reviewed and approved by the joint Steering Committee, which included faculty from both institutions, and by the institutional review boards of both institutions in this EXPORT (Excellence in Partnerships for Outreach, Research and Training) Award.

Participants

The participants in this study were first year (freshman) college students enrolled at a historically Black college/university in South Carolina. Students were recruited during a regularly scheduled class period for a requisite course for all first year students. The study was conducted during the fall semesters of 2003 and 2006. The target population consisted of 897 students enrolled in the requisite course in 2003 and 881 in 2006. One class period was set aside to briefly explain EXPORT and the purpose of the survey. The explanation included information that the survey was anonymous and voluntary. Students agreed to participate by completing and returning the survey during the class period. Among 897 students enrolled in 2003, 535 (59.6%) returned a questionnaire with responses, which included 512 self-identified African Americans with 509 providing data suitable for analysis. Thirty-two participants did not report an age but were included in the analysis because only 3 of the 897 students enrolled in University 101 during the fall semester of 2003 were >24 years old (ages 25, 26 and 34). Among 881 first-year students enrolled in 2006, 774 (87.9%) returned a questionnaire, which included 715 self-identified African Americans with 669 providing data suitable for analysis.

Measures

All data were obtained from a self-administered questionnaire. Body mass index (BMI) was calculated as weight in kilograms divided by height (without shoes) in meters squared (kg/m^2). Students were assigned to one of three categories based on the calculated BMI including normal (<25), overweight (≥25 and <30) and obese (≥30). Body image scores were derived from the body images of Stunkard's Figure Rating Scale. Previous studies have established BMI values that correspond to each body image.[17] These BMI values were used to determine body size categories. The current body image item asked the respondent to identify which figure most accurately represents their current body shape. The ideal body image item asked which body shape the respondent desired. Each of the nine figures were recoded with numeric values 1–9 from left to right with "1" representing the most slender figure and "9" representing the heaviest figure for both men and women. The two items: current body image and body image ideal are used to calculate current-ideal discrepancy score. Subtracting the ideal body image from the current body image yields the current-ideal discrepancy score. Positive scores indicate the respondent would like to be leaner, whereas negative scores suggest the respondent would prefer to be heavier.

Statistical Analysis

Two-sample *t* test was used to determine the comparability of groups for continuous variables. The chi-square or Fisher's exact test was used to evaluate the comparability of groups for categorical variables. The overall difference in ideal body size and body dissatisfaction between groups was tested with the Kruskal-Wallis test. Where an overall significant difference was found, pair wise comparisons were made with the Mann-Whitney U test. Rank correlation coefficients for the relationship between BMI and current body size were computed. All statistical analyses were done separately for women and men. Values for $P<.05$ were accepted as statistically significant.

RESULTS

Selected self-reported characteristics of the college freshmen completing this survey in 2003 and 2006 are provided in Table 1. The mean age, median household income, and percent born in South Carolina were similar in women and men in 2003 and 2006, with the exception that median household income was lower for women than men in 2006. The majority of respondents were South Carolina natives, although the proportion declined from 2003 to 2006, especially for men from 70.1% in 2003 to 59.4% in 2006. Men were taller and heavier than women in both survey years. Although mean BMI values tended to be higher in men than women in both surveys, the differences were not statistically significant. The proportion of men who were overweight and obese in the two surveys remained virtually identical, while small variations were observed for women between the two time points.

Demographic characteristics, including age, South Carolina nativity, and annual household income, of the college freshmen participants and a comparison of these characteristics by BMI category are shown in Table 2 for 2003 and 2006. Among these variables, only comparatively small differences in age for men in 2006 were associated with a greater prevalence of overweight and obesity.

Approximately 80% of women reported that their ideal body size corresponded to the normal weight images, while only ~15% reported an overweight ideal body size and ≤1% reported an ideal body size corresponding to obese images. In contrast, 50% of men reported their ideal body size was overweight, 41.1% selected normal ideals and 4% of male respondents reported obese images as their ideal body size.

