The Influence of Physician Acknowledgment of Patients’ Weight Status on Patient Perceptions of Overweight and Obesity in the United States

Robert E. Post, MD, MS; Arch G. Mainous III, PhD; Seth H. Gregorie, BS; Michele E. Knoll, MA; Vanessa A. Diaz, MD, MS; Sonia K. Saxena, MD

Background: Physician counseling is effective in promoting healthy behavior. We evaluated whether patient reports of physician acknowledgment of overweight patients’ weight status are associated with the patients’ perceptions of their own weight and desire to lose weight.

Methods: We analyzed the 2005-2008 National Health and Nutrition Examination Survey data on adults aged 20 to 64 years with a body mass index (BMI) of at least 25.0 (calculated as weight in kilograms divided by height in meters squared). Logistic regressions were computed to evaluate the impact of reports of physician acknowledgment of patients’ weight status on patients’ perceptions of their weight, desire to weigh less, and attempts to lose weight.

Results: In logistic regressions controlling for relevant confounding variables, participants with a BMI of 25 or greater (odds ratio [OR], 6.11; 95% confidence interval [CI], 4.38-8.53) and those with a BMI of 30 or greater (OR, 7.58; 95% CI, 5.83-9.84) both had an increased likelihood to perceive themselves as overweight if they were told by their physician that they were overweight. Similarly, participants with a BMI of 25 or greater (OR, 2.51; 95% CI, 2.15-2.94) and those with a BMI of 30 or greater (OR, 2.24; 95% CI, 1.74-2.88) had an increased likelihood to have attempted to lose weight in the previous 12 months if they had reported being told they were overweight. However, only 45.2% of individuals with a BMI of 25 or greater and 66.4% of those with a BMI of 30 or greater reported being told by a physician that they were overweight.

Conclusion: Among patients who were overweight or obese, patient reports of being told by a physician that they were overweight were associated with more realistic perceptions of the patients’ own weight, desire to lose weight, and recent attempts to lose weight.

Arch Intern Med. 2011;171(4):316-321

Obesity and overweight are an increasing epidemic in the United States, with steady increases in incidence over the last decade. Recent estimates suggest that approximately two-thirds of Americans are overweight and one-third are obese. Overweight and obesity have been shown to increase health care costs, increase mortality, and significantly shorten life expectancy. Being obese or overweight raises an individual’s risk of developing chronic diseases such as hypertension, cardiovascular disease, and type 2 diabetes mellitus.

Overweight and obese individuals are now more likely to consider themselves to be of normal weight than overweight and obese patients did 20 years ago. Americans have had a shift upward, not only in their body weight but in their desired body weight as well. Risk perception by the patient is a key factor in determining the potential for change. According to the Health Belief Model, the primary motivation to change behavior is the level of perceived risk of a condition. Therefore, if patients do not perceive themselves at risk, then they are unlikely to change. The recent normalizing of overweight and obesity suggests that patients do not perceive the health risks of their own weight status and therefore would be unlikely to want to reduce their weight to reduce health risk.

Previous studies show that physician advice encourages patients to change behaviors. These studies show that this is an important strategy in promoting healthy lifestyles among their patients. Multiple
studies that have evaluated physician advice regarding smoking cessation, diet and exercise, and immunizations have shown an increased likelihood that the patient would participate in these behaviors if the physician provided this guidance.14-16 Physician recommendations in each of these studies helped motivate the patients to change behaviors, especially those who are at high risk.16 Specifically in terms of obesity and weight management, physician counseling has been shown to be an effective driver of patient weight loss intentions.17-19

However, we do not know if overweight and obese patients will have more realistic perceptions of their own weight status or a greater desire to lose weight and attempt to lose weight simply by reporting if their physician tells them that they are overweight. Therefore, the purpose of this study was to evaluate patient perceptions of overweight and obesity in a nationally representative sample of adults in the United States and if reports of physician acknowledgment of patients’ weight status are associated with a difference in these perceptions and behaviors.

