

Research Article

Medical Weight Problem Diagnosis and Minority Women's Desire for Thinness

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Abstract

Background and Objectives: Without appropriate medical weight problem diagnosis, minority women might have inaccurate views of their weight status. It is likely that receiving an obesity diagnosis from a physician will raise women's awareness of their weight status and increase their desire or intent to control their weight. This study assessed: (1) the unique and combined contribution of medical weight diagnosis to desire to be thinner among minority women with overweight/obesity; (2) to what extent ethnicity/race moderated the relation of medical weight problem diagnosis to desire to be thinner; and 3) ethnic/racial differences in perceived and ideal body size, and body dissatisfaction among minority women.

Methods: 366 Hispanic and 111 African American women with a mean age of 43.7 years (SD=15.9 years) completed a self-report health survey and figure rating scale.

Results: Only 34.1% women reported having received a medical weight problem diagnosis in the past 12 months. Women with obesity (35.4%) were more likely to have received a medical weight problem diagnosis than women with overweight (11.8%) ($p < 0.001$). Hierarchical multiple linear regression analysis revealed an association between a medical weight problem diagnosis ($\beta = 0.19$, $p = 0.011$) and desire to be thinner after controlling for ethnicity/race, researcher-estimated body mass index, and weight concern.

Conclusions: The study's findings provide evidence supporting the significant role that physicians' weight problem diagnosis may play in minority women's desire for thinness.

Keywords: Overweight; Hierarchical; Diagnosis; Ethnicity

Introduction

Obesity affects one-third of the United States adult population, particularly, Hispanic and African American women [1,2]. The negative physical and psychological consequences of obesity on health and quality of life are well documented [3,4]. Despite the existence of medical guidelines for obesity diagnosis and management for adults [5-8], physicians' efforts to prevent and treat obesity have been challenging [7,9]. Between 30% and 50% of people with overweight (PwO) are estimated to have received a medical weight problem diagnosis from their primary-care physician [5,8,10,11]. The under-diagnosis of obesity in primary care settings [12,13] may suggest to PwO that they do not have a weight problem or that they do not need to seek weight control advice [14,15]. Physicians' barriers to providing an obesity diagnosis and weight control advice have been extensively investigated. The identified barriers are mostly related to providers' attitudes (e.g., limited competency in obesity counseling and treatment, beliefs that obesity is PwO's responsibility), and practices (e.g., prioritizing treatment of medical conditions over weight control concerns and limited consultation time with patients) [5,11,16-20]. Despite these barriers, research indicates that physicians' attention to obesity issues helps to increase overweight and obese patients' intention to lose weight, weight loss initiation, and weight loss maintenance [5,21].

Research indicates that Hispanic and African American women are less likely to be diagnosed with a weight problem than their Caucasian counterparts are during a physician visit [22,23]. This finding is disconcerting in light of national data which indicated that two out of three Hispanic and African American women were overweight or obese [24]. In addition, minority women with overweight/obesity exhibited greater acceptance of a larger body size [25] and were more likely to underestimate their body size compared to their normal weight peers [27] and Caucasian counterparts [26,28]. Underestimation of body size may lead minority women to be less concerned about their weight status, which may decrease their desire to be thinner and achieve a healthier weight [11,12,29]. Without appropriate medical weight problem diagnosis and sound weight control advice, minority women with overweight or obesity might have inaccurate views of their weight status. It is likely that receiving an obesity diagnosis from a physician will raise women's awareness of their overweight or obese status, increase their desire or intent to control their weight [5] and increase their engagement in healthy behaviors to improve their weight status [30,31].

There is a dearth of studies examining the association of medical weight problem diagnosis to body size attitudes (e.g., desire to be thinner) among minority women or the role of ethnicity/race moderating this relationship. Thus, this study aimed to address

this gap in the literature by assessing: (1) the unique and combined contribution of medical weight diagnosis to desire to be thinner among minority women with overweight/obesity; (2) to what extent ethnicity/race moderated the relation of medical weight problem diagnosis to desire to be thinner among Hispanic and African American women with overweight/obesity; and 3) ethnic/racial differences in perceived and ideal body size, and body dissatisfaction among Hispanic and African American women (i.e., regardless of their researcher-estimated Body Mass Index (BMI)). After controlling for key variables, a positive association between medical weight problem diagnosis and desire to be thinner among minority women with overweight/obesity is hypothesized.

