College-Age, African-American Males' Misperceptions about Weight Status, Body Size, and Shape

Susan M. Gross, PhD; Pamela E. Scott-Johnson, PhD; Dorothy C. Browne, DrPH

This study examined actual and perceived weight status and body satisfaction of college-age African-American males. We predicted that, in general, males would be accurate about their weight status and satisfied with their body sizes and shapes. The study population was 123 male from a cross-sectional survey of 406 seniors who were scheduled to graduate in the spring 2003 from a historically Black university located in the mid-Atlantic region. These students were administered a survey on health and wellness that addressed a myriad of health concerns, most of which addressed weight, exercise, and related areas.

This paper presents analyses on males who were overweight or obese according to the National Institutes of Health guidelines (body mass index $\geq$25 kg/m^2). 50.4% were overweight or obese (OW/O). Of the OW/O males, 59.7% inaccurately classified their own weight status as normal and chose ideal weights ($F(2,59)=3.8$, $P<.04$) and healthy weights ($F(2,59)=8.0$, $P<.001$) that were heavier than males with accurate weight perceptions. Specifically, OW/O males desired larger upper torsos ($\chi^2=7.2$, df=1, $P<.01$) and larger body parts (ie, arms, legs, chest area; $F(2,59)=11.0$, $P<.0001$). Inaccurate, overweight males were less likely to agree that losing weight supported healthiness ($\chi^2=26.5$, df=4, $P<.001$) or that losing weight would make them more attractive ($\chi^2=14.4$, df=4, $P<.01$). These findings point to the need for effective interventions and strategies for helping those affected and those interested in overweight prevention to understand the role of weight perception, body satisfaction, and their influence on weight loss and lifestyle changes for health. (*Ethn Dis*. 2005;15 [suppl 5]:S5-34–S5-38)

Key Words: Body Image, Weight Perception, Weight Status

From the Morgan Center for Health Disparities Solutions (SMG, PESJ, DCB); Department of Psychology (PESJ), Public Health Program (SMG, DCB), Morgan State University, Baltimore, Maryland.

Address correspondence and reprint requests to Dr. Susan M. Gross, Morgan State University, Center for Health Disparities Solutions, 2201 Argonne Dr, Montebello D-325, Baltimore, MD 21218; 443-885-4540; 443-885-8346 (fax); sgrossphd@yahoo.com

Introduction

Weight Misperceptions

Health professionals are increasingly concerned about the growing rate of obesity of the American population, especially among African Americans.[1] Additionally, researchers report a paradox in the relationship between individuals' weight status based on body mass index (BMI) and perceptions of their weight status.[1–4] That is, these researchers found that men who were classified as overweight and obese actually perceived themselves to be normal weight.[2,4,5] McCreary reported that while males are more likely than females to be overweight, normal-weight boys and young men perceived themselves to be underweight.[4] McCreary also demonstrated that across age groups (24–64 years) overweight males perceived themselves as normal weight.[4] However, males <35 years of age were more likely to misperceive their weights. Paeratakul et al, as well as Kuchler and Variyam, confirmed these results.[1,5]

Paeratakul and colleagues compared the gender, racial/ethnic, and socioeconomic differences in perceived weight.[5] Perceived overweight was significantly higher in women, Whites, and individuals with higher BMI, higher income, and higher educational status. Males were less likely to perceive themselves as overweight than females; African Americans less likely than Whites. More overweight and obese White men correctly perceived their overweight status compared with Black men. Erroneous perception of body weight may have health and behavioral implications. Kuchler and Variyam examined the relationship between individuals' weight (BMI) and their weight perceptions by analyzing data from the 1988–1994 National Health and Nutrition Examination Survey and explored gender, socioeconomic, and demographic variables in identifying subpopulations within the database that misperceived their weight status.[1] Males who were obese or overweight were more likely than obese or overweight women to under-assess their weight status. Those who under-assessed their weights were more frequently found among those $\geq$65 years of age; individuals with relatively low education levels were also more likely to under-assess their weight status.

Body Satisfaction and Attractiveness Among Males

Smolak and Levine reported gender differences in body satisfaction.[6] Males are more concerned about being too small rather than too big, or they are satisfied with their weight. McCreary and Sadava explored the relationship among gender, relative weight, and perceived weight and attractiveness.[3] Overweight males rated their own attractiveness higher that males who were underweight. These results support cultural and social stereotypes of males that are more attractive when they are large and perceived to be more muscular.

