

Female Perspectives Regarding Quality of Care and Weight-Related Communication in Obstetrics-Gynecology and Family Practices

Elizabeth Culberson^a, Lisa Kellar^b, Rose A. Maxwell^c, Miryoung Lee^d,
Leah D. Whigham^e, Steven R. Lindheim^{f, g}

Abstract

Background: The aim of this study was to evaluate the perspectives of patients with elevated body mass index (BMI) regarding the quality of care, communication, and the clinical office environment provided by obstetrics-gynecology (OBGYN) and family practices (FP) outpatient practices.

Methods: A cross-sectional 20-question survey was administered to female patients (≥ 18 years) with BMI ≥ 25 kg/m² at academic practices of OBGYN and FP clinics. Descriptive statistics and Chi-square tests were computed to assess differences by specialty. Unadjusted and adjusted ordinal regression analyses were conducted to assess factors associated with patient satisfaction with care.

Results: Responses from 330 patients (150 OBGYN and 180 FP) were included. The majority of women were between the ages of 31 and 50 (44.5%), reported BMI with class III obesity category (41.5%), and had a high school diploma or less (67.4%). Regarding clinical environment, a higher proportion of OBGYN patients (36.7% vs. 12.5%, $P < 0.001$) reported weight scales not being located in a private setting compared with FP patients. A higher proportion of OBGYN patients than FP patients (15.0% vs. 7.9%) felt their physicians were not understanding of what it meant to have overweight/obesity

($P = 0.014$) and felt their physician was uncomfortable when discussing weight-loss treatments (14.2% vs. 11.7%, $P = 0.009$). However, a higher proportion of FP patients than OBGYN patients (14.2% vs. 6.2%) were dissatisfied with the overall level of care ($P = 0.004$). There were no significant differences in the quality of treatment, level of courtesy and respect utilized during treatment.

Conclusion: Perceptions of weight-related communication and the clinical environment were significantly worse by OBGYN compared to FP patients with elevated BMI. However, satisfaction with overall level of care was significantly higher for OBGYN patients compared to FP patients. This suggests a continued need for training related to weight stigma and best practices for creating a welcoming environment in OBGYN clinics.

Keywords: Obesity; Bias; Education; Primary care; Obstetrics and gynecology; Family practice

Introduction

Within the period of a decade, Americans have demonstrated flexibility in their beliefs and attitudes regarding sexual orientation and race, approaching neutrality [1]. However, in regard with weight bias, studies have shown that both implicit and explicit weight bias is persistent among general public and in medical communities [1, 2]. This is despite the rapidly increasing rates of obesity. Over the past two decades, adult obesity prevalence increased from 30.5% in 1999 - 2000 to 41.9% in 2019 - 2020 [3, 4]. With the rising prevalence of obesity, the disease burden is also increasing and is associated with higher rates of diabetes, hypertension, hyperlipidemia, stroke, surgical complications, and malignancies [5-7]. A predominant effect of the obesity epidemic in the field of obstetrics is the increasing rates of polycystic ovarian syndrome, anovulation resulting in infertility, and endometrial cancer in women [8].

Obesity is a complex disease that requires both system- and individual-level interventions and the need for long-term investment and trust from both the provider and the patient. The patient-physician relationship is essential in the care of obesity. Physicians are a critical component to educating patients, including providing support, counseling, and treatment

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^aDepartment of Obstetrics and Gynecology, University of Central Florida, Orlando, FL, USA

^bDepartment of Family Medicine, Boonshoft School of Medicine, Wright State University, Dayton, OH, USA

^cDepartment of Obstetrics & Gynecology, Boonshoft School of Medicine, Wright State University, Dayton, OH, USA

^dDepartment of Epidemiology, Human Genetics and Environmental Sciences, The University of Texas Health Sciences Center at Houston School of Public Health, Brownsville, TX, USA

^eDepartment of Health Promotion and Behavior Sciences and Center for Community Health Impact, The University of Texas Health Sciences Center at Houston School of Public Health, El Paso, TX, USA

^fBaylor Scott & White, Temple, TX, USA

^gCorresponding Author: Steven R. Lindheim, Baylor Scott & White, Temple, TX, USA. Email: steven.lindheim@bswhealth.org

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options [9]. For women, primary care settings, including obstetrics-gynecology (OBGYN) and family practices (FP) play pivotal roles in influencing the care that women with obesity receive given the intimate nature of the history and physical examinations. Importantly, there are limited studies that look specifically at the female perspective. Hurst et al reported patients with elevated body mass index (BMI) $> 40 \text{ kg/m}^2$ undergoing prenatal care experienced weight discrimination and offered preferred terminology regarding weight including “high BMI” and “weight” rather than “obesity” or “large size” [10].

