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The Epidemiology of Weight Counseling for Adults in the United States: A Case of Positive Deviance

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Abstract

Weight counseling for adults is uncommonly performed by primary care providers (PCPs), despite recommendations. In order to design effective primary-care interventions, a full understanding of the epidemiology of weight counseling in primary care is needed. Our objective was to measure the frequency of weight counseling, at the level of the PCP. We performed a cross-sectional study of 21, 220 U.S. adult outpatient primary care visits with 954 PCPs in 2007–2008, using data from the National Ambulatory Medical Care Survey (NAMCS). Most (58%) PCPs performed no weight counseling during any patient visits. Eighty-five (8.9%) PCPs provided 52% of all weight counseling and were categorized as “positive deviant” (PD) physicians. Patients seeing PD physicians were older, less likely to be female and more likely to have hypertension, diabetes and obesity. Adjusting for patient characteristics strengthened the association between PD status and receipt of weight counseling during visits [adjusted OR = 13.2 (95% CI; 11.5–15.7)]. In conclusion, a minority of PCPs provide the majority of primary care weight counseling in the US. Studies of these PCPs may help to identify practical methods to increase weight counseling in primary care settings.

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Conflict of interest.
The authors declare no conflict of interest.

Keywords

Weight Counseling; Obesity; Primary Care; Preventive Medicine; Positive Deviance

Introduction

The NIH guidelines recommend that providers advise obese or overweight adult patients to lose weight and agree on a weight loss goal (1). Although two-thirds of US adults are overweight or obese, far fewer patients are counseled about their weight (2,3). McAlpine and colleagues, for example, observed that weight counseling occurred in just 5.8% of primary care visits in 2003–2004 (3).

Several studies have examined the rate of weight counseling using visit-based data from the National Ambulatory Medical Care Survey (NAMCS) (3–5). What has not previously been described, however, is the frequency of weight counseling at the provider level. The null hypothesis, from these previous studies, is that weight counseling is equally distributed among primary care providers (PCPs) and is determined mainly by patient risk factors (e.g., diabetes). An alternative hypothesis, however, is that the distribution is consistent with principles of Positive Deviance (PD), in which the great majority rarely counsel and a small minority (called “positive deviants”) counsel routinely (6). In this study, we sought to understand the distribution of weight counseling by providers to better understand how to target physician practices for interventions.

Methods and Procedures

Data were examined from the 2007–2008 NAMCS, a national survey designed to provide reliable data about the provision of ambulatory medical care services in the US (7,8). Each survey year, a multistage probability design initially selects an independent sample of non-federally funded, community and office-based physician practices throughout the United States (8). The NAMCS then oversees the collection of data from a random sample of outpatient visits to those physicians. PCPs provide data to NAMCS regarding those selected visits at the time of the visit, including whether weight counseling was provided. The current analysis was limited to adult (age > 17) visits to PCPs (general/family practitioner and general internal medicine).

Rate of counseling was determined per PCP by dividing the number of visits with weight counseling by the total number of visits per PCP. Positive Deviant (PD) physicians were those who: 1) performed higher levels of weight counseling and 2) as a group, provided half of all weight counseling by PCPs in NAMCS. Based on the distribution, PD physicians counseled at least 20% of their patients, whereas non-PD physicians counseled fewer than 20%.

Visit and patient characteristics seen by PD and non-PD physicians were then compared to understand whether the higher rates of weight counseling among PD physicians were due primarily to patient characteristics (e.g., age, ethnicity, insurance) observed to be associated with weight counseling in other studies (3,4). Body weight and height were recorded for

fewer than 50% of patients, so this variable was not included in the analysis (5). Sample weights were applied to account for the complex sampling design and to allow extrapolation of national estimates. Chi-squared and analysis of variance were used to compare visits to PD and non-PD physicians. Logistic regression was used to describe the association between visits to PD and non-PD physicians and receipt of weight counseling, adjusting for covariates. Statistical analyses were conducted using SPSS Version 17.0. This study was determined to be exempt from review by the Penn State College of Medicine Institutional Review Board.

Results

Data from 21,220 visits of adults to 954 PCPs were analyzed. The distribution of weight counseling by PCP was highly skewed (skewness = 4.1; standard error = 0.079). Fifty-eight percent of physicians reported performing no weight counseling during any patient visits (see Figure 1). Eighty-five (8.9%) PD PCPs, who provided weight counseling during at least 20% of visits, provided approximately half (52%) of all weight counseling by PCPs in NAMCS.

Visits to PD (n = 1,580) and non-PD physicians (n = 19,642) were compared (see Table 1). Patients seeing PD physicians were older, more likely to be male, Hispanic, live in a metropolitan area, and significantly more likely to have hypertension (40.5% v. 32.3%), diabetes (16.7% v. 14.1%) and obesity (21.1% v. 8.7%). They were significantly more likely to counsel on weight (30.6% v. 3.6%), diet/nutrition (42.6% v. 12.7%), exercise (34.2% v. 8.2%) and tobacco (7.7% v. 2.9%).