METHODS

DESIGN

A cross-sectional analysis of the 2005-2008 National Health and Nutrition Examination Survey (NHANES) data was conducted. The NHANES is a continuous national survey that represents a stratified multistage probability sample of the noninstitutionalized US population. The NHANES combines questionnaires with physical examination findings and laboratory samples obtained from participants. The data are weighted to allow for computation of appropriate population estimates.

SAMPLE

The subjects included in this study are nongeriatric adult participants in the 2005-2008 NHANES aged between 20 and 64 years with measured body mass index (BMI) values (calculated as weight in kilograms divided by height in meters squared), who were asked if they had been told by their physician or another health professional that they were overweight. There were 7790 participants, which represents 174 246 403 in the US population. Of this sample population, 5474 (weighted n=116 914 006) had a BMI of 25.0 or greater, of which 2874 (weighted n=59 970 136) had a BMI of 30.0 or greater.

MEASURES

Correlation Between Self-reported and Measured BMI

Participants were asked to report their height and weight, and a self-reported BMI was calculated. Participants also had height and weight measured in the NHANES, and an actual BMI was calculated. The self-reported and actual BMIs were compared via Pearson correlation to determine the accuracy of self-reported BMIs.

Participant Perceptions and Behavior

The main outcome measure was the proportion of participants who considered themselves as “not overweight” vs “overweight” in 2 different BMI classifications: overweight (BMI ≥25.0) and obese (BMI ≥30.0). Participants with obesity, defined as a BMI of 30.0 or greater, were also included in the overweight classification because obese participants are also overweight, and thus the categories are not mutually exclusive.

Secondary measures include participant perceptions of desire to lose weight and weight loss attempts. The former was determined by participants finishing the following statement “Would you like to weigh . . . ” with the options “more,” “less,” or “stay about the same.” The latter was determined by participants answering the question “During the past 12 months, have you tried to lose weight?” with potential responses including “yes” and “no.”

Patient Report of Physician Acknowledgment of Overweight Status

Physician acknowledgment of overweight status was determined by the participants’ answers to the question “Has a physician or other health professional ever told you that you were overweight?” Answer choices to this question were either “yes” or “no.”

Demographic Characteristics

The following demographic characteristics of respondents were included: sex, age, race (non-Hispanic white, non-Hispanic black, Mexican American, and other), family income as indicated by poverty to income ratio (<1.0 indicates poverty), marital status (married/living with partner or not married), and education (<high school graduate or ≥high school graduate).

STATISTICAL ANALYSIS

Because the NHANES has a complex sampling design that makes the resulting sample representative of the noninstitutionalized US population, nationally representative estimates were made. Analyses were performed using SUDAAN (version 10.0 [2008]; RTI International, Research Triangle Park, North Carolina) to account for the weighting and complex sampling design.

χ² Tests were performed to evaluate bivariate relationships in each BMI category between participants who were told by a physician that they were overweight and perceived weight, desire to lose weight, and whether the participants attempted to lose weight in the last 12 months. These results are presented as proportions.

Forced-inclusion model logistic regressions were performed for individuals in each BMI category on their perception of themselves as being overweight, their desire to lose weight, and whether they attempted to lose weight in the last 12 months when controlling for the following variables: whether they were ever told by a physician that they were overweight, age, sex, race, poverty to income ratio, marital status, education, whether the patient has a routine source of health care, and the number of physician visits in the last 12 months.

Forced-inclusion model logistic regressions were also performed on the likelihood for physicians having told patients in each BMI category that they were overweight, when controlling for the following patient variables: age, sex, race, poverty to income ratio, marital status, education, whether the patient has a routine source of health care, and the number of physician visits in the last 12 months.

Age was treated as a continuous variable. Sex, race, poverty to income ratio, marital status, whether the patient has a routine source of health care, education level, and number of physician visits in the last 12 months were treated as categorical variables.
Table 1. Demographic Characteristics of Those Who Were Overweight or Obese

