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Body Image and Body Satisfaction Differ by Race in Overweight Postpartum Mothers

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Abstract

Background: Body image (BI) and body satisfaction may be important in understanding weight loss behaviors, particularly during the postpartum period. We assessed these constructs among African American and white overweight postpartum women.

Methods: The sample included 162 women (73 African American and 89 white) in the intervention arm 6 months into the Active Mothers Postpartum (AMP) Study, a nutritional and physical activity weight loss intervention. BIs, self-reported using the Stunkard figure rating scale, were compared assessing mean values by race. Body satisfaction was measured using body discrepancy (BD), calculated as perceived current image minus ideal image (BD<0: desire to be heavier; BD>0: desire to be lighter). BD was assessed by race for: BD_{Ideal} (current image minus the ideal image) and $BD_{Ideal\ Mother}$ (current image minus ideal mother image).

Results: Compared with white women, African American women were younger and were less likely to report being married, having any college education, or residing in households with annual incomes >$30,000 (all $p < 0.01$). They also had a higher mean body mass index (BMI) ($p = 0.04$), although perceived current BI did not differ by race ($p = 0.21$). African Americans had higher mean ideal ($p = 0.07$) and ideal mother ($p = 0.001$) BIs compared with whites. African Americans' mean BDs (adjusting for age, BMI, education, income, marital status, and interaction terms) were significantly lower than those of whites, indicating greater body satisfaction among African Americans (BD_{Ideal}: 1.7 vs. 2.3, $p = 0.005$; $BD_{Ideal\ Mother}$: 1.1 vs. 1.8, $p = 0.0002$).

Conclusions: Racial differences exist in postpartum weight, ideal images, and body satisfaction. Healthcare providers should consider tailored messaging that accounts for these racially different perceptions and factors when designing weight loss programs for overweight mothers.

Introduction

The epidemic of obesity in the United States is well documented.[1,2] Among women, the prevalence is approximately 50% among African Americans and 30% among whites.[1,2] Obesity is the second leading cause of preventable deaths[3] and increases the risk for chronic diseases, particularly among African Americans.[2]

Research indicates that both African American and white women desire to lose weight. A reported 68% of African American and 72% of white women want to weigh less, and half of all women report they are attempting to lose weight.[4] The desire to be thin, however, appears to be stronger among white women than African American women.[4]

It has been hypothesized that differences in the prevalence of obesity among race groups may be associated with differences in body image (BI).[5] BI can be defined as "the picture of our own body which we form in our mind."[6] How African American women view themselves and if this differs from their desired appearance may influence their food intake, physical activity, and attitudes toward weight change and weight control.[5]

A woman's body undergoes substantial changes during and after pregnancy, and pregnancy-related weight gain may contribute to postpartum overweight and obesity among women.[7] Longitudinal research indicates that weight gained over time for young primiparous women is approximately 4–6 pounds greater than that of nulliparous women.[8]

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National surveys reveal that approximately 14%–20% of women were >11 pounds heavier by 6–18 months postpartum than their weight before pregnancy.[9] Furthermore, women who gain more weight during pregnancy are more likely to retain more weight during the postpartum period than women with moderate weight gain.[10]

Investigation of racial differences in BI among postpartum women relative to body satisfaction is limited.[11–15] If present, such differences may point toward a better understanding of such BI and ultimately the importance of adapting different strategies for weight maintenance in different subgroups. A study by Walker et al.[11] conducted on racial differences in BI and body satisfaction among low-income women at 6 weeks postpartum indicated that BI is a significant predictor of psychosocial outcomes, such as depression. Another study, by Boyington et al.,[15] assessed BI and body satisfaction among African American postpartum women. As with findings from the study by Walker et al.,[11] results indicated that body dissatisfaction exists among a sample of low-income, African American postpartum women. Also, there was no difference observed in the preferred size and healthy size, which was larger than what is considered clinically healthy, implying that cultural standards of both attractiveness and health exist for this population that may be different from traditional norms in the majority of the population. Despite these findings, it is unclear if these perceptions are different among white postpartum women or among African American and white women who are specifically classified as overweight.

The purpose of this study was to determine if there were racial differences in BI and body satisfaction among overweight African American and white women at 6 months postpartum.

