

DO AFRICAN AMERICAN MOTHERS ACCURATELY ESTIMATE THEIR DAUGHTERS' WEIGHT CATEGORY?

Sandra E. Moore, MD, MSc; Charlie L. Harris, PhD;
Petra Watson, BS; Yolanda Wimberly, MD, MSc

Objectives: We attempted to determine if mothers of overweight daughters accurately perceived the daughters' weight category and whether physician diagnosis of overweight was associated with accurate maternal perception of a daughter's weight.

Design: This was a cross-sectional study that used the Morehouse School of Medicine Obesity Health Belief Survey. Descriptive statistics were used with categorical variables; χ^2 was used to identify associations between dichotomous and categorical data.

Setting: Participants were enrolled in the study at the West End Medical Centers Inc., a federally qualified health center in Atlanta, Georgia.

Results: Among overweight girls, 19% of mothers underestimated the girls' weight category, and 60% of the mothers underestimated the magnitude of their daughters' weight category ($P < .001$). Among the mothers of girls at risk for overweight, there was a statistically significant association between being told their daughter was overweight by a physician and an accurate perception of the daughter's weight category by the mother ($P = .046$).

Conclusion: Despite this national epidemic, not all of mothers of overweight girls identify them as overweight. Physicians may play an important role in helping mothers recognize overweight in their daughter. Ultimately, accurately perceiving their daughters' weight category may influence maternal readiness to change to reduce overweight and reduce the health burden of overweight. (*Ethn Dis*. 2008;18[Suppl 2]:S2-211-S2-214)

Key Words: Overweight, Health Beliefs, Perception of Health

INTRODUCTION

Addressing the disproportionate overweight and obesity burden among the African American population is a national public health priority. According to the National Health and Nutrition Examination Survey (NHANES) 1999–2002, $\approx 23\%$ of African American girls age 6–19 years are overweight, compared to 16% of all children in that age range.¹ In Georgia the problem is even more serious; according to the Youth Risk Behavior Surveillance System, 26% of Georgia high school students are overweight or at risk of becoming overweight (AROW), and 33% of Georgia middle school students are overweight or AROW.² In children, AROW is defined as a body mass index (BMI) between the 85th and 94th percentile for age and sex, and overweight is defined as a BMI ≥ 95 th percentile for age and sex.³ Overweight in childhood significantly increases the risk of co-morbid diseases, such as type 2 diabetes mellitus and hypertension, both as a child and as an adult.⁴ Although these alarming trends are documented and the dangers of obesity are known in the healthcare community, how African American women perceive their daughters' weight is unclear.

The purpose of this pilot research study was to assess African American maternal estimation of an overweight daughter's weight category. Specifically we aimed to: 1) determine if mothers of overweight daughters accurately perceive the daughters' weight category (underestimate, accurate estimation, overestimate) and 2) determine if a physician diagnosis of overweight is associated with accurate maternal perception of a daughters' weight.

METHODS

This was a cross-sectional pilot study of conveniently sampled African American women who were surveyed with the Morehouse School of Medicine Obesity Health Belief Survey. The survey consists of five sections that assess anthropometric measurements of the mother and child, demographics, medical conditions in mother and child, health belief about self (maternal), and maternal health beliefs about the daughter. To determine maternal perception of the daughter's weight category, mothers were asked to respond to the question "I feel my child is..." with one of four possible responses: underweight, normal weight, a little overweight, or overweight. Mothers were also asked, "Has your child ever been told by a doctor that he/she is at-risk for overweight, overweight, or obese?" Mothers could answer either yes or no. The height and weight of the daughter were obtained by a nurse during triage, and the BMI percentile and weight category (underweight, normal weight, AROW, or overweight) was calculated.

Participants were enrolled in the study at the West End Medical Centers, Inc., a federally qualified health center in Atlanta, Georgia, from June 1, 2006, through July 31, 2006. Eligibility criteria for the mother were 1) self-identified as African American and born in the United States; 2) biological mother or legal female guardian for >1 year; 3) ≥ 18 years of age. The eligibility criterion for the daughter was that she had to be 2–17 years of age. Exclusion criteria were 1) mother or child with a diagnosis or disease that affects appetite or growth (such as hypothyroidism or Cushing syndrome); 2) pregnancy; or 3) mother or child on

From the Department of Pediatrics (SEM, PW, YW), Department of Family Medicine (CLH), Morehouse School of Medicine, Atlanta, Georgia.

Address correspondence and reprint requests to: Sandra E. Moore, MD; Morehouse School of Medicine; 720 Westview Dr; Atlanta, GA 30310; 404-756-1371; 404-756-1357 (fax); smoores@msm.edu

medications that affect appetite or growth (such as corticosteroids or levothyroxine). Those who met the eligibility criteria were recruited in the waiting room of the clinic and filled out the survey before seeing the physician.

Statistical Analysis

Descriptive statistics were used to describe the demographics of the sample. Categorical variables were summarized by using percentages; χ^2 and *P* values were used to identify associations between the dichotomous and categorical data. The data were analyzed by using SPSS 14.0 (SPSS, Inc., Chicago, Ill).

