

Physician Body Mass Index and Bias Toward Obesity Documentation Patterns

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Background: Many healthcare professionals consider obese individuals to be unmotivated and to lack the willpower to follow through with weight-loss plans. This attitude may result in less effort put into diagnosing, documenting, and treating obesity. Our aim was to assess documentation patterns of obesity and hypertension overall, by primary care specialty, and in relation to provider body mass index (BMI).

Methods: Twenty-two physicians from one outpatient community practice were included: 10 internal medicine and 12 family practice practitioners. We conducted a retrospective review of medical records from a 1-year period to determine provider documentation of obesity and hypertension.

Results: A total of 3,275 obese patients were under the care of 6 physicians with normal BMI, yielding an obesity documentation rate of 23.2%. The 10 overweight physicians had 6,218 obese patients and a documentation rate of 33.5%. The 6 obese physicians had 4,014 patients with obesity and a documentation rate of 21.7%. Obesity documentation rates differed between nonobese physicians (BMI 20-29.9 kg/m²) (30.0%) and obese (BMI ≥30 kg/m²) physicians (21.7%) ($P < 0.001$). We found no difference ($P = 0.132$) between documentation rates of normal-weight BMI physicians and obese physicians. The overall documentation rate of obesity (27.5%) was significantly different than the overall documentation rate of hypertension (83.3%) ($P < 0.001$).

Conclusion: In our study, nonobese physicians were more likely to document obesity, and documentation of obesity lagged significantly in comparison to hypertension. Addressing weight loss in obese patients starts at the provider level. Steps include documenting obesity on the problem list and providing weight-loss advice during each patient encounter.

Keywords: Chronic disease, doctor-patient relationship, obesity, patient education, public health

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INTRODUCTION

Obesity has reached epidemic proportions in the United States and worldwide. More than 36% of adults >20 years of age are obese, and two-thirds of adults are overweight or obese.¹⁻³ The prevalence of obesity has sharply increased since the 1980s when approximately 15% of adults aged 20-74 years in the United States were obese.⁴ Speculation for why the prevalence has increased includes wide access to calorie-dense food, conveniences of modern society, less physical work in activities of daily living, changes in wheat gluten, use of antibiotics in livestock and in humans, and changes in the human microbiome.⁴ Obesity is a serious health problem associated with an increase in morbidity and mortality. Obese patients have an increased risk of death compared to normal-weight patients in all age groups and in both sexes.^{5,6} In the United States, obesity reduces life expectancy, particularly among young adults. Using data

from the US life tables, National Health and Nutrition Examination Survey III, and the National Health and Nutrition Examination Survey II Mortality Study, Fontaine et al estimated the number of years of life lost from obesity.⁵ Young (20-30 years old), severely obese (body mass index [BMI] >45 kg/m²) black men on average can expect to lose 20 years of normal life expectancy, and black women lose 5 years. White men aged 20-30 years with a BMI >45 kg/m² can expect to lose 13 years of normal life expectancy, while white women lose 8 years.⁵ Global assessments of the health problems responsible for the greatest burden of illness rank obesity as number 6, and in North America, obesity is second only to smoking in being responsible for the largest burden of illness.⁷

Many healthcare professionals consider obese persons to be unmotivated and noncompliant and to lack the willpower to follow through with weight-loss plans, so they

may not emphasize weight-loss advice.^{8,9} Even though some surveys show patients are more likely to try to lose weight if they are advised to do so by their physicians,^{10,11} some physicians simply choose not to address obesity during an office encounter because they feel attempts at weight loss are futile.¹² This bias against obesity may result in less effort put into diagnosing, documenting, and treating obesity. The bias against obesity involves many different types of health professionals and starts in medical school for many physicians.¹³⁻¹⁵ National obesity treatment guidelines identify assessment and management as the pillars of obesity treatment, and assessment must start with documentation of the disease on the problem list.¹⁶ Despite these guidelines, documentation rates of obesity in primary care visits remain low.^{17,18}

