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Disparities in Physician-Patient Communication by Obesity Status

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Abstract

This study aimed to examine variations in patient-physician communication by obesity status. We pooled data from the 2005-2007 Medical Expenditure Panel Survey (MEPS),_included only individuals who completed the self-administered questionnaire themselves, and restricted the sample to patients who received care from primary care physicians. We included a total of 6,628 unique individuals between the ages of 18 and 65 who had at least one office or hospital outpatient visit during the past 12 months. There are six outcomes of interest in this study. The patient-physician communication composite score is based on five questions that the MEPS adapted from the Consumer Assessment of Healthcare Providers and Systems Survey. The other five variables were: respect from providers, providers' listening skills, explanations from providers, time spent with patients, and patient involvement in treatment decisions. The key independent variable was obesity. Bivariate and multivariate models such as ordinary least squares (OLS) and logistic regression were used to examine the relationship between patient-physician communication and obesity status. Multivariate models showed that obese patients had a reduced physician-patient communication composite score of 0.19 (95% CI 0.03-0.34, p=0.02), physicians' show of respect OR 0.77 (95% CI 0.61-0.98, p=0.04), listening ability OR 0.82 (95% CI 0.65-1.02, p=0.07), and spending enough time OR 0.80 (95% CI 0.62-0.99, p=0.04) compared to non-obese patients. We found a negative association between physician-patient communication and patients' obesity status. These findings may inform public health practitioners in the design of effective initiatives that account for the needs and circumstances of obese individuals.

Keywords

obesity, physician-patient communication, Medical Expenditures Panel Survey, primary care settings, prevention research

Introduction

Addressing disparities in physician-patient communication in clinical settings by obesity status is an important research and policy question because the quality of patient-physician interactions is known to be associated with patients' satisfaction, treatment adherence, and improved health outcomes.[1-9] Indeed, evidence suggests that the quality of patient-physician communication during clinical encounters may vary depending on individuals' body mass index (BMI).[9-23] For instance, a recent study by Huizinga and colleagues found that higher BMI was negatively associated with physicians' respect for patients.[10] The authors analyzed data from the baseline visits of 40 physicians and 238 patients enrolled in a randomized controlled trial of patient-physician communication. While both physicians and patients completed questionnaires about the visit, their attitudes, and their perceptions of one another upon completion of the encounter, only physicians were asked to rank their level of respect for patients on a 5-point Likert scale after the visit.

Similar findings have been reported by studies that considered patients' views of patient-physician communication in primary care settings.[9] However, there are two major limitations in the current literature. First, from a conceptual standpoint, studies have used various measures of interactions such as bias, attitudes, beliefs, patient satisfaction, and other interactions to measure patient-physician communication.[9] Some studies even combined measures of patient-physician communication with those of quality of care to measure patients' satisfaction.[24] Second, from a methodological standpoint,

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most studies have either relied solely on physicians' perspectives to measure patient-physician communication or on small non-representative samples.[9,10]

The current study design and methodology are an attempt to address some of the prior conceptual and methodological shortcomings in the literature. Hence, this study aims to examine variations in patient-physician communication between obese and non-obese patients in primary care settings. Our study is different from the previous literature in at least four key areas: (1) We examined patient-physician communication by constructing a composite score of different components of patient-physician communication; (2) we focused on primary care physicians such as internists, general practitioners (GPs), and obstetrician/gynecologists (OB/GYNs) and excluded non-physician primary care providers; (3) we focused on ambulatory care settings including office-based visits, clinics, and hospital outpatient settings; and (4) we analyzed each of the different components of patient-physician communication separately to understand which type of patient-physician communication is associated with patients' obesity status.

