The Role of Weight, Race, and Health Care Experiences in Care Use Among Young Men and Women

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Objective: Increases in overweight and obesity (O/O)-related morbidities and health care costs raise questions about how weight influences patients’ health care use and care experiences. Past research has been inconsistent; however, prior study designs and samples have limited exploration of how this association might be influenced by gender, race, and the joint impact of these factors.

Methods: This analysis of 1,036 young, relatively healthy, ethnically diverse, insured adults assessed the influence of O/O, gender, and race on, and the role of health care experiences in primary and preventive care use over a 12-month period.

Results: The association of weight status with care use differed by gender. O/O men used more primary care visits; O/O women used fewer preventive care visits than their healthy weight counterparts. O/O men had poorer health care experiences than healthy weight men. African-American women reported poorer experiences, but those who were O/O reported greater trust in their provider. Care experience ratings did not explain the associations between BMI and care use.

Conclusions: Gender, race, and visit type together provide a context for O/O patient’s care that may not be explained by care experiences. This context must be considered in efforts to encourage appropriate use of services.

Introduction
Rates of overweight and obesity continue to increase worldwide (1). Concurrently, obesity occurs at progressively younger ages (2). These trends contribute to worldwide increases in chronic diseases including Type II diabetes and coronary heart disease (2). Increased obesity rates also have a disproportionate effect among some minority groups where disparities already exist in chronic disease rates (3). This is compounded with a growing concern about overweight and obesity related health care costs. Reports have estimated that obesity/overweight and its disease sequelae account for over $190 Billion, or over 20%, of annual medical care spending in the U.S. (4).

The evidence supporting the association of weight status with use of health care services is inconsistent and varies by type of health care used. Nonprevention related primary care visits are typically illness or injury-related and can reflect a patient’s level of wellness. Prior research has shown higher use of primary care among individuals who are overweight or obese (5, 6), although some report less use or no difference (7, 8). For preventive care visits (also called wellness visits or annual physicals) that include specific clinical preventive services (e.g., tobacco cessation counseling, cervical cancer screenings), there is an ongoing debate as to whether overweight and obese individuals use differential amounts of care than healthy weight individuals (9-12). These visits are particularly important because they provide an avenue for healthy individuals to address prevention topics with their health care teams, and they present opportunities to discuss the maintenance of healthy body weight and address overweight and obesity issues.

Inconsistencies observed in the associations of overweight with health care use may be attributed to differences between studies on the factors posited in Aday and Andersen’s framework to underlie care use (13). Studies have targeted populations receiving health care in widely variable delivery systems (e.g., Veterans Affairs clinics, Medicare enrollees). Furthermore, samples have differed considerably on predisposing population characteristics including gender,
age, and race/ethnicity. Studies have often described older populations and those with significant illness burden. In addition, many have included largely non-Hispanic White populations despite well-documented high rates of obesity and co-morbid disease among several minority groups. These factors have been shown to influence health care use directly, and also through mechanisms like illness burden and means to access care (14).

Aday and Andersen’s framework also depicts how care utilization can be influenced by patients’ subjective satisfaction with health care, which is underpinned by their health care experiences. Indeed, it has long been suggested that some types of preventive care visits and service use may be lower among overweight and obese individuals because of negative, stigma-related interpersonal experiences and low satisfaction with physicians (7, 15). However, evidence of this relationship is limited, and exploration has been based on self-report data. Health care experiences and resulting satisfaction are important outcomes in their own right that have been linked to patient care outcomes (16, 17). On the whole, the literature investigating the association between patient body weight and experiences or satisfaction with care is mixed (15, 18-23). More importantly, the question of whether subjective care experiences explain the relationship between body weight and actual, prospective care use has not been investigated.

To date, no one has evaluated the association of weight status with health care experiences and primary and preventive health care use among a sample of relatively healthy, young men and women wherein minority representation has been optimized for assessing the influence of patient race. To this end, we analyzed data from the multiplex initiative (MI), a population-based study.

