

Do Physicians Underrecognize Obesity?

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Objectives: A physician's advice is among the strongest predictors of efforts toward weight management made by obese patients, yet only a minority receives such advice. One contributor could be the physician's failure to recognize true obesity. The objectives of this study were to assess physicians' ability to recognize obesity and to identify factors associated with recognition and documentation of obesity.

Methods: Internal medicine residents and attending physicians at three academic urban primary care clinics and their adult patients participated in a study using recognition and documentation of patient obesity as the main measures.

Results: A total of 52 physicians completed weight assessments for 400 patients. The mean patient age was 51 years, 56% were women, 77% were Hispanic, and 67% had one or more obesity-related comorbidity. There were 192 (48%) patients, of whom 66% were correctly identified by physicians as being obese, 86% of those with a body mass index (BMI) ≥ 35 , but only 49% of those with a BMI of 30 to 34.9 ($P < 0.0001$). Fewer obese Hispanic patients were identified than were non-Hispanic patients (62% vs 76%; $P = 0.03$). No physician characteristics were significantly associated with recognition of obesity. Physicians documented obesity as a problem for 51% of patients. Attending physicians documented obesity more frequently than did residents (64% vs 43%, odds ratio 2.5, 95% confidence interval 1.3–4.6) and normal-weight physicians documented obesity more frequently than overweight physicians (58% vs 41%, odds ratio

2.0, 95% confidence interval 1.0–4.0). Documentation was more common for patients with a BMI ≥ 35 and for non-Hispanics. Documentation was not more common for patients with obesity-related comorbidities.

Conclusions: Physicians have difficulty recognizing obesity unless patients' BMI is ≥ 35 . Training physicians to recognize true obesity may increase rates of documentation, a first step toward treatment.

Key Words: cross-sectional study, healthcare disparity, obesity, quality of care, survey

Obesity is a growing problem worldwide; more than one-third of the US adult population is obese.¹ Obesity is known to be associated with numerous adverse health outcomes and an increase in mortality.^{2,3} Physicians play a vital role in recognizing obesity and creating awareness of its implications for human health. A physician's advice is among the strongest predictors of efforts toward weight management made by patients.⁴ Surprisingly, fewer than two-thirds of self-identified obese patients reported having received weight loss advice from their healthcare providers,^{5,6} and previous studies demonstrate that physicians fail to adequately document obesity.^{7–11} Some possible reasons for both phenomena include lack of time, busy physician schedules, lack of training/knowledge, or failure to recognize obesity because of its ubiquitous nature. As the population has become increasingly obese, obese individuals, particularly those with a BMI between 30 and 35, do not appear out of the norm. Studies demonstrate that as many as 26% of obese patients do not recognize their own obesity, and minority populations, which have higher rates of obesity, are even less likely to perceive

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Key Points

- Physicians correctly identified 68% of patients as obese, but identified less than half of those with a body mass index between 30 and 35 as being obese.
- Physicians documented obesity in only half of the patients, but were more likely to document obesity for patients whom they recognized as obese.
- Physicians were less likely to identify Hispanic patients as obese.

themselves as obese.⁵ We hypothesized that physicians, too, may fail to recognize obesity in their patients, and that this failure may contribute to their not offering weight loss advice. The objective of this study was to determine how well physicians recognize obesity and whether such recognition was associated with documentation of obesity or provision of weight loss advice. We also sought to identify patient- and physician-related factors associated with physicians' ability to recognize and document obesity.

Methods

The subjects included in this cross-sectional study with chart review were internal medicine residents and attending physicians at three academic primary care clinics affiliated with Baystate Medical Center (Springfield, MA). For each physician, we included all of the adult patients he or she saw during the study session. Patients who were younger than 21 years old were excluded. We also excluded physicians who had no obese patients during any of the sessions they were surveyed because it was not possible to calculate either obesity recognition or documentation. The institutional review board at Baystate Medical Center approved the study.

Participation in the survey was voluntary. Physicians provided personal demographics (physician's height, weight, year in training, and number of years he or she has lived in the United States) and answered seven questions that measured attitudes about obesity and its treatment. At the end of their clinic session, physicians were provided with a list of the patients seen during that session. Survey sessions were selected at random and the participating physicians were not aware of the study until the time of survey, when the patient visits were complete. Only a small portion of each physician's sessions were surveyed. Physicians were asked to indicate whether each patient was of a normal weight (body mass index [BMI] <25 kg/m²), overweight (BMI 25–29.9), or obese (BMI ≥30) based on recall. Information regarding the patient's BMI was available to the physician before and during the patient's visit via the electronic health record (EHR), but not at the time the questionnaire was completed. For each patient seen and categorized, a research nurse reviewed the corresponding chart and recorded the following information: demographics, anthropometrics, and obesity-related comorbidities (diabetes, osteoarthritis, hyperlipidemia, coronary disease, and sleep apnea). The nurse also noted whether the physician had documented obesity as a problem or had addressed it within three visits before the index visit.