Materials and Methods

The Active Mothers Postpartum (AMP) Study 6-month assessment

The AMP Study 6-month assessment was conducted as a supplement to the Active Mothers Postpartum (AMP) Study. The AMP Study was a two-arm, randomized, 24-month intervention designed to evaluate the effectiveness of a multicomponent weight loss program among 450 overweight and obese postpartum women (body mass index [BMI] > 25) residing in the Triangle area of North Carolina.[16] The intervention arm included 225 women who received a nutrition and physical activity lifestyle modification manual, monthly phone counseling, and group nutrition and physical activity educational sessions.

At approximately 6 months postpartum, women in the intervention arm also received a jogging stroller to help promote physical activity. Together with an objective measure of weight, a survey was administered to evaluate BI, social support, breastfeeding practices, and nutrition and physical activity behaviors. The survey was limited to the intervention arm to minimize the potential bias in the control group's responses and behaviors that could be introduced by receiving these questions during this period. Administration of the survey to the intervention arm corresponded with their receipt of the incentive stroller. The AMP Study and the supplementary survey were both approved by the Institutional Review Board of the Duke University Medical Center.

Analysis sample

Of the 225 participants in the intervention arm who were eligible for this study, 63 were excluded because of loss to follow-up ($n = 31$), incomplete survey ($n = 5$), race other than African American or white ($n = 9$), and normal weight status at 6 months postpartum ($n = 18$). Thus, the final analysis sample included 162 women, 73 African Americans and 89 whites.

Measurements

Baseline characteristics. Demographics and parity were assessed at baseline. Measured demographic variables include age (in years), educational achievement (≤high school, some college, or college degree), annual household income (<$30,000, $30,000–$59,999; or ≥$60,000), and marital status (married, single/never married, or divorced/separated). Parity was categorized as either primiparous or multiparous.

Health characteristics at 6 months postpartum. These included breastfeeding patterns (breastfeeding only, breast plus formula feeding, or formula feeding only) and perceived health status (excellent/very good health, good health, or fair/poor health). Height was measured using a stadiometer (SECA, Columbia, MD), and weight was measured using a calibrated digital scale (Tanita, Arlington Heights, IL) at the research facility or a location convenient to the participant. Participants were weighed in light clothing without shoes. BMI was calculated as kg/m^2, and women were classified as underweight (BMI<18.5), normal weight (18.5≤BMI<25), overweight (25≤BMI<30), or obese (BMI≥30). At 6 months, no one in the sample was underweight, and women who had become normal weight ($n = 18$) were removed from further analysis.

Body image. Perceived BI was measured using the Stunkard Figure Rating Scale.[17] Participants selected perceived images from a series of nine body figures (ranging from 1 = smallest to 9 = largest). BI was captured for current image (Shape you look most like now [$BI_{Current}$]), ideal image (Shape you would most like to look like [BI_{Ideal}]), and ideal mother image (Shape that looks most like an ideal mother [$BI_{Ideal\ Mother}$]).

Body discrepancy (BD), a measure of body satisfaction, was derived from perceived BI.[5] BD was calculated as the difference between (1) perceived current image and ideal image ($BD_{Ideal} = BI_{Current} - BI_{Ideal}$) and (2) perceived current image and image of the ideal mother ($BD_{Ideal\ Mother} = BI_{Current} - BI_{Ideal\ Mother}$). BD values could range from −8 to +8. Values <0 indicated a desire to be heavier than one's perceived current image, whereas values >0 indicated a desire to be lighter than one's perceived current image.[5]

Perceived and actual weights (measured as BMI). Each Stunkard Figure Rating Scale silhouette was assigned a BMI value based on the study by Bulik et al.,[18] and these values were used to compare perceived and actual measured BMIs for the participants. This procedure has been used in other research comparing BI and cultural factors among African American and white women in the general population.[19] The BMI values used were classified into five weight categories: normal weight (18.5≤BMI<25), overweight (25≤BMI<30),

Table 1. Participant Characteristics at Baseline and 6 Months Postpartum: Overall and by Race