In unadjusted analysis, visits to PD physicians had 11.9 (95% CI; 11.6–15.1) times the odds of including weight counseling than visits to non-PD physicians. After adjusting for patient age, metropolitan area status, gender, race, ethnicity, insurance status, as well as hypertension, diabetes and obesity, visits to PD physicians had 13.2 (95% CI; 11.5–15.7) times the odds of including weight counseling.

Discussion

In this study, rates of weight counseling during PCP visits were observed to have a highly skewed distribution. This is characteristic of a positive deviance model, in which the majority of weight counseling was performed by a minority of PCPs, and most performed no weight counseling. We observed that 52% of all weight counseling was done by approximately 8.9% of PCPs, who performed weight counseling during at least 20% of visits. Though patients seen by these PD physicians were different than patients seen by non-PD physicians, adjusting for covariates strengthened, rather than weakened, the relationship between a PD physician visit and provision of weight counseling. PD physicians also provided advice for weight, diet, activity and smoking at significantly higher rates than other PCPs. The main conclusions from this analysis are that a small percentage of PCPs perform most all weight counseling and that patient and visit characteristics are unlikely to explain these differences in weight counseling rates.

A large number of studies have observed that most overweight and obese patients do not receive weight counseling. Studies from NAMCS observe that fewer than 10% of visits to PCPs include weight counseling (3,5), despite guidelines recommendations (1). Studies that survey patients also show that fewer than half of overweight or obese patients are advised to lose weight (9,10). Multiple barriers exist to providing weight counseling: PCPs are pessimistic that patients can change (11), PCPs have time limitations (12), and PCPs' are poorly trained to help their patients lose weight (13,14). An additional reason for low rates of counseling is that few effective and feasible interventions exist for use in primary care (15,16). Such barriers are not limited to the US; a recent survey of Canadian physicians revealed similar low rates of weight counseling (17).

The present findings, however, suggest that a small number of physicians are able to provide weight counseling at far higher rates than most PCPs. This distribution is consistent with the concept of PD, in which a relatively small number of individuals achieve success in an area in which the majority are unsuccessful. PD has emerged over the past 20 years as a method to identify successful individuals ("positive deviants"), who can then be studied to identify and disseminate the practices which allow them to be successful. PD has been used to improve a range of complicated problems, such as improving the care of patients with myocardial infarction (18). Bradley and colleagues, for example, used PD to study the practices of hospitals with the lowest door-to-balloon times, in order to design an intervention to encourage the use of the most effective practices in other hospitals (18). A similar approach may be helpful in identifying practices for making weight counseling routine in primary care settings.

The strengths of the study include the national representativeness of the NAMCS, the large number of visits observed per physician (mean = 22.1), and the availability of visit and patient characteristics to adjust for covariates. The main limitation is that it is not clear which patients were overweight or obese. NAMCS includes a field for providers to enter a patient's weight and height, yet these variables are included in fewer than 50% of visits (5). To attempt to address this issue, major weight-related comorbidities (e.g., hypertension) as well as physician-documented obesity were controlled for, though residual confounding remains a possibility. Other limitations include that not all counseling may be captured in NAMCS and physician characteristics were not included in the analysis. NAMCS includes a large number of physician and practice characteristics (5), which were beyond the scope of the present analysis, the goal of which was to describe the distribution of weight counseling rather than to identify all potential correlates.

These findings suggest that future studies should be considered to better understand the differences in the personal characteristics, practice settings and style of PD and non-PD physicians, as well as to understand whether higher rates of counseling lead to improved patient outcomes (e.g., weight loss). Previous studies have observed, for example, that physicians who practice better health habits tend to counsel their patients more about the same habits (19,20). Ma and colleagues observed that several practice characteristics (e.g., percentage of revenue from managed care) were associated with the rate of weight counseling (5). These findings, plus the present analysis, suggest that while the patients of PD physicians are different, these differences are not enough to explain the large differences

in the rates of weight counseling. PD physicians appear to practice in a way that allows them to provide rates of weight counseling more consistent with NIH guidelines and Healthy People 2020 recommendations. Studies of PD physicians may help to inform the development of interventions to improve primary care management of overweight and obesity.