Statistical Analysis

Descriptive statistics (mean/standard deviation; n[%]) were used to characterize physicians and patients included in the study. For each outcome (obesity recognition, obesity documentation/counseling), fixed effects logistic regression models were fitted to derive adjusted odds ratios (AORs) and proportions as a function of patient- and physician-level

predictors and covariates. For outcomes related to one putative exposure (eg, obesity recognition and patient's ethnicity), covariates were considered for inclusion in the model if their univariable (Fisher exact, unpaired *t* test) associations were significant at $P \leq 0.20$ (two-sided) with both exposure and outcome. Candidate covariates remained in the model if their removal changed the principal exposure coefficient by >10%. For research questions requiring predictive models, characteristics were considered for inclusion if their likelihood ratio test (intercept-only model vs single-predictor model) was significant at $P \leq 0.2$. Two-sided *P* values of ≤ 0.05 were considered significant for all hypothesis tests. Stata/MP 12.1 for Windows (StataCorp, College Station, TX) was used for all of the analyses.

Results

All of the 67 physicians who were invited to participate completed weight assessments. Sixty-two (92%) answered all of the questions on the demographic questionnaires and five submitted incomplete demographic questionnaires. After excluding physicians with no obese patients, those with incomplete demographic information, and those who did not answer any of the perception questions, there were 52 respondents for analyses on physician attitude and identifying patients as obese. Physician characteristics appear in Table 1.

Table 1. Proportion of obese patients recognized by physicians: characteristics

Characteristic	N (%)	Univariable		Multivariable ^a	
		Identified, %	<i>P</i>	Identified, %	<i>P</i>
Position					
Resident	36 (69)	68	0.59	—	—
Attending	16 (31)	75		—	—
Sex					
Female	27 (52)	81	0.07	77	0.20
Male	25 (48)	58		62	
Location of medical school					
US	29 (56)	77	0.13	77	0.07
Foreign	23 (44)	58		55	
Physician's BMI					
Normal (<25)	34 (65)	78	0.05	75	0.15
Overweight (25–<30)	18 (35)	51		57	
Obese (≥30)	0 (0)	—		—	
Obese patients, %					
<50	22 (42)	62	0.31	—	—
≥50	30 (58)	75		—	—

^aMutually adjusted proportions, model includes only sex, US vs foreign medical school, and physician's weight class. BMI, body mass index.

Table 2. Patient characteristics

Characteristic	Mean/SD, n (%) n = 400	Obese, n (%) n = 192	Recognized as obese, n (%) n = 127
Age, y	51/16	50/15	48/14
Female sex	223 (56)	117 (61)	84 (66)
Race			
Hispanic	263 (66)	123 (64)	77 (61)
Black	72 (18)	36 (19)	28 (22)
White	59 (15)	31 (16)	22 (17)
Other	6 (1)	2 (1)	—
Comorbidities			
CAD	39 (10)	24 (13)	17 (13)
DM	166 (42)	103 (54)	65 (51)
Hyperlipidemia	167 (42)	86 (45)	54 (43)
Obstructive sleep apnea	58 (15)	48 (25)	32 (25)
Osteoarthritis	59 (15)	37 (19)	27 (21)
Asthma	69 (17)	39 (20)	26 (20)
At least 1	269 (67)	147 (77)	95 (75)
Actual BMI			
<25.0	90 (23)	—	—
≥25.0–29.9	118 (30)	—	—
30.0–34.9	90 (23)	90 (47)	42 (33)
≥35.0	102 (26)	102 (53)	85 (67)

BMI, body mass index; CAD, coronary artery disease; DM, diabetes mellitus.

A total of 400 patients were rated by participating physicians. Each physician saw an average of six (standard deviation 4) patients per session. Patient characteristics are shown in Table 2. The average patient was 51 ± 16 years old, 56% were women, and 66% were Hispanic. Among all of the patients, 192 (48%) were obese. Of these, 102 (53.1%) had class II obesity (BMI >35; classes as defined by the Centers for Disease Control and Prevention¹²) and 77% had at least one obesity-related comorbidity. Of the 192 obese patients, physicians correctly identified 127 (66%) as obese, 52 (27%) as overweight, and 13 (7%) as normal weight. Physicians identified 85.9% of patients as obese (95% confidence interval [CI] 77.4–94.4) of those with BMI >35 (class II obesity), but only 48.9% (95% CI 34.6–63.3) of those with BMI 30 to 34.9 (AOR 6.4, 95% CI 2.9–14.1).