Our primary research questions were:

1. Does the number of primary care and/or preventive-care visits in a 12-month window differ for women and men who are healthy weight, overweight, and obese, and do these associations differ by racial background?
2. Do women and men who are categorized as healthy weight, overweight, and obese differ in their health care experiences, and do these associations differ by racial background?
3. Do baseline subjective health care experiences explain the associations of BMI category and racial category with prospective care use?

Methods

Participants

Data for this analysis came from the baseline telephone survey and clinical service use extraction from automated patient records performed as part of the MI. The MI assessed individuals’ interest in and reaction to multiplex genetic testing for common chronic diseases. MI participants were recruited from the Henry Ford Health System in Detroit, Michigan. Sampling and recruitment for the overall project are described elsewhere (24). Briefly, MI participants were randomly sampled. They were between 25 and 40 years old and commercially insured by the Henry Ford Health System health maintenance plan. Males, African Americans, and individuals living in neighborhoods with lower education levels were oversampled. Participants with a personal history of diabetes, coronary heart disease, osteoporosis, colorectal cancer, lung cancer, and nonmelanoma skin cancer were excluded. For this analysis, we additionally excluded individuals who were pregnant (n = 25), reported a racial category other than White/Caucasian or Black/African American (n = 113), were underweight (n = 7), did not have a regular personal doctor (n = 397) or had not seen their regular personal doctor within the 12 months before survey (n = 122), and were not continuously enrolled in the health plan and, therefore, did not have utilization data extracted (n = 249) (25). An additional ten participants were missing BMI data and were excluded from analyses. The final sample included in this analysis consisted of 1,036 individuals: 576 women and 460 men.

Demographic and health indicators

Participants’ age, self-reported height, weight, race/ethnicity, education level, and perceived health status were assessed at baseline. Weight category was based on whether participants’ body mass index (BMI) was categorized as healthy weight (between 20 kg/m² and 25 kg/m²), overweight (between 25 kg/m² and 30 kg/m²), or obese (equal to or greater than 30 kg/m²). Education level categories included high school or less, some college, and college or more. Perceived health status was measured with a single item asking participants to rate their health right now (1–4 scale where 1 = poor and 4 = excellent).

Measures: utilization of primary and preventive care visits

Information about participants’ use of health care services was extracted from automated health service records (25). Visit counts for general primary care office visits and for the independent subset of preventive care office visits were used in the current analysis. Classification of visits into categories was based on standard CPT billing codes. Visit counts were aggregated for a 12-month period before baseline (retrospective), and a separate 12-month period following the survey (prospective). Analyses focused on prospective care use.

Measures: health care experience

At baseline, participants’ experience with their health care provider was assessed using five items from the Ambulatory Care Experiences Survey (26). Items covered four domains of primary care experiences: whole person orientation, interpersonal treatment, trust, and patient-provider communication. Item content is available in Table 4. One additional item assessed preventive care experiences, or whether participants felt they got the help they needed from their provider to change their habits (1–4 scale, 1 = “yes, definitely,” 2 = “yes, somewhat,” 3 = “no, definitely not,” and 4 = “I do not need help”). Participants were dropped from the analyses including this item if they indicated that they did not need help (n = 229). This resulted in a continuous variable ranging from 1 to 3.

Data analysis

All analyses were performed separately for males and females due to gender differences in health care utilization (27) and weight-related health care experiences (22). Linear regressions were conducted with BMI, race, and a BMI-by-race interaction term to predict each care experience domain individually. Separate regressions were conducted to assess main effects of BMI and race without the interaction term in the model. Covariates included age, education,
perceived health status, and retrospective care use. Negative binomial regression models were run to assess the association of BMI category and race with prospective care use. Covariates included age, education, perceived health status, and whether participants took the multiplex genetic test offered by the MI.

Finally, negative binomial regression models were conducted with the same covariates to assess the association between BMI category and race with prospective care use while adjusting for health care experiences. Health care experiences were assessed as a composite variable containing all general experience items due to multicollinearity concerns. A factor analysis indicated that all general experience items belonged to one factor, and the item assessing preventive care experiences belonged to a second factor. Preventive care experiences were entered only into models that assessed prospective preventive care use.

