Association of body size estimation and age in African-American females

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ABSTRACT. This cross-sectional research study tested the hypothesis that body image estimates of African-American females differ as a function of age. To test this hypothesis, body image estimates of 379 African-American females, ranging in age from 16 to 96 years, were contrasted as a function of age group, while statistically controlling body mass index. Three body size estimates, current body size, ideal body size, and reasonable body size were measured using the Body Image Assessment for Obesity. The discrepancies between current and ideal body size estimates and between current and reasonable body size estimates were also analyzed to assess for differences in body size dissatisfaction. The study found that younger African-American women (16 to 35 years) differed from older African-American women (>35 years) on measures of body size dissatisfaction. Women in the age range of 26 to 35 years reported higher estimates of current body size in comparison to women older than 35 years. The youngest age group (16 to 25 years) reported thinner ideal body size goals in comparison to women who were slightly older (26 to 35 years) and women who were older than 75 years. The pattern of body image estimates across a large age range suggests that younger African-American women, in comparison to older African-American women, may have body images that may make them more susceptible to eating disorders.

INTRODUCTION

The body image construct is relevant to a variety of psychological and physical conditions, including eating disorders (1, 2) and obesity (3, 4). Women and adolescent girls are especially susceptible to psychological concerns related to body image (5). Eating disorders have been associated with overestimation of current body size (CBS) and preference for extreme thinness (6). In contrast, obesity has often been associated with higher standards for an ideal or acceptable body size/shape (7, 8).

Current research suggests that body dissatisfaction of women remains fairly constant across the lifespan (9). Most of this research has focused primarily upon young white women (4). Research has established that eating disorders often begin during early to late adolescence (10) and that body concerns play a major role in the development of eating disorders (11). In general, African-American girls are less concerned about body size/shape in comparison to Caucasian girls (12-14) and are less likely to develop an eating disorder (15, 16), but may be a greater risk for developing obesity (12, 17). It should be noted that there are conflicting findings on whether African-American girls are less susceptible to eating disorders, however (13, 14, 18, 19). Since concerns about body size are believed to be a significant risk factor for eating disorders, there is considerable interest in this construct as it applies to African-American females (14).

There has been very limited research (for all ethnic groups) concerning the association of age with different patterns of body size estimates, i.e., estimates of current (self), ideal, and acceptable body size. Most developmental studies of body image have used questionnaires to measure body dissatisfaction (9). Thus, there is a need for research pertaining to age differences in body image using body image measures that assess perceptual estimates of body size and measures that assess body size preferences (20), and there is a special need for this type of research with African-American women.

The primary aim of this cross-sectional study was to test for different patterns of body image in African-American females over a very wide age span, i.e., 16 to 96 years. It should be noted that this study, because of the use of a cross-sectional research design, did not distinguish between age and age cohort, i.e., it tested
for age differences, not age changes. For example, if the study found that there were different body image patterns across age groups, these differences could be a function of different developmental stages or they could be due to historical factors related to the ideal body size (IBS)/shape that have been associated with different age cohorts. For example, an historical factor would be that those participants who were children and adolescents during the 1950s might have different body ideals than those who grew up during the 1990s.

### METHOD

#### Participants

This research study sample was recruited from a wide variety of studies conducted by the first author over the past five years. Thus, it is a sample of convenience that used archival data. The study sample included 379 African-American females between the ages of 16 and 96 years. The sample was stratified in ten-year age groups up to age 75. Participants with ages from 76 to 96 years were classified as age >75 years. Table 1 summarizes the average ages and number of participants in each age group.

#### Assessment measures

**Body Mass Index (BMI)**

Height and weight were measured using a balance beam scale and stadiometer. Height and weight were converted to BMI (kg/m²), which has been validated as a measure of body mass (21). Numerous studies of body image estimates have statistically controlled BMI (e.g., 7, 8, 22), and this approach was used in this study.

**Body Image Assessment for Obesity (BIA-O; 8)**

The BIA-O is a reliable and valid measure of body image. Each of the 18 figural stimuli is 16 cm in height and each silhouette is presented on an individual card with the dimensions of 22 cm by 28 cm. Administration of the BIA-O involves shuffling the 18 cards (each with a figure of a different body size/shape) and presenting them in a random order. The participant is instructed to “Select the silhouette that most accurately depicts the body size that you would most prefer. Again, be honest and do not rearrange the cards.” The silhouette that is selected is recorded as the IBS score. The cards are then shuffled for a third time to yield a new random order of the 18 silhouettes. The participant is then instructed to “Please select a silhouette that represents a body size that you believe is realistic for you to maintain over a long period of time. Again, select only one silhouette and do not rearrange the cards.” The silhouette that is selected is recorded as the RBS score. The cards are then shuffled for a third time to yield a new random order. The participant is instructed to “Please select the silhouette that most accurately depicts the body size that you would most prefer. Again, be honest and do not rearrange the cards.” The silhouette that is selected is recorded as the CBS score. The last two measures consist of discrepancy scores (CBS-IBS, CBS-RBS) and are conceptualized as measures of body size dissatisfaction.

**Procedure**

Demographic data, height and weight were collected for each participant in a single session. During this same session, the BIA-O was administered.

**Statistical methods**

To test for overall group age differences, multivariate analysis of covariance was used to test whether CBS, IBS, and RBS differed as a function of age group, while controlling for BMI, the covariate. In these analyses, the effects associated with age group, BMI, and the interaction of age group and BMI were tested. This analysis was followed by specific age group contrasts of the intercept and slope of each BIA-O measure regressed against BMI. These age group contrasts included comparisons of the groups on the discrepancy scores, i.e., CBS–IBS and CBS–RBS. Alpha was set at p<0.05 for all analyses.

### RESULTS

**Description of age groups**

Table 1 presents the number of participants, mean ages and mean BMI, for the seven age groups. The mean BMI for the groups differed: F (6, 372)=5.57, p<0.0001. As seen in Table 1, all age groups had mean BMI in the overweight to moderately obese range (BMI range of 26 to 35). BMI tended to increase from the youngest age group until age group 36 to 45 years and then decreased across older age groups. This pattern of BMI across age groups is characteristic of the U.S. adult population (21). Because of these age group differences, BMI was entered as one variable in all subsequent analyses to statistically control for group differences in body mass.