With the widespread use of electronic medical records (EMRs), obesity documentation is readily available to most primary care providers. However, physicians do a poor job of documenting obesity in the EMR, with 19%-51% of obese patients having that diagnosis listed.¹⁷⁻²⁰ In one study of 400 patients, physicians only documented 66% of obese patients as being obese, normal-weight physicians documented obesity at a higher rate than overweight physicians, and attending physicians documented obesity more frequently than residents.²⁰ A survey of 500 primary care physicians found that documentation of obesity as a diagnosis was more likely to occur when the patient was perceived to have a BMI greater than that of the provider.²¹ Evidence indicates a bias associated with identifying, documenting, and treating obese patients.^{8,22} When obesity is diagnosed and documented, the physician is more likely to discuss a weight-loss plan with the patient, and if a physician advises weight loss, patients are more likely to try to lose weight.^{10,11,16,17,21,23}

Meanwhile, hypertension affects 29% of adults and is the most frequently recorded outpatient chronic illness diagnosis, listed in 28.1% of office visits.²⁴⁻²⁶ The 2013 National Ambulatory Medical Care Survey found that hypertension was the most common chronic medical condition recorded as an outpatient diagnosis.²⁵ On the other hand, obesity, which affects 38% of the population,^{1,2} is only recorded as a diagnosis in 6.9% of chronic illness-related visits.²⁵

We conducted a retrospective medical record review in a large group practice to analyze the documentation of obesity compared to the documentation of hypertension, another chronic health problem with similar morbidity. We also looked for patterns of obesity documentation in relation to physicians' BMI.

METHODS

Subjects

We obtained institutional review board approval, and informed consent was waived for the study. We also obtained approval from the medical group governing board, representing the complete group of 23 physicians: 11 internists and 12 family practice physicians. One internist was excluded from the analysis because of inconsistent use of the EMR. Physicians were asked to self-report their age, sex, and BMI. The Epic EMR reporting functions were used to identify obese patients (BMI ≥ 30 kg/m²) who had had at least one encounter with a study physician during the study period of June 1, 2013 through June 1, 2014. Patients had

to be >18 years, alive, and not pregnant. Patients were divided into 2 groups based on whether obesity was or was not documented on their problem list.

Measurements

To look for a bias against documenting obesity, we investigated the documentation of another chronic medical disease, hypertension. Using the same study period and inclusion criteria, we identified all patients on antihypertensive medications. To determine if chronic illnesses were underdocumented in obese patients in general compared to nonobese patients, we generated reports showing the documentation patterns for hypertension in obese (BMI ≥ 30 kg/m²) hypertensive patients and in nonobese hypertensive patients. For analysis purposes, all patients taking an antihypertensive medication were considered to have hypertension. Some patients were taking antihypertensive medications for other reasons, so this methodology exaggerated the actual number of patients defined as having hypertension and lowered the documentation rate for hypertension because that number was used as the denominator for the documentation rate calculation.

Statistical analysis was conducted using SPSS software, z-tests of proportions, and chi-square test. Statistical significance was defined as $P \leq 0.05$.

RESULTS

Table 1 outlines the demographics of the physician providers. Overall documentation of obesity on the EMR problem list occurred for 27.5% of the 13,507 obese patients (Table 2). As shown in Table 2, 5,518 obese patients were under the care of the 10 internal medicine physicians, and 28.7% of them had obesity documented on the problem list. The 12 family practitioners had 7,989 obese patients under their care and documented 26.7% of them as obese on the problem list. This difference in obesity documentation rates was statistically significant ($P=0.02$).

A total of 3,275 obese patients were under the care of 6 physicians with a normal BMI (20-24.9 kg/m²), and those providers documented obesity for 760 patients, yielding a documentation rate of 23.2%. The 10 overweight (BMI 25-29.9 kg/m²) physicians had 6,218 obese patients under their care and documented 2,086 of them as obese, for a rate of 33.5%. The 6 obese physicians had 4,014 obese patients and documented 872 of them, for a rate of 21.7%. We found a significant difference ($P < 0.001$) between the nonobese (BMI 20-29.9 kg/m²) physicians' documentation of obesity (30.0%) and the obese (BMI ≥ 30 kg/m²) physicians' documentation rate (21.7%) but no significant difference in the documentation rates between normal-weight physicians (23.2%) and obese physicians (21.7%) ($P=0.132$).

The difference in documentation rates of hypertension in obese hypertensive patients (85.6%) and in nonobese hypertensive patients (80.9%) was significant ($P < 0.001$) (Table 3). We also found a significant difference in the overall documentation rate of obesity (27.5%) compared with the overall documentation rate of hypertension (80.9%) in all patients for all providers ($P < 0.001$) (Table 4). Overall, for obese patients, documentation of obesity severely lagged behind documentation of another chronic medical problem (hypertension) (Table 4).

