Perceived Body Image for Optimal Health: Analysis of Racial Differences

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BACKGROUND

- Adiposity in the US population is increasing, with over 64% of the adult population classified as being overweight or obese[1]

- Obesity is associated with a variety of chronic diseases, including metabolic diseases such as diabetes mellitus, high blood pressure, and dyslipidemia — all of which are major atherosclerotic coronary heart disease risk factors[2–4]

- **Obesity and African Americans**
  - African American women have among the highest rates of being overweight or obese compared with other groups in the US. About four out of five African American women are overweight or obese[5]
  - From 2003–2006, African American women were 70% more likely to be obese than non-Hispanic white women

Age-adjusted percentage of persons ≥20 years of age who are overweight or obese, 2003–2006. (Overweight = body mass index [BMI] ≥25) National Health and Nutrition Examination Survey (NHANES)

	Non-Hispanic Black	Non-Hispanic White	Non-Hispanic Black/Non-Hispanic White Ratio
Men	71.6	71.8	1.0
Women	79.8	57.9	1.4

Source: CDC, 2009. Health, United States, 2008[5]

- Perception of body image may influence health-related behaviors related to weight management

- Discrepancy in perception of ideal body image may influence weight management in different racial groups

OBJECTIVE

Compare gender-specific self-perception of ideal body image between racial groups

METHODS

STUDY DESIGN AND STUDY POPULATION

- The **S**tudy to **H**elp **I**mprove **E**arly evaluation and management of risk factors **L**eading to **D**iabetes (SHIELD) was a 5-year population-based survey conducted to better understand the risk for the development of diabetes mellitus, as well as disease burden
  - The survey responses included 211,097 adults from 127,420 households (64% response rate), based upon a screening questionnaire mailed to 200,000 nationally representative households
  - In 2004, a baseline survey was sent to 22,001 selected individuals derived from the screening respondents. Since 2004, annual SHIELD surveys captured self-reported information on health status, attitudes and behaviors, quality of life and anthropometry from this representative sample of the US population

- This investigation is a cross-sectional analysis of the relation of ideal body image with race among SHIELD respondents to the 2007 survey (n = 15,844), which included the Figure Rating Scale[6]

STUDY MEASURES

- Body image was assessed using the Figure Rating Scale[6]
  - Figure Rating Scale consists of two gender-specific scales that contain nine schematic figures of women and nine figures of men, ranging from underweight to obese
  - On the gender-specific scale, respondents selected a figure that most closely resembled the figure that "you feel best resembles the 'ideal' body type for optimal health" (ideal body image)
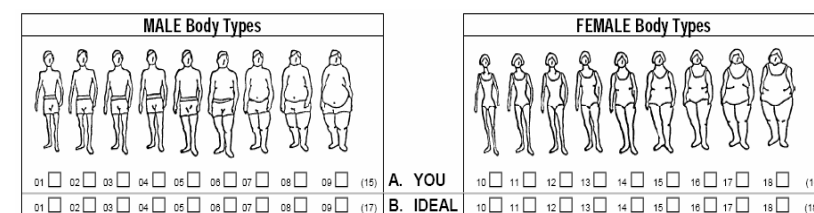
STATISTICAL ANALYSES

- Chi-square test was computed between perceived ideal body image and race for men and women separately

RESULTS

- A total of 3,980 white and 1,306 African American men were included in the analysis of ideal body image perception

- A total of 5,872 white and 2,404 African American women were included in the analysis of ideal body image perception

RESULTS (Continued)

Table 1. Characteristics of SHIELD respondents by race

Characteristics	White Men (n = 3,980)	African American Men (n = 1,306)	White Women (n = 5,872)	African American Women (n = 2,404)
Age, years, mean (SD)	58.6 (15.2)*	54.6 (15.5)	56.8 (15.2)*	52.4 (14.5)
Education, % with no more than a high school degree	49.0*	54.6	60.0*	53.8
Income, % with <$30,000/yr	23.8*	29.6	36.0*	44.0
Household size, % with single-member household	20.5*	29.0	22.9*	34.8
BMI (kg/m²), mean (SD)	30.6 (6.4)*	29.5 (6.6)	31.9 (8.5)	32.2 (8.6)
Overweight (BMI = 25.0–29.9 kg/m²), %	34.7	35.6	25.2	26.7
Obese (BMI ≥30 kg/m²), %	47.6*	38.4	53.3	53.0
Type 2 diabetes mellitus, %	25.4*	16.8	25.2*	19.5
Heart disease, %	24.9*	11.6	15.3*	9.8

*p <0.001 for gender-specific comparison of white vs. African American

- More white men than African American men were older, obese and had type 2 diabetes mellitus or heart disease (p <0.001). Fewer white men than African American men had less education, lower income, and single-member households (p <0.001)

- Fewer white women than African American women had lower household income and single-member household size (p <0.001). More white women than African American women were older, had lower education, and had type 2 diabetes mellitus or heart disease (p <0.001)