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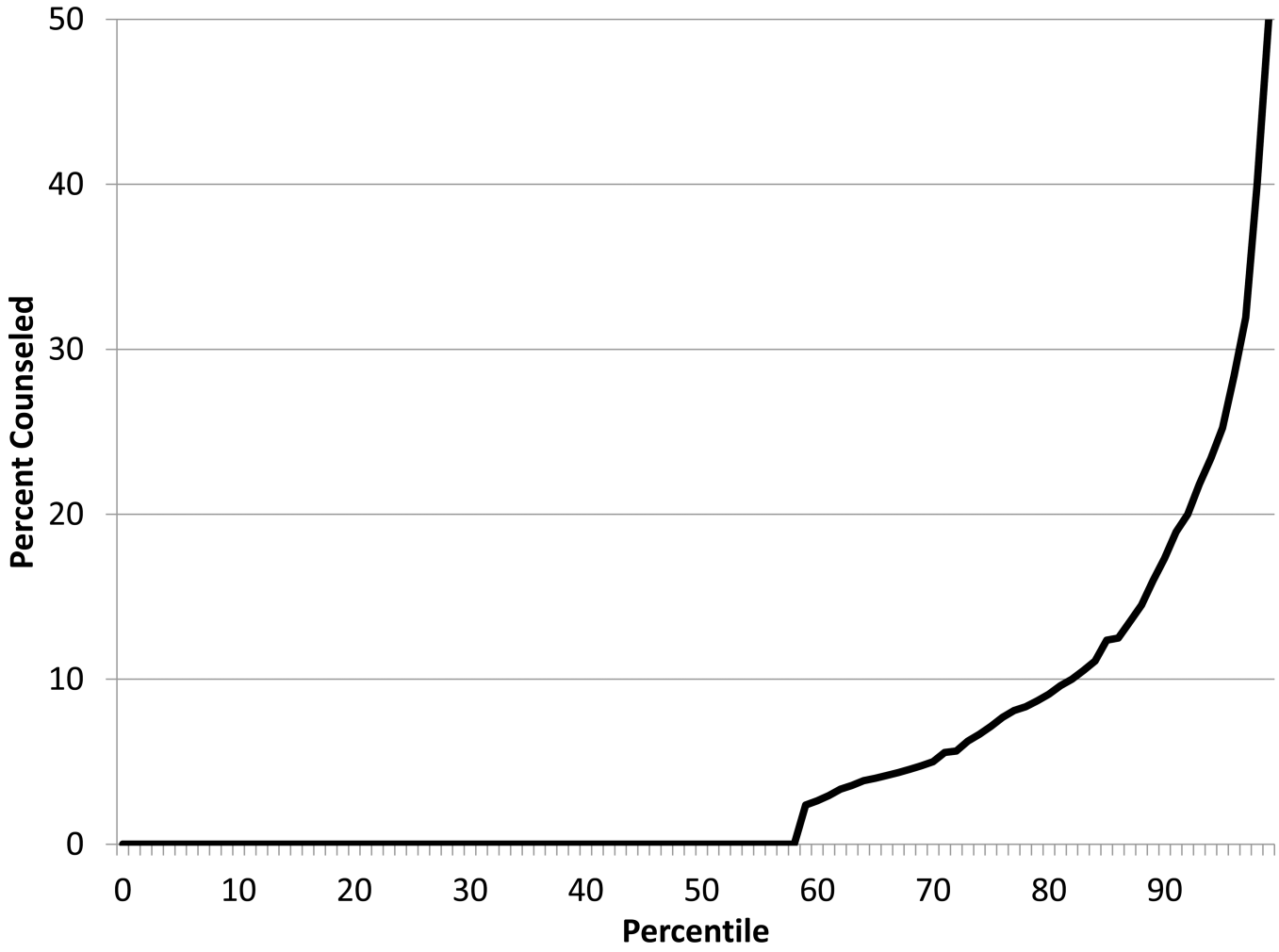

Figure 1.
Frequency of Weight Counseling by US Primary Care Providers, Percentile.*
* Skewness = 4.1 (Standard Error; 0.079

Table 1

Visit characteristics to PCPs with higher rates of weight counseling (Positive Deviants, PD) versus other PCPs.

	Visits to PD PCPs Unweighted (n=1580); Weighted (n=65,023,129)	Visits to Other PCPs Unweighted (n=19,642); Weighted (n=771,014,141)	P (unweighted)
Patient Characteristics			
Age (mean)	52.5	49.6	<.001
Metro area	91.4	85.9	<.001
Sex, Female	62.5	67.1	<.001
Race, white	81.5	81.9	.64
Ethnicity, Hispanic	9.1	8.4	<.001
Private insurance	62.4	67.4	<.001
Hypertension	40.5	32.3	<.001
Diabetes	16.7	14.1	<.001
Obesity	21.1	8.7	<.001
Visit Counseling			
Weight Counseling	30.6	3.6	<.001
Diet/Nutrition Counseling	42.6	12.7	<.001
Exercise Counseling	34.2	8.2	<.001
Tobacco Counseling	7.7	2.9	<.001