Among women, there were no significant effects predicting primary care visits. There was a main effect of race on preventive care utilization, $\chi^2 = 5.45$, $P = 0.020$. African-American women had more preventive care visits than White women. The effect of BMI on preventive care visits did not reach significance, $\chi^2 = 5.82$, $P = 0.055$. However, planned contrasts revealed that healthy weight women had significantly more preventive care visits than overweight women: $t = 2.35$, $P = 0.019$. Healthy weight women did not differ significantly from obese women.

Results

Descriptive statistics for participant characteristics are presented in Table 1.

Utilization of primary and preventive care visits

Variation in prospective health care use is presented in Table 2. Eighty-five percent of women and 75% of men had at least one primary care visit in the 12-month prospective period. Fifty-eight percent of women and 39% men had at least one preventive care visit in the period.

We assessed whether BMI category, race category, and the interaction predicted prospective utilization of primary care and preventive care (see Table 2 for means; Table 3 for unadjusted multivariate models). All interactions were nonsignificant. Among men, there was a significant main effect of BMI category on primary care utilization, $\chi^2 = 12.35$, $P = 0.002$. Healthy weight men had significantly fewer primary care visits than both overweight men and obese men, $t = -2.23$, $P = 0.026$ and $t = -2.76$, $P = 0.006$, respectively. There was also a nonsignificant trend toward more primary care visit use among white men, $\chi^2 = 3.50$, $P = 0.061$. There were no significant effects for preventive care.

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Health care experiences

We assessed whether BMI category, race category, and the interaction were associated with care experiences (see Table 4 for means). There were no significant effects for the whole person orientation or the communication dimensions. For the interpersonal treatment dimension, among men the effect of BMI category on interpersonal treatment did not reach significance, $F(2,447) = 2.77$, $P = 0.064$. However, planned contrasts revealed that healthy weight men reported significantly better interpersonal treatment than men who were overweight and obese: $t = 2.03$, $P = 0.043$ and $t = 2.26$, $P = 0.024$, respectively. There was no main effect of race and no interaction. Among women, White women reported better interpersonal treatment than African-American women, $F(1,567) = 9.94$, $P = 0.002$. There was no main effect of BMI category and no interaction.

On the trust dimension, among men, there was a main effect of BMI category, $F(2,449) = 3.81$, $P = 0.023$. Healthy weight men

### TABLE 1 Demographics and health status by gender, BMI, and race

|                | Healthy weight | Overweight | Obese | White | African American |
|----------------|----------------|------------|-------|-------|------------------|
|                | $(n = 178)$    | $(n = 181)$| $(n = 217)$ | $(n = 236)$ | $(n = 340)$ |
| African American | 75 (42%)       | 112 (62%)  | 153 (71%)  | -      | -                |
| Education: college plus | 83 (47%)       | 76 (42%)   | 72 (33%)   | 112 (48%)| 119 (35%) |
| Education: some college | 61 (34%)       | 66 (37%)   | 93 (43%)   | 82 (35%)| 138 (41%) |
| Age            | 34.5 (4.52)    | 35.2 (3.6) | 34.9 (3.76)| 34.7 (4.06)| 34.7 (3.90) |
| Perceived health status$^a$ | 3.3 (0.59)    | 3.1 (0.59) | 2.7 (0.66) | 3.1 (0.58) | 3.0 (0.71) |

$^a$-Point scale from poor to excellent.
There was no main effect of BMI category. Among healthy weight individuals and increased as weight increased. Weight individuals, for African-American women, trust was lowest interaction between BMI category and race, $F(2,564) = 3.24, P = 0.044$ and $t = 2.76, P = 0.006$, respectively. There was no main effect of race or interaction. Among women, White women reported higher levels of trust than African-American women, $F(1,566) = 6.0, P = 0.015$. There was also a significant interaction between BMI category and race, $F(2,564) = 3.24, P = 0.040$. Whereas for other groups trust was higher among healthy weight individuals, for African-American women, trust was lowest among healthy weight individuals and increased as weight increased. There was no main effect of BMI category.

