

## Overcoming Obesity: A Mixed Methods Study of the Impact of Primary Care Physician Counseling on Low-Income African American Women Who Successfully Lost Weight.

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## **Overcoming obesity: A mixed methods study of the impact of primary care physician counseling on low-income African American women who successfully lost weight**

### **Abstract**

**Purpose:** Low-income, African American women are disproportionately impacted by obesity.

Little is known about the interactions between low-income, African American women who successfully lost weight and their primary care physicians (PCPs).

**Design:** Mixed methods, positive deviance study.

**Setting:** Urban university-based family medicine practice.

**Subjects:** The positive deviance group comprised low-income, African American women who were obese, lost 10% body weight, and maintained this loss for 6 months.

**Measures:** PCP- and patient-reported weight-related variables, collected through the electronic medical record (EMR), surveys, and interviews.

**Analysis:** Logistic regression of quantitative variables. Qualitative analysis using modified grounded theory.

**Results:** EMR documentation by PCPs of dietary counseling and a weight-related medical problem were significant predictors of positive deviant group membership. Qualitative analyses of interviews revealed five major themes: framing obesity in the context of other health problems provided motivation; having a full discussion around weight management was important; an ongoing relationship with the physician was valuable; celebrating small successes was beneficial; and advice was helpful but self-motivation was necessary.

**Conclusion:** PCP counseling may be an important factor in promoting weight loss in low-income, African American women. Patients may benefit from their PCPs drawing connections

between obesity and weight-related medical conditions and enhancing intrinsic motivation for weight loss.

**Keywords:** Obesity; Physicians, Primary Care; African Americans; Female; Weight Loss; Physician-Patient Relations

**Abbreviations:**

PCP: primary care physician

EMR: electronic medical record

BMI: body mass index

## **Overcoming obesity: A mixed methods study of the impact of primary care physician counseling on low-income African American women who successfully lost weight**

### **Purpose**

Obesity is a complex and severe threat to individual and public health. It increases the risk of multiple cardio-metabolic diseases and decreases life expectancy.<sup>1,2</sup> It also disparately impacts African Americans, women, and those with lower incomes.<sup>3,4</sup> With these risk factors combined, low-income, African American women have an exceedingly high likelihood of developing obesity and its medical complications. Strategies to engage these high-risk women in weight loss treatments are of significant public health importance.

In the National Weight Control Registry, a study of Americans who lost and maintained a significant amount of weight, numerous participants noted that weight loss efforts were motivated by a medical trigger, either a weight-related diagnosis or physician counseling.<sup>5</sup> This suggests that interaction with the healthcare system may be influential in initiating successful obesity treatment.<sup>5</sup> Data suggest that patients who were advised by a physician to lose weight were more likely to report attempts to lose weight and increase physical activity.<sup>6,7</sup> In addition, in another study, patients who had obesity listed in their electronic medical record (EMR) problem list were more likely to have obesity addressed by their primary care physician (PCP).<sup>8</sup> While the U.S. Preventive Services Task Force and American Academy of Family Physicians have recommendations for PCPs to screen for and treat obesity,<sup>2,9</sup> there is little evidence regarding the best approach for physicians to counsel patients on weight, particularly among low-income, African American women.

The positive deviance approach is a method of learning from top performers. It is a novel research method to find potential solutions to a problem. In a population where members have similar resources and culture, some individuals will exhibit behaviors or modifiable characteristics that result in better outcomes than the norm.<sup>10</sup> Studying these top performers may lead to solutions that are accessible to a high-risk population. This approach was developed during an initiative to reduce child malnutrition, but has been used in a variety of healthcare and public health fields, including prevention of healthcare associated infections, maternal and newborn health, and smoking cessation.<sup>11</sup>

On the basis of the literature reviewed, we used a positive deviance framework to test the hypotheses that PCP counseling regarding weight, having a weight-related medical problem, and having obesity on the problem list would be predictive of positive deviant group membership. To further evaluate the aspects of a medical interaction that may promote weight loss in this high-risk group, we also interviewed participants in the positive deviance group about their interactions with PCPs related to body weight.

## **Methods**

### **Design**

This study followed a positive deviance framework, with mixed methods, to evaluate factors that may contribute to successful weight loss in low-income, African American women. This study is part of a larger evaluation; here we focused on interactions with PCPs.