This literature on males and their perception of weight status is interesting and raises questions as to the explanations of these findings; little research exists on the extent to which the findings noted above extend to various racial and ethnic groups. A search of the literature reveals few studies examining perceptions of weight among African Americans, especially males. Therefore, the purpose of this study is to examine

actual and perceived weight status and body satisfaction of college-age African-American males and to determine the extent to which overweight males were aware of their status and satisfied with their weight status and body image.

METHODS

Study Setting and Participants

The study design for this paper was cross-sectional. The study population consisted of 406 young adults (primarily African-American) graduating in the spring of 2003 from a historically Black university located in the mid-Atlantic region. The sampling approach was to include the entire population of graduate and undergraduate students who were scheduled to graduate in 2003. The expected sample was 855 students, of which 36% were male. The study protocol was reviewed and approved by the governing institutional review board.

Some of the targeted sample did not consent to participate. Others had missing or invalid responses to key study variables (n=65). Two hundred and four persons in the sample were female. For this reason, the effective sample size for the present investigation was 123 males. Only the males' data was used in this report.

Weight-Related Variables

The key outcome variable in this investigation was weight status or weight-related variables, which were measured as BMI. BMI was calculated in kg/m^2 with self-reported height and weight; participants were categorized according to National Institutes of Health (NIH) guidelines: underweight ≤18, acceptable 19–24, overweight 25–29, obese 30–34, and extreme obesity (obesity II) ≥35.[7] Respondents were asked to report on the weight status of close relatives and their significant others.

Self-Perception of Body-Size Variables

Self-perception as overweight or obese (OW/O) was measured using two questions: "Do you consider yourself now to be overweight?" and "Do you consider yourself now to be obese?" A dichotomous summary variable was constructed to represent all individuals who responded yes to either of these items. A variable representing accuracy of self-perception of OW/O was constructed by comparing self-perception items with current weight status. Those who were underweight or had acceptable weight and misclassified themselves as OW/O were categorized as inaccurate. Those who were overweight, obese, or extremely obese and did not classify themselves as at least overweight were also categorized as inaccurate.

Body Satisfaction Variables

To determine ideal weight, respondents were asked, "How much would you like to weigh?" Responses to this question were then used to calculate BMI for ideal weight (kg/m^2) by using their current height, and then this BMI for ideal weight was compared with how the actual weight would be classified according to NIH guidelines. This variable indicates desire to weigh within an acceptable range for their height. Additionally, ideal weight was subtracted from current weight to provide an indicator of dissatisfaction with body weight. A three-category variable was then constructed from the dissatisfaction with body weight variable with the following categories: desires to stay the same (ideal weight = current weight), desires to weigh less (ideal weight < current weight), and desires to weigh more (ideal weight > current weight).

For healthy weight, respondents were asked, "What do you believe your healthy weight should be?" Responses to this question were then used to calculate BMI for healthy weight (kg/m^2) by using their current height, and then this BMI for healthy weight was compared with how the actual weight would be classified according to NIH guidelines. This variable indicates respondent's knowledge of the acceptable weight range appropriate to his height. A three-category variable that compared healthy weight to ideal weight was constructed with the following categories: healthy weight > ideal weight, healthy weight = ideal weight, and healthy weight < ideal weight.

To measure area-specific body image perceptions, participants were asked to think of seven body areas (arms, stomach, chest, hips, thighs, buttocks, and legs) and state if they would like them to be bigger, smaller, or stay the same. Two summary variables were created: 1) count of body areas desired to be smaller with a total maximum count of seven (this variable represents a desire to reduce the size of body proportions); and 2) count of body areas desired to be larger with a total maximum count of seven (this variable represents a desire for the body to be larger or possible more muscular). A third variable to represent body area dissatisfaction was created, "desire for upper torso to be larger," which identifies those participants who wanted either their arms or chest to be larger versus stay the same or smaller.

Perceived Effect of Weight on Health Status and Attractiveness Variables

Four statements related to health status, attractiveness, and weight were given to the respondents: "In order to stay healthy, I should lose weight," "In order to stay healthy, I should gain weight," "If I were to lose weight, I would be more attractive," and "If I were to gain weight, I would be more attractive." Respondents asked to indicate the extent of agreement with each of the items using a scale of five anchored points, which included strongly agree, agree, undecided, disagree, and strongly disagree.