RESULTS

A total of 93 eligible patients were identified, and 77 (83%) agreed to participate. Table 1 summarizes the study participants' characteristics. The mean age of the mother was 32 years, with a range of 18–61 years. The mean age of the daughter was 7.5 years, with a range of 2–17 years. Approximately 80% of the daughters were 2–12 years of age. All of the mothers had completed either high school or technical school. Seventy percent of the families were on Medicaid. Seventy-eight percent of the mothers were either overweight or obese, and 41% of the daughters were either AROW or overweight.

Among the girls who were AROW, 53% of mothers underestimated their daughter's weight status. Among overweight girls, 19% of mothers underestimated their daughter's weight status (reported them to be normal weight), and 60% of mothers underestimated the magnitude of their daughter's weight status (reported them as only "a little overweight"). Only 20% of these mothers reported that their child was overweight (Figure 1). Mothers were likely to underestimate the weight status of AROW daughters (*P*<.001) (Table 2).

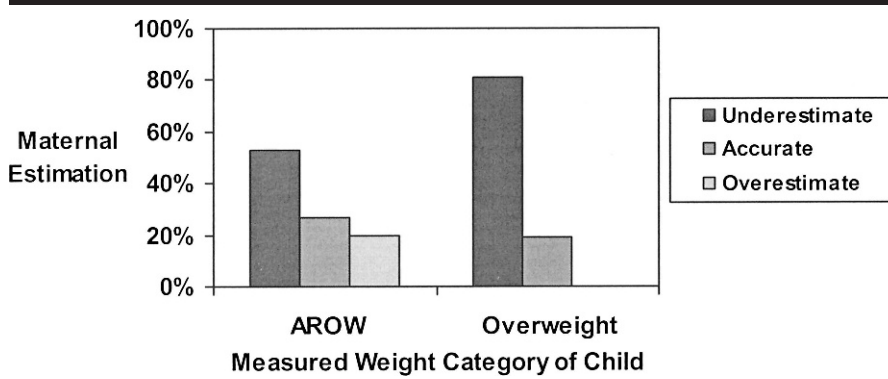


Fig 1. Estimation of daughter's weight category among African American mothers, Atlanta, Georgia, 2006

Mothers of AROW daughters were more likely to underestimate their daughter's weight status than were mothers of normal-weight girls.

Among mothers of overweight children, only 53% reported being told by a physician that their daughters were overweight (Figure 2). No statistically

Table 1. Demographic characteristics of 77 African American mother-daughter pairs surveyed at a health center in Atlanta, Georgia, 2006

	<i>n</i>	%
Maternal Education		
Less than high school	0	0
Completed high school or more	77	100
Insurance Type		
Medicaid	54	70.1
Medicare	2	2.6
Private	15	19.5
None	5	6.5
Maternal Income (per year)		
≤25,000/yr	56	72.7
\$25,000–\$50,000	15	19.5
>\$50,000	6	7.8
Maternal Age (years)		
18–24	15	19.5
25–34	39	50.6
35–44	11	14.3
≥45	12	15.6
Maternal BMI Category		
Underweight	2	2.6
Ideal weight	16	20.8
Overweight	17	22.2
Obese	41	53.2
Child's Age (years)		
2–5	31	40.3
6–11	33	42.9
12–17	13	16.9
Child's BMI category		
Underweight	4	5.2
Normal Weight	40	51.9
"At risk" for overweight	15	19.5
Overweight	17	22.1

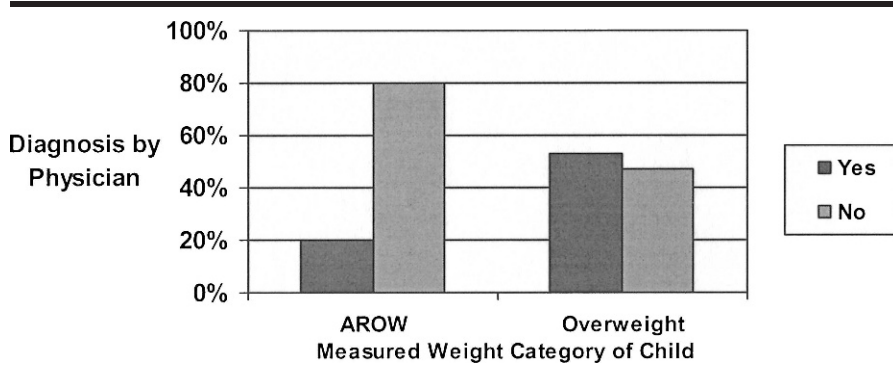


Fig 2. Reported physician diagnosis of overweight among African American girls, Atlanta, Georgia, 2006

significant association was observed among mothers of overweight children between being diagnosed by a physician and accurate maternal estimation. Among AROW daughters, only 20% of the mothers reported being told by a physician that their children were overweight. Mothers who had not been told that their child was overweight were more likely to underestimate the child's weight status in this group ($P=.046$).