### **Sample**

We used the EMR from an urban university-based family medicine practice to identify positive deviant cases, defined as an EMR confirmed weight loss of at least 10% of patients' maximum

weight between 2007 and 2012 (from the initiation of the EMR to the study onset) and maintenance of this loss for at least 6 months. Patients who had not lost a significant amount of weight during this time period were categorized as controls. We chose our participants from a restricted sample, based on the following criteria: age 18-64 years, self-identification as African American, female sex, Medicaid recipient (income proxy), Philadelphia resident, and body mass index (BMI)  $\geq 30$  kg/m<sup>2</sup>. We then excluded patients who had a history of amputation or confinement to a wheelchair; bariatric surgery; severe illness during weight loss; EMR documented unintentional weight loss; pregnancy or within 3 months postpartum at the time of weight loss; diagnosis of a psychotic disorder or taking antipsychotic medication; intellectual disability; or inability to give consent in English. We identified 161 women in the positive deviance group and 602 women in the control group (Figure 1).

### **Measures**

To test our hypotheses that PCP counseling regarding weight, having a weight-related medical problem, and having obesity on the problem list would be predictive of positive deviant group membership, we extracted data about the positive deviance group and the control group for the following EMR-obtained variables: documentation of “dietary counseling by PCP” (used by the practice to indicate weight loss counseling); documentation of a weight-related problem (diabetes, hypertension, dyslipidemia, or polycystic ovarian syndrome); and a diagnosis of “overweight,” “obesity,” or “morbid obesity” on the problem list (Figure 1: Part 1).

[Insert Figure 1.]

We surveyed 35 positive deviant cases and 36 controls matched for age and maximum BMI (with one duplicate control) to collect additional predictors of positive deviant membership. These predictors included patient report of receiving advice from a doctor or another health

professional to lose weight, and report of ever having a medical problem that was caused or worsened by weight (Figure 1: Part 2). Surveys were completed in person or by mail and respondents received a small compensation. The only significant difference between positive deviant participants who did or did not complete the survey was that those who participated were significantly older than those who did not.

To further evaluate the aspects of a medical interaction that may promote weight loss, we conducted in-depth interviews with positive deviant participants until we reached thematic saturation, for a total of 20 interviews (Figure 1: Part 3). All interviews were done in-person in the family medicine office by a member of the research team. Interview questions included: “Has your PCP or another health professional ever talked with you about your weight? How did they go about it? What did they tell you? What effect did this have on you? What could have been done better?” Interviews followed a pre-determined guide but allowed for probing questions and for participants to provide additional information. The interview lasted approximately 30 minutes and participants received modest compensation for participation. Interviews were audio recorded and transcribed by a member of the research team.

### **Analysis**

Quantitative data from the EMR and surveys were stored and analyzed using SPSS statistics software, version 19 (IBM SPSS Statistics for Windows, Armonk, NY). To evaluate for baseline demographic differences between cases and controls, we used Student’s t-tests for continuous variables and chi-square analyses for binary categorical variables. We used logistic regression to determine if *a priori*-identified EMR and survey variables could predict positive deviant group membership, adjusting for demographic variables that were significantly associated with our outcome of interest or were hypothesized to be confounders of the associations between

predictors and outcomes. The EMR analyses provided 99% power to identify a 20% difference in documentation of counseling between groups with a 2-tailed alpha of 0.05. The survey sample size provided 60% power to identify a 20% difference in self-report of receiving advice to lose weight between groups with a 2-tailed alpha of 0.10, chosen *a priori* due to the small sample size of the survey and the exploratory nature of the study. Normally distributed data were reported by mean and standard deviation (SD); skewed data were reported by median and interquartile ratio (IQR).

For qualitative analyses, four members of the research team (ESB, KEH, KY, ML) comprised a coding panel. Using a modified approach to grounded theory, we developed a coding framework through open coding, and conducted interviews until reaching thematic saturation.<sup>12</sup> We then coded all 20 interviews according to the established coding framework. We made coding decisions by unanimous agreement or through discussion to reach consensus. Data were stored and analyzed using NVivo qualitative data analysis software, version 10 (QSR International Pty Ltd., Melbourne, Australia). Study methods and analyses were approved by the Thomas Jefferson University Institutional Review Board.