Figure 1. Perception of ideal body image for optimal health (Men)
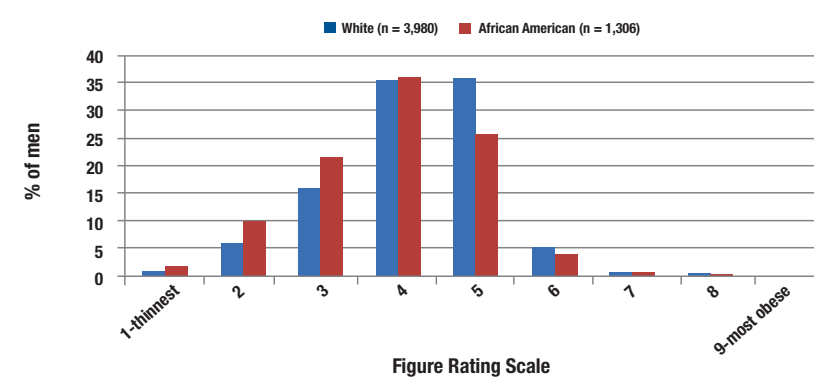
- Majority of white and African American men indicated that body images #3 (16% white vs. 22% African American), #4 (35% white vs. 36% African American), and #5 (36% white vs. 26% African American) were optimal for health (Figure 1)

- Generally, African American men chose body image figures for optimal health that were thinner (figures #3 and #4) than those chosen by white men (figures #4 and #5) (p <0.001)

Figure 2. Perception of ideal body image for optimal health (Women)
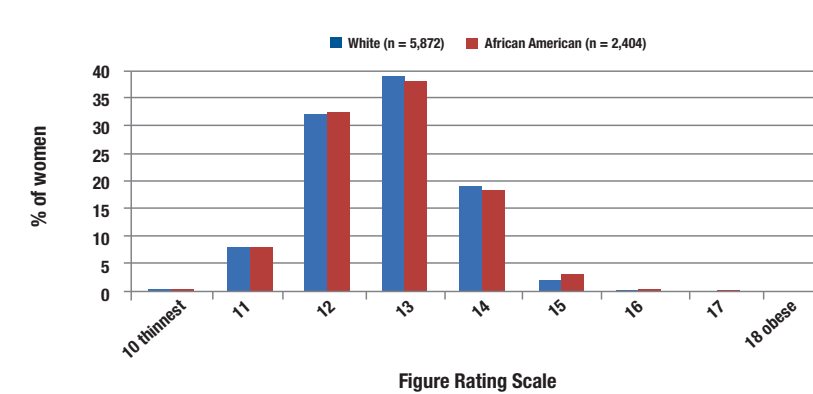
- Most African American and white women chose body images #12 (approximately 32% African American and white) and #13 (38% African American vs. 37% white) as being ideal for optimal health (Figure 2)

- African American and white women did not substantially differ in the body image choices they perceived as ideal for optimal health (p = 0.05)

- Both African American and white women tended to choose body images that were thinner (third and fourth thinnest images) than those chosen by African American and white men (fourth and fifth thinnest images)

ADJUSTMENT FOR EDUCATION AND AGE

Table 2. Regression analysis adjusting for age and education for men

Parameter	Beta coefficient (SE)	p-value
Race	−0.309 (0.035)	<0.0001
Age	0.002 (0.001)	0.08
Education	−0.026 (0.008)	0.001

F statistics = 30.6, p <0.0001

- Among men, perception of ideal body image for optimal health was significantly different between races even after adjusting for education level and age (Table 2)
  - African American men chose a thinner ideal body image than white men even after adjusting for age and education

Table 3. Regression analysis adjusting for age and education for women

Parameter	Beta coefficient (SE)	p-value
Race	0.062 (0.024)	0.01
Age	0.004 (0.001)	<0.0001
Education	−0.064 (0.006)	<0.0001

F statistics = 48.4, p <0.0001

- Among women, race did not strongly influence the choice of ideal body image for optimal health even after adjusting for age and education

LIMITATIONS

- Household panels, like the SHIELD study, tend to under-represent the very wealthy and very poor segments of the population and do not include military or institutionalized individuals

CONCLUSIONS

- African American versus white men and African American versus white women did not report clinically significant differences in their perception of body image ideal for optimal health, suggesting that such perceptions do not account for racial differences in body weight

- Further research is needed to better understand the influence of body image perception on health behaviors such as physical activity and nutrition

- Further research is also needed to better understand the influence of genetic and cultural differences on health behaviors such as physical activity and nutrition

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ABBREVIATIONS

BMI	Body mass index
CDC	Centers for Disease Control and Prevention
NHANES	National Health and Nutrition Examination Survey
SHIELD	Study to Help Improve Early evaluation and management of risk factors Leading to Diabetes
US	United States of America