Literature suggests that lack of awareness and obesity bias can play an important role in reduced quality and frequency of provided clinical care for patients in particular preventive gynecological care, and more recently described in those with obesity who have a higher prevalence of an overactive bladder [11, 12]. This issue is still prevailing that healthcare providers feel inadequately qualified to effectively counsel patients with obesity [2]. Despite efforts in medical education to reduce weight bias, there remain ingrained physicians’ biases that can negatively affect patients’ perceptions of provider’s credibility, level of trust, and inclination to follow medical advice. From patient perspective, patients have reported weight stigma during their interaction with healthcare providers [13]. Patients perceive of being disrespected and feel that their providers have a lack of understanding on situations that could potentially lead to embarrassment including being weighed in public areas and being offered unsolicited advice to lose weight [5, 14]. These negative patient perspectives against healthcare providers lower expectations for treatment which can result in avoidance of care, poor adherence to treatment, and lack of preventative care such as mammography or Papanicolaou testing irrespective of providers’ effort and intentions [15, 16].

Due to the reported obesity bias in women’s health care in relation to obesity, we examined female patient’s perspective of potential physical and emotional barriers that may affect the experiences of patients with elevated BMI in two different primary care settings: OBGYN and FP. We assessed female patients’ perspectives regarding the quality of care, communication, and the clinical office environment provided by healthcare providers in the primary care outpatient setting.

Materials and Methods

Study sample and design

Patients of two Midwest outpatient academic practices, one OBGYN and one FP clinic, were surveyed from December 2017 to January 2018, and all adult female patients with BMI $\geq 25 \text{ kg/m}^2$ were invited to participate in a 20-question survey during their regularly scheduled clinic appointment. Included were females to control for the potential confounding effect of sex on comparisons of differences by practice type. Participants who were invited to participate were identified based on the patient’s most recent BMI obtained from the clinical site’s electronic medical record by front desk personnel. Excluded from the study were females with a BMI $< 25 \text{ kg/m}^2$ and pregnant patients. Surveys were distributed upon clinic check-in.

Patients were asked to complete the survey after their visit, and to either return the survey to a folder in the clinic or to mail it in a pre-stamped envelope to the researcher (SL). Approximately 6.6% ($n = 346/5,242$) of all invited female patients from two outpatient academic practices participated in this study. Patients originally identified with a BMI $\geq 25 \text{ kg/m}^2$ with a healthy weight (BMI < 25) at the time of distribution of the survey ($n = 8$) or with missing information on weight status ($n = 8$) were excluded from the analysis. A total of 330 patients were included in the final analysis. No identifying information was collected in the patient survey. Patient survey data were entered and managed using REDCap electronic data capture tools hosted at Wright State University. This cross-sectional survey study based on a convenient sampling of females was approved by the Wright State University Institutional Review Board (SC #6007).

Patient survey questionnaire

The survey collected information on patient and physician demographics, patients’ perceptions of clinical practice, and perceptions of the office environment. Questions utilized in the present study’s questionnaire were from previously published, validated surveys [17, 18]. Patient demographic questions included age range (21 - 30, 31 - 50, and > 50 years), ethnicity (Hispanic vs. non-Hispanic), race (White vs. other), education level (high school degree or lower vs. associate’s degree or higher), perception of their own weight (thin, average, or overweight), and self-reported height and weight, which were used to calculate BMI (kg/m^2). Weight status discrepancy was compared between perceived own weight status and CDC weight status (overweight: $25 \leq \text{BMI} < 30$; class 1 obesity: $30 \leq \text{BMI} < 35$; class 2 obesity: $35 \leq \text{BMI} < 40$; class 3 obesity: $40 \leq \text{BMI}$) calculated from self-reported weight and height. Discrepancy between patients’ perceptions of own weight status and calculated BMI categories based on self-reported weight and height was recorded: 1) underestimated (e.g., “perceived as thin” vs. overweight, “perceived as average” vs. class 1 and 2 obesity, or “perceived as overweight” vs. class 2 and 3 obesity); and 2) not.

