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### Acknowledgements

none

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## ORIGINAL RESEARCH

# Physician Gender Impacts Obesity Care in the Academic Ambulatory Setting

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**Introduction:** We assessed a nationally representative sample of academic family physicians to determine whether physician characteristics correlate with attitudes towards and care of overweight and/or obese patients.

**Methods:** Academic family physicians answered a questionnaire assessing their interactions with overweight and obese patients. The questionnaire was a subset of questions from the 2012 Council of Academic Family Medicine Educational Research Alliance (CERA) survey. We compared physicians' self-reported demographics and personal characteristics [e.g., gender and body mass index (BMI)] with their self-reported likelihood of engaging in weight-loss discussions with overweight or obese patients.

**Results:** Of the 1099 physicians surveyed, 36% were overweight and 14% were obese. We found no differences in the self-reported likelihood of physicians discussing weight-loss strategies with either overweight or obese patients based on BMI. We also found that 77% of female and 64% of male physicians reported being very/extremely likely to discuss weight loss with their obese patients at their most recent visit. More female physicians (79%) reported discussing weight-loss strategies often or at every visit than male physicians (69%). Finally, female physicians self-reported more minutes spent counseling overweight and obese patients.

**Conclusions:** Female family medicine physicians are more likely than their male counterparts to discuss weight-loss strategies with obese patients and to spend more time on these discussions. Self-reported physician BMI was not associated with these behaviors.

**Keywords:** gender disparity, obesity care, epidemiology

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Approximately 70% of U.S. adults are considered overweight or obese, and 36.5% of those adults meet the classification for obesity [body mass index (BMI) > 30].<sup>1</sup> Overweight or obese patients are at increased risk for adverse health outcomes, including diabetes mellitus type II, heart disease, hypertension, non-alcoholic fatty liver disease, osteoarthritis, cancer, and stroke.<sup>1</sup> Despite these known risks, primary care physicians do a poor job of documenting obesity on patients' medical problem lists,<sup>2</sup> even with evidence that

physicians addressing obesity impacts patient awareness and behavior.<sup>3</sup>

Studies have associated physician characteristics (e.g., BMI, gender, knowledge of weight-management strategies) with the likelihood of self-reporting comfort with addressing issues of overweight and obesity in patients. Bleich et al showed that when U.S. primary care physicians' perception of the patient's body weight meets or exceeds their own personal body weight, they have a higher probability of recording an obesity diagnosis or starting a weight-loss conversation. This finding suggests that physicians of normal BMI provide recommended obesity care more often than overweight and obese physicians.<sup>4</sup> In a systematic

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review, Zhu et al demonstrated physicians and nurses of normal BMI were more confident in their weight-management practices, perceived fewer barriers to weight management, had more positive outcome expectations, and felt more negative attitudes towards obese individuals than physicians and nurses who were overweight or obese.<sup>5</sup> They also found that female physicians and physicians with clinical experience in weight management had a more positive attitude towards overweight and obese patients.<sup>5</sup>

Frank et al surveyed 1,000 U.S. physicians on the frequency with which they reviewed their patients' health behaviors and counseled them about unhealthy behaviors. They found that female family practice physicians are more likely to counsel their patients on unhealthy behaviors than male family practice physicians and female non-primary care physicians.<sup>6,7</sup> In a separate study of 4,501 respondents to the Women's Physicians' Health Study (a large questionnaire-based study of health behaviors and counseling practices of U.S. female physicians), Frank et al also showed that female physicians report that they regularly perform a higher proportion of nutrition and weight-loss counseling compared to other prevention counseling.<sup>8</sup>

Physician gender affects their approach to delivering medical care. It is also associated with differences in the quality of managing several common medical issues, including diabetes, hypertension, and hyperlipidemia. In a cross-sectional study of over 50,000 outpatients, patients of female physicians were more likely to reach a target hemoglobin A1c (HgbA1c) of < 6.5%, have low-density lipoprotein (LDL) levels < 100, and meet blood pressure goals of < 130 systolic blood pressure when compared to patients of male physicians.<sup>9</sup> Journath et al found that female physicians were more likely to achieve hypertension-management goals (blood pressure < 140/90) in their female patients and better cholesterol management in both male and female patients when compared to male physicians.<sup>10</sup>