## **Results**

### **Quantitative Results**

Among the African American women included in the EMR analysis, the mean (SD) age was 37.3 (11.8) for control participants and 40.1 (11.6) for positive deviant participants ( $p=0.006$ ). The mean (SD) maximum documented weight was 217.1 (48.7) for controls and 219.0 (43.9) for positive deviant participants, with a maximum BMI of 37.2 for controls and 36.4 for positive deviant participants. Positive deviant participants lost an average of 41.9 pounds

(18% of their maximum weight). EMR analyses, when adjusted for participant age, showed that documentation of counseling and having a weight-related diagnosis were significant predictors of positive deviant membership. Having a diagnosis of obesity documented on the problem list, on the other hand, was predictive of control group membership (Table 1). In a post-hoc analyses, we evaluated if age was related to any of the predictor variables. Those who had at least one weight related diagnosis were significantly older than those who did not have a weight related diagnosis (with diagnosis mean age = 44.6 years old, without diagnosis mean age = 33.51 years old,  $p < 0.01$ ). Age was not significantly related to documentation of weight-related counseling or having obesity on the chart.

Survey demographics are listed in Table 2. Household income data median (IQR) was \$16,000 (\$8,370 – \$36,000) for the entire sample, which corresponded to 90% (42% – 157%) of the federal poverty level. Participants in the positive deviance group had significantly lower education and were less likely to be currently employed. There were no other significant differences between groups. Neither participant-reported discussions with a medical provider nor participant-reported weight-related diagnoses were predictors of group membership (Table 1).

### **Qualitative Results**

Five themes summarized the interactions between participants in the positive deviance group and their PCPs (described below). Nearly all interviewed participants reported having a discussion with their PCP about their weight.

**Theme 1: Framing the problem of obesity in the context of other health problems provided motivation.**

A majority of participants reported feeling motivated to lose weight if their PCP discussed the impact of weight on health problems, including stopping, reducing, or avoiding medications.

“When I walked out of his office, I said, ‘You know what? I’m just gonna do this [lose weight] because he sayin’ my blood pressure was really out of control, and the medication that they had me on was really too much.’”

However, several participants also reported that they would have liked weight-related discussions to occur prior to the onset of illness.

“If they already knowed [sic] that I was overweight at the time, instead of hitting me with the diabetes then they should have been working on my weight loss with me but they never done any of it.”

**Theme 2: Having a full discussion around weight management was important.**

Participants wanted a thorough discussion of factors that might be contributing to their weight, and they wanted concrete help from their PCP. Participants who received specific advice on behavior changes, information handouts, and referrals to nutritionists reported that these were both helpful and empowering.

“She helped me out a lot just by talkin’ and tellin’ me different things to do. She gave me like a paper to do exercise and everything; to take home and just do the exercise.”

“Well they broke it down to the point where they broke it down to the grams, to the, you know, to the portion sizes, to what could clog your arteries all this stuff.”

Likewise, participants who were informed of their weight status but did not receive additional information from their PCP expressed frustration and abandonment.

“They could have geared me to the information. Instead of just telling me the problem, and sending me on my way. ‘Cause they told me, ‘You got an atomic bomb here. Now you go figure it out.’”

“... they coulda’ did something, instead of every time I came, they was telling me I was overweight. . . . They could’ve given me some information about if there’s help here, to help me with my weight.”

### **Theme 3: An ongoing conversation and relationship was valuable.**

Most participants reported the importance of having a weight-related discussion with a PCP who knew them well and cared about them. They discussed that they received support and accountability through this relationship.

“He just made me come to the realization that, you know, he was concerned about my health. And he was really concerned about me being healthy and strong and everything.”

“My doctor, he is, like, awesome. I love him to death. He is so open and understanding and he knows my struggles, like, he *know* my struggles, he know everything I’ve been through. So, when he see [my weight] slippin’, he like, ‘No, you not gonna be doing that.’ . . . and it’s good to have a doctor like that, you can actually talk to and [have] confidence in them.”

Likewise, lack of continuity resulted in confusing and unhelpful weight-related conversations.