Questions assessing the clinical environment such as the availability and suitability of resources for patients with elevated BMI were measured on a two- to three-point Likert scale. These questions included whether the weight scale was placed in a private setting of the office (0 = no, 1 = did not notice, or 2 = yes), whether the weight scale was large enough to accommodate the patient’s weight (0 = no vs. 1 = yes), and whether the gown utilized during their consultation was the appropriate size (0 = not used, 1 = too small, 2 = too large or 3 = right size). Other questions included whether the blood pressure cuff utilized during their exam was of the appropriate size (0 = too small, 1 = too large or 2 = right size) and if the exam table used during their physical exam was of the appropriate size and height (0 = not used, 1 = too small, 2 = too large or 3 = right size).

Questions regarding patients’ perspectives on clinical practice and the quality of care delivered by their physician were assessed on a four-, five- or seven-point Likert scale with

a higher score denoting a higher perceived level of care. These questions included: 1) perceived physician's level of understanding of what it feels like to be overweight/obese (1 = not at all to 7 = extremely well); 2) the frequency at which their physician treated them with courtesy and respect (1 = never, 2 = sometimes, 3 = usually or 4 = always); 3) perceived level of comfort of their physician in discussing weight-loss or obesity treatment options (1 = very uncomfortable to 7 = very comfortable, or 0 = weight not discussed); 4) perceived whether or not their physician utilized sensitivity when discussing patients' weight (1 = rarely/never, 2 = sometimes, 3 = about half of the time, 4 = most of the time, 5 = always); and 5) patients' overall satisfaction with care (1 = very dissatisfied to 7 = very satisfied). Finally, patients were asked if they felt that they were given the same quality of treatment as patients with normal BMI. The four responses were included: yes treated the same, no treated worse than patients who are not overweight/obese, no treated better than patients who are not overweight/obese, or not sure.

Statistical analyses

Statistical analysis was performed using Windows-based SAS version 9.4 (SAS Institute, Cary, NC). Categorical data were reported as frequencies and percentages, and continuous variables were reported as mean and standard deviation (SD). Group differences between patients' characteristics and perceptions of clinical practices were compared using the Student's *t*-test for continuous variables and the Chi-squared test for categorical variables. Fisher's exact test was also used to compare those cells' expected frequencies of less than 5. For those questions on a four or more-point Likert scale, the data were treated as interval data, and the response distribution was examined. Due to the lack of variation and skewness in response to those Likert scale-based questions asking patients' perspectives, we first used the Wilcoxon two-sample rank sum test to examine the differences in patients' perspectives on clinical practice between two specialties. Secondly, we used the Chi-squared or Fisher's exact tests on collapsed responses. For the question (i.e., Do you feel that your doctor treats you the same way as patients who are no overweight?), the Fisher's exact test was used. Multiple ordinal, multinomial, or binary logistic regression analyses were conducted to test the factors associated with patients' perspectives and overall satisfaction with care. The specialty practices and covariates such as patient's demographics (age, race/ethnicity, education level) and weight status were selected in the multiple logistic regression models using the backward selection. Adjusted odds ratio (OR) and 95% confidence intervals (CIs) were displayed. Statistical significance was assessed at $P < 0.05$.

Ethical considerations

This study was conducted in compliance with the ethical standards of the responsible institution on human subjects as well as with the Helsinki Declaration.

Results

Patient and physician demographics

Patients and physicians' characteristics are displayed in Table 1. Patients were between 31 and 50 years old (44.5%), had a self-reported average (\pm SD) BMI of 39.8 ± 8.2 kg/m², and the majority had a high school diploma or less (67.9%). Only 6.7% patients were categorized as having overweight whereas more than 70% of patients had class 2 or 3 obesity based on BMI calculated from self-reported weight and height. However, 45.5% of patients perceived themselves as overweight (45.5%) while another 43% regarded themselves as very overweight, but no one reported that they were either "extremely thin" or "thin". Approximately 38% of patients underestimated their own weight status. The majority of physicians were between the ages of 21 and 30 (48.6%), males (52.1%), and resident physicians (51.8%). There were significant differences by specialty (OBGYN vs. FP) in following variables: patients' age groups and race ($P < 0.0001$), and educational attainment reported by patients ($P < 0.0001$). There was no significant difference in weight status of patients seen at OBGYN or FP office. The characteristics of two clinical settings were different in age groups and experience of physician ($P < 0.001$).

