



Short Report

Association between obesity and patient-centered measures using the medical expenditure panel survey

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ARTICLE INFO

Article history:

Received 11 September 2017

Received in revised form 1 June 2018

Accepted 17 July 2018

Keywords:

Obesity

Aging

Quality

Patient-centered outcomes

ABSTRACT

Patient-centeredness is an important factor in patient health and engagement but its association in patients with obesity is not thoroughly understood. Of 28,854 participants aged ≥ 60 from the Medical Expenditure Panel Survey 2004–2013, we evaluated four patient-centered domains: patient/provider relationship, shared-decision making, access to care, overall medical care provider rating, and prescription care. Weighted logistic (OR [95% CI]) and linear ($\beta \pm$ s.e.; p-value) regression models demonstrated that participants as having obesity reported a marginally higher delay in getting the necessary care than healthy BMI (OR 1.25 [1.01, 1.53]). Older adults with obesity report reduced perceived access to care.

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Introduction

The prevalence of body mass index-defined obesity in older adults aged 65 years and older is approaching 40% in the United States population [1]. This chronic disease places older adults at considerable risk for medical comorbidity [2] and functional decline [3], and increases their risk of long-term institutionalization [4] and mortality [5]. Individuals with obesity require increased attention to medical needs for diagnosis and/or treatment or self-management of their medical conditions. Data suggest that patients with obesity experience body shaming, discrimination, and stigma [6], which can impact healthcare contact, access, and utilization [7]. However, there is limited knowledge of whether older adults with obesity have different satisfaction rates, relationships with their provider, or access to medical care. Patient-centered care is often a mediator of more distal outcomes such as functional status and medical comorbidity [8]. In an era of patient-centered care where payment models have begun incorporating patient quality mea-

asures, we sought to identify whether such indicators differ across BMI categories in order to ascertain whether care delivery systems need to be altered for this population.

Materials & methods

The Medical Expenditure Panel Survey (MEPS) is a nationally representative survey of non-institutionalized United States adults, which samples households from the previous year's National Health Interview Survey. MEPS oversamples race/ethnic groups and lower income participants. We used 2004–2013 data and used variables from the first of five in-person interview dates, merging them in accordance to the analytical guidelines. The total sample consisted of 133,248 participants, of whom we excluded participants younger than age 60 ($n = 104,394$), and subjects without data on BMI ($n = 1224$). The study was deemed exempt from our local Institutional Review Board due to the de-identified status of data.

A number of quality measures exist within MEPS, which are asked using a self-reported questionnaire. We focused on the following domains and their respective questions from the administered survey: Patient/Provider relationship (i.e. provider listened carefully; explained things in an understandable way; showed respect; spent enough time); Shared Decision Making (asked patients to help make decisions; explained all options; asked about

Abbreviations: BMI, body mass index; MEPS, medical expenditure panel survey.

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<https://doi.org/10.1016/j.orcp.2018.07.009>

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Table 1
Baseline characteristics.