DISCUSSION

Overweight in this African American sample was almost identical to the national trend, 22% of the girls were overweight, compared to 23% nationally. Despite this national epidemic, not all mothers of affected girls identify them as overweight. In our pilot study, >50% of mothers of AROW daughters and almost 60% of mothers of overweight daughters underestimated their daughters' weight category.

Because of the limited studies on this topic, little is known about maternal perception of weight in their

children. In a small study ($N=83$) in a primary care setting, Etelson found that only 10% of parents of overweight children classified them as such.⁵ A study by Maynard et al, using data from the third NHANES (1988–1994), revealed a misclassification (underestimation) of weight by 30% of mothers of overweight children.⁶ That was a large, heterogeneous sample, and race/ethnicity was not a predictor of misclassification; however the sex of the child was important. Mothers were more likely to underestimate weight status in AROW boys than in AROW girls (85% vs 70%). This was a higher rate of misclassification than seen in our study (53%). A study among participants in the Special Supplemental Nutrition Program for Women, Infants, and Children by Baughcum et al reported that 73% of mothers failed to perceive their overweight preschool daughter as overweight, compared with only 20% in our study.⁷ Although this study was with younger children, authors found a much higher percentage of underestimation than in the current study. This finding suggests that mothers are in-

creasingly likely to recognize overweight in their daughters. None of the aforementioned studies, including the current one, used sketches to solicit parental opinions of weight in their children. One study that used both descriptive words and figure sketches found that while parents were not likely to identify their overweight children with words, they were likely to choose heavier sketches.⁸ This finding suggests a possible disconnect between what parents acknowledge their child's body size to be and how they interpret that body size. They may think their child is heavier than other children but that may not translate into categorizing them as overweight.

Several cues may help mothers identify overweight in their children. Previous research indicates that only 47% of overweight African American girls/mothers reported being told that they were overweight by a physician.⁹ In our study, physician diagnosis of overweight was associated with accurate classification, especially among AROW girls. These girls are at a critical stage, and awareness of the status may prompt mothers to make changes to decrease or halt weight gain in the girl. One factor associated with parental readiness to make changes to help an overweight child lose weight is parental perception that they (parent and child) are overweight.¹⁰ Providing education about weight should be addressed at least during preventive health visits or sick visits if needed by healthcare providers. Talking to mothers about their children's weight may help parents make the connection between their child's actual size and how that translates medically. Healthcare providers may be missing an opportunity to discuss this condition, which may in turn affect readiness to change in both the parent and child.

Helping mothers recognize overweight in their daughters can improve the health of the individual as well as that of the community. Because youn-

Table 2. Maternal estimation of daughter's weight category by measured weight category

	Underestimation	Accurate estimation	Odds ratio (95% CI)	P value
Normal weight	3	34		
AROW	8	7	13 (2.7–62.5)	<.000
Overweight	3	13	2.61 (.467–14.7)	.26

ger children are still heavily influenced by parents, mothers can play a role in shaping their child's lifestyle habits, like encouraging increased consumption of fruit and vegetables and increased physical activity. Even if mothers disagree with the diagnosis, it is still an opportunity to discuss the health risk associated with the weight category. Although this study is a first step to understanding African American women's perception of their daughters' weight, it is also important to understand how the diagnosis of overweight is processed, is related to the risk of disease, and influences changes in behavior. Those maternal factors that influence perceptions, such as maternal perception of self, educational level, age, and maternal weight category, must still be examined. Additionally, characteristics of the daughter (age, weight category, etc) that influence maternal perception should be examined. Finally, how the children perceive themselves and influential factors such as peers, culture, and community should also be examined. Prevention and treatment efforts that target this group can be optimized by using all the available information.

As we pursue this line of research, we also need to be sensitive and consider cultural values in weight perception. Previous research has reported that Black women who identify themselves as overweight may be aware of their weight category but have little negative social pressure to lose weight.¹¹ This may be related to more social acceptability of larger body sizes in the African American community.¹² Perception of weight may have more cultural connotations than medical connotations for African American women and their

daughters. This may be protective from lower self-esteem and poor body image. It is a delicate balance between helping mothers understand the health consequences of overweight and preserving cultural values among this group.

If we are to mitigate the obesity health crisis, we must start with those most affected and elicit their input. If we can identify modifiable factors that affect the progression of overweight in children, we can begin to address those issues. Given the role of the nurturing relationship, mothers can play a key role in children's weight. Ultimately recognition by mothers of excess weight in their daughters may motivate mothers to seek, initiate, and maintain healthy lifestyle behaviors, which could in turn reduce overweight and its health burden.

Limitations

This project has several limitations. Because it is an ongoing pilot study, the sample is small ($N=77$). Patients who chose to participate in the study may have been different than those who chose not to participate. Finally, mothers who bring their daughters to the doctor may be more concerned overall about their child's health and weight than those who do not come to clinic.

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