Patients' perceptions of clinical environment

Patients' responses to clinical environment by two specialties are listed in Table 2. Over half of patients reported favorable clinical environments as measured by questions addressing the availability and appropriateness of medical equipment for patients with elevated BMI. Patients reported the weight scale being located in a private setting of the medical office (67.5%), and the weight scale (98.8%), gown (57.4%), blood pressure cuff (97.5%), and examining table (92.3%) being of an appropriate size. Significant differences by the specialty were noted when reporting the placement of the weight scale ($P < 0.001$) and the appropriate size of medical gown ($P < 0.001$). However, among the patients who used the medical gown for physical exam, there was no significant difference for the appropriateness of medical gown between two specialties ($P = 0.71$).

Patients' perceptions of clinical practice

Patients' perceptions to their physician's understanding, attitude, comfort and satisfactions related to overweight or obesity are displayed in Table 3. Most patients felt their physician was understanding of what it felt like to have elevated BMI ("overweight or obese", 63.1%). Compared with OBGYN patients, FP patients reported a higher score regarding physician understanding of what it feels like to be overweight/obese ($P < 0.001$). A significantly higher proportion of FP patients felt this way when compared to OBGYN patients (70.1% vs. 54.0%, $P < 0.014$). A large majority (91.1%) of patients felt their physician treated them with courtesy and respect, with

Table 1. Patients and Physicians' Overall Characteristics and Differences by Clinical Practices

Variables	All (N = 330), N (%) or mean ± SD	OBGYN (N = 150), N (%) or mean ± SD	FP (N = 180), N (%) or mean ± SD	P-value
Survey participants (n = 330)				
Age (n = 326) ^a				
21 - 30 years	58 (17.8)	40 (27.0)	18 (10.1)	< 0.001
31 - 50 years	145 (44.5)	75 (50.7)	70 (39.3)	
51 or above	123 (37.7)	33 (22.3)	90 (50.6)	
Self-reported weight (kg)	106.7 ± 23.5	107.9 ± 24.1	105.7 ± 23.0	0.380
Self-reported height (cm)	163.6 ± 7.4	164.4 ± 7.9	162.9 ± 6.8	0.066
BMI (kg/m ²)	39.8 ± 8.2	39.9 ± 8.5	39.8 ± 7.9	0.883
Weight status ^a				
Overweight	22 (6.7)	14 (9.3)	8 (4.4)	0.106
Class 1 obesity	75 (22.7)	27 (18.0)	48 (26.7)	
Class 2 obesity	96 (29.1)	47 (31.3)	49 (27.2)	
Class 3 obesity	137 (41.5)	62 (41.3)	75 (41.7)	
Perception of own weight				
Average	38 (11.5)	18 (12.0)	20 (11.1)	0.460
Overweight	150 (45.5)	73 (48.7)	77 (42.8)	
Very overweight	142 (43.0)	59 (39.3)	83 (46.1)	
Perceived weight bias (underestimated)				
Yes	124 (37.6)	58 (38.7)	66 (36.7)	0.709
No	206 (62.4)	92 (61.3)	114 (63.3)	
Hispanic (n = 324)				
Yes	6 (1.8)	3 (2.1)	3 (1.7)	0.999
No	318 (98.2)	143 (97.9)	175 (98.3)	
Race (n = 325)				
Whites	155 (47.7)	109 (73.1)	46 (26.1)	< 0.001
Blacks	150 (46.2)	32 (21.5)	118 (67.1)	
Others	20 (6.1)	8 (5.4)	12 (6.8)	
Education (n = 318)				
High school or less	208 (65.4)	75 (50.3)	133 (78.7)	< 0.001
Associate's degree or higher	110 (34.6)	74 (49.7)	36 (21.3)	
Survey participants' physician information (n = 42)				
Age group				< 0.001
21 - 30 years	20 (47.6)	0	20 (69.1)	
31 - 50 years	10 (23.8)	4 (30.8)	6 (20.7)	
51 or above	12 (28.6)	9 (69.2)	3 (10.3)	
Sex				0.510
Male	16 (38.1)	6 (46.2)	10 (34.5)	
Female	26 (61.9)	7 (53.8)	19 (65.5)	
Experience				
Attending	14 (33.3)	10 (76.9)	4 (13.8)	< 0.001
Resident	28 (66.7)	3 (23.1)	25 (86.2)	

^aWeight status was based on CDC obesity status (overweight: 25 ≤ BMI < 30; class 1 obesity: 30 ≤ BMI < 35; class 2 obesity: 35 ≤ BMI < 40; class 3 obesity: 40 ≤ BMI), calculated from self-reported weight and height. BMI: body mass index; FP: family practices; OBGYN: obstetrics-gynecology.