### Role of health care experiences in models predicting utilization

We assessed the association of BMI category and race with care use prospectively, including health care experiences at baseline in the model to predict care use patterns in the following 12 months (adjusted models in Table 3). All interactions were nonsignificant, and we, therefore, report only main effects models. Among men, for primary care, the addition of health care experiences did not affect the pattern of associations, nor were experiences related to care use. For preventive care, there was a marginal, nonsignificant association of care experiences [$\chi^2 = 3.09, P = 0.079$], and a significant association of preventive care experiences, [$\chi^2 = 6.27, P = 0.012$], with use. Other associations did not change in the adjusted model.

Among women, there was a significant association of care experiences with primary care use, $\chi^2 = 6.65, P = 0.010$. Other associations did not change in this adjusted model. For preventive care use, care experiences were not related, and preventive care experiences showed a nonsignificant, marginal association with use, $\chi^2 = 3.20, P = 0.073$. In the adjusted model, the association of BMI category with use became statistically significant [$\chi^2 = 7.03, P = 0.029$], and the association of race and care use remained significant.

### Discussion

The current findings demonstrated that the associations of patient BMI and race with health care experiences and care utilization are associated with patient gender and the type of health care services used. Furthermore, although health care experiences were, in some cases, linked with prospective care use, those experience ratings did not explain the observed associations between BMI, race, and utilization.

### Influence of patient weight and race on health care use

Overweight women were found to use fewer preventive care visits than healthy weight women. This is consistent with findings in the weight stigma literature wherein overweight women have reported avoiding or delaying preventive care (15). Well-woman visits are indicated and promoted for women in this age group, often for gynecological screening (28). However, preventive care visits may feel more discretionary and less urgent to patients. They are therefore likely to be a more sensitive indicator of lack of engagement or care avoidance. This pattern is concerning given that overweight patients are at increased risk for health conditions that could be influenced by early identification through adherence to prevention recommendations.

Overweight and obese men used more primary care visits compared with healthy weight men. Increased care utilization among overweight individuals is often largely explained by illness burden; however, the current sample were screened to be free of several common, chronic diseases. Having a higher weight may also put patients at greater risk for acute injuries and illnesses (29). Although overweight and obese men in the sample used more primary care, these rates were still lower than women’s primary care use, as is consistent with prior literature (30). The current analysis suggests that when men are obese, the gender gap in primary care use is decreased. Men’s preventive care use did not differ by body weight. This is unsurprising as visit counts for preventive care among men were low. Furthermore, although preventive care could be beneficial in reducing obesity-associated health conditions that can drive use of general primary care visits, preventive care and screenings are not routinely promoted for men in this age group.

Patient race influenced care use for women. African-American women had more preventive care visits than White women. Although lower rates of utilization are typically reported among African-American women (31), the sample in the current analysis consisted of insured patients who saw their primary care doctor at least once in the last year. In addition, some contextual factors that

### TABLE 2 Prospective health care utilization by gender, BMI and race

| Utilization type | Gender/race category     | Healthy weight | Overweight | Obese     |
|-----------------|--------------------------|----------------|------------|-----------|
| Visit count     |                          |                |            |           |
| Primary care    | Women/White              | 339 (392)      | 364 (403)  | 384 (392) |
|                 | Women/African American   | 407 (472)      | 327 (317)  | 413 (391) |
|                 | Men/White                | 151 (152)      | 245 (286)  | 294 (352) |
|                 | Men/African American     | 127 (147)      | 213 (218)  | 238 (338) |
| Preventive care | Women/White              | 102 (128)      | 87 (106)   | 75 (101)  |
|                 | Women/African American   | 133 (119)      | 96 (100)   | 109 (122) |
|                 | Men/White                | 54 (100)       | 58 (88)    | 50 (79)   |
|                 | Men/African American     | 53 (76)        | 68 (96)    | 53 (77)   |