The overall median current-ideal discrepancy was 0 for males and 1 for females (data not shown). In other words, men were, on average, satisfied

Table 1. Selected self-reported characteristics of self-identified African American women and men

2003			
Variable	**Women (*n*=292)**	**Men (*n*=217)**	***P* value**
Age, years	18.4 ± .9	18.5 ± .8	.13
Household income, median/yr	$35,000 to $45,000	$35,000 to $45,000	.23
South Carolina native, %	70.6	70.1	.92
Height, inches	64.7 ± .2	70.8 ± .2	<.0001
Weight, pounds	149.5 ± 2.2	186.6 ± 3.5	<.0001
BMI, kg/m^2	25.2 ± .3	26.3 ± .5	.07
<25,%	51.6	47.9	.39
25–29.9,%	34.0	33.2	
≥30,%	14.4	18.9	
2006			
Variable	**Women (*n*=335)**	**Men (*n*=334)**	***P* value**
Age, years	18.4 ± .2	18.2 ± .1	.31
Household income, median/yr	$25,000 to $35,000	$35,000 to $45,000	<.0001
South Carolina native,%	66.8	59.4	<.05
Height, inches	64.6 ± .2	70.4 ± .2	<.0001
Weight, pounds	15.5 ± 2.2	184.8 ± 2.7	<.0001
BMI, kg/m^2	25.4 ± .3	26.1 ± .3	.14
<25,%	57.6	51.8	.31
25–29.9,%	23.0	26.9	
≥30,%	19.4	21.3	

Data = Mean ± SEM.

with their current body image, whereas women wanted to be leaner. The current-ideal discrepancy increased significantly with increasing BMI categories for women. More specifically, while women with normal BMI showed no discrepancy between their current and ideal body size, overweight and obese females reported being larger than their ideal. Obese women were significantly more dissatisfied with their current body size than overweight women. The current-ideal discrepancy observed at normal and overweight were the same for men. For obese men, the median discrepancy score was 1 and was significantly larger than that observed for normal and overweight men.

As expected, the BMI calculated from self-reported height and weight and perceived body image were strongly and positively correlated for both men and women in 2003 and 2006 (Figure 1). However, as evident from the figure, substantial scatter was observed.

The distribution of body size satisfaction is shown in Table 3. Most women reported being either satisfied with their current body size (39% in 2003; 34% in 2006) or being larger than their ideal body size (49.2% in 2003; 50.5% in 2006). Obese women overwhelmingly reported being larger than their ideal body size (90% in 2003; 93.9% in 2006). Approximately 3 of 4 overweight women in both surveys reported a current body image larger than ideal, whereas only approximately one of five was satisfied. Among women with a self-reported normal calculated BMI, 57.8% were satisfied in 2003 and 48.2% in 2006 were satisfied with their body image. Approximately one fourth of the women with normal BMIs wanted to be larger in both surveys.

Among men, the greatest proportion reported that they were satisfied with their current body size (43.8% in 2003 and 36.5% in 2006). Dissatisfaction with current body size was nearly equally distributed among those who were larger and smaller than their ideal in both 2003 and 2006. More normal weight men reported being smaller than their ideal than satisfied with their current size in both 2003 and 2006. Roughly half of overweight men in 2003 (54%) and 2006 (46.7%) were satisfied with their body image. A substantial minority of obese men was satisfied with their body image 2003 (39%) and 2006 (26.8%).

DISCUSSION

The study results indicate that overweight or obese body sizes are not desired or preferred among most young adult African American women. The ideal body image for African American women at all BMI categories corresponds to normal weight. Approximately three-fourths of overweight and more than 90% of obese African American women in this survey reported a current body image greater than their ideal; in other words, they wanted to be leaner. In contrast, fewer than 40% of overweight and <70% of obese men wanted to be leaner, ie, men appeared to be more content with overweight and obese body images than women. Thus, desire for an overweight or obese body size is an unlikely contributor to the greater weight gain in African American women than men from young to mid-adult life inferred from cross-sectional studies.[18,19]

These findings are consistent with previous studies investigating body image in women. The African American woman's ideal is that of normal body size.[10,20] Also, African American women are likely to be dissatisfied with weights/sizes that are above normal and dissatisfaction increases with increasing weight/size.[8,13] Of note, the proportion of African American men with ideal body image that is overweight is greater than reported in a previous study.[10] As in our study, previous reports also observed less dissatisfaction with overweight body images in African American men than women.[10,21]