Study Design and Methodology

Data and Study Subjects

We pooled 3 years of data from the 2005-2007 Medical Expenditures Panel Survey (MEPS) to increase the sample size. The MEPS is a nationally representative survey of health service use, insurance coverage, medical expenditures, and sources of payment for the U.S. civilian non-institutionalized population. The MEPS includes a household component (HC), an insurance component, and a nursing home component. For this analysis, we used the HC file, which is the core component of the survey that collects demographic characteristics, health conditions, health status, medical services utilization, access to care, satisfaction with care, health insurance coverage, and income data for each person surveyed.[25]

We combined 3 years of data from the HC component with the pooled estimation linkage file from the MEPS to restrict the analytic sample to unique individuals. The MEPS' overlapping design allows repeated observations of the same individuals over several rounds. Because we retained only unique individuals in each of the rounds for the pooled data, there are no repeated observations of the same individual across the different rounds for the year. We further restricted the sample to patients who received care from primary care physicians such as general practitioners, internists, and OB/GYNs. We used a total of 6,628 unique individuals with non-missing observations who were between 18 and 65 years old, and had at least one office or hospital outpatient visit during the past 12 months to complete the analysis.

Dependent Variables

There are six outcomes of interest in this study. The first outcome, the patient-physician communication composite score, is based on the following five questions that the MEPS adapted from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey[25]: (1) "How often have providers shown respect for what you had to say?" (2) "How often have health care providers listened carefully to you?" (3) "How often have health care providers explained things so you understood?" (4) "How often have health providers spent enough time with you?" and (5) "How often have providers involved you in treatment decisions?" The response categories were coded 1 (*never*), 2 (*sometimes*), 3 (*usually*), and 4 (*always*). As recommended by CAHPS, we combined the first two scales *never* and *sometimes* into a single scale of 1 and coded the final response categories as 1 (*never*/*sometimes*), 2 (*usually*), and 3 (*always*). Because the patient-physician communication composite score is drawn from five communication measures, the total scores for the composite score variable ranged from 5 (*worst*) to 15 (*best*). Based on previous studies, this composite score has been found to have high internal reliability.[23] We subsequently created five additional binary variables to examine the relationship between obesity status and each of the components of the composite score. We coded each of the five items mentioned above as 1 if the respondent reported *usually* or *always* for any of the response categories during the clinical encounter, or 0 if otherwise.

Independent Variables

Obesity, the independent variable of interest, is a binary indicator measuring whether patients reported a BMI greater than 30 kg/m^2 based on the National Heart, Lung, and Blood Institute's classification scheme.[26] Based on prior research, we controlled for a set of patient characteristics known to be associated with differences in patient-physician communication including age, race, gender, income, education, insurance status, and health behaviors such as smoking and physical activity.[27-29] We also used an indicator variable for patients who reported any co-morbid cardiovascular diseases such as high blood pressure, heart attack, angina, other heart disease, stroke, or emphysema, and for patients in different regions of the country.

We created five categorical variables for race: white, black, Hispanic, Asian, and other. We controlled for four different levels of education: less than high school graduate, high school graduate, college, and post-graduate level. We also controlled for four different levels of income: individuals residing in families with incomes below 100% of the federal poverty line (FPL), between 100% and 200% of the FPL, between 200% and 400% of the FPL, and above 400% of the FPL. We used different levels of education and income to account for the non-linearity of education and income.

Statistical Analysis

Descriptive statistics included mean and frequency distributions of the variables used in the analysis. To conduct

bivariate analyses, we used *t* and chi-square tests to analyze differences in outcomes between obese and non-obese individuals. In addition, for multivariate analyses we used ordinary least squares (OLS) regression models to examine the relationship between the composite score of patient-physician communication and obesity because this outcome variable is continuous. Subsequently, we used logistic regression models for the other five binary outcomes of interests. We used the special self-administered questionnaire (SAQ) weights from the MEPS to account for the survey's complex sampling design. STATA software, Version 11.0 (StataCorp LP, College Station, TX, USA), was used to conduct the analysis. We reported odds ratios (ORs), confidence intervals (CIs), and *p* values from the logistic regression models for easier interpretation. We used a 10% significance level as the cutoff point.

Results

Descriptive Statistics

Table 1 summarizes the weighted mean characteristics of the sample. About 32% of individuals in the sample were obese. On average, patients reported a patient-physician communication composite score of 12.5 out of 15. About 94% of patients reported that their physicians either showed them respect or explained things to them so that they understood. A lower percentage of patients reported that their physicians spent enough time with them or involved them in treatment decisions, approximately 87% and 86%, respectively. About 35% of individuals in the sample had some type of cardiovascular condition including high blood pressure, heart attack, angina, other heart disease, stroke, or emphysema.

