BRIEF REPORT

Primary Prevention of Overweight and Obesity: An Analysis of National Survey Data

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BACKGROUND: Obesity is rapidly approaching tobacco as the leading cause of preventable morbidity and mortality. Health care providers have the opportunity to address this through primary prevention strategies.

OBJECTIVE: To assess whether health care professionals provide primary prevention for overweight and obesity by examining the percentage of healthy-weight (body mass index [BMI] = 18.5–24.9 kg/m^2) individuals who report being advised to maintain a healthy weight.

DESIGN: Cross-sectional analysis of the 2003 Behavioral Risk Factor Surveillance Survey data.

PARTICIPANTS: Noninstitutionalized U.S. adults >18 years of age.

RESULTS: Among healthy BMI respondents, only 2.6% reported receiving primary prevention. Logistic regression analyses yielded that healthy-weight adults receiving primary prevention were more likely to report: being 18–49 years of age, annual household incomes < $35,000, having at least 1 comorbidity, having a health care provider, changed eating habits to include less fat or fewer calories, and using physical activity to maintain or lose weight. Men were also more likely to receive primary prevention.

CONCLUSIONS: Only a very small proportion of healthy-weight adults received primary prevention, which suggests that physicians are missing opportunities to help address the epidemic of adult obesity in the US.

KEY WORDS: BRFSS; primary prevention; primary care; overweight and obesity; chronic disease.
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INTRODUCTION

Obesity is rapidly approaching tobacco as the leading cause of preventable morbidity and mortality.[1–2] Not surprisingly, Healthy People 2010 considers the health-related consequences associated with obesity as a national priority and several organizations recommend physicians to advise obese and overweight patients about diet and physical activity.[3–5] Nevertheless, previous studies indicate that fewer than 50% of overweight and obese patients report receiving secondary prevention (counseling about weight loss).[6]

Kassirer and Angell suggest that primary prevention (advising normal-weight patients about how to prevent obesity) may be even more important,[7] as normal-weight adults experience an overall risk exceeding more than 1 in 2 for becoming overweight and 1 in 4 for becoming obese.[8] This risk and the lack of effective weight loss strategies highlight the importance of primary prevention. However, most studies regarding weight management focus solely on secondary prevention.[6,9–10] Those few studies examining primary prevention center primarily on pediatric providers and patients rather than on adults.[11]

This study used the 2003 Behavioral Risk Factor Surveillance Survey (BRFSS) data to assess how often health care professionals advised healthy-weight adults about maintaining their weight. This is the first study using national data weighted to represent the U.S. adult population to examine this question of primary prevention.

METHODOLOGY

BRFSS is a cross-sectional, random digit telephone survey that is a collaborative project of the Centers for Disease Control and Prevention (CDC) and all U.S. states and territories. The survey's objective is to collect uniform, state-specific data on noninstitutionalized adult's preventive health practices and risk behaviors. Data are self-reported responses to mostly forced-choice questions. The 2003 data were used because they were the most recent data collected where the weight management module questions were asked of *all* respondents from *all* states. Reported analyses used weighted data to provide a stratified representation of the U.S. adult population.

Body mass index (BMI) based on self-reported height and weight was used to define normal or healthy weight, as BMI 18.5 to 25.0 kg/m^2. For analysis, the following independent variables were dichotomized: age, race, education, marital status, annual household income, have health care provider, have health insurance, changed eating habits, and using physical activity to maintain weight. In addition, a variable called *comorbidities* (none/at least 1 comorbidity) was constructed from the Yes/No responses to the questions of whether a respondent had been told by a physician or nurse (practitioner) or other health care provider that they had

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Table 1. Relationship of Patient Characteristics to Receipt of a Health Professional's Advice to Maintain Weight, Among Persons with a BMI of 18.5–24.9 kg/m^2 2003 BRFSS (Weighted *n*=27,829)

Variables	Percentage advised to maintain weight	Adjusted odds of receiving advice to maintain weight, odds ratio (95% confidence interval)
Age		
18–49 yrs	2.3	1.092 (1.087–1.097)*
≥50 yrs	3.0	–†
Gender		
Men	2.2	1.171 (1.166–1.176)*
Women	2.8	–†
Bifurcated race		
White	2.2	0.610 (0.607–0.613)*
Non-White	3.4	–†
Educational attainment		
<High school education	3.4	1.769 (1.757–1.782)*
≥High school education	2.4	–†
Marital status		
Married or unmarried couple	2.6	0.975 (0.971–0.979)*
Single	2.5	–†
Annual household income		
<$35,000	2.9	1.378 (1.371–1.384)*
≥$35,000	2.3	–†
Comorbidities		
At least 1 comorbidity	3.7	1.376 (1.370–1.382)*
No comorbidities	2.4	–†
Have health care provider		
Yes	2.8	1.727 (1.715–1.740)*
No	1.5	–†
Have health insurance		
Yes	2.6	0.936 (0.929–0.943)*
No	2.0	–†
Changed eating habits		
Yes	3.4	1.317 (1.311–1.323)*
No	2.3	–†
Using physical activity for weight control		
Yes	3.2	1.359 (1.353–1.366)*
No	2.7	–†

*p<.001
†Reference group

arthritis, diabetes, high blood pressure, or high cholesterol. If a research participant reported having one or more of the conditions, they were coded as having at least 1 comorbidity; those reporting no to each of these questions were coded as having no comorbidities.