As the men in this study are college students, some of them may participate

Table 2. Distribution of selected demographic characteristics by BMI categories

	2003					
	Sex					
	Male			*Female*		
Characteristic	**BMI category**		***P* value**	**BMI category**		***P* value**
Age*	Overall	18.5 (.8)		Overall	18.4 (.9)	
	Normal	18.5 (1.2)	.87	Normal	18.3(.8)	.29
	Overweight	18.4 (.8)		Overweight	18.4 (.9)	
	Obese	18.5 (.8)		Obese	18.5 (.8)	
South Carolina native	Overall	71.4% (.5)		Overall	71.7% (.5)	
	Normal	67.0% (.5)	.38	Normal	75.5% (.6)	.43
	Overweight	73.5% (.3)		Overweight	63.3% (.3)	
	Obese	78.1% (.2)		Obese	67.5% (.2)	
Annual household income <$15,000	Overall	9.7% (.3)		Overall	12.4% (.3)	
	Normal	8.2% (.5)	.26	Normal	14.8% (.6)	.78
	Overweight	12.8% (.3)		Overweight	17.3% (03)	
	Obese	18.4% (.2)		Obese	11.8% (.2)	
	2006					
	Sex					
	Male			*Female*		
Characteristic	**BMI category**		***P* value**	**BMI category**		***P* value**
Age*	Overall	18.2 (.1)		Overall	18.4 (.2)	
	Normal	18.0 (.1)	.04	Normal	18.3 (.2)	.14
	Overweight	18.3 (.1)		Overweight	17.9 (.1)	
	Obese	18.4 (.2)		Obese	18.9 (.6)	
South Carolina native	Overall	59.4% (.0)		Overall	66.8% (.0)	
	Normal	53.3% (.0)	.06	Normal	67.2% (.0)	.76
	Overweight	64.4% (.1)		Overweight	68.8% (.1)	
	Obese	67.6% (.1)		Obese	63.1% (.1)	
Annual household income <$15,000	Overall	14.3% (.0)		Overall	18.7% (.0)	
	Normal	15.2% (.0)	.86	Normal	16.7% (.0)	.26
	Overweight	12.5% (.0)		Overweight	16.4% (.0)	
	Obese	14.8% (.0)		Obese	25.8% (.1)	

* Mean ± SEM

in athletic activities, such as football, where larger body mass is more advantageous. This may account for some of the satisfaction with an overweight body size among men responding to the health survey. The men in this study are younger than the African American men studied previously. However, the high proportion of normal weight men who wanted to be larger, 45.5% in 2003 and 47.4% in 2006, is consistent with previous studies.[22–24] The fact that nearly half of young African American men with normal BMI wanted to be heavier (larger) raises the potential for higher rates of overweight and obesity and related health problems for this group in the future.

The desire to be overweight and obese does not appear to be a major risk factor for obesity among African American women in our survey. However, a significant proportion of overweight and obese participants perceived that their body size was smaller than what the BMI calculated from self-reported heights and weights indicated, which may increase risk for weight gain, especially among overweight women (data not shown). More specifically, 42% of women with a BMI in the overweight range selected a current body image that corresponded to a normal BMI. Among obese women, ~75% selected body images corresponding to overweight. Although a majority of

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obese students selected a current body image less than predicted for BMI, 93% of obese women and 88% of obese men selected body images that were overweight or obese.

The findings on self-perceived overweight among women are consistent with the literature.[25] For example, Paeratakul et al, found that >85% of obese and 55% of overweight women perceived that they were overweight. Our study observed a higher perception of overweight among African American men than previous studies.[25,26]

The results of this study suggest that certain aspects of body image are a likely risk factor for obesity among African Americans adolescents. These include perception of a current body image among a significant proportion of young adult African American men and women that is smaller than suggested by self-reported height and weight. In fact, perception of weight is a good predictor of whether individuals participate in efforts to control or reduce weight.[27] Another potential risk factor for weight gain is the finding that a high proportion of lean and overweight young adult African American men prefer a body image that is overweight.

On a positive note, idealization of obesity is minimal among these young adult African Americans. In addition, a qualitative analysis of body image concerns found that being thin/thinner and toned were among the most common ideal traits listed among African American college females and