In the bivariate analyses presented in Table 2, *t* statistics showed statistically significant differences in the composite score of patient-physician communication between obese and non-obese individuals ($p < .05$). Similarly, using chi-square tests, we found that a lower percentage of physicians appeared to show respect for what obese patients had to say compared with non-obese individuals (92.3% vs. 94.0%, $p < .05$).

Multivariate Results

As indicated in Table 3, OLS regression models showed that obese patients, on average, had a reduced physician-patient communication composite score of 0.19 points compared with non-obese patients ($p < .05$) after accounting for covariates. Using logistic regressions, we found that physicians had decreased odds of appearing to show respect for what obese patients had to say (OR = 0.77, 95% CI = [0.61, 0.98], $p < .05$) compared with non-obese patients. Further analyses showed that physicians had decreased odds of listening (OR = 0.82, 95% CI = [0.65, 1.02], $p < .10$) using a 10% significance level, and spending enough time with obese patients compared with non-obese patients (OR = 0.80, 95% CI = [0.62, 0.99],

Table 1. Weighted Sample Characteristics, Pooled MEPS 2005-2007.

Variables	Total (*N* = 6,628)
Dependent variables	
Patient-physician relationship composite score, *M* (*SD*)	12.5 (2.5)
	%
Physician always/usually shows respect to patients	93.5
Physician always/usually listens to patients	91.8
Physician always/usually explains things to patients	93.2
Physician always/usually spends enough time with patients	87.4
Physician always/usually involves patients in treatment decisions	85.7
Independent variables	
Obese	32.3
Gender	
Male	39.6
Female	60.4
Age group	
18-24 (reference)	7.8
25-34	15.9
35-44	21.2
45-54	28.2
55-64	26.9
Race/ethnicity	
Non-Hispanic white (reference)	75.3
Non-Hispanic black	10.6
Hispanic	8.5
Asian	3.8
Other	1.8
Education	
<High school	17.6
High school graduate	47.4
College graduate	22.2
Graduate school	12.8
Income groups	
Under 100% of FPL (reference)	7.6
100%-199% of FPL	9.8
200%-400% of FPL	28.6
Over 400% of FPL	54.0
Insurance status	
Private insurance (reference)	86.1
Public insurance	7.7
Uninsured	6.2
Health behaviors and conditions	
Smokes	17.8
Physically active	58.1
Co-morbid cardiovascular conditions	35.0
Region	
East (reference)	25.1
Midwest	22.5
South	36.1
West	16.3

Note. MEPS = Medical Expenditure Panel Survey; FPL = federal poverty line.

Table 2. Bivariate Results of Dependent Variables and Obesity Status, Pooled MEPS 2005-2007.

	Total (*N* = 6,628)		
	Obese	Non-obese	
Dependent variables (%)	*M* (*SD*)	*M* (*SD*)	*p* value
Patient-physician relationship composite score	12.4 (2.5)	12.5 (2.5)	.04*
	%	%	
Physician shows respect to patients	92.3	94.0	.02*
Physician listens to patients	91.0	92.2	.17
Physician explains well	92.8	93.4	.46
Physician spends enough time with patients	86.5	87.9	.19
Physician involves patients in treatment	84.8	86.2	.23

Note. MEPS = Medical Expenditure Panel Survey.
*$p < .05$.

$p < .05$). These differences in patient-physician communication remained statistically significant even after controlling for an extensive set of variables.