Statistical Analysis

Sociodemographic, weight-related, self-perception of body size, and body image satisfaction variables were summarized by using means and frequencies. A comparison of males with BMI ≥25 to those with BMI <25 kg/m^2 by demographic and weight history variables was done by using χ^2 tests and one-way analyses of variance (ANOVAs). Next, for those males with BMI ≥25 analysis was conducted that compared accuracy of perception of body size by body satisfaction and perceived effect of weight change on health and attractiveness by using χ^2 tests and one-way ANOVAs.

Table 1. Perceptions of weight characteristics by weight status

Characteristic	Overweight (BMI 25–29) *n*=38	Obese (BMI ≥30) *n*=24	*P* value
Self-perception as overweight (%)	15.8	79.2	<.01
Self-perception as obese (%)	2.6	21.7	<.05
Accurate self-perception of body size (%)	15.8	25.0	<.01
Healthy weight (kg)	82.2 ± 10.0	91.5 ± 9.2	<.05
Healthy BMI (kg/m^2)	26.1 ± 2.2	28.6 ± 2.4	<.05
Healthy BMI >25 kg/m^2 (%)	78.9	100	<.05
Ideal weight (kg)	74.3 ± 27.6	91.4 ± 14.0	<.05
Ideal BMI (kg/m^2)	23.7 ± 8.6	28.5 ± 3.5	<.05
Ideal BMI >25 kg/m^2 (%)	90.9	95.7	<.01

RESULTS

The mean age of this sample (*N*=123) was 24.4 ± 6.0 years, with a median age of 23 years. Most identified themselves as single and US citizens. Approximately 14% of the sample had one or more children. Approximately two thirds of the sample was employed, 54% received financial support from family, 33% received financial aid, 19% had savings or investment, and 69% reported an annual income <$20,000. Approximately 50% of the respondents were of optimal or underweight status (BMI<25 kg/m^2), 31% overweight (BMI 25.0–29.9 kg/m^2), 12% obese (BMI 30.0–34.9 kg/m^2), and 7% extremely obese (BMI ≥35 kg/m^2). Twenty percent of participants perceived themselves as overweight, and 5% perceived themselves as obese.

More than 30% of 123 participants were determined to have inaccurate perceptions of their body sizes. Analysis indicates that males whose BMI was <25 kg/m^2 (*n*=61) were 100% accurate in their perception of their weight status. However, 60% of males with BMI >25 kg/m^2 inaccurately perceived their weight status. The mean difference between ideal weight and current weight in this group was −11.7 ± 51.4 pounds. However, 41% desired a weight lower than their current weight, 12% desired to stay the same weight, and 47% desired a weight larger than their current weight. The mean number of body areas desired to be larger for this sample was 2.4 ± 1.6, and the mean number of body areas to be smaller was 1.2 ± 1.5. Eighty-one percent of the participants desired a larger upper torso area.

Perceptions of Overweight Males

Next we examined the data from 62 OW/O males (BMI ≥25 kg/m^2), since most (60%) of these participants' records indicated distortions in their perceptions about their own health (Table 1).

For participants with BMI ≥25 kg/m^2, most (87%) picked healthy weights that would be classified as at least overweight for their current heights (ideal BMI ≥25 kg/m^2). Those who were obese selected healthy weights that were higher than those who were overweight. In fact, 100% of the obese males selected healthy weights that would give them BMIs >25 kg/m^2. Similar results were found for ideal weights.

Among these OW/O male participants, those males with an inaccurate perception of their weight status chose ideal weights ($F_{(2,59)}=3.8$, $P<.04$) and healthy weights ($F_{(2,59)}=8.0$, $P<.001$) that were heavier than males with accurate perceptions of their weights (Table 2).

Table 3 is a comparison of body satisfaction, healthy weight, and ideal weight of those overweight males who were inaccurate in their perceived weight to those who were accurate. We also asked their degree of satisfaction with their body parts and whether they wanted them to be larger, smaller, or the stay the same. The count of body areas desired to be larger was about twice as high on average for inaccurate males compare with accurate males. The count of body areas desired to be smaller was much lower for inaccurate males compared with accurate males. More inaccurate males (55%) desired their upper torso to be larger compared with accurate males (22%). Accurate males had greater body size dissatisfaction and on average desired that their body weight was lower by at least 50 pounds. Only inaccurate males desired an ideal body weight that was greater than their current weight.