	Overall N = 28,854	Underweight N = 568	Healthy BMI N = 8489	Overweight N = 10,436	Obese N = 8137	p-Value
Age, years	70.8 ± 0.10	75.7 ± 0.43	72.1 ± 0.15	70.6 ± 0.12	69.1 ± 0.12	<0.001
Female sex	16,361 (55.1)	423 (75.1)	5170 (61.8)	5149 (47.4)	4865 (55.9)	<0.001
Race						<0.001
White	21,667 (85.4)	404 (81.3)	6322 (85.5)	8037 (86.3)	6034 (84.8)	
Black	4903 (9.0)	85 (8.0)	1091 (6.6)	1693 (8.9)	1762 (11.7)	
Amer. Indian, Alaska Native	182 (0.5)	5 (0.9)	43 (0.4)	64 (0.5)	61 (0.7)	
Asian	1664 (3.7)	63 (7.5)	901 (6.4)	499 (3.2)	145 (1.2)	
Native Hawaiian, Pacific Islander	94 (0.2)	4 (0.6)	36 (0.2)	29 (0.2)	20 (0.2)	
Multiple races	344 (1.1)	7 (1.6)	96 (0.9)	114 (1.0)	115 (1.4)	
Marital status						<0.001
Married	15,932 (58.5)	205 (36.7)	4548 (56.0)	6169 (62.2)	4380 (58.2)	
Widowed	6905 (22.7)	223 (40.5)	2256 (26.0)	2213 (19.9)	1881 (21.3)	
Divorced	3937 (13.0)	85 (14.8)	1085 (12.4)	1361 (12.5)	1255 (14.4)	
Separated	588 (1.3)	15 (1.5)	147 (1.1)	208 (1.4)	190 (1.6)	
Never married	1467 (4.4)	40 (6.5)	453 (4.5)	485 (4.0)	429 (4.6)	
Smoking status						<0.001
Smoker	3212 (11.9)	126 (25.9)	1180 (14.6)	1069 (11.0)	725 (9.2)	
Non-smoker	22,556 (88.1)	357 (74.1)	6399 (85.4)	8394 (89.0)	6680 (90.8)	
Education, years	11.5 ± 0.06	10.8 ± 0.31	11.8 ± 0.09	11.6 ± 0.08	11.3 ± 0.09	<0.001
Wages, \$	14,405 ± 307	14,365 ± 660	13,682 ± 482	15,801 ± 426	14,562 ± 495	<0.001
Region						<0.001
Northeast	4810 (19.5)	76 (19.3)	1448 (20.1)	1720 (18.8)	1365 (19.7)	
Midwest	5860 (21.8)	108 (17.6)	1586 (19.9)	2137 (22.5)	1813 (23.9)	
South	11,282 (37.2)	232 (38.6)	3126 (35.6)	4122 (38.0)	3314 (37.6)	
West	6902 (21.5)	152 (24.5)	2329 (24.3)	2457 (20.7)	1645 (18.8)	
Metropolitan area						0.003
Urban	20,467 (80.8)	414 (82.3)	6180 (82.4)	7399 (80.7)	5572 (78.9)	
Rural	5019 (19.2)	97 (17.7)	1368 (17.6)	1835 (19.3)	1501 (21.1)	
Arthritis	4322 (47.4)	93 (42.8)	1196 (42.0)	1502 (44.5)	1444 (59.0)	<0.001
Hypertension	18,313 (62.4)	280 (48.4)	4563 (51.6)	6608 (61.9)	6235 (75.6)	<0.001
Depression	6890 (24.4)	166 (33.1)	1892 (23.0)	2238 (21.7)	2287 (27.9)	<0.001
Heart attack	2816 (10.3)	58 (10.2)	743 (8.5)	1021 (9.6)	994 (13.0)	<0.001
Emphysema	1485 (5.3)	104 (19.9)	439 (5.4)	443 (4.4)	49 (5.5)	<0.001
Cancer	3863 (26.6)	71 (27.9)	1199 (29.0)	1363 (26.4)	1073 (24.3)	<0.001
Chronic Bronchitis	747 (4.4)	19 (7.2)	162 (3.2)	232 (3.7)	299 (6.1)	<0.001
Diabetes	6410 (19.7)	44 (6.1)	1119 (10.9)	2121 (17.5)	2870 (32.8)	<0.001
Any Limitations	15,138 (52.3)	384 (69.0)	4063 (47.5)	5009 (47.7)	4999 (61.1)	<0.001

All values represented are means ± standard errors, or counts (weighted percentages).

prescriptions); access to Care (did not get care right way; had a delay in getting an appointment; difficulty in contacting the provider; difficulty contacting the provider after hours; unable to obtain medical treatment; delay in getting necessary care); overall medical care provider rating (assessed on a scale of 1–9) and prescription care (unable to get prescription medications or a delay in getting prescription medications). Each of these domains were dichotomized.

Self-reported height and weight were used to calculate body mass index (BMI) in kg/m², and categorized as follows: underweight (≤ 18.5 kg/m²), health BMI (18.5–24.9 kg/m²), overweight (25.0–29.9 kg/m²) and obesity (≥ 30 kg/m²). Rural/urban status was determined by metropolitan statistical area as defined by the Office of Management and Budget. Age was measured in years and top coded at 85 years. Top coding is a process where values on the upper end of a range are grouped together to preserve confidentiality as few people are sampled in this distribution. Sex, marital status, race/ethnicity, education, household income were all obtained using standardized questionnaires. All co-morbidities were assessed using the question, “Did a doctor ever tell you that you had [medical condition].” Participants were considered to have ‘any limitation’ if they had any self-reported difficulty in instrumental, basic, social cognitive or walking limitations.

Statistical analysis

Descriptive statistics for continuous variables are represented as means ± standard errors, and categorical variables as counts (%).

All analyses reflect the survey design using estimated weights, sampling strata and primary sampling unit. All baseline characteristics and univariate results of the quality measures were compared using an $r \times c$ chi square or an ANOVA, across BMI categories. The primary aim was to assess whether there were differences among each of the quality measures by BMI status. We created three models (Model 1: unadjusted; Model 2: age and sex; and Model 3: age, sex, wages, depression, heart disease, arthritis, emphysema, high blood pressure or diabetes). The adjusted multivariable model estimated the odds of each quality measure (yes/no) associated with each BMI category (referent = 18.5–24.9 kg/m²). Analyses were conducted using STATA v.13 (College Station, TX) and a p -value of <0.05 was considered statistically significant.

Results

We identified 28,854 participants aged ≥ 60 years (Table 1), mean age 70.8 ± 0.10 (SE) and the majority were female (55.1%). There were significant differences across BMI categories in all baseline characteristics. Generally, medical comorbidity was high in both underweight and in participants in the obesity category. Table 2 and Appendix 1 reflect the univariate results of the quality indicators. Across BMI categories, there were statistically significant differences observed in the perception of: the manner in which the provider showed respect; the ability to contact the provider after hours; ability to obtain medical treatment; and in a delay in obtaining necessary care. There were differences observed across overall rating of healthcare and in the perception of the capacity in

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