Table 1. Provider Demographics

Variable	Providers n=22 (%)
Body mass index, kg/m ²	
20-24.9	6 (27.3)
25-29.9	10 (45.5)
≥30	6 (27.3)
Sex	
Female	4 (18.2)
Male	18 (81.8)
Specialty	
Family practice	12 (54.5)
Internal medicine	10 (45.5)
Age, years	
≤40	2 (9.1)
41-50	6 (27.3)
51-60	6 (27.3)
>60	8 (36.4)

DISCUSSION

Documentation rates of obesity were low in this sample of 22 primary care physicians' practices, with 13,507 patients (about 600 per physician) identified as obese in one year of encounters and only 27.5% of obese patients having obesity documented on their problem list. Because documentation may lead to higher rates of weight loss advice, and advice can lead to weight loss, documenting obesity is an important precursor to actual patient weight loss.^{10,11,27,28}

Physicians with a normal or overweight BMI were more likely to document obesity than obese physicians, but this difference attained statistical significance only when normal and overweight physicians were grouped together as nonobese and compared to the obese physicians. These results are consistent with other studies that suggest

physician BMI is a factor in documenting and addressing obesity. Prior studies suggest that documentation rates of obesity are low for several reasons, including a physician's own bias to recognize obesity. In addition, as stated previously, although most physicians believe obesity is a disease, they may not document it because they feel efforts at addressing obesity are futile.¹²

Overall documentation of obesity lagged significantly in comparison to hypertension. A bias against documenting hypertension in obese patients does not appear to be likely, as hypertension was documented 85.6% of the time in obese patients. Also unlikely is a general bias against documenting chronic health conditions in obese patients because the hypertension documentation rate was significantly ($P < 0.001$) greater for obese patients than for nonobese patients (80.9%) (Table 3). This finding suggests that the bias in obese patients is for not documenting obesity. In our analysis, nonobese physicians (BMI 20-29.9 kg/m²) were more likely to document obesity than obese physicians (BMI ≥30 kg/m²).

One strength of our study design is the documentation rate of obesity. The rate was calculated by searching the Epic problem list for all types of obesity (morbid; non-morbid; class 1, 2, 3) and using that number as the numerator. The denominator was the total number of obese patients found using the Epic automated BMI ≥30 kg/m².

The calculation of the hypertension rate was less accurate. The numerator was the total number of Epic diagnosis codes for hypertension (principally I10.x and others too numerous to list) on the problem list, but the denominator could only be approximated by using the total number of patients taking antihypertensive medications. This approach is not precise because some patients take those medications for nonhypertension reasons such as beta blockers for atrial fibrillation, angiotensin-converting enzyme inhibitors for prevention of renal disease in diabetes, and alpha blockers for benign prostatic hypertrophy. The results of a side sampling of patients on antihypertensive medications but without hypertension on their problem list showed that approximately two-thirds of patients were on antihypertensive medications for non-hypertension reasons. If the normotensive patients were

Table 2. Obesity Documentation Rates by Physician Specialty and Body Mass Index (BMI)

Provider Variable	Obese Patients	Obese Patients With Obesity Documented on the Problem List (Documentation Rate)	P Value
All providers	13,507	3,718 (27.5%)	
Specialty			
Internal medicine	5,518	1,585 (28.7%)	0.02 ^a
Family practice	7,989	2,133 (26.7%)	
BMI, kg/m ²			
Group 1: 20-24.9	3,275	760 (23.2%)	
Group 2: 25-29.9	6,218	2,086 (33.5%)	
Groups 1 and 2: 20-29.9	9,493	2,846 (30.0%)	<0.001 ^b
Group 3: ≥30	4,014	872 (21.7%)	0.132 ^c

^aComparison of documentation rates between provider specialties.

^bComparison of documentation rates between nonobese physicians (groups 1 and 2) and obese physicians (group 3).

^cComparison of documentation rates between normal-weight physicians (group 1) and obese physicians (group 3).