Table 4 provides a comparison between accurate and inaccurate males with BMI ≥25 kg/m^2 of responses to statements related to perceived health status and perceived attractiveness. Compared to accurate males, inaccurate males disagreed that losing weight supported improving health status or that losing weight would improve their attractiveness.

Table 2. Comparison of healthy and ideal weights by weight status and accuracy of perception of body size (*N*=62)

Weight Status	Healthy Weight (kg)		Healthy BMI (kg/m^2)		Ideal Weight (kg)		Ideal BMI (kg/m^2)	
	Inaccurate	Accurate	Inaccurate	Accurate	Inaccurate	Accurate	Inaccurate	Accurate
Overweight (BMI 25–29)	83.4 ± 9.3	75.9 ± 11.8	26.3 ± 2.1	24.7 ± 2.3	77.7 ± 25.5	56.2 ± 33.8	24.7 ± 7.9	18.8 ± 11.2
Obese (BMI 30–34)	93.3 ± 7.5	87.8 ± 9.0	28.5 ± 1.6	27.7 ± 1.7	94.5 ± 7.5	89.2 ± 9.9	28.9 ± 2.0	28.2 ± 1.6
Extremely obese (BMI ≥35)	104.1	94.2 ± 9.1	29.5 (*n*=1)	29.6 ± 3.3	117.6 (*n*=1)	89.4 ± 18.7	33.3(*n*=1)	27.9 ± 5.4
Total	85.8 ± 10.6		27.0 ± 2.6		80.7 ± 24.7		25.5 ± 7.4	
	F=8.0		F=11.1		F=3.8		F=3.1	
	df=2,59		df=2,59		df=2,59		df=2,59	
	P<.001		*P*<.001		*P*<.04		*P*=.053	

DISCUSSION

Our primary hypothesis was that males in our sample would have an accurate perception of their weight. Our hypothesis was partially confirmed in that males whose BMIs were <25 kg/m^2 were 100% accurate in their perceptions about their weight status. We originally thought that perception would be accurate because of the nature of the sample population. That is, the sample population was educated and all had to have completed physical education requirements as partial fulfillment of graduation requirements. However, 60% of the males with BMIs ≥25 kg/m^2 were inaccurate about their weight perceptions. This finding was consistent with findings in the literature.[1,3]

Only 22% of males with a BMI ≥30 kg/m^2 perceived their weight status to be obese. However, 79% of these obese males perceived their weight status as overweight. These participants acknowledge that they have a weight problem but they may not want to be identified as obese. The literature reports that, among young adult males, the obese body types are ascribed personality traits with negative connotations (eg, lazy, cheats, sneaky). A muscular male body type is overwhelmingly assigned personality traits with positive connotations (eg, attractive, strong, happy).[2] For participants in this study with BMIs ≥25 kg/m^2, being classified as inaccurate indicates the participant's lack of awareness of a potential weight problem. Therefore, in this study those obese participants who perceived themselves as overweight were classified as accurate since they acknowledge their potential weight problem.

Inaccurate males also desired larger parts and perceived themselves as attractive. This too is confirmed in the literature. In fact, males tend to be more concerned about being too small than being too large.[2,4,5] However, this is the first study to confirm this in an exclusively African-American, college-educated, young adult, male population sample.

Some limitations exist in this study. First, the study was cross-sectional, and inferences about causality cannot be made. Second, the study used a convenience sample, so our generalizability to the entire graduating class or graduates of historically Black colleges and universities may be limited. Third, body weights and heights were self-reported, so weighing participants may have yielded different results. Previous studies have generally reported a 90%

Table 3. Weight status, perception of body size, and body image (*N*=123)

Characteristic	% All Males (*N*=123)	Inaccurate Males (*n*=37)	Accurate Males (*n*=25)	*P* value
Area-specific body dissatisfaction				
Count of areas to be larger	2.4 ± 1.6	2.5 ± 1.6	1.2 ± 1.5	<.01
Count of areas to be smaller	1.2 ± 1.5	1.3 ± .9	2.7 ± 1.8	<.01
Desires larger upper torso	38.5	86.5	56.0	<.01
Any body dissatisfaction†	69.2	48.6	96.0	<.01
Dissatisfaction with body weight (lbs) (ideal weight–current weight)*	−11.7 ± 51.4	−17.5 ± 55.6	−55.1 ± 65.0	<.05
Dissatisfaction with body weight				<.01
Desires to stay the same	11.7	18.9	0	
Desires to weigh less	40.8	48.6	100.0	
Desires to weigh more	47.5	32.4	0	
Healthy weight (HW) versus ideal weight (IW)				ns
HW=IW	48.8	43.2	52.0	
HW<IW	38.2	43.2	28.0	
HW>IW	13.0	13.5	20.0	