Given these findings, we wondered whether the assessment and management of overweight and obese patients in an academic family medicine setting would follow the patterns observed in the literature thus far. Since academic physicians are role models for young physicians, we expected they might remain up-to-date on important guidelines regarding preventive practice and work to curtail

their own biases in practice. Thus, we surveyed academic physicians to evaluate a relationship between self-reported physician gender and weight status and perceptions of weight-loss management. Specifically, we assessed a nationally representative sample of academic family medicine physicians to determine whether their personal characteristics were associated with their attitudes and practices in caring for overweight and obese patients.

## METHODS

This study analyzed a subset of questions addressing physician's interactions with patients (either overweight or obese) that were administered on the 2012 Council of Academic Family Medicine Educational Research Alliance (CERA) survey. CERA is a joint initiative of all four major U.S. organizations for academic family medicine, including the Society of Teachers of Family Medicine, North American Primary Care Research Group, Association of Departments of Family Medicine, and Association of Family Medicine Residency Directors. Further information regarding the survey can be found at: <http://www.stfm.org/Research/CERA>. The CERA survey data was analyzed using SAS software, version 9.2.

Respondents were asked basic demographic questions, including gender, age, ethnicity, rank, terminal degree, primary academic alignment, and time spent in clinic. They were also asked questions regarding their interactions with overweight and obese patients.

The primary outcome of interest was the association between the self-reported likelihood of engaging in weight-loss discussions with overweight and/or obese patients and the physicians' personal characteristics (gender and BMI category). Secondary outcomes of interest included the frequency or comfort that providers reported in their own clinical activity: discussing weight-loss strategies with their overweight and/or obese patients; addressing weight issues with patients; endorsing beliefs that overweight and/or obese patients are non-adherent to recommendations, or that overweight and/or obese patients care less about their health; and reported time (in minutes) spent addressing weight-loss strategies with overweight and obese patients. The responses were collected using a variable five-point Likert scale. For ease of analysis, the responses were either dichotomized to the top two categories

(likelihood: very/extremely; frequency: often/every visit) and the bottom three categories (likelihood: not at all/little/somewhat; frequency: never/rarely/sometimes), or they were categorized into three groups (preserving a “neutral” or “sometimes” middle category when sample size allowed). Chi-square analysis was used to test all associations.

## RESULTS

The survey respondents included 581/1099 total physicians (response rate: 52.9%). About 58% of the respondents were male, 66% were between the ages of 40 and 59, and 85% self-identified as white or Caucasian. Approximately 36% of physicians reported they were themselves overweight (BMI > 25, with more overweight male physicians) and 14% were obese (BMI > 30) (Table 1).

Overall, 56% and 70% of physicians reported being “very or extremely likely” to discuss weight-loss strategies with their overweight and obese patients, respectively. We categorized physicians by their own BMI and found no significant differences in their self-reported likelihood of discussing weight-loss strategies with either their overweight ( $p = 0.80$ ) or obese patients ( $p = 0.28$ ). Based on physician BMI, there was no significant difference in how frequently physicians discussed weight-loss strategies with their overweight ( $p = 0.22$ ) or obese patients ( $p = 0.42$ ). Overall, physician BMI was not significantly associated with any of the reported behavior, comfort, perceived barrier, or belief variables with regards to overweight or obese patients (Table 2).