Discussion

Findings showed a reduced physician-patient communication composite score of 0.19 points compared with non-obese patients. Using logistic regressions, we also found that physicians had decreased odds of showing respect for what obese patients had to say, decreased odds of listening, and and decreased odds of spending enough time with obese patients compared with non-obese patients. This study extended the existing research on this topic in several important ways. First, the study used new methods and data to explain the potential modifiable mechanisms through which obesity may be associated with patient-physician communication. To our knowledge, there is no previous research that linked the different components of patient-physician communication to individuals' obesity status. Second, the current study design and methodology was an attempt to address prior methodological shortcomings in the literature. However, our results are different from those found by Fong et al.[24] but qualitatively similar to the study by Fung et al.[23] which used the same dependent variables to measure patient-physician communication. Fung et al. used community-level data from the 2001-2002 Community Tracking Study (CTS) and, similarly to our study, found that individuals' multi-morbid conditions including obesity were negatively associated with ratings of patient-physician communication.[23] Although the objective of the study by Fung et al. was to examine the relationship between multi-morbid conditions and patients' ratings of communication, the authors used the same variables as our study to construct the composite score of patient-physician communication. Our findings are also consistent with a recent study by Huizinga et al. which used clinical data and found that a higher BMI was negatively associated with physician-reported respect for patients.[10]

Using recent household data from 2005 to 2007, our study has shown negative associations between obesity status and the patient-physician communication composite score of about 19%. The size of the estimated association between obesity status and patient-physician communication was larger compared to studies of patients with co-morbidity or those that used physician-reported ratings of communication.[9,23] A possible explanation for these findings is that physicians' negative attitudes and perceptions toward obese individuals may be increasing over time in parallel with the dramatic increase in the prevalence of obesity in the past decade.[30] Alternatively, patients may be more likely to report physicians' negative attitudes and interactions as the obesity epidemic has become a major public health and public policy issue.[30]

Nevertheless, this study has some limitations due to the use of cross-sectional and self-reported data to measure obesity status. Although self-reported weight and height are a common measure of obesity because they are easy to collect and readily available in most household and community-based data sets, previous studies found that these are inaccurate measures of obesity because they do not distinguish fat from muscle, bone, or other lean body mass. Also, the data on patient-physician communication are self-reported by the patient and not observed or measured directly. Even though these self-reported measures have high internal validity, to our knowledge, they have not been validated in any studies that have measured patient outcomes directly. Future research may attempt to replicate these findings by using data with more objective measures of obesity.[31] Furthermore, while findings showed a reduced physician-patient communication composite score of 0.19 points compared with non-obese patients, the difference between the two groups is very small, which may limit the clinical relevance of this outcome. Nevertheless, disparities in physician-patient communication in clinical settings by obesity status occur because the quality of patient-physician interactions is known to be associated with patients' satisfaction, treatment adherence, and improved health outcomes.[1-9]

Conclusions and Implications

The present study contributes to the understanding of the association between patient-physician communication and obesity status. We found a negative association between patient-physician communication and patients' obesity status. Findings from this study may have important clinical, public health, public policy, and research implications. Specifically, these results may underscore the importance of

Table 3. OLS and Logistic Regression Results for the Total Sample, Pooled MEPS 2005-2007.