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unweighted (n=5474)</th>
<th>Weighted (n=116 914 006)</th>
<th>Unweighted (n=2874)</th>
<th>Weighted (n=59 970 136)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-34</td>
<td>29.1 (27.6-30.7)</td>
<td>27.8 (25.2-30.5)</td>
<td>38.8 (36.3-41.4)</td>
<td>37.4 (35.1-40.7)</td>
</tr>
<tr>
<td>35-49</td>
<td>38.8 (36.3-41.4)</td>
<td>37.4 (35.1-40.7)</td>
<td>32.1 (29.7-34.5)</td>
<td>34.4 (31.7-37.1)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>52.8 (51.3-54.4)</td>
<td>46.5 (44.2-48.8)</td>
<td>47.2 (45.6-48.7)</td>
<td>53.5 (51.2-55.8)</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; High school graduate</td>
<td>17.8 (15.6-20.2)</td>
<td>18.6 (16.1-21.3)</td>
<td>82.2 (79.8-84.4)</td>
<td>81.4 (78.7-83.9)</td>
</tr>
<tr>
<td>≥ High school graduate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty to income ratio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1.0</td>
<td>16.7 (15.0-18.5)</td>
<td>17.3 (15.4-19.3)</td>
<td>83.3 (81.5-85.0)</td>
<td>82.7 (80.7-84.6)</td>
</tr>
<tr>
<td>≥ 1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic white</td>
<td>66.7 (61.0-72.0)</td>
<td>66.1 (59.5-72.2)</td>
<td>13.3 (10.4-16.9)</td>
<td>15.4 (11.6-20.2)</td>
</tr>
<tr>
<td>Non-Hispanic black</td>
<td>10.3 (8.1-13.0)</td>
<td>9.7 (7.0-13.1)</td>
<td>9.7 (7.6-12.4)</td>
<td>8.9 (6.9-11.4)</td>
</tr>
<tr>
<td>Mexican American</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>9.7 (7.6-12.4)</td>
<td>8.9 (6.9-11.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not married</td>
<td>31.6 (29.3-34.1)</td>
<td>31.6 (29.0-34.3)</td>
<td>68.4 (65.9-70.8)</td>
<td>68.4 (65.7-71.0)</td>
</tr>
<tr>
<td>Married/living with partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place of routine care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No place</td>
<td>15.6 (14.0-17.3)</td>
<td>13.9 (12.1-15.9)</td>
<td>84.4 (82.7-86.0)</td>
<td>86.2 (84.1-88.0)</td>
</tr>
<tr>
<td>One or more places</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician visits in last year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>18.7 (17.1-20.3)</td>
<td>15.7 (13.4-18.3)</td>
<td>45.9 (44.0-47.9)</td>
<td>43.6 (41.3-45.9)</td>
</tr>
<tr>
<td>Never</td>
<td>35.4 (33.6-37.3)</td>
<td>40.8 (38.0-43.6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviation: BMI, body mass index (calculated as weight in kilograms divided by height in meters squared).

RESULTS

CORRELATION BETWEEN SELF-REPORTED AND MEASURED BMI

The demographic characteristics of those who were overweight or obese are featured in Table 1. The Pearson correlation coefficient between measured BMI and self-reported BMI for all overweight participants was 0.947. For only obese participants, this was 0.922. This represents that participants in the 2005-2008 NHANES were aware of their own weight at the time of the survey and had fairly accurate reporting of their own height and weight.

PHYSICIAN ACKNOWLEDGMENT

In participants with BMIs of 25 or greater, 45.2% (95% CI, 42.9%-47.4%) reported that they had been told by their physician that they were overweight. In participants with BMIs of 30 or greater, 66.4% (95% CI, 63.7%-69.0%) reported that they had been told by their physician that they were overweight.

PATIENT WEIGHT PERCEPTIONS

Participants who reported that they had been told by a physician they were overweight, compared with those who were not told, were more likely to accurately identify themselves as overweight, whether they were overweight (94.0% vs 63.1%; P < .001) or obese (96.7% vs 81.4%; P < .001) (Table 2). Similarly, participants who reported that they had been told by a physician they were overweight were more likely to desire to lose weight and attempt to lose weight.

REGRESSION ANALYSIS OF PATIENT PERCEPTIONS AND BEHAVIOR

Overweight participants who reported having been told by their physician that they were overweight had an increased likelihood to perceive themselves as overweight, when controlling for age, sex, race, education, income, marital status, whether a patient has a routine source of health care, and number of physician visits in the last 12 months (Table 3). When controlling for these same factors, obese participants were also at an increase in likelihood to believe they were overweight.
increased likelihood to perceive themselves as overweight if they reported having been told by their physician that they are overweight.