Respondents with healthy BMIs (18.5–24.9 kg/m^2) who reported receiving advice to maintain their current weight were coded as having received primary prevention. Primary prevention constituted the dependent variable for this study. This variable was derived from the question "In the past 12 months, has a doctor, nurse (practitioner), or other health professional given you advice about your weight?," which generated the response choices of: Yes, lose weight; Yes, gain weight, Yes, maintain current weight; and No advice. Those healthy-weight respondents indicating that they had been advised to either lose or gain weight or who received no advice regarding weight control were coded as not having received primary prevention.

A multivariate logistic regression model was tested to characterize U.S. adults receiving primary prevention. Alpha was set at .05 for all tests of statistical significance. All analyses were conducted using SPSS 15.0 (Chicago, IL, USA). This study was approved by the University of Illinois at Chicago College of Medicine at Rockford's Institutional Review Board.

RESULTS

In 2003, 244,496 (unweighted) BRFSS respondents reported height and weight data used to calculate BMI. Almost 40% (38.8%) (unweighted n = 97,001) of the respondents were normal weight. Among healthy- or normal-weighted adults, 2.6% (unweighted n = 2,522) reported receiving primary prevention. An additional 1.8% was advised to lose weight and 2.5% was advised to gain weight. A description of the selected characteristics of healthy-weight U.S. adults and the percentage receiving primary prevention is presented in Table 1, As all analyses were conducted on weighted data, only weighted sample numbers are reported in Table 1.

Logistic regression analysis (Table 1) revealed that adults with healthy BMIs (18.5–24.9 kg/m^2) who received primary prevention for overweight and obesity were more likely to have reported: being 18–49, male, having less than a high school education, living in households with an annual income <$35,000, having at least 1 comorbidity, having a health care provider, having changed their eating habits to include less fat or fewer calories, and using physical activity to maintain their weight. Healthy-weight adults receiving primary prevention were less likely to report: being White than non-White, living as a married or unmarried couple rather than single, and having health insurance.

We further examined the relationship between receiving primary prevention and physical activity using stratified contingency table analysis. Among healthy-weight adults, those who received primary prevention were more likely to report they used physical activity for weight control than those who did not (75% vs 25%). Moreover, among respondents who reported using physical activity for weight control, those receiving primary prevention were more than twice as likely (57.8% vs 28.2%) to achieve recommended levels of moderate physical activity (at least 30 minutes of moderate intensity activity 5 days of the week).

DISCUSSION

Not all physicians have heeded the "call to action" to combat the pandemic of obesity.[12] We found that only 2.6% of healthy-weight adults reported being advised to maintain their current weight, suggesting that health care providers may be missing important opportunities to address the increasing prevalence of obesity. Even if only a small percentage of patients responded favorably to dietary and weight counseling, the prevalence of obesity and burden of disease are so great that strategies to increase counseling as a method of primary prevention of obesity could have significant impact.[13–14]

In comparison to normal-weighted adults, previous studies indicate that a significantly higher proportion of overweight or obese adults received advice to lose weight. However, these studies found that considerably fewer than half of obese or overweight patients received counseling. Thus, it is not unexpected that only a minority of normal-weight patients

received primary prevention. Nonetheless, it is surprising that the actual number is <3%. The reasons why so few patients received some type of weight management advice or counseling are not fully understood. One study identified physician pessimism about their ability to motivate patients to healthier behaviors as a barrier,[15] despite evidence that counseled patients were more likely to undergo weight management. Although effective counseling may take as little as 3 to 5 minutes and can be incorporated into a 15-minute office visit,[16–17] financial pressures and time constraints may make even this commitment problematic. Physicians' perceptions that obesity counseling is ineffective could make weight management a lower priority than competing preventive health care services.[18–20] Other identified barriers to physician counseling such as lack of confidence, knowledge, and counseling skills may also contribute.[20] An even more alarming possibility is that the obesity epidemic has made physicians complacent about obesity.

Our findings that individuals receiving primary prevention were more likely to improve their eating habits and to increase physical activity are consistent with earlier studies looking at secondary prevention. This provides further evidence linking counseling with lifestyle changes.[14] Our finding that lower counseling rates were associated with lower income and less education is consistent with studies examining obese and overweight individuals.[14] Our finding that younger patients were more likely to receive primary prevention makes intuitive sense as a physician may view an older normal-weight patient as more likely to maintain their weight over their remaining lifespan than younger individuals.

This study has several limitations. First, the data are self-reported and potentially subject to bias. For example, social desirability may have prompted those with higher BMIs to report trying to lose weight. Second, counseling is often brief and may be difficult to recall, resulting in an underestimation of the number of people receiving counseling. Third, although BRFSS has a high response rate, there is always bias introduced by those choosing to not respond to the survey. Finally, BRFSS is a phone survey and while most U.S. households have telephones (cell or land lines), not all do and this could introduce some measure of bias to the data.

In conclusion, this study revealed that only a small proportion of U.S. adults with healthy weights receive primary prevention. Given the prevalence and health-related consequences of obesity, it appears that health care providers are missing opportunities for combating the epidemic of obesity.

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Conflict of Interest: *None disclosed.*

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