“... every time I came I was gettin’ a different doctor . . . they just told me, you know, ‘You’re overweight. You gotta do something about it.’ I’m like, ‘Okay, that’s it? Like, thank you for telling me. Every time I come here ya’ll telling me the same stuff over again.’ . . . different doctor telling me the same stuff.”

### **Theme 4: Celebrating small successes was beneficial for ongoing motivation.**

Participants were encouraged to continue their efforts at weight loss when the physician noticed small weight losses and positive behavior changes.

“It’s more encouraging when you have a doctor tellin’ you, ‘You’re doing good, keep up the good work. . . .’ It’s nothing like a doctor standing behind you, encouraging you.”

“[My doctor] was proud, when he saw the weight loss he called me, and he told me about it, and he was happy.”

**Theme 5: Advice was helpful but self-motivation was required in order to make a change.**

Participants reported that they must be ready to make a change in order for advice and information to be helpful. While participants appreciated specific advice and referrals, they needed to develop intrinsic motivation before this help was fruitful.

“You know, I had to really want to do it for myself. And, and, in order to stick to it as well.”

“I think that they kind of made an impact because when I was ready it took me back to that day when I saw them. It’s just at that time I wasn’t motivated.”

“My doctor told me to lose the weight, but it’s on you; you have to do it, get it done.”

## **Discussion**

In this study, we identified PCP-associated factors which predicted successful weight loss and maintenance in a group of low-income, African American women, defining them as the “positive deviance group.” We found that EMR documentation of counseling or documentation of a weight-related illness was predictive of positive deviant group membership. Contrary to our hypothesis, a diagnosis of obesity on the problems list was predictive of control group

membership. Participant-report of provider counseling and having a weight-related illness were not significant predictors of successful weight loss.

In the EMR analysis, positive deviant group members were significantly older than controls. Age may be an independent predictor for weight loss due to additional opportunities and time, particularly relief of child-care obligations, as well as additional knowledge and experience that may come with aging. However, age was also associated with having a weight-related medical problem and may influence weight loss by contributing to motivation due to the medical burden of obesity. In the survey analysis, cases and controls were matched by age, but differed significantly by education level and employment status, with positive deviant cases having a lower education level and less likely to be currently working, though neither of these demographics was related with the predictor variables. We suspect that employment may have had a role in weight loss, as positive deviant cases may have had fewer work-related priorities that interfere with weight loss and more time to pursue weight-loss-related behaviors such as exercise. A lower education level may have contributed to a decreased likelihood of employment.

Our qualitative data revealed that African American women who had successfully lost weight had an overall positive view of physician counseling for obesity. Participants in the positive deviance group felt that discussing how obesity relates to their other health problems provided motivation to lose weight, but advocated for more specific guidance or opportunities for referrals to help them achieve successful weight loss.

While our study is the first, to our knowledge, to focus on PCP interactions with a positive deviance group of low-income, African American women, our results confirm findings from previous studies in ethnic minority women. Similar to the participants of the study by Ward

et al,<sup>13</sup> our participants discussed their preference for physicians to raise the topic of obesity, the importance of specific advice and referrals, the importance of a caring and ongoing relationship with their PCP, recognition of small successes, and the importance of patient readiness to change. Likewise, Blixen<sup>14</sup> found that, compared with Caucasian women, African American women felt that one-on-one physician counseling, referrals to nutrition and weight loss classes or support, and physician discussion of adverse effects of obesity, were significantly more important in promoting weight loss. The similarities between previous studies and our study suggests that the guidance provided for physician counseling is not only what this patient population wants, but also may be a part of successful weight loss.

Our findings are also consistent with PCP attitudes reported by Bennett et al,<sup>15</sup> who evaluated the views of PCPs referring patients to the POWER (practice-based weight loss) trial. Physicians in that study felt that their role was to refer patients and endorse the program, provide accountability, “cheerlead,” and maintain a long-term relationship, but felt that their direct role in weight loss was limited. Our participants correspondingly valued continuity with their PCP and having their PCP celebrate small successes. However, without the context of a practice-based weight loss trial, our participants needed more assistance in treatment from their physician. These findings may be especially useful for PCPs given expanded coverage for obesity treatment from the Centers for Medicare and Medicaid Services and the Affordable Care Act.