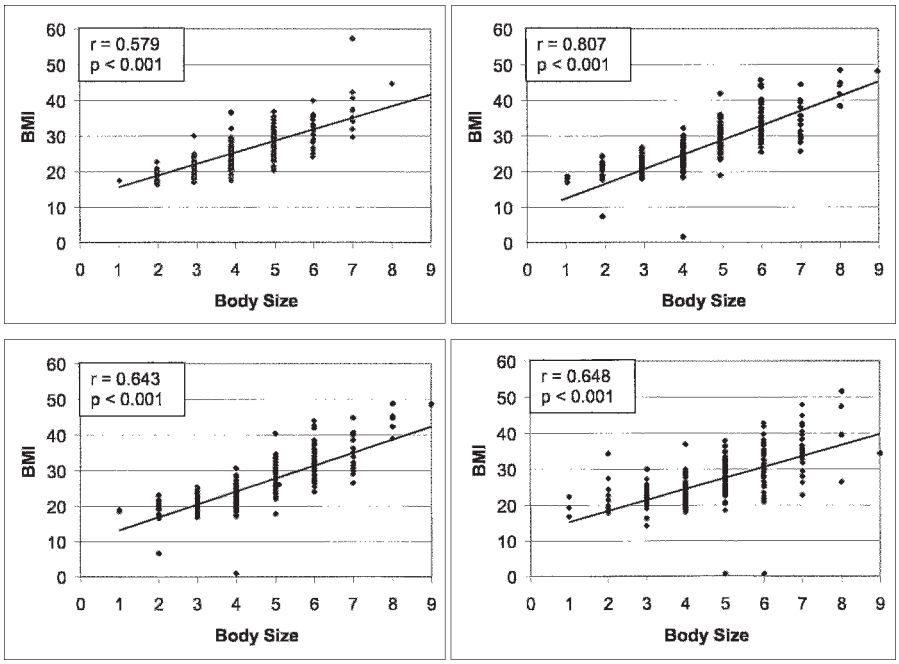

Figure 1. The correlation between BMI calculated from self-reported height and weight and current body image is depicted for women (upper panel) and men (lower panel) in 2003 (left) and 2006 (right)

Table 3. Distribution of percent body satisfaction by BMI categories based on self-reported heights and weight in women and men in 2003 and 2006

Women–2003 (*n*=254)	**Smaller than Ideal**	**Satisfied**	**Larger than Ideal**
BMI category			
Normal	15.8	57.9	25.9
Overweight	2.9	21.4	75.7
Obese	5.0	5.0	90.0
Total	10.8	39.8	49.4
Women–2006 (*n*=332)	**Smaller than Ideal**	**Satisfied**	**Larger than Ideal**
BMI Category			
Normal	25.7	48.7	25.6
Overweight	.0	22.4	77.6
Obese	.0	6.2	93.8
Total	14.8	34.3	50.9
Men–2003 (*n*=194)	**Smaller than ideal**	**Satisfied**	**Larger than ideal**
BMI category			
Normal	45.7	41.4	12.9
Overweight	12.1	53.5	34.4
Obese	5.1	39.0	55.9
Total	26.8	44.6	28.6
Men–2006 (*n*=321)	**Smaller than Ideal**	**Satisfied**	**Larger than Ideal**
BMI Category			
Normal	49.4	36.7	13.9
Overweight	12.6	48.3	39.1
Obese	4.4	27.9	67.7
Total	29.9	38.0	32.1

being toned was common among African American males.[11]

Limitations of this study include the difficulty in ascertaining the contributions of body image distortion and inaccurate self-reports of height and weight in the discrepancy between calculated BMI and perceived body image. In general, men over-report height and women under-report weight,[28,29] both of which lead to a lower estimated BMI and prevalence of overweight and obesity. The Bogalusa Heart Study of young adults indicated that African Americans were ~70% more likely than Whites to have a perceived body image smaller than actual.[30] Despite the concerns, self-reported weight and heights provide relatively reliable estimates of BMI in US adults <60 years old,[28] while other evidence suggests patient self-reports of height and weight are significantly better than estimates provided by healthcare professionals.[31] Ethnic differences in body composition and body mass index have also been observed.[32,33] Thus, estimates of BMI corresponding to body images from a sample of African Americans may be more appropriate in evaluating the relationship between BMI and perceived current and ideal body images in this ethnic group.[34] This study did not explore all aspects of body image such as fat patterning.[35–37] Participants in the survey were college freshmen, which limits extrapolation to the general population of young adult African Americans. This may be important, since the reliability of self-reported height and weight improve with educational status.[10]

In summary, among young adult African Americans who are overweight, women are more likely to be dissatisfied with their current body image than men. Contrary to some previous reports, preference for overweight and obese body images does not emerge as a major contributor to obesity in these women. In overweight and obese African American men and women, a high

proportion select a current body image associated with a lower BMI than self-reports would indicate, which may contribute to weight gain. Approximately 60% of overweight African American men were satisfied with their body size or wanted to be larger, which raises concerns about future weight gain and health in this group. Of note, the majority of young adult African American men and women who are obese by self-report prefer a body image that is leaner than their currently perceived image. The results were generally similar for men and women in the 2003 and 2006, which suggests that the findings are relatively stable for this young, college-age African American population. A better understanding of factors contributing to a desire for a large or obese body image in a substantial proportion of African American men and for a substantial minority of both genders to perceive their current body image smaller than self-reported BMI could facilitate efforts to maintain or attain healthy weights.

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Data analysis and interpretation: Mountford, Egan
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