The proportion of obese patients correctly classified by physicians was lower among Hispanic patients (63.8%, 95% CI 50.2–77.3) than white patients (75.6%, 95% CI 55.9–95.4) or black patients (82.7%, 95% CI 67.4–97.9). Adjusting for sex, a possible confounder, reduced the difference between white and black patients (79.8%, 95% CI 62.2–97.4 vs 81.6%, 95% CI 65.3–97.9), but did not affect the estimate for Hispanic patients (63.3%, 95% CI 49.5–77.1). Compared with white and black patients, Hispanic patients were 39% as likely to be correctly classified as obese (sex-adjusted proportions 63% vs 81%; AOR 0.39, 95% CI 0.16–0.98).

Physician-level predictors of obesity recognition are shown in Table 2. In both unadjusted and adjusted models, the correct recognition of obesity was nonsignificantly associated with female sex, US versus foreign medical school training, and normal BMI versus overweight. Physicians documented obesity as a medical problem (Table 3) for 51% of obese patients (95% CI 42–60). They were much more likely to document obesity for patients whom they subsequently recalled as being obese (61% if recalled vs 31% if not; $P = 0.001$). In the multivariable model, physicians were more likely to document obesity in patients whose BMIs were ≥35 versus 30 to 34.9 (AOR 3.5, 95% CI 1.7–7.3) and non-Hispanic versus Hispanic (AOR 2.1, 95% CI 1.0–4.3). Patient age was inversely associated with documentation (AOR 0.98, 95% CI 0.95–1.00). There was no significant difference in documentation of obesity for patients with at least one obesity-related comorbidity versus without (51% vs 49%; $P = 0.84$). Attending physicians documented obesity in a patient's record more frequently than did residents (64% vs 43%, AOR 2.5, 95% CI 1.3–4.6) and normal-weight physicians documented a patient's obesity more frequently than did overweight physicians (58% vs 41%; AOR 2.0, 95% CI 1.0–4.0).

With regard to physicians' attitudes toward obesity (Table 4), 56% agreed that obesity can be treated effectively by a primary care physician and 27% reported success. Most of the physicians (82%) reported feeling comfortable discussing obesity with patients; however, only 67% were confident offering

Table 3. Proportion of obese patients documented/counseled for obesity by physician: characteristics

Characteristic	Univariable		Multivariable ^a	
	%	<i>P</i>	%	<i>P</i>
Position				
Resident	43	0.008	43	0.005
Attending	65		64	
Sex				
Female	58	0.18		
Male	47			
Location of medical school				
US	58	0.06	57	0.21
Foreign	42		46	
Physician's BMI				
Normal (<25)	58	0.06	58	0.04
Overweight (≥25)	41		41	
Obese patients, %				
<50	50	0.77	—	—
≥50	53			

BMI, body mass index.

^aMutually adjusted proportions; model includes only position and physician's weight class. Physician sex and location of medical school were tested in the model but removed when *P* value for likelihood ratio test was >0.20.

Table 4. Attitudes toward obesity among physicians with complete questionnaires

Question	N (%) endorsing	Av proportion of patients identified as obese	<i>P</i> ^a	Av proportion of patients with documentation in EHR	<i>P</i> ^a
Obesity is a major health problem for my patients	52				
Disagree	1 (2)	0		100	
Neutral	0 (0)	—			
Agree	51 (98)	66	0.10	47	0.14
Obesity can be effectively treated by primary care physician	52				
Disagree	5 (10)	72		35	
Neutral	18 (35)	59		56	
Agree	29 (56)	66	0.94	45	0.89
I feel comfortable discussing obesity with my patients	51				
Disagree	2 (4)	33		67	
Neutral	7 (14)	71		43	
Agree	42 (82)	64	0.63	48	0.78
I feel confident in my ability to offer dietary advice to patients	51				
Disagree	7 (14)	52		41	
Neutral	10 (20)	53		41	
Agree	34 (67)	72	0.11	53	0.31
I feel comfortable prescribing weight loss medications	51				
Disagree	37 (72)	66		49	
Neutral	11 (22)	52		45	
Agree	3 (6)	94	0.81	47	0.81
I feel comfortable referring my patients for bariatric surgery	52				
Disagree	7 (13)	44		44	
Neutral	10 (19)	57		52	
Agree	35 (67)	71	0.07	48	0.93
I have had success getting patients to lose weight	48				
Disagree	14 (29)	65		58	
Neutral	21 (44)	56		38	
Agree	13 (27)	70	0.78	51	0.58

EHR, electronic health record.