	Patient-physician relationship composite score			Physician shows respect to patients			Physician listens to patients			Physician explains well			Physician spends enough time with patients			Physician involves patients in treatment		
Variables	Coefficient	95% CI	*p* value	OR	95% CI	*p* value	OR	95% CI	*p* value	OR	95% CI	*p* value	OR	95% CI	*p* value	OR	95% CI	*p* value
Obese	−0.19	[−0.34, −0.03]	.02*	0.77	[0.61, 0.98]	.04*	0.82	[0.65, 1.02]	.07	0.93	[0.74, 1.17]	.53	0.80	[0.62, 0.99]	.04*	0.98	[0.83, 1.18]	.82
Female	−0.10	[−0.24, 0.04]	.15	1.03	[0.80, 1.34]	.81	0.97	[0.79, 1.20]	.79	1.04	[0.82, 1.33]	.72	1.01	[0.84, 1.18]	.92	1.05	[0.91, 1.21]	.53
Age group																		
25-34	−0.16	[−0.56, 0.24]	.44	0.95	[0.59, 1.55]	.86	0.75	[0.46, 1.21]	.24	0.88	[0.55, 1.40]	.59	0.98	[0.59, 1.37]	.92	0.92	[0.57, 1.46]	.71
35-44	0.28	[−0.05, 0.62]	.10	1.71	[1.06, 2.75]	.03*	1.62	[1.03, 2.54]	.04*	1.74	[1.14, 2.65]	.01*	1.50	[1.16, 1.83]	.00**	1.06	[0.70, 1.59]	.79
45-54	0.12	[−0.19, 0.44]	.45	1.01	[0.64, 1.57]	.98	1.16	[0.76, 1.77]	.49	1.23	[0.78, 1.93]	.37	1.31	[0.98, 1.64]	.07	0.84	[0.39, 1.24]	.39
55-64	0.25	[−0.08, 0.58]	.14	1.18	[0.73, 1.91]	.51	1.63	[1.02, 2.59]	.04*	1.34	[0.85, 2.10]	.21	1.47	[1.12, 1.82]	.01*	0.94	[0.61, 1.43]	.76
Race																		
Black	0.47	[0.26, 0.69]	.00**	1.60	[1.10, 2.32]	.01*	1.38	[0.98, 1.94]	.07	0.85	[0.62, 1.15]	.28	1.31	[1.02, 1.60]	.03*	0.78	[0.62, 0.98]	.04*
Hispanic	−0.11	[−0.38, 0.15]	.39	1.06	[0.75, 1.48]	.75	1.01	[0.73, 1.40]	.96	0.54	[0.39, 0.77]	.00**	1.00	[−0.71, 1.30]	.99	0.78	[0.57, 1.06]	.11
Asian	−0.67	[−1.07, −0.28]	.00**	0.90	[0.54, 1.51]	.69	0.67	[0.43, 1.05]	.08	0.58	[0.34, 0.98]	.04*	0.51	[−0.14, −0.87]	.01*	0.86	[0.58, 1.28]	.46
Other	0.16	[−0.35, 0.68]	.53	1.48	[0.69, 3.18]	.32	2.04	[0.94, 4.45]	.07	2.43	[1.00, 5.89]	.05*	1.19	[−0.60, 1.78]	.53	0.69	[0.35, 1.36]	.29
Education																		
High school graduate	0.01	[−0.22, 0.23]	.96	0.99	[0.73, 1.33]	.94	1.12	[0.82, 1.52]	.48	0.85	[0.63, 1.14]	.28	0.93	[0.69, 1.18	.59	1.10	[0.40, 1.38]	.40
College graduate	−0.13	[−0.39, 0.13]	.33	1.06	[0.72, 1.57]	.76	1.02	[0.70, 1.47]	.93	0.99	[0.65, 1.53]	.98	0.88	[0.58, 1.17]	.42	0.96	[0.74, 1.24]	.74
Graduate school	−0.03	[−0.32, 0.27]	.86	1.40	[0.82, 2.38]	.21	1.17	[0.76, 1.81]	.48	1.38	[0.81, 2.36]	.24	0.81	[0.47, 1.15]	.28	1.27	[0.89, 1.79]	.18
Income																		
100%-199% of FPL	−0.26	[−0.61, 0.09]	.15	0.88	[0.57, 1.36]	.57	0.95	[0.64, 1.40]	.80	0.71	[0.46, 1.09]	.12	0.86	[0.51, 1.21]	.42	0.91	[0.65, 1.27]	.57
200%-400% of FPL	−0.29	[−0.63, 0.05]	.10	1.08	[0.67, 1.75]	.74	1.02	[0.66, 1.57]	.93	0.89	[0.55, 1.45]	.65	0.96	[0.58, 1.34]	.85	0.89	[0.64, 1.26]	.52
Over 400% of FPL	−0.14	[−0.49, 0.20]	.41	1.28	[0.80, 2.06]	.31	0.96	[0.61, 1.52]	.88	1.08	[0.66, 1.76]	.75	0.98	[0.59, 1.38]	.94	1.04	[0.74, 1.45]	.84
Insurance																		
Public insurance	−0.48	[−0.79, −0.17]	.00**	0.72	[0.48, 1.08]	.11	0.59	[0.39, 0.89]	.01*	0.79	[0.51, 1.21]	.27	0.63	[0.32, 0.94]	.02*	0.73	[0.55, 0.97]	.03*
Uninsured	−0.36	[−0.68, −0.05]	.02*	0.68	[0.47, 0.99]	.05*	0.56	[0.38, 0.83]	.00**	0.80	[0.55, 1.16]	.23	0.64	[0.33, 0.95]	.02*	1.16	[0.81, 1.65]	.42
Health behaviors																		
Smokes	−0.17	[−0.39, 0.05]	.12	0.69	[0.51, 0.94]	.02*	0.74	[0.57, 0.96]	.02*	0.68	[0.52, 0.91]	.01*	0.72	[0.52, 0.92]	.01*	0.89	[0.73, 1.10]	.29
Physically active	0.18	[0.02, 0.34]	.03*	1.12	[0.88, 1.43]	.36	1.20	[0.96, 1.50]	.12	0.99	[0.79, 1.24]	.92	1.18	[1.01, 1.36]	.04*	1.00	[0.84, 1.20]	.99
Co-morbid cardiovascular conditions	0.05	[−0.12, 0.21]	.59	1.10	[0.83, 1.44]	.50	1.06	[0.85, 1.31]	.62	1.14	[0.86, 1.49]	.36	1.16	[0.95, 1.37]	.13	0.92	[0.77, 1.11]	.41
Region																		
Midwest	−0.15	[−0.34, 0.04]	.11	0.71	[0.49, 1.02]	.07	0.88	[0.65, 1.19]	.41	0.87	[0.64, 1.18]	.36	0.89	[0.63, 1.14]	.37	0.98	[0.74, 1.30]	.90
South	−0.43	[−0.61, −0.25]	.00**	0.55	[0.39, 0.77]	.00**	0.57	[0.43, 0.76]	.00**	0.64	[0.49, 0.85]	.00**	0.53	[0.30, 0.77]	.00**	0.86	[0.68, 1.10]	.24
West	−0.35	[−0.59, −0.12]	.00**	0.61	[0.41, 0.93]	.02*	0.62	[0.44, 0.86]	.01*	0.79	[0.56, 1.12]	.19	0.63	[0.37, 0.89]	.01*	0.97	[0.73, 1.30]	.84
Constant	12.92	[12.45, 13.39]																