Visit rates per 100 patients per year (with standard deviations).
| TABLE 3 | Unadjusted and adjusted negative binomial regression models for men and women predicting utilization of primary and preventive care |
|---------|---------------------------------------------------------------|
| **Unadjusted models—primary care** | | **Women, primary care** |
| Variable | DF | Estimate | Std error | $\chi^2$ | P | Estimate | Std error | $\chi^2$ | P |
| Intercept | 1 | 0.49 | 0.56 | - | - | 1.13 | 0.42 | - | - |
| Race: White | 2 | 0.21 | 0.11 | 3.5 | 0.061<sup>b</sup> | 0.10 | 0.11 | 2.97 | 0.23 |
| BMI: healthy | 2 | -0.56 | 0.16 | 12.35 | 0.002<sup>a</sup> | -0.18 | 0.10 | - | - |
| BMI: overweight | 1 | -0.10 | 0.12 | - | - | 0.04 | 0.11 | - | - |
| Age | 1 | 0.014 | 0.031 | 1.13 | 0.29 | 0.054 | 0.09 | - | - |
| Education: High school or less | 2 | 0.18 | 0.14 | 1.72 | 0.42 | 0.050 | 0.094 | - | - |
| Education: Some college | 0.12 | 0.12 | - | - | 0.12 | 0.12 | - | - |
| Perceived health | 1 | -0.082 | 0.08 | 1.03 | 0.31 | 0.037 | 0.068 | 0.30 | 0.59 |
| Took multiplex test | 1 | -0.093 | 0.17 | 0.31 | 0.58 | 0.079 | 0.12 | 0.47 | 0.49 |

| **Unadjusted models—preventive care** | | **Women, preventive care** |
| Variable | DF | Estimate | Std error | $\chi^2$ | P | Estimate | Std error | $\chi^2$ | P |
| Intercept | 1 | -1.30 | 0.80 | - | - | -0.90 | 0.49 | - | - |
| Race: White | 1 | -0.09 | 0.15 | 0.36 | 0.55 | -0.24 | 0.10 | 5.45 | 0.02<sup>a</sup> |
| BMI: healthy | 2 | 0.016 | 0.22 | 0.17 | 0.42 | 0.21 | 0.12 | 5.82 | 0.055<sup>b</sup> |
| BMI: overweight | 0.19 | 0.16 | - | - | -0.07 | 0.12 | - | - |
| Age | 1 | 0.014 | 0.019 | 0.59 | 0.44 | -0.28 | 0.01 | 5.43 | 0.02<sup>a</sup> |
| Education: High school or less | 2 | -0.15 | 0.19 | 1.0 | 0.61 | -0.16 | 0.13 | 1.84 | 0.40 |
| Education: Some college | 0.023 | 0.17 | - | - | -0.10 | 0.11 | - | - |
| Perceived health | 1 | 0.073 | 0.12 | 0.39 | 0.53 | 0.027 | 0.08 | 0.12 | 0.73 |
| Took multiplex test | 1 | -0.065 | 0.23 | 0.08 | 0.77 | -0.14 | 0.14 | 1.13 | 0.29 |

| **Adjusted models—primary care** | | **Women, primary care** |
| Variable | DF | Estimate | Std error | $\chi^2$ | P | Estimate | Std error | $\chi^2$ | P |
| Intercept | 1 | 0.17 | 0.66 | - | - | 0.65 | 0.46 | - | - |
| Race: White | 1 | 0.21 | 0.11 | 3.55 | 0.061<sup>b</sup> | 0.084 | 0.09 | 0.88 | 0.35 |
| BMI: healthy | 2 | -0.057 | 0.16 | 12.92 | 0.002<sup>a</sup> | -0.082 | 0.11 | 2.62 | 0.27 |
| BMI: overweight | 2 | -0.10 | 0.12 | - | - | -0.17 | 0.10 | - | - |
| Age | 1 | 0.015 | 0.013 | 1.27 | 0.26 | 0.0028 | 0.01 | 0.07 | 0.79 |
| Education: High school or less | 2 | 0.16 | 0.14 | 1.44 | 0.49 | 0.039 | 0.11 | 0.17 | 0.92 |
| Education: Some college | 0.11 | 0.12 | - | - | 0.034 | 0.094 | - | - |
| Perceived health | 1 | -0.089 | 0.08 | 1.18 | 0.28 | 0.011 | 0.068 | 0.02 | 0.88 |
| Took multiplex test | 1 | -0.10 | 0.17 | 0.35 | 0.56 | 0.11 | 0.12 | 0.86 | 0.35 |
| Experiences | 1 | 0.062 | 0.067 | 0.86 | 0.35 | 0.11 | 0.044 | 6.65 | 0.01<sup>a</sup> |