Methods

Participants

The sample consisted of 477 Hispanic (n=366) and African American (n=111) women. Out of this total sample of 477, 242 women were excluded from regression analysis because of missing key variables and 59 women were excluded because they were classified as healthy weight. The inclusion criteria to participate in this study consisted of: 1) identification as a Hispanic or African American; 2) being 18 years or older; and 3) being able to read English or Spanish to complete study instruments. During 2015 and 2017, participants were recruited at four community health fairs held primarily in Hispanic and African American neighborhoods located in a metropolitan region in the Southeast United States. The University's Institutional Review Board approved the study's protocol.

Instruments

Health survey: The health survey included demographic questions and questions regarding perceived weight status and medical access and weight concern diagnosis. For this study, health survey questions included inquiring about participants' 1) demographic characteristics (e.g., age, gender, ethnicity/race, and income); 2) self-reported weight and height; 3) weight concern level (e.g., "How concerned are you about your weight?" using a Likert scale ranging from 1= not concerned at all to 4=extremely concerned); and 4) having received a medical weight problem diagnosis in the past 12 months (No=0, Yes=1). Based on participants' self-reported height and weight, investigators used the weight (kgs.)/height² (meters) Quetelet formula to calculate participants' body mass index (BMI). Using the World Health Organization obesity status classification for adults, participants with a BMI <18.5 were classified as underweight, BMI of ≥ 18.5 to ≤ 24.9 were classified as of healthy weight, BMI of ≥ 25.0 to ≤ 29.9 were classified as overweight, and BMI ≥ 30 were classified as obese. Previous studies revealed that correlations between self-reported and measured values for weight and height were high ($r=0.84-0.92$) [32,33].

Stunkard Figure Rating Scale (SFRS): This instrument was used to assess perceived weight status and ideal body size to determine body size dissatisfaction and desire to be thinner. The Stunkard Figure Rating Scale [34] is comprised of nine silhouette figures of women of increasing body size from very thin (a value of 1) to obese (a value of 9). For perceived body size, participants were asked "How do you think you look?" and to select a silhouette that represents their choice. BMI equivalents for the Stunkard female silhouette figures

established by Bulik and colleagues [35] were utilized to determine participants' perceived weight status. Based on these equivalents, silhouette 1 corresponded to an average BMI of 18.3 ($SD=3.0$), which is equivalent to the underweight category. Silhouettes 2, 3, and 4 corresponded to an average BMI of 19.3 ($SD=1.7$), 20.9 ($SD=1.8$), and 23.1 ($SD=2.2$) respectively, which are equivalent to the healthy weight category. Silhouettes 5 and 6 corresponded to an average BMI of 26.2 ($SD=3.0$) and 29.9 ($SD=3.8$), respectively, which are equivalent to the overweight category. Silhouettes 7-9 corresponded to an average BMI of 34.3 ($SD=4.7$), 38.6 ($SD=6.2$), and 45.4 ($SD=7.8$), respectively, which are equivalent to the obese category. To assess ideal body size participants were asked to select the silhouette that represented "the way you would like to look." Body size dissatisfaction was determined by subtracting the score for ideal body size from the perceived body size score. Greater values indicated higher desire to be thinner. The SFRS has demonstrated good test-retest reliability and its scores are positively correlated with female drive for thinness ($r=0.85$) and body dissatisfaction ($r=0.91$) [36].

Data collection

Data were collected from Hispanic and African American women who visited a healthy eating exhibit during four community health fairs. One of four approached individuals participated in this study. Upon attending the healthy eating exhibit, potentially eligible Hispanic or African American women were invited to participate in the study and provided information regarding the study's purpose, activities, and time commitment (10-15 minutes). If participants agreed to participate and signed informed consent form, a bilingual research assistant instructed them to complete the health survey and SFRS instrument in their preferred language (i.e., English or Spanish).

Statistical analysis

To address study aims 1 and 2, first Spearman or Pearson's correlation analyses were conducted to examine the correlations among key variables (not shown). Then, a three-step hierarchical multiple linear regression analysis was performed to assess factors associated with desire to be thinner among the subset of women whose researcher-estimated BMI fell in the overweight or obese range. Only women with overweight or obesity were included in this analysis because these women would have been more likely to receive a medical obesity diagnosis than underweight/normal weight women. At Step 1, the demographic, researcher-estimated BMI, and weight concern variables were entered in the model to assess their contribution to women's desire to be thinner. At Step 2, medical weight problem diagnosis was added to the model. At Step 3, the interaction term of medical weight problem diagnosis by ethnicity/race was added to examine to what extent ethnicity/race moderated the association of medical weight problem diagnosis to women's desire to be thinner. Logistic regression analysis was employed to predict the probability that a woman with researcher-estimated BMI falling into the overweight or obesity category would receive a medical weight problem diagnosis by a physician. To address aim 3, Pearson Chi-Square tests were used to assess ethnic/racial differences in perceived and ideal body size, and body size dissatisfaction in the study sample of Hispanic and African American women. Analyses were conducted using SPSS Statistics version 25.0 and statistical significance was set at $p<0.05$.