Note. MEPS = Medical Expenditure Panel Survey; CI = confidence interval; OR = odds ratio; FPL = federal poverty line.
*$p < .05$. **$p < .01$.

providing diversity and sensitivity training to physicians and medical students to improve patient-physician communication for obese individuals. It has been documented that patients who feel comfortable with their physicians during their clinical encounters are more likely to initiate and comply with the treatment regimen.[1-8] Given the limited efficacy of current prevention and intervention programs, these findings may also inform public health practitioners in the design of effective initiatives that account for the needs and circumstances of obese individuals.

Furthermore, evidence from this study may play a key role in informing policy makers in their continuous efforts to translate effective research into nationwide practices for preventing and treating obesity. This is particularly important in the context of the current health care reform law that increases Medicaid reimbursement payments and provides incentives for primary care physicians to coordinate care. As such, these Medicaid payment reforms and care coordination should focus on the patient-centered medical home (PCMH) model for individuals with obesity. In terms of research implications, additional research will be needed to fully evaluate the mechanisms and the sources of providers' weight bias and its impact on quality of care and health outcomes.

So What? Implications for Health Promotion Practitioners and Researchers

What is already known on this topic?. Existing evidence suggests that the quality of patient-physician communication during clinical encounters may vary depending on individuals' BMI. Similar findings have been reported by studies that considered patients' views of patient-physician communication in primary care settings.

What does this article add?. The current study focuses on ambulatory care settings, including office-based visits, clinics, and hospital outpatient settings, and uses nationally representative data sets.

What are the implications for health promotion practice or research?. Findings from this study may underscore the importance of providing diversity and sensitivity training to physicians and medical students to improve patient-physician communication for obese individuals. Findings may also inform public health practitioners in the design of effective initiatives that account for the needs and circumstances of obese individuals. Furthermore, evidence from this study may play a key role in informing policy makers in their continuous efforts to translate effective research into nationwide practices for preventing and treating obesity. This is particularly important in the context of the current health care reform law that increases Medicaid reimbursement payments and provides incentives for primary care physicians to coordinate care.

Declaration of Conflicting Interests

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