Female physicians reported a significantly greater likelihood of discussing weight loss with their obese patients at their most recent visit when compared to male physicians (very/extremely: females 77%, males 64%;  $p = 0.002$ ). Female physicians also report discussing weight-loss strategies more frequently with obese patients than male physicians (often/every visit: females 79%, males 69%;  $p = 0.02$ ). Physician gender was not associated with the likelihood or frequency of weight-loss discussions with overweight patients. While not significant, female physicians were more likely to discuss weight loss and weight-loss strategies with overweight patients. Similarly, female physicians were more comfortable addressing weight loss with overweight patients (very/extremely: females 84%, males 78%;  $p = 0.08$ ). There was a significant difference in the perception of patient non-adherence as a barrier to care. Indeed, female physicians were less likely to

report patient non-adherence as a barrier to weight-loss counseling (often/always: females 31%, males 42%;  $p = 0.007$ ). However, there were no significant differences between genders in the perception of fear of offending patients as a barrier to care ( $p = 0.23$ ).

In terms of beliefs, female physicians were more likely to “completely or somewhat disagree” that overweight and obese patients are non-adherent to weight-management recommendations (females 68%, males 57%;  $p = 0.048$ ). Female physicians were less likely to feel that overweight and obese patients care less about their health ( $p = 0.01$ ). Finally, female physicians spent significantly more time counseling their overweight and obese patients than male physicians ( $p = 0.0001$ ) (Table 3).

We conducted a separate, stratified analysis of physician BMI and weight-loss counseling practices among male and female physicians. The results were similar, with no associations between physician BMI and any reported variables among male or female physicians.

## DISCUSSION

This study is the first to survey a general cross-section of academic family physicians about their practices related to caring for patients who are overweight or obese. In our sample, there was no significant difference between physician BMI and how they reported their weight-management counseling for overweight or obese patients. However, our analysis did show that female physicians are more likely than male physicians to report discussing weight loss and weight-loss strategies with their obese patients. Although previous studies showed that physicians with normal BMI provide recommended weight-loss counseling more often than overweight and obese physicians, our findings do not support this conclusion.

Our data suggests that female family medicine physicians are more likely to discuss and commit more time to discussing weight-loss strategies with their obese patients. Other studies have shown that female physicians are more likely to practice evidence-based medicine,<sup>6,7</sup> suggesting that they may take appropriate measures to address weight-loss strategies based on current guidelines and recommendations in the literature. The differences in management of obesity based on physician

gender could also be attributed to differences between female and male practice patterns, including communication styles, variable focus on preventative care, and differences in adherence to evidence-based guidelines. Additionally, the observed difference could be inherent biases that patients have towards both male and female physicians that affect the type of care they expect to receive from their provider.

The fact that there are differences in the way that female and male physicians' practice is not novel. Several studies found that female primary care physicians are more likely to counsel their patients on preventive care, especially nutrition and weight management, compared to male primary care physicians.<sup>8</sup> Female physicians also have better outcomes in management of hypertension, diabetes mellitus type II, and hyperlipidemia.<sup>9,10</sup> However, few studies have shown that the differences in practice patterns between male and female physicians actually produce variable outcomes in patient mortality. One such study comparing hospital mortality and readmission rates between Medicare patients treated by male and female hospitalists found that those treated by female hospitalists had significantly lower hospital mortality and readmission rates.<sup>11</sup> If the differences in the way that male and female physicians deliver care affect the quality of patient outcomes, we urgently need additional research on this topic to address these disparities in care.

Our study had a few notable limitations and strengths. First, we relied on self-reported data from physicians, which may be skewed by reporter bias

that under- or overestimates true behavior. Second, the sample population may not be generalizable to medical providers outside of academic family medicine. Third, while we know the physicians' rank and average time spent performing clinical duties, we do not know the specific patient populations that the physicians served. Although this data was collected in 2012, there have been no notable changes in clinical practice guidelines that would suggest our data is outdated. A larger sample size may better assess potential relationships between physician characteristics and weight-loss management. The strength of this study is that the survey mechanism is a nationally recognized tool for practice research among academic family physicians, with a high rate of response and engagement in completing the survey.

## CONCLUSIONS

Using CERA survey data, we found that female family medicine physicians are more likely than their male counterparts to discuss weight-loss strategies with obese patients. We also noted that female family medicine physicians report spending more time discussing weight-loss strategies. However, self-reported physician BMI was not associated with these behaviors. While our study correlated physician gender with differences in how physicians discussed weight-loss strategies with obese patients, future research may delineate whether this finding applies in non-academic and non-primary care settings. Future research may also determine whether the effects of physician gender also associate with differences in weight-management plans and health outcomes for overweight and obese patients.