Table 1: Sample Descriptive Characteristics.

| Variable | Total Sample N=477 | Hispanic Women N=366 | AA Women N= 111 | df | t | χ^2 | p | Cramer's V |
|---|--------------------|----------------------|-----------------|-----|------|----------|-------|------------|
| Age <i>M</i> (<i>SD</i>) | 43.7 (15.9) | 40.3 (13.2) | 54.7 (19.0) | 475 | 7.44 | | 0.001 | |
| Income n (%) | | | | 1 | | 30.18 | 0.001 | 0.37 |
| ≤\$2500/month | 158 (33.1) | 126 (34.4) | 32 (28.8) | | | | | |
| > \$2500/month | 66 (13.8) | 28 (7.7) | 38 (34.2) | | | | | |
| Missing | 253 (53.0) | 212 (57.9) | 41 (36.9) | | | | | |
| Weight concern n (%) | | | | 4 | | 26.69 | 0.001 | 0.25 |
| Not at all | 74 (15.5) | 55 (15.0) | 19 (17.1) | | | | | |
| Slightly | 111 (23.3) | 96 (26.2) | 15 (13.5) | | | | | |
| Somewhat | 77 (16.1) | 69 (18.9) | 8 (7.2) | | | | | |
| Moderately | 67 (14.0) | 43 (11.7) | 24 (21.6) | | | | | |
| Extremely | 100 (21.0) | 65 (17.8) | 35 (31.5) | | | | | |
| Missing | 48 (10.1) | 38 (10.4) | 10 (9.0) | | | | | |
| Researcher-Estimated BMI n (%) | | | | 2 | | 6.23 | 0.04 | 0.14 |
| Underweight | 2 (0.4) | 2 (0.5) | 0 (0.0) | | | | | |
| Healthy weight | 84 (17.6) | 56 (15.3) | 28 (25.2) | | | | | |
| Overweight | 96 (20.1) | 79 (21.6) | 17 (15.3) | | | | | |
| Obese | 141 (29.6) | 109 (29.8) | 32 (28.8) | | | | | |
| Missing | 154 (32.3) | 120 (32.8) | 34 (30.6) | | | | | |
| Perceived body size-silhouette n (%) | | | | 2 | | 1.85 | 0.397 | 0.07 |
| Underweight | 3 (0.6) | 3 (0.8) | 0 (0.0) | | | | | |
| Healthy weight | 147 (30.8) | 111 (30.3) | 36 (32.4) | | | | | |
| Overweight | 201(42.1) | 163 (44.5) | 38 (34.2) | | | | | |
| Obese | 79 (16.6) | 60 (16.4) | 19 (17.1) | | | | | |
| Missing | 47 (9.9) | 29 (7.9) | 18 (16.2) | | | | | |
| | | | | 1 | | 0.04 | 0.848 | 0.01 |
| Medical weight problem Diagnosis n (%) | | | | | | | | |
| Yes | 148 (31.0) | 116 (31.7) | 32 (28.8) | | | | | |
| No | 236 (49.5) | 183 (50.0) | 53 (47.7) | | | | | |
| Missing | 93 (19.5) | 67 (18.3) | 26 (23.4) | | | | | |

Results

Sample descriptive characteristics

As shown in (Table 1), compared to Hispanic women ($M_{age}=40.3$ years, $SD=13.2$ years), African American women ($M_{age}=54.7$ years, $SD=19.0$ years) were significantly older [$t(475)=7.44$, $p=0.001$, Hedge's $g=0.98$], and reported earning a higher monthly household income [$\chi^2(1, N=224)=30.18$, $p=0.001$, Cramer's $V=0.37$]. Likewise, a higher percentage of African American women (53.1%) indicated being moderately/extremely concerned about their weight, compared to 29.5% Hispanic women [$\chi^2(4, N=429)=26.69$, $p=0.001$, Cramer's $V=0.25$]. Although it is not shown in Table 1, most of the women ($N=408$, 85.5%) reported visiting a doctor for self-health care in the previous 12 months. Of those women, just a third ($N=139$, 34.1%) reported receiving a weight problem diagnosis by a physician, even though 77% of Hispanic and 64% of African American women were classified as overweight/obese. Using logistic regression analysis, women with research-estimated BMI falling into the obesity category