Characteristic	*Total sample*	*African Americans*	*Caucasians*	p *value*
n (%)	162	73 (45.1)	89 (54.9)	—
Baseline				
Mean age (SD) at baseline	31.2 (5.7)	29.6 (6.1)	32.6 (5.0)	0.002[a]
Marital status (%)				<0.001[b]
Married	74.1	50.7	93.3	
Single/never married	24.1	46.6	5.6	
Divorced/separated	1.9	2.7	1.1	
Parity (%)				0.68[c]
Primiparous	40.1	38.4	41.6	
Multiparous	59.9	61.6	58.4	
Education (%)				0.002[c]
≤High school	15.4	24.7	7.9	
Some college	25.3	30.1	21.3	
College degree	59.3	45.2	70.8	
Mean annual household income (%)				<0.001[c]
n	156	71	85	
<$30,000	26.9	40.8	15.3	
$30,000–$59,999	28.2	35.2	22.4	
≥$60,000	44.9	23.9	62.4	
6 Months postpartum				
Breastfeeding at 6 months (%)				0.002[c]
Breastfeeding only	27.2	15.1	37.1	
Breastfeeding and formula feeding	16.0	13.7	18.0	
Formula feeding only	56.8	71.2	44.9	
Perceived health status (%)				0.24[c]
Excellent/very good	38.9	39.7	38.2	
Good	38.9	32.9	43.8	
Fair/poor	22.2	27.4	18.0	
Weight measures				
Actual mean weight at 6 months postpartum	197.7 (41.1)	207.1 (45.9)	190.0 (35.2)	0.005[a]
Mean BMI at 6 months postpartum	33.3 (6.9)	34.6 (7.5)	32.2 (6.2)	0.038[a]
Weight status at 6 months postpartum				0.22[c]
% overweight	39.5	34.2	43.8	
% obese	60.5	65.8	56.2	

[a]Wilcoxon signed-rank test.
[b]Exact test.
[c]Chi-square test for difference in proportions.

obesity level 1 (30≤BMI<35), obesity level 2 (35≤BMI<40), and obesity level 3 (BMI≥40).[20,21]

Analysis

Descriptive statistics (chi-square tests and exact tests for differences in proportions and Wilcoxon signed-rank tests for differences in means) were used to assess whether there were racial differences in baseline characteristics and health and BI characteristics at 6 months. To statistically test if there was a significant difference in BD by race, we compared ideal BD and ideal mother BD between the races using Wilcoxon signed-rank test. Additionally, we evaluated statistical significance of race in a multivariable linear regression model for ideal BD and ideal mother BD, adjusting for the following covariates: BMI, age, education, income, and marital status.

Results

The mean age of the participants in the study sample was approximately 31 years (Table 1). The majority were married, had a college degree, and were multiparous; 45% had

Table 2. Mean (SD) Body Image Perceptions by Race

Body image (BI)	*Total sample*	*African Americans*	*Caucasians*	*Mean difference*	p *value*[a]
n	162	73 (45.1)	89 (54.9)	—	—
Perceived body image					
Shape look like now (current)	5.6 (1.1) ($n=161$)	5.5 (1.2) ($n=73$)	5.7 (1.0) ($n=88$)	−0.2	0.21
Ideal body image					
Shape would most like to look like	3.7 (0.9)	3.8 (1.1)	3.5 (0.7)	0.3	0.074
Shape of an ideal mother	4.1 (0.9) ($n=151$)	4.4 (1.0) ($n=68$)	3.9 (0.7) ($n=83$)	0.5	0.001

[a]*p* value for Wilcoxon signed-rank test, comparing values by race.

household incomes ≥$60,000. Compared with white women, African American women were more likely to be younger and single and were less likely to have a college education or an annual household income ≥$60,000 (all $p < 0.01$).

At 6-months postpartum, more white than African American women were breastfeeding or engaged in a combination of breast and formula feeding (Table 1). There was no statistically significant difference by race in perceived health status ($p = 0.24$). African American women were significantly heavier than whites and had a higher mean BMI: mean (SD) BMI 34.6(±7.5) vs. 32.2 (±6.2), $p = 0.038$.

Regarding perceived BI (Table 2), despite a higher mean BMI among African American compared with white women, both groups of women had similar perceptions of themselves in terms of their current image: mean (SD) BI 5.5(±1.2) vs. 5.7(±1.0), $p = 0.21$. In terms of desired BIs, African American women reported a higher mean ideal BI than white women: mean (SD) BI_{Ideal} 3.8(±1.1) vs. 3.5(±0.7). However, this difference did not achieve statistical significance ($p = 0.07$). For the ideal mother image, racial differences were larger and significantly different: mean (SD) $BI_{Ideal\ Mother}$ 4.4(±1.0) vs. 3.9(±0.7), $p = 0.001$.