A strength of this study is the use of the positive deviance methodology. The population was intentionally limited to identify behaviors, knowledge, or other modifiable factors, and avoid characteristics that are less amenable to change, such as race and income. We expect that solutions derived from this evaluation will be accessible to other low-income, African American women and their PCPs. However, our approach also resulted in limitations. We had a small

number of survey participants, which resulted in low statistical power. In addition, the findings are probably generalizable only to low-income, African American women in urban areas. We were also limited in our use of the EMR to collect data on PCP counseling, specifically what types of counseling and when it occurred. We suspect our finding that a diagnosis of obesity was predictive of control group membership occurred because the patients' weight loss "cured" their obesity and their physicians removed the diagnosis from the problem list.

The outcomes of this study suggest that physician counseling may be a factor in promoting successful weight loss in low-income, African American women. Patients with obesity may benefit from having their PCPs draw connections between obesity and their resulting weight-related medical conditions along with having their PCPs enhance their intrinsic motivation for weight loss. For example, it may be clear to a physician that a patient's weight is contributing to her blood pressure, but explaining the relationship may help provide motivation for weight loss. Brief motivational interviewing may also be a valuable tool for PCPs to better assist patients with enhancing intrinsic motivation, and offer specific guidance or referrals when the patient is ready. Future studies testing these approaches are needed to determine if weight loss is enhanced.

## **SO WHAT? Implications for Health Promotion Practitioners and Researchers**

### **What is already known on this topic?**

Low-income, African American women are disproportionately impacted by obesity. In prior qualitative evaluations, African American women have discussed preferences for weight counseling, including discussion of adverse effects of obesity, specific advice and referrals, the relationship with their PCP, recognition of success, and the importance of patient readiness to change.

### **What does this article add?**

In this study, low-income, African American women who had successfully lost weight discussed remarkably similar themes that were important to their weight loss journey, including the context of other health problems, a full discussion including specific advice or referrals, their relationship with their PCP, celebrating successes, and the importance of self-motivation. Additionally, EMR documentation of counseling or documentation of a weight-related illness were predictive of positive deviant group membership.

### **What are the implications for health promotion practice and research?**

This study suggests that PCP counseling may promote successful weight loss in low-income, African American women, a population at high risk for obesity. The themes identified in this study can help guide PCPs in counseling in a manner that both conforms to patient preferences and promotes successful weight loss.

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## Figure Legend

Figure 1: Consort figure.

**Table 1.** Predictive analyses for positive deviant case group membership

Data Source	Predictor	Case	Control	Unadjusted OR	Adjusted OR	<i>p</i>
EMR‡	Documentation of dietary counseling	80 (13%)	43 (27%)	2.378	2.337*	<0.001*
	Documentation of a weight-related diagnosis	218 (36%)	83 (52%)	1.874	1.669*	0.011*
	Documentation of obesity on problem list	280 (47%)	58 (36%)	0.648	0.672*	0.032*
Survey#	Participant-reported weight-related diagnosis	21 (60%)	18 (50%)	0.667	1.078†	0.890†
	Participant-reported discussion of weight	25 (71%)	25 (69%)	0.909	1.704†	0.373†

\*Adjusted for participant age

†Adjusted for employment status and education level

‡ Case N=161; Control N=602

# Case N=35; Control N=36

**Table 2.** Survey demographic data

	Control (N=36)	Case (N=35)	<i>p</i>
Age, y†	43.0 (11.6)	44.9 (10.4)	0.475
Maximum Self-Reported Weight†	214.8 (44.3)	231.6 (65.9)	0.213
Marital Status*			0.100
Single, Divorced, Widowed	29 (85%)	24 (69%)	
Married or Living with Partner	5 (15%)	11 (31%)	
Education*			0.027
Did not complete High School	3 (8%)	12 (34%)	
High School Graduate or GED	17 (46%)	11 (31%)	
Some College or Beyond	16 (44%)	12 (34%)	
Employment*			0.006
Currently Employed	24 (67%)	12 (34%)	
Not Currently Employed	12 (33%)	23 (66%)	
Household Income‡	\$17,000 (\$9,000 – \$36,000)	\$15,500 (\$8,355 – \$39,500)	0.824
% Federal Poverty Level‡	103% (41% - 149%)	72.5% (38% - 198%)	0.706

\*Variables reported as N (%)

†Variable reported as mean (SD)

‡Variables reported as median (IQR)