| **Adjusted models—preventive care** | | **Women, preventive care** |
| Variable | DF | Estimate | Std error | $\chi^2$ | P | Estimate | Std error | $\chi^2$ | P |
| Intercept | 1 | -2.8 | 1.2 | - | - | -0.33 | 0.72 | - | - |
| Race: White | 1 | -0.05 | 0.18 | 0.08 | 0.77 | -0.25 | 0.12 | 4.72 | 0.030<sup>a</sup> |
| BMI: healthy | 2 | 0.0045 | 0.25 | 1.6 | 0.45 | 0.25 | 0.14 | 7.03 | 0.029<sup>a</sup> |
| BMI: overweight | 0.21 | 0.18 | - | - | -0.12 | 0.13 | - | - |
| Age | 1 | 0.006 | 0.02 | 0.08 | 0.78 | 0.03 | 0.01 | 3.71 | 0.054<sup>a</sup> |
| Education: High school or less | 2 | -0.10 | 0.22 | 1.0 | 0.61 | -0.09 | 0.14 | 0.46 | 0.79 |
| Education: Some college | 0.11 | 0.19 | - | - | -0.016 | 0.12 | - | - |
| Perceived health | 1 | 0.09 | 0.14 | 0.45 | 0.50 | 0.048 | 0.087 | 0.30 | 0.59 |
| Took multiplex test | 1 | -0.18 | 0.47 | 0.48 | 0.49 | -0.30 | 0.16 | 3.52 | 0.061<sup>b</sup> |
| Experiences | 1 | 0.44 | 0.17 | 3.09 | 0.079<sup>a</sup> | -0.06 | 0.07 | 0.64 | 0.42 |
| Preventive care satisfaction | 1 | 0.44 | 0.22 | 6.27 | 0.012<sup>a</sup> | -0.20 | 0.11 | 3.20 | 0.073<sup>b</sup> |

<sup>a</sup>P < 0.05
<sup>b</sup>P < 0.10
may underlie reduced care among African Americans in other samples (e.g., having a regular source of care) were held constant in this study. Only a nonsignificant trend toward more primary care use among White men was found among males. The general lack of effect for men may have occurred for similar reasons as those discussed above.

The role of health care experiences

Previous reports have suggested that poor health care experiences among overweight and obese individuals are a primary cause for delay or avoidance of preventive health care (7, 15). Although we found that overweight women used less preventive care, our other analyses do not support this supposition. Overweight and obese women in the present sample reported care experiences that were just as positive as healthy weight women. Furthermore, accounting for health care experience ratings did not attenuate the association between BMI and prospective preventive care use. Although care experience ratings did predict primary care use among women, there were no differences in primary care use by BMI. It may be that stigmatizing events reported by overweight women in previous literature are not captured by the experience indicators measured here. Reduced preventive care visits by women who are overweight or obese could also be driven by other, unrelated aspects of care (e.g., body embarrassment, desire to avoid office equipment that is too small (15)).

Among men, the notion that overweight and obese individuals would report poorer experiences with their provider was supported for two domains (interpersonal treatment and trust). Our findings are similar to those reported by Hebl et al. (22) who found overweight men reported lower health care satisfaction than average whereas overweight women did not. One possible explanation is that men are more rarely exposed to negative weight-related interactions and may be more sensitive to interactions that draw negative attention to weight (32) as can occur in the health care encounter. In addition, because men use less care and have fewer interactions with providers than women, any negative weight-related interactions may stand out more and be more damaging. While health care experiences ratings were associated with men’s prospective preventive care use, these ratings did not explain the relationships between BMI, race, and use.