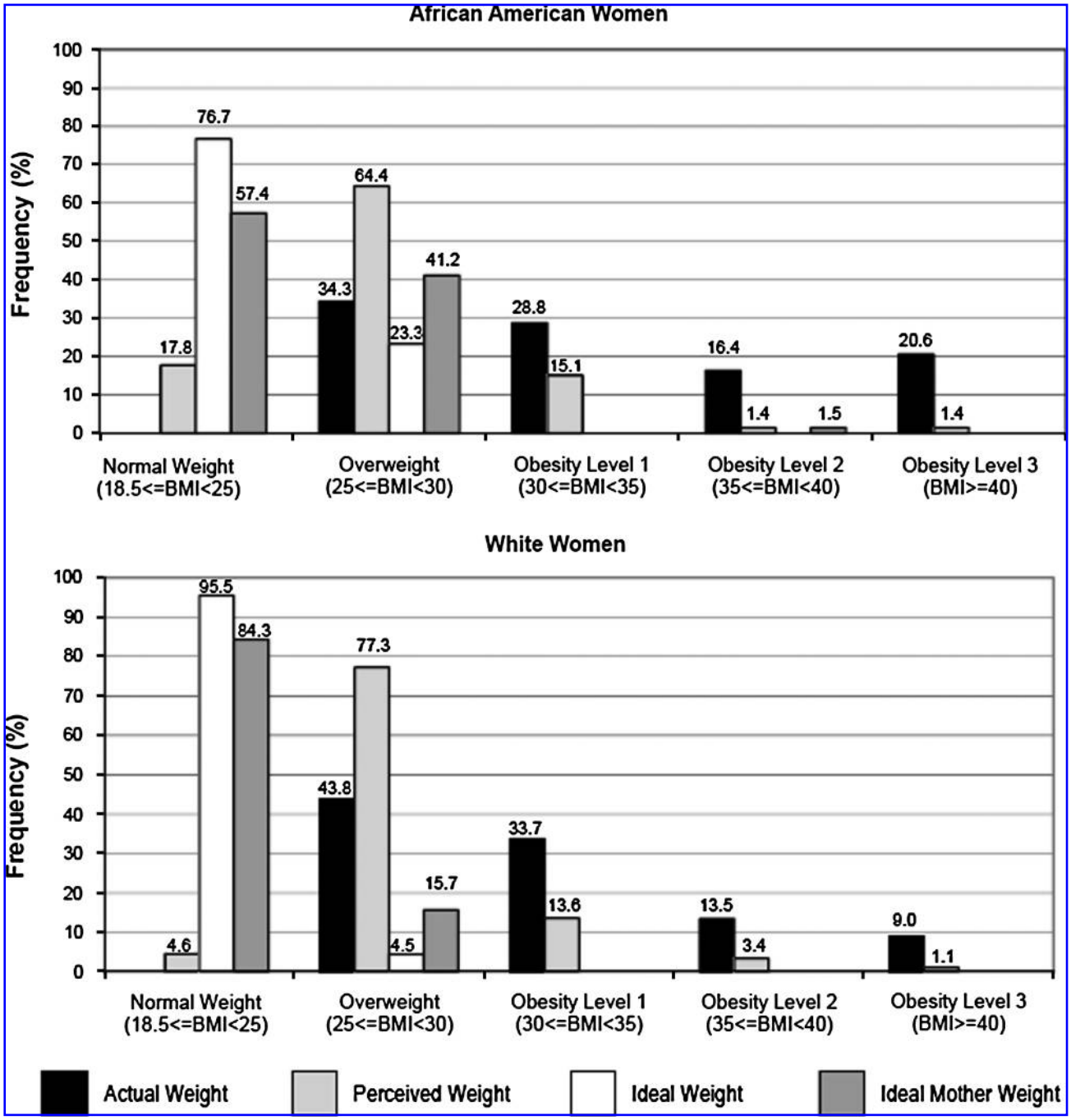

FIG. 1. Actual, perceived, and ideal weight status by race. Perceived and ideal weights were derived from BMI values assigned to each standard Figure Rating Scale silhouette based on the study by Bulik et al. relating BMI to figural stimuli.[18]

Figure 1 displays, by race, body discrepancy in terms of actual vs. perceived weight status. A greater percentage of African American than white women's actual weights were categorized at obesity levels 2 and 3. Comparing perceived weights with actual weights, both groups were heavier than their current perceived weight, particularly African American women at obesity levels 2 and 3. For the ideal image, 76.7% of African American women and 95.5% of white women desired BIs categorized as normal weight. However, more than five times as many African American as white women desired BIs categorized as overweight. For images of the ideal mother, 57.4% of African Americans and 84.3% of whites selected images that are categorized as normal weight. These percentages indicate African American women are satisfied with a larger image for mothers.