**Table 1.** Demographics among CERA respondents (N = 581)

Characteristics*	n	%	Male		Female		p-value
			n	%	n	%	
<b>Gender</b>							
Male	334	58.0	-	-	-	-	
Female	242	42.0	-	-	-	-	
<b>Age category</b>							
<40	91	15.6	34	10.2	57	23.6	<0.0001
40–49	173	29.9	87	26.1	86	35.5	
50–59	209	36.2	132	39.6	75	31.0	
>60	105	18.2	80	24.0	24	9.9	
<b>Race/ethnicity</b>							
White	483	84.7	289	87.8	191	80.3	0.030
Black	27	4.7	9	2.7	18	7.6	
Hispanic	25	4.4	12	3.7	13	5.5	
Asian	35	6.1	19	5.8	16	6.7	
<b>Number of half days in clinic</b>							
<3	301	52.2	174	52.4	125	51.7	0.949
3–6	263	45.6	151	45.5	111	45.9	
>7	13	2.3	7	2.1	6	2.5	
<b>Rank</b>							
Assistant Professor	183	31.7	81	24.3	102	42.5	<0.0001
Associate Professor	181	31.4	100	29.9	81	33.8	
Full Professor	184	31.9	136	40.7	45	18.8	
Other	29	5.0	17	5.1	12	5.0	
<b>Degree</b>							
MD	543	94.1	313	94.0	227	94.2	0.355
DO	24	4.2	16	4.8	8	3.3	
Other	10	1.7	4	1.2	6	2.5	
<b>Physician BMI</b>							
Normal (18.5–24.9)	263	50.1	135	43.8	128	59.0	0.002
Overweight (25–29.9)	188	35.8	128	41.6	60	27.7	
Obese (30+)	74	14.1	45	14.6	29	13.4	

\*N = 581 total; totals may not add to 581 due to missing values as follows:

gender = 5, age category = 3, race/ethnicity = 11, days in clinic = 4, rank = 4, degree = 4, BMI = 53.  
Male and female rows do not add to overall totals due to the missing gender for 5 participants.

**Table 2.** Beliefs and practices reported for overweight or obese patients by physician BMI

		Physician BMI						p-value
		Normal (N = 265)		Overweight (N = 189)		Obese (N = 74)		
		n	%	n	%	n	%	
Q9	Overweight patient: How likely to discuss WL at most recent visit							
	Not at all/Little/Somewhat	111	42.4	86	45.5	32	43.8	0.8
	Very/Extremely	151	57.6	103	54.5	41	56.1	
Q10	Overweight patient: How frequently discuss WL strategies							
	Never/Rare/Sometimes	82	31.4	73	38.8	28	38.4	0.22
	Often/Every Visit	179	68.6	115	61.2	45	61.6	
Q12	Obese patient: How likely to discuss WL at most recent visit							
	Not at all/Little/Somewhat	68	26.5	59	31.9	24	34.8	0.276
	Very/Extremely	189	73.5	126	68.1	45	65.2	
Q13	Obese patient: How frequently do you discuss WL strategies							
	Not at all/Rarely/Sometimes	62	23.9	53	28.3	21	30.4	0.417
	Often/Every visit	197	76.1	134	71.7	48	69.6	
Q15	Physician comfort with addressing weight							
	Little/Somewhat	51	19.4	33	17.6	17	23.3	0.572
	Very/Extremely	212	80.6	155	82.5	56	76.7	
Q22	Barriers to care: Patient non-adherence prevents WL counseling							
	Rarely/Occasionally	84	32.1	57	30.2	31	42.5	0.291
	Sometimes	83	31.7	54	28.6	17	23.3	
	Often/Always	95	36.3	78	41.3	25	34.3	