As with perceptions of being overweight, both overweight and obese participants were at an increased likelihood to desire to lose weight if they were told by their physician that they are overweight. In terms of attempts to lose weight in the previous 12 months, both overweight and obese participants had an increased likelihood of having attempted to lose weight if they were told by their physician that they are overweight.

REGRESSION ANALYSIS OF REPORT OF PHYSICIAN ACKNOWLEDGMENT OF WEIGHT STATUS

Among individuals with BMI of 25 or greater, within a model with age, sex, education, poverty to income ratio, race/ethnicity, marital status, having a place for routine care, and number of physician visits in the last year, several variables were significantly associated with patient reports of being told that they were overweight. Specifically, participants who were older, female, had at least 1 routine place of health care, and had at least 1 physician visit in the previous 12 months had an increased likelihood of reporting that they were told by a physician that they were overweight (Table 4). Respondents who were married or living with a partner were less likely to report being told that they were overweight. Among individuals with a BMI of 30 or greater (obese participants), the same factors were associated with an increased or decreased likelihood of reporting having been told they were overweight. In addition, non-Hispanic blacks had a lower likelihood of reporting being told that they were overweight compared with the reference category of non-Hispanic whites.

Since the participants’ self-reported BMIs correlated very highly with their measured BMIs, the participants showed that they were aware of how much they weighed, which is similar to other reports of population-based studies in the past.23 However, almost 37% of overweight participants and almost 19% of obese participants still did not consider themselves to be overweight if a physician had never told them that they were overweight. Fortunately, in participants who had been told by their physicians at some point that they were overweight, these proportions were much lower: only 6% of overweight participants, with just over 3% of obese participants, still did not consider themselves to be overweight. This speaks strongly to the influence that physicians’ words have on their patients.

Telling an overweight patient that they are overweight was associated with a greater than 8-fold increase in the odds that the patient will classify themselves as overweight compared with a patient who has not been told that they are overweight. For those who are obese, there was more than a 6-fold increase. This is an important point in the aspect of risk perception. Since being aware of a problem is the first step to changing be-
behavior, this relates to our study in that telling a patient that he or she is overweight is associated with the patient’s awareness of being overweight.

Furthermore, having been told of being overweight was associated with an almost 8- and 5-fold increase in the odds that overweight and obese participants, respectively, will desire a lower weight. Both overweight and obese respondents also had more than double the odds that they had attempted to decrease weight in the previous 12 months if they had been told by a physician that they were overweight. This is another important area where physicians can help intervene with their patients in taking the opportunity to help drive those who desire to lose weight to attempt to lose weight, as well as to help those who are attempting to lose weight be successful in their attempts. However, more than half of overweight participants and more than one-third of obese participants reported never having been told by a physician that they were overweight. With the weighted estimates that NHANES allows for, this equates to more than 74 million overweight individuals, including nearly 23 million obese individuals, who have never been told that they are overweight. Previous studies have shown that physicians generally perform well at recognizing patients who are overweight.21,22 However, as shown by the results of our study, this is a point of action for intervention that is being missed by many physicians. Furthermore, because being overweight is a risk factor for a number of conditions, such as diabetes and hypercholesterolemia, physicians not identifying obesity could also lead to missed opportunities for screening for these conditions. Past studies have found that more than a third of obese individuals not identified by physicians as overweight have undiagnosed chronic conditions, such as diabetes, hypertension, and hypercholesterolemia.23

What barriers may cause physicians to fail to address weight with their overweight patients? Previous studies have shown that physicians tend to have a more negative outlook on patient weight and behaviors than patients do. For example, physicians were more likely than patients to think that patients lack self-control to stay on a diet.24 Physicians also tend to believe that patients have less motivation and think that patients will lose less weight than patients themselves believe.25 Perhaps time constraints could also contribute as a factor preventing discussion of a patient’s weight status. Many physicians, regardless of how much time they generally have allocated for a visit, feel as if they need more time during visits.26 Patient counseling requires additional time during a visit, and if physicians feel that they do not have the time, they might avoid starting a potentially long conversation regarding a patient’s weight. However, the strong associations shown in our study should help to change these negative perceptions among physicians and encourage incorporating extra time into visits to discuss weight management with their patients.