Table 3. Hypertension Documentation Rates by Provider Specialty and Body Mass Index (BMI)

Provider Variable	Hypertensive Patients	Hypertensive Patients on the Problem List (Documentation Rate)	Obese Hypertensive Patients	Obese With Hypertension Documented on the Problem List (Documentation Rate)	Obese Hypertensive Patients Documented on the Problem List (Documentation Rate)	Nonobese Hypertensive Patients	Nonobese With Hypertension Documented on the Problem List (Documentation Rate)	P Value ^a
All	16,333	13,606 (83.3%)	8,285	7,094 (85.6%)	8,048	6,512 (80.9%)	<0.001	
Internal medicine	7,323	6,113 (83.5%)	3,595	3,065 (85.3%)	3,728	3,048 (81.8%)	<0.001	
Family practice	9,010	7,493 (83.2%)	4,690	4,029 (85.9%)	4,320	3,464 (80.2%)	<0.001	
BMI, kg/m ²								
Group 1: 20-24.9	4,433	3,818 (86.1%)	2,183	1,933 (88.5%)	2,250	1,885 (83.8%)	<0.001	
Group 2: 25-29.9	7,274	5,867 (80.7%)	3,663	3,042 (83.0%)	3,611	2,825 (78.2%)	<0.001	
Groups 1 and 2: 20-29.9	11,707	9,685 (82.7%)	5,846	4,975 (85.1%)	5,861	4,710 (80.4%)	<0.001	
Group 3: ≥30	4,626	3,921 (84.8%)	2,439	2,119 (86.9%)	2,187	1,802 (82.4%)	<0.001	

^aComparison of documentation rates for hypertension in obese patients vs nonobese patients.

Table 4. Documentation Comparison of Hypertension and Obesity in Obese and Nonobese Patients

Provider Variable	Obese Patients With Obesity Documented on the Problem List (Documentation Rate)	Obese Hypertensive Patients With Hypertension Documented on the Problem List (Documentation Rate)	Obese Hypertensive Patients Documented on the Problem List (Documentation Rate)	P Value ^a	Nonobese Hypertensive Patients Documented on the Problem List (Documentation Rate)	P Value ^b
All providers	3,718 (27.5%)	7,094 (85.6%)	8,048	<0.001	6,512 (80.9%)	<0.001
Internal medicine	1,585 (28.7%)	3,065 (85.3%)	3,728	<0.001	3,048 (81.8%)	<0.001
Family practice	2,133 (26.7%)	4,029 (85.9%)	4,320	<0.001	3,464 (80.2%)	<0.001
BMI, kg/m ²						
Group 1: BMI 20-24.9	760 (23.2%)	1,933 (88.5%)	2,250	<0.001	1,885 (83.8%)	<0.001
Group 2: BMI 25-29.9	2,086 (33.5%)	3,042 (83.0%)	3,611	<0.001	2,825 (78.2%)	<0.001
Groups 1 and 2: BMI 20-29.9	2,846 (30.0%)	4,975 (85.1%)	5,861	<0.001	4,710 (80.4%)	<0.001
Group 3: BMI ≥30	872 (21.7%)	2,119 (86.9%)	2,187	<0.001	1,802 (82.4%)	<0.001

BMI, body mass index.

^aComparison of obesity and hypertension documentation rates in obese patients.

^bComparison of documentation of obesity in obese patients vs documentation of hypertension in nonobese hypertensive patients.

excluded from the denominator, our hypertension documentation rate would be higher, making the difference in documentation rates between obesity and hypertension even more significant. Our present methodology actually underestimates the documentation rate of hypertension in all groups.

In the version of Epic used by our study physicians, the preselected past history choices do not include obesity, one of the most prevalent diseases in society. Relatively rare conditions (prevalence <2%) such as sickle cell anemia,²⁹ tuberculosis,³⁰ and acquired immunodeficiency syndrome³¹ are preprogrammed into the software for documentation shortcuts, while obesity (prevalence 38%) is omitted.¹ We recommend that the companies offering EMR systems take into account the prevalence of obesity and adapt the software to better assist providers with documenting obesity and selecting treatment modalities.

CONCLUSION

Addressing weight loss in obese patients starts at the provider level. Steps include documenting obesity on the problem list and providing weight-loss advice during each patient encounter. Randomized studies are needed to see if documenting obesity and giving weight-loss advice actually result in significant weight loss over time, as most data on the effectiveness of advice are from patient recall surveys and intention-to-change surveys. In addition, studies analyzing change in provider weight and change in obesity documentation patterns should be investigated.

ACKNOWLEDGMENTS

The authors have no financial or proprietary interest in the subject matter of this article.

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