(35.4%) were significantly [Wald $\chi^2(1, N=176)=22.93$, $p<0.001$] more likely to have received a medical weight problem diagnosis than were women with researcher-estimated BMI falling into the overweight category (11.8%). The odds ratio of receiving a medical weight problem diagnosis was 4.86 (95% confidence interval of 2.55-9.29) times higher for women with research-estimated BMI falling into the obesity category than they were for women with researcher-estimated BMI falling into the overweight category. No significant ethnic differences were found in the proportion of Hispanic and African American women who reported having received a weight problem diagnosis [$\chi^2(1, N=384)=0.04$, $p=0.848$, Cramer's $V=0.01$].

Weight status

Of 477 participating women, 324(68%) women reported their height and weight. Based on researcher-estimated BMI, the majority of women were categorized as overweight and obese (Table 1). There were ethnic differences observed in the women's weight status distribution, with more African American women being classified as

Table 2: Hierarchical Multiple Linear Regression Analysis for Variables Predicting Desire to be Thinner among Overweight and Obese Women (N =176).

| Variable | Step 1 | | | | | Step 2 | | | | | Step 3 | | | | |
|--|----------|------|---------|-------|--------|---------|------|---------|-------|--------|---------|------|---------|-------|--------|
| | B | SE B | β | t | p | B | SE B | β | t | p | B | SE B | β | t | p |
| Ethnicity ^a | -0.87 | 0.23 | -0.26 | -3.75 | <0.001 | -0.84 | 0.23 | -0.25 | -3.67 | <0.001 | -0.64 | 0.34 | -0.19 | -1.9 | 0.059 |
| Estimated BMI | 0.09 | 0.02 | 0.38 | 5.62 | <0.001 | 0.08 | 0.02 | 0.32 | 4.42 | <0.001 | 0.08 | 0.02 | 0.32 | 4.46 | <0.001 |
| Weight concern | 0.22 | 0.07 | 0.22 | 3.16 | 0.002 | 0.19 | 0.07 | 0.19 | 2.68 | 0.008 | 0.19 | 0.07 | 0.19 | 2.64 | 0.009 |
| Medical weight diagnosis | | | | | | 0.49 | 0.19 | 0.19 | 2.57 | 0.011 | 0.56 | 0.21 | 0.21 | 2.69 | 0.008 |
| Ethnicity* medical weight diagnosis ^b | | | | | | | | | | | -0.37 | 0.44 | -0.09 | -0.84 | 0.403 |
| Overall Model R ² | 0.24*** | | | | | 0.27*** | | | | | 0.27*** | | | | |
| F for change in R ² | 18.11*** | | | | | 6.61* | | | | | 0.7 | | | | |

^aEthnicity coded as 0=Hispanic and 1=African American.

^bWeight problem diagnosis coded as No=0, Yes=1.

*p<0.05, **p<0.01, ***p<0.001.

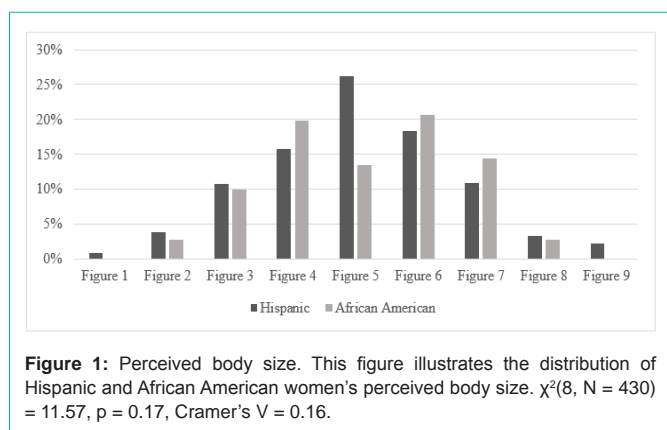


Figure 1: Perceived body size. This figure illustrates the distribution of Hispanic and African American women's perceived body size. $\chi^2(8, N = 430) = 11.57, p = 0.17, \text{Cramer's } V = 0.16.$

having a healthy weight status than did Hispanic women. Hispanic women were more likely to be classified as being overweight or obese [$\chi^2(2, N=321)=6.23, p=0.04, \text{Cramer's } V=0.14$]. Using the SFRS, most of the women (81.2%) endorsed either silhouette 3 and 4 (healthy weight) or silhouette 5, 6 and 7 (overweight) to represent their current body size (Figure 1). There were no significant ethnic differences observed in participants' perceived weight status using the silhouettes [$\chi^2(8, N=430)=11.57, p=0.17, \text{Cramer's } V=0.16$] (Figure 1).