Table 3 shows the unadjusted mean discrepancies by race between perceived current image and both ideal image and ideal mother image. Table 3 also presents the adjusted mean values for BD by race, computed using linear regression models that included covariates and interaction terms. Both race groups had mean values >0 for both the ideal and ideal mother images, indicating body dissatisfaction, where they desired smaller images than their current image. It should be noted that for both race groups, mean BD was lower for the ideal mother image than the current image, revealing greater satisfaction with a larger size as a mother. However, African American women had significantly lower mean BD values than white women, indicating a greater degree of satisfaction with higher weight. This difference remained even after adjusting for age, BMI, income, educational attainment, and marital status.

Discussion

At 6 months postpartum, racial differences existed in the perceptions of ideal BI and BI of the ideal mother. African American and white women were both dissatisfied with their current image, yet they were less dissatisfied with their image in the context of the ideal mother. The level of dissatisfaction was significantly greater for white than for African American women. Although the previous study by Walker et al.[11] reported racial differences in BI in women at 6 months postpartum, our study is the first to report both general BI and BI of the perceived ideal mother among overweight postpartum women.

The finding in our study that the two race groups had similar perceptions of their current BIs, despite significant differences in measured weight, may be due to differences in how they estimate their own weight. Previous studies indicate that African American women tend to underestimate their weight, whereas white women either slightly underestimate or overestimate their weight.[22–24] For African American women, it is speculated that underestimates of weight may be due to the high prevalence of overweight and obesity in the African American population, where weight is not readily connected to health.[24] The connection may occur after manifestation of weight-related diseases, which would be late for implementing measures of primary, or possibly secondary, prevention.[25] If there is a disconnection between weight and health, however, simply telling the women to lose weight without an understanding of the reasons for this disconnect may not effectively lead to behavior change.

Our results confirm prior research that ideal BI is larger for African American than white women.[21] However, the ideal image ratings were slightly higher than in previous studies of BI in general populations of women,[18] suggesting possible changes in what is considered ideal during this stage of women's lives, that is, transition into motherhood. Interestingly, for both race groups, the image of the ideal mother was larger, indicating some distinction of an ultimate ideal image and an acceptance of a larger shape for a mother. This may be particularly true for the African American participants, a

Table 3. Mean Body Discrepancy (SD) by Race

Body discrepancy measure[a]	*Total sample*[b]	*African Americans*[b]	*Caucasians*[b]	*Mean difference (African Americans – Caucasians)*	p *value*
n	162	73 (45.1)	89 (54.9)	—	—
BD_{Ideal} (current image−ideal image)					
Unadjusted[c]	1.9 (1.0)	1.6 (1.0)	2.2 (0.9)	−0.6	0.0002[d]
Adjusted[c,e]		1.7 (0.1)	2.3 (0.1)	−0.6	0.0005[f]
$BD_{Ideal\ Mother}$ (current image− ideal mother image)					
Unadjusted[c]	1.4 (1.1)	1.1 (1.2)	1.8 (0.9)	−0.7	0.0001[d]
Adjusted[c,e]		1.1 (0.1)	1.8 (0.1)	−0.7	0.0002[g]

[a]Body image discrepancy (BD) scores were calculated as the differences in mean BI values for each perception comparison.
[b]BD = 0, complete body satisfaction; BD<0, body dissatisfaction, desire image larger than current image; BD>0, body dissatisfaction, desire image smaller than current image.
[c]For unadjusted means, SD in parentheses is the population standard deviation. For adjusted means, SD in parentheses is the standard deviation of the adjusted mean.
[d]*p* value for Wilcoxon signed-rank test.
[e]Adjusted means are computed from the linear regression models that include race, BMI, age, education (≤high school, some college, or college degree), annual household income (<$30,000, $30,000–59,999; ≥$60,000), and marital status (married, single/never married, or divorced/separated). Additionally, the model for ideal BD contained interaction terms BMI*(some college), race*age, race*(household income $30,000–59,999), race*(married), (household income $30,000–$59,999)*married. The model for ideal mother BD contained interaction terms: BMI*(college degree), (household income $30,000–$59,999)*(college degree), age*(college degree), (married)*(college degree), (household income $30,000–$59,999)*(some college), age*(some college), (married)*(some college).
[f]*p* value for omnibus F-test for race, race*age, race*(household income $30,000–$59,999) and race*(married) in the regression model.
[g]*p* value for *t* test for race in the regression model.