* BMI calculated using Desired Ideal Weight or Perceived Healthy Weight and Current Height

† Any body dissatisfaction was defined as desiring a weight lower than their current weight and/or desiring a smaller area of their body

Table 4. A comparison between accurate and inaccurate male responses to statements regarding perceived health status (weight) and perceived attractiveness. Compared to accurate males, inaccurate males disagreed that losing weight supported healthiness or that they would be more attractive

	Weight Status				Perceived Attractiveness Rating			
	In order to stay healthy, I should lose weight (%)		In order to stay healthy, I should gain weight (%)		If I were to lose weight, I would be more attractive (%)		If I were to gain weight, I would be more attractive (%)	
	Inaccurate	Accurate	Inaccurate	Accurate	Inaccurate	Accurate	Inaccurate	Accurate
Strongly agree	4.8	11.3	0	1.7	3.2	9.7	0	0
Agree	8.1	24.2	3.4	0	14.5	21.0	11.5	1.6
Neutral	14.5	1.6	18.6	3.4	11.3	1.6	16.4	4.9
Disagree	21.0	1.6	22.0	13.6	16.1	6.5	19.7	16.4
Strongly disagree	11.3	1.6	15.3	22.0	14.5	1.6	11.5	18.0
	$\chi^2=26.45$ df=4 $P<.001$		$\chi^2=9.42$ df=4 $P<.05$		$\chi^2=14.41$ df=4 $P<.006$		$\chi^2=7.60$ df=4 $P<.055$	

correlation between self-reported and actual weight, and 20% of adults underestimate their actual weight by 2 kg or more.[8] However, even though the error for self-reported weight is small, as body weight increases so does the size of the self-reported weight error.[9] Therefore, our estimates of weight are likely to be underestimated. A strength of this study is that it provides data on young African-American adults, a relatively understudied group with respect to self-perception of body size and body satisfaction.

The young men in our sample with BMI >25 tend to consider themselves slimmer than they are in reality. They also often choose ideal weights and healthy weights for themselves that would place them in the overweight category for their height. This lack of awareness of appropriate weight range could potentially decrease their desire to engage in weight reduction activities. We conclude that effective intervention strategies need to incorporate an adequate understanding of weight perception and body satisfaction and the influence that these factors have upon weight loss and lifestyle changes for improved health.

ACKNOWLEDGMENTS

This work was supported by grants from the National Institutes of Health 1P60MD000214-01, 5P60MD00217-02, U24DA12390-04

REFERENCES

1. Kuchler F, Variyam JN. Mistakes were made: misperception as a barrier to reducing overweight. *Int J Obes Relat Metab Disord.* 2003; 27(7):856–861.
2. Cafri G, Thompson JK. Measuring male body image: a review of the current methodology. *Psychology of Men and Masculinity.* 2004;5: 18–29.
3. McCreary DR, Sadava SW. Gender differences in relationships among perceived attractiveness, life satisfaction, and health in adults as a function of body mass index and perceived weight. *Psychology of Men and Masculinity.* 2001;2(2): 108–116.
4. McCreary DR. Gender and age difference in the relationship between body mass index and perceived weight: exploring the paradox. *International Journal of Men's Health.* 2002;1(1): 31–42.
5. Paeratakul S, White MA, Williamson DA, et al. Sex, race/ethnicity, socioeconomic status, and BMI in relation to self-perception of overweight. *Obes Res.* 2002;10(5):345–350.
6. Smolak L, Levine MP. Body image in children. In: Thompson JK, Smolak L, eds. *Body Image, Eating Disorders, and Obesity in Youth: Assessment, Prevention, and Treatment.* Washington, DC: American Psychological Association; 2001:41–66.
7. Kuczmarski RJ, Ogden CJ, Grummer-Strawn LM, et al. CDC growth charts: United States. *Adv Data.* 2000;314:1–28.
8. Villanueva EV. The validity of self-reported weight in US adults: a population-based cross-sectional study. *BMC Public Health.* 2001;1(1): 11.
9. Rowland ML. Self-reported weight and height. *Am J Clin Nutr.* 1990;52:1125–33.