Ideal body size and body size dissatisfaction

Overall, most of the women (66%) endorsed either silhouette 3 or 4 (healthy weight) to represent their ideal body size (Figure 2). Ethnic differences were observed in Hispanic and African American women's selection of ideal body size figures [$\chi^2(7, N=436)=22.36, p=0.002, \text{Cramer's } V=0.23$] (Figure 2). Hispanic women were more likely to select smaller ideal sizes compared to African American women. In terms of body size dissatisfaction (Figure 3), the majority of Hispanic (72.4%) and African American (56.8%) women desired to be one or more silhouette sizes thinner. A small percentage (4.4%) of women had a desire to be heavier than their current weight. Hispanic women reported a greater desire to be thinner than did African American women [$t(419)=2.40, p=0.017$].

Relation of medical weight problem diagnosis to desire to be thinner

As shown in Table 2, results of the hierarchical multiple linear regression analysis (including just the 176 women with researcher-estimated overweight or obesity) revealed that at Step 1, ethnicity/

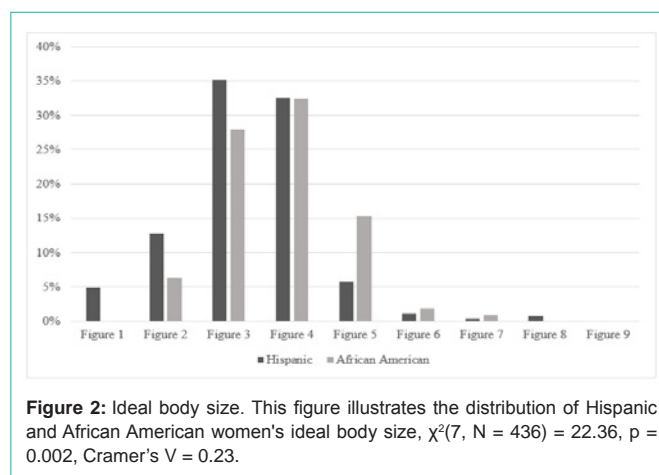
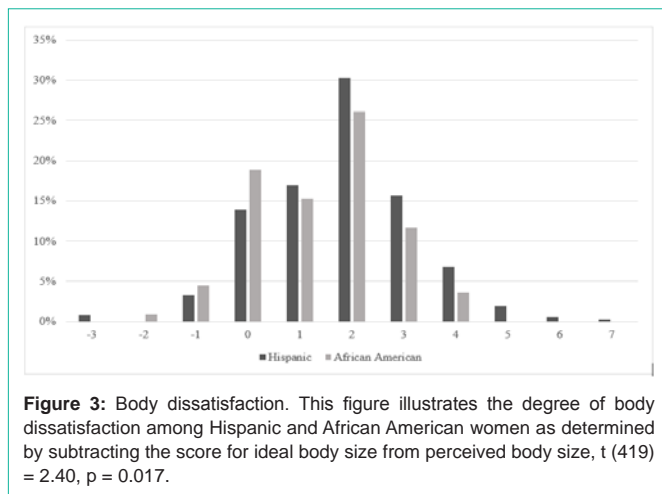