There are several limitations in this study. First, because this is a cross-sectional study, no cause and effect association can be made. However, the odds ratios for the associations found in this study are strong and are found in a large sample size that is representative of the entire United States. Therefore, these results are easily generalizable because they represent the general population. Future intervention studies could explicate the power of physician discussions of patient weight status. Second, the extent of the physician intervention cannot be determined from this study. The question asked of participants regarding whether they had been told if they were overweight did not ask about specific details of the conversation or if follow-up counseling was performed. Because the NHANES relies on self-report, we do not really know what physicians told their patients. Therefore, assumptions about the quality of the interaction cannot be made. It is possible that the patients who do not know that they are overweight did not “hear” that they were overweight when told. Third, the labeling of overweight based on BMI can be wrong in very muscular people. Although this phenomenon is unlikely to account for the low percentage of persons reporting that they were told that they were overweight, it is important to consider. Fourth, we could not assess the type of visit in which the patients were encountering the physician. It is possible that visits for chronic conditions are more likely to yield this type of healthy lifestyle advice. Past research shows that “opportunistic prevention” is desirable but may not occur at the rate we would like.28

In conclusion, patient reports of being told by a physician that one is overweight were associated with major increases in the odds that overweight and obese participants had realistic perceptions of their own weight, had a desire to lose weight, and had made recent attempts to lose weight. However, fewer than one-half of overweight and fewer than two-thirds of obese participants had been told by their physicians that they were overweight. This is an important intervention point that is being missed by many physicians. Physicians need to tell more overweight and obese patients that they are overweight because this may help encourage them to change their behavior to lose weight and lower their risk for many diseases.

Accepted for Publication: July 16, 2010.
Correspondence: Robert E. Post, MD, MS, Department of Family Medicine, Medical University of South Carolina, 295 Calhoun St, Charleston, SC 29425 (rpostmd@gmail.com).

Author Contributions: Study concept and design: Post, Mainous, Gregorie, Knoll, Diaz, and Saxena. Acquisition of data: Post and Gregorie. Analysis and interpretation of data: Post, Gregorie, Knoll, and Diaz. Drafting of the manuscript: Post, Gregorie, and Knoll. Critical revision of the manuscript for important intellectual content: Post, Mainous, Knoll, Diaz, and Saxena. Statistical analysis: Post and Gregorie. Study supervision: Mainous and Saxena.

Financial Disclosure: None reported.

REFERENCES


Telling Patients They Are Overweight or Obese

An Insult or an Effective Intervention?

One of the more remarkable observations from the literature on office-based smoking cessation is that patients who are identified as smokers and urged by their physician to quit smoking actually quit at a significantly higher rate than those who are not urged to do so.1 With these data, very brief office interventions of less than 3 minutes have been implemented that result in 5% to 10% quit rates. Office staff can help clinicians identify those patients who smoke, and the clinician can make an extremely time-efficient intervention. This approach can be complemented by more intensive, more effective interventions and by powerful population-based strategies, such as workplace restrictions on smoking, tobacco taxes, and social marketing campaigns. Could the same be true for overweight and obesity? If physicians merely told their patients that they were overweight or obese, would that lead to greater weight loss?

The article in this issue by Post and colleagues addresses several key elements of this hypothesis. In a rigorous cross-sectional analysis of 2005-2008 NHANES data, the authors demonstrate several important findings. Patients who report that they were told by a physician or other health professional that they were overweight or obese were 6- to 8-fold more likely to correctly classify their weight as a potential health concern, had a 5- to 8-fold greater desire to lose weight, and described more than twice as many recent attempts to lose weight. However, between one-third and one-half of overweight and obese patients were never told that they were overweight or obese.

This evidence suggests implementing a simple office-based strategy for initiating weight management. First, all patients should have weight and height measured and abnormal BMIs should be highlighted on the medical chart with reminder stickers. In a rig-