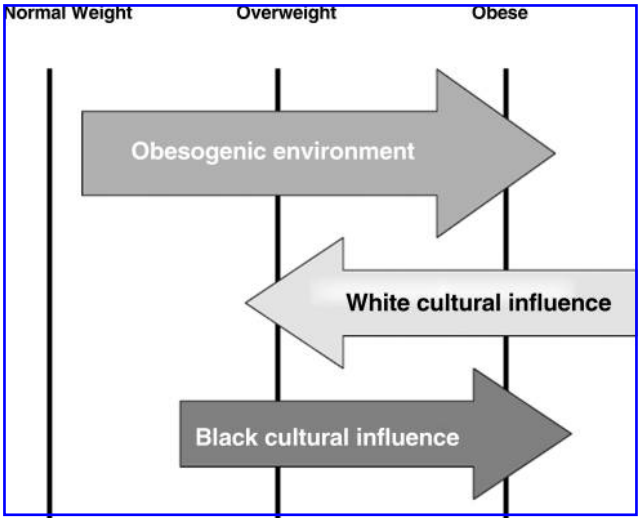

FIG. 2. Confluence of obesogenic environment and cultural influence. Black cultural influence has an additive interaction with the overall obesogenic environment further promoting obesity among black women. Conversely, white cultural influence acts as a counterweight to the prevailing obesogenic environment by influencing white women to strive for thinness. (Reproduced with permission from Ard.[30])

concept supported by findings in literature indicating a positive relationship between obesity and attractiveness in African American women.[5,26,27]

Body dissatisfaction among white women is well documented,[28] and there is increasing evidence that African American women also exhibit some level of body dissatisfaction and a desire for a smaller body size.[15] Reasons why both groups of women may be dissatisfied with their bodies (or desire a smaller body size) may be influenced differently and by different factors. African American women may view their bodies differently from white women because of the cultural environment and the broader media (e.g., television, magazines). In one study, African American women were found to be more flexible than their white counterparts in their concepts of beauty and spoke about "making what you've got work for you."[25] In contrast, many white adolescent females expressed dissatisfaction with their body shape and were found to be rigid in their concepts of beauty. Among African American women, social support provided by family and friends may take on a level of protectiveness in the context of self-esteem, which may reduce prioritization of overweight as a health issue.[15,29] Conversely, for white women, the media (and even the support network) may serve as a barrier to positive weight attitudes via rigid expectations of thinness.

One potential limitation of this study is that the Stunkard Figure Rating Scale may not be culturally sensitive in assessing African American women's BI.[15] Also, these women were participating in a weight loss intervention trial; although they all received the same intervention and should not have been affected differentially in that regard, that they agreed to participate could indicate greater interest in losing weight and, by extension, greater body dissatisfaction. Despite these limitations, however, the results are consistent with those in the general population and, with the results on the ideal mother, provide new evidence on the perceptions of overweight postpartum women.

Our findings imply that prevention and treatment strategies should be developed that account for cultural differences in BI. In his article on the obesogenic environment, Ard[30] provides a model that suggests varying directions in cultural influences for African Americans and whites (Fig. 2). African Americans may be more accepting of heavier sizes and may not be driven by the same mechanisms as whites to make lifestyle changes. Early interventions may require a better understanding of African American women's perception and satisfaction with their weight. If they are comfortable with their size, a weight-driven approach to health behavior change (i.e., one that relies on motivation to lose weight to promote behavior change) may not be the most effective strategy. It is important to better understand why African American women are more comfortable with their image. In the context of the ideal mother, the larger ideal image selected by African American women may even be related to their greater weight retention postpartum. At the same time, approaches may require targeting other aspects of their lives that hold greater value for realistic behavior change. From a clinical perspective, simply understanding and respecting that these racial differences exist is the first step.

Conclusions

The postpartum period is a time when there are many physiological, psychological, and social changes in a woman's life. There are clear differences in postpartum BI by race. From a clinical perspective, understanding the roles of these mothers and what they value may be critical to effectively addressing their weight and health concerns.

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