Figure 2: Ideal body size. This figure illustrates the distribution of Hispanic and African American women's ideal body size, $\chi^2(7, N = 436) = 22.36, p = 0.002, \text{Cramer's } V = 0.23.$

race, researcher-estimated BMI, and weight concern variables significantly contributed to the model, ($F(3, 172)=18.11, p<0.001$), and accounted for 24% of the variation in participants' desire to be thinner. Inspection of the beta coefficients indicated that Hispanic (coded as 0) women had a greater desire to be thinner than did African American (coded as 1) women ($\beta = -0.26, p<0.001$) and that a higher researcher-estimated BMI score was positively associated with greater desire to be thinner ($\beta = 0.38, p<0.001$). In addition, having a greater concern about one's weight was positively associated with a greater desire to be thinner ($\beta = 0.22, p=0.002$). The variable added in Step 2 (i.e., medical weight problem diagnosis) explained an additional 3% of variance in desire to be thinner ($\Delta R^2=0.03, Fchange(1, 171)=6.61, p<0.001$). After controlling for the other variables in the model, being Hispanic ($\beta = -0.25, p<0.001$), having an increased researcher-estimated BMI ($\beta = 0.32, p<0.001$), and reporting greater weight concern ($\beta = 0.19, p=0.008$), and receiving a medical weight problem diagnosis ($\beta = 0.19, p=0.011$) were uniquely associated with an increased desire to be thinner. At Step 3 the interaction between medical weight problem and ethnicity/race was added to determine if the relation of medical weight problem diagnosis to desire to be thinner varied as a function of ethnicity/race. Results showed no significant interaction [$\Delta R^2=0.00, Fchange(1, 170)=0.70, p=0.403$].

Discussion

Findings of this study indicate that only 34.1% of participating women reported receiving a weight problem diagnosis by a physician



even though 77% of Hispanic and 64% of African American women (based on their self-reported BMI) were classified as overweight/obese.

Furthermore, women with obesity were more likely to report they had received a medical weight problem diagnosis compared to women with overweight. Similar proportions of Hispanic and African American women reported having received a medical weight problem diagnosis. Consistent with previous findings, a medical weight problem diagnosis was associated with the desire to be thinner among Hispanic and African American women with overweight/obesity after controlling for other factors [5,21]. The current study's findings indicate that the importance of a medical weight problem diagnosis, for women with overweight/obese, extends to Hispanic and African American women.

In addition to the identified link between a medically diagnosed weight problem and desire to be thinner, results of this study indicated that being Hispanic, having a higher researcher-estimated BMI, and reporting an increased weight concern, were also factors associated with desire to be thinner. Our study findings fill a gap in the literature by examining the contribution of a medically weight problem diagnosis along with several personal factors (researcher-estimated BMI and weight concern), associated with the desire to be thinner among women. Previous research in this area has focused on examining binary associations between increased BMI and desire to be thinner; 37,38 wanting to lose weight [39,40]; and between weight concern and a desire to be thinner, particularly among women with the highest BMI [41,42].

Despite African American women's greater weight concern, Hispanic women were more likely to report greater body dissatisfaction than did African American women. Consistent with previous studies [43-45], Hispanic women in this study endorsed smaller body sizes as ideal and were more likely to desire to be thinner when compared to their African American counterparts. This finding is consistent with previous research suggesting that African American women are more likely than Hispanic women to endorse heavier body size as ideal [46]. A potential explanation for our findings regarding ethnic/racial differences in ideal body size and desire to be thinner may be due to age differences in the sample. On average, in this study Hispanic

women were 14 years younger than African American women and may have internalized a more idealized thin body size, leading them to an increased desire to lose weight [47,48]. In other body image studies, age has been negatively associated with higher levels of thin-ideal internalization, which suggests greater susceptibility to societal pressures for thinness among younger women [49,50].

The study outcomes should be interpreted considering several limitations. First, the sample consisted of primarily Hispanic and African American women attending a health fair; thus, they may have been more weight-focused aimed at increasing weight loss, thus limiting the generalizability of results. Second, the cross-sectional nature of this study prohibits the assessment of bidirectional, or causal relationships. Future studies that utilize a longitudinal design are warranted to elucidate the temporal and the bidirectional nature of the relationship between medical weight problem diagnosis and desire to be thinner among minority women. Third, the small sample size, particularly of African American women, might limit the generalizability of results. Despite these limitations, this study contributes significantly to our understanding of the role of personal (internalized motivators) and medical weight problem diagnosis (externalized motivator) factors associated with desire to be thinner among minority women. Furthermore, our findings suggest a need for training of physicians on the importance of providing Hispanic and African American women with a weight status diagnosis along with specific parameters of what constitutes an overweight and/or obesity status. In addition, physicians should receive training to utilize different modalities to distinguish different obesity status (e.g., providing verbal and written definitions of overweight and obesity and providing a pictorial stimulus). Furthermore, medical professionals should receive training about asking minority women about weight concerns and other factors (e.g., ideal healthy body size) that might affect their desire to be thinner in order to tailor their consultations regarding overweight and obesity.

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