^a*P* value for Pearson correlation coefficient.

dietary advice, and few (6%) were comfortable prescribing weight-loss medication. There was no significant association between physicians' attitudes and the recognition of obesity.

Discussion

In this study of 67 physicians at three academic ambulatory clinics, we found that physicians had difficulty recognizing patients' obesity. Although this difficulty was more evident for patients with a BMI between 30 and 35, and among patients with class II obesity (BMI >35), only 86% were correctly identified as being obese. We also found that documentation of obesity was poor, and that attending physicians as well as physicians who were of normal weight were more likely to document obesity

in their patients. In addition, patients whom physicians were able to recall as being obese were more likely to have obesity documented in their EHR.

The widespread failure of physicians to document obesity has been well studied.⁷⁻¹¹ Lemay and colleagues determined that obesity was underdiagnosed based on documentation of obesity by physicians in a cross-sectional chart review.¹³ Their study, also conducted at an academic health center in Massachusetts, found that patient height and weight were recorded for only 63% of patients. Of these, 41% were obese and 39% of them had their obesity documented. At the time of our study, the height and weight of nearly 100% of patients had been recorded, obesity was more prevalent (48%), and

documentation had improved to 51%. Similar to our study, Lemay et al found that physicians were more likely to document obesity among patients with a higher BMI and that attending physicians documented obesity more often than did residents. Other studies have found documentation rates ranging from 16%⁷ to 31%⁸ and most found that documentation rates were higher for the most obese patients. The use of an EHR to automatically compute BMI and display it as part of patients' vital signs can improve documentation. In a study by Bordowitz et al, documentation after implantation of the EHR reached 71%.⁹ The authors assessed documentation at any time, whereas we included documentation only in the previous three visits, which may account for our somewhat lower numbers.

Our study differs from previous studies in that we obtained physicians' direct impressions of individual patients' BMI, in addition to noting documentation in the EHR. There could be many reasons that clinicians fail to document obesity, including lack of time or a belief that such documentation is not important. Indeed, we found that the rate of documentation was much lower than the rate of recognition of obesity. We hypothesized that one reason for not documenting obesity could be a failure to recognize it. Although the BMI is noted in the vital signs section, physicians may fail to look at it or take action. To the extent that recall represents a physician's working memory, it is likely representative of his or her overall impression of a patient. The fact that attending physicians had both better recall and better documentation implies that they paid more attention to obesity. This highlights the need for better resident training in obesity recognition and weight loss counseling.

The underrecognition among physicians of obesity in Hispanic patients appears to be a novel finding. The reason for this is not entirely clear because all three clinics served a predominantly Hispanic population and 64% of the patients were obese. We hypothesized that the high prevalence of obesity in this population may cause physicians to consider obesity the norm and therefore fail to identify patients as obese. A previous study of patients in the same clinics demonstrated ethnic differences in patients' abilities to identify themselves as obese, with whites more likely to self-report obesity than Hispanics and African Americans.⁵ We did not find that physicians had difficulty identifying African Americans as obese. Further research on the correlation between ethnicity and obesity recognition seems warranted.

Our study has several limitations. First, we relied upon physicians' ability to recall their patients to complete the survey. If they actually looked at the patient at the time, they may have had a different response. By calling attention to the need to make an assessment, we also could have caused physicians to move away from their usual practice. Our goal was to obtain the impression a physician may develop during a busy

clinical session while addressing competing problems. Another limitation was that we did not differentiate between documentation of obesity as a problem in the patient chart and actual weight loss counseling, which is arguably more important but poorly documented. Finally, our power to assess physician factors related to recognizing obesity was limited as a result of having fewer than expected physicians with at least one obese patient and having a higher-than-anticipated intraclass correlation, especially for recognition of obesity.

Conclusions

Physicians, especially residents in training, had difficulty recognizing true obesity unless patients had class II or greater obesity. Physicians had a low likelihood of identifying obesity among Hispanic patients. Even in a setting in which the BMI was automatically calculated by the EHR, we believe that physicians should be trained in the recognition of obesity, especially in Hispanic patients.

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