**Table 2.** (Continued) Beliefs and practices reported for overweight or obese patients by physician BMI.

		Physician BMI						p-value
		Normal (N = 265)		Overweight (N = 189)		Obese (N = 74)		
		n	%	n	%	n	%	
Q23	Barriers to care: Fear of offending patient prevents WL counseling							
	Rarely/Occasionally	207	79.3	163	86.2	55	76.4	
	Sometimes	42	16.1	23	12.2	12	16.7	0.138
	Often/Always	12	4.6	3	1.6	5	6.9	
Q24	Feel that overweight/obese patients are nonadherent to recommendations							
	Completely/Somewhat Disagree	150	57.0	122	64.6	51	69.9	
	Neutral	82	31.2	52	27.5	17	23.3	0.218
	Somewhat/Completely Agree	31	11.8	15	7.9	5	6.9	
Q25-1	Feel that overweight/obese patients care less about their health							
	Completely/Somewhat Disagree	190	72.2	149	78.8	63	86.3	
	Neutral	54	20.5	31	16.4	8	11.0	0.116
	Somewhat/Completely Agree	19	7.2	9	4.8	2	2.7	
Q20	Minutes spent addressing WL with overweight/obese patients							
	5 or less	166	63.9	126	67.7	47	66.2	
	6–10 mins	72	27.7	47	25.3	17	23.9	0.87
	>10 min	22	8.5	13	7.0	7	9.9	

BMI, body mass index; WL, weight loss.

**Table 3.** Beliefs and practices reported for overweight or obese patients by physician gender.

		Physician Gender				p-value
		Male (N=334)		Female (N=242)		
		n	%	n	%	
Q9	Overweight patient: How likely discussed WL at most recent visit					
	Not at all/Little/Somewhat	151	46.8	93	39.7	0.1
	Very/Extremely	172	53.2	141	60.3	
Q10	Overweight patient: How frequently discuss WL strategies					
	Never/Rare/Sometimes	125	38.9	73	31.3	0.07
	Often/Every Visit	196	61.1	160	68.7	
Q12	Obese patient: How likely discussed WL at most recent visit					
	Not at all/Little/Somewhat	111	35.6	52	22.9	0.002
	Very/Extremely	201	64.4	175	77.1	
Q13	Obese patient: How frequently do you discuss WL strategies					
	Never/Rarely/Sometimes	97	30.8	49	21.5	0.016
	Often/Every visit	218	69.2	179	78.5	
Q15	Comfort addressing weight					
	Little/Somewhat	70	21.9	37	16.0	0.082
	Very/Extremely	250	78.1	195	84.1	
Q22	Barriers to care: Patient non-adherence prevents WL counseling					
	Rarely/Occasionally	102	32.5	77	33.6	0.007
	Sometimes	79	25.2	82	35.8	
	Often/Always	133	42.4	70	30.6	
Q23	Barriers to care: Fear of offending patient prevents WL counseling					
	Rarely/Occasionally	262	83.4	177	78.0	0.232
	Sometimes	42	13.4	38	16.7	
	Often/Always	10	3.2	12	5.3	

**Table 3. (continued)** Beliefs and practices reported for overweight or obese patients by physician gender.

		Physician Gender				p-value
		Male (N=334)		Female (N=242)		
		n	%	n	%	
Q24	Feel that overweight/obese patients are nonadherent to recommendations					
	Completely/Somewhat Disagree	180	57.3	155	67.7	0.048
	Neutral	99	31.5	56	24.5	
	Somewhat/Completely Agree	35	11.2	18	7.9	
Q25-1	Feel that overweight/obese patients care less about their health					
	Completely/Somewhat Disagree	226	72.0	190	83.0	0.011
	Neutral	66	21.0	30	13.1	
	Somewhat/Completely Agree	22	7.0	9	3.9	
Q20	Minutes spent addressing WL with overweight/obese patients					
	5 or less	227	72.8	125	55.1	0.0001
	6–10 mins	65	20.8	77	33.9	
	>10 min	20	6.4	25	11.0	

WL, weight loss.

**Conflicts of Interest:** None

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