Race was associated with care experiences only among women. African-American women reported poorer interpersonal treatment, consistent with prior literature (33, 34). It was indeed surprising that African-American men did not also report poorer health care experiences (35). There was also a weight-race interaction among women predicting trust in the provider. The lowest levels of trust were reported among healthy weight, African-American women, and trust increased with each weight category (overweight, obese) for these women. It is possible that overweight may have mitigated the typically lower levels of trust that African-American women place in health care providers (36). This could happen if, contrary to women’s expectations, providers did not counsel or criticize these women about their weight. Providers are indeed less likely to discuss weight with African-American women than White women (37).

Limitations

Limitations included that we were not able to assess several factors that are known to impact patient experiences and utilization such as social concordance between doctors and patients. We were also unable to include patients who had not seen their personal doctor in the past 12 months due to the structure of data collection. Elements of experience were assessed by single or two-item measures as is typical of large data sets. Although we had prospective and retrospective objective care use data, care experiences were measured at

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**TABLE 4 Health care experiences means and standard deviations by gender, BMI, and race**

| Item category and paraphrased wordinga | Gender/race category | Healthy weight | Overweight | Obese |
|----------------------------------------|----------------------|----------------|------------|-------|
| Whole Person Orientation: how often did doctor know important information about your medical history | Women/White | 5.28 (1.08) | 5.36 (1.06) | 5.11 (1.27) |
| | Women/African-American | 5.11 (1.17) | 5.15 (1.19) | 5.25 (1.17) |
| | Men/White | 5.54 (0.74) | 5.01 (1.17) | 5.00 (1.18) |
| | Men/African-American | 5.36 (1.11) | 5.30 (1.08) | 5.37 (1.03) |
| Interpersonal Treatment: how often did your doctor spend enough time with you | Women/White | 5.42 (0.93) | 5.54 (0.90) | 5.27 (1.10) |
| | Women/African-American | 5.05 (1.17) | 5.10 (1.35) | 5.12 (1.30) |
| | Men/White | 5.66 (0.76) | 5.26 (1.06) | 5.00 (1.31) |
| | Men/African-American | 5.40 (0.96) | 5.10 (1.26) | 5.06 (1.32) |
| Trust: how often did you feel you could tell doctor anything, even things not to tell anyone else | Women/White | 5.14 (1.27) | 4.83 (1.41) | 4.92 (1.58) |
| | Women/African-American | 4.30 (1.77) | 4.71 (1.67) | 4.88 (1.55) |
| | Men/White | 5.41 (1.43) | 4.86 (1.44) | 4.84 (1.56) |
| | Men/African-American | 5.24 (1.21) | 4.95 (1.53) | 4.62 (1.76) |
| Communication (2 items averaged): how often did doctor listen carefully; how often did give clear instructions about what to do to take care of problems/symptoms | Women/White | 5.54 (0.75) | 5.56 (0.71) | 5.36 (0.97) |
| | Women/African-American | 5.43 (0.94) | 5.40 (1.02) | 5.37 (0.99) |
| | Men/White | 5.63 (0.70) | 5.54 (0.63) | 5.30 (1.01) |
| | Men/African-American | 5.63 (0.69) | 5.46 (0.95) | 5.45 (0.88) |

aAll experiences items were assessed on a 1–6 scale.
a single time point. We were, therefore, unable to capture the dynamic, causal interplay between these variables. Finally, rates of care use were low in this sample of relatively healthy adults, and we had fewer men than women in the sample.

**Implications and conclusions**

Our findings suggest that in order to understand the influence of body weight on health care utilization, we cannot consider overweight and obese individuals as a monolithic entity. Nor can we lump different types of health care services together, or assume that prior experiences and satisfaction explain associations of body weight with care use or avoidance. Indeed, in this study, the complexity of these interrelationships resulted in some counterintuitive results and may explain the observed inconsistencies of prior study findings. Efforts to understand how weight influences health care use are critically important both for improving health outcomes and reducing costs. Studies that get inside the interpersonal dynamics of the health care encounter to understand how providers respond to overweight patients and how these responses are influenced by patient or provider characteristics will be needed. 

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