Table 2. Patients' Perspective of Clinical Environment

Variables	All (N = 340), N (%)	OBGYN (N = 160), N (%)	FP (N = 186), N (%)	P-value
When you were weighed on a scale, was the scale located in a private setting of the medical office? (n = 323)				
Yes	218 (67.5)	83 (56.5)	135 (76.7)	< 0.001
No	76 (23.5)	54 (36.7)	22 (12.5)	
Did not notice	29 (9.0)	10 (6.8)	19 (10.8)	
When you were weighed on a scale, was the scale large enough to accommodate your weight? (n = 322)				
Yes	318 (98.8)	145 (98.0)	173 (99.4)	0.337 ^a
No	4 (1.2)	3 (2.0)	1 (0.6)	
Was the gown used during the physical exam an appropriate size? (n = 303)				
Too large	8 (2.6)	5 (3.4)	3 (1.9)	< 0.001 ^a
Right size	174 (57.4)	110 (75.9)	64 (40.5)	
Too small	19 (6.3)	14 (9.7)	5 (3.2)	
Did not use	102 (33.7)	16 (11.0)	86 (54.4)	
Was the blood pressure cuff used during the physical exam an appropriate size? (n = 320)				
Too large	5 (1.6)	3 (2.0)	2 (1.1)	0.633 ^a
Right size	312 (97.5)	141 (96.6)	171 (98.3)	
Too small	3 (0.9)	2 (1.4)	1 (0.6)	
Was the exam table used during the physical exam an appropriate size and height? (n = 321)				
Too large	7 (2.2)	5 (3.4)	2 (1.2)	0.283 ^a
Right size	309 (92.3)	141 (95.3)	168 (97.1)	
Too small	1 (0.3)	1 (0.7)	0 (0.0)	
Not used	4 (1.3)	1 (0.7)	3 (1.7)	

^aFisher's exact test was conducted to examine the association. FP: family practices; OBGYN: obstetrics-gynecology.

Table 3. Patients' Perspective on Clinical Practice and the Quality of Care

Variables	All (N = 340), median (IQR) or N (%)	OBGYN (N = 160), median (IQR) or N (%)	FP (N = 186), median (IQR) or N (%)	P-value
How well does your physician understand what it feels like to be OW/obese ^a				
7-point Likert scale	5 (4 - 7)	5 (4 - 6)	6 (4 - 7)	< 0.001 ^g
No understanding	32 (11.0%)	19 (15.1%)	13 (7.9%)	0.014 ^h
Somewhat	75 (25.9%)	39 (30.9%)	36 (22.0%)	
Understanding	183 (63.1%)	68 (54.0%)	115 (70.1%)	
Does your physician treat you with courtesy and respect? ^b				
4-point Likert scale	4 (4 - 4)	4 (4 - 4)	4 (4 - 4)	0.848 ^g
Sometimes or usually	29 (8.9%)	14 (9.3%)	15 (8.6%)	0.810 ^h
Always	296 (91.1%)	136 (90.7%)	160 (91.4%)	
How comfortable is your doctor when he/she discusses weight-loss and obesity treatment options with you? ^c				
Did not discuss	44 (14.2%)	23 (15.5%)	21 (13.0%)	0.516 ^h
Discussed	266 (85.8%)	125 (84.5%)	141 (87.0%)	
7-point Likert scale among discussed (n = 293)				
Uncomfortable	7 (4 - 7)	6 (4 - 7)	7 (5 - 7)	0.006 ^g
Neutral	40 (15.0%)	21 (16.8%)	19 (13.5%)	0.004 ^h
Comfortable	46 (17.3%)	31 (24.8%)	15 (10.6%)	
	180 (67.7%)	73 (58.4%)	107 (75.9%)	
Does your provider use sensitivity when discussing your weight to make you feel at ease? ^d				
5-point Likert scale	5 (4 - 5)	5 (4 - 5)	5 (4 - 5)	0.218 ^g
Rarely/never or sometimes	34 (11.6%)	16 (11.5%)	18 (11.7%)	0.886 ⁱ
Half of the time	8 (2.7%)	3 (2.2%)	5 (3.2%)	
Most of the time or always	251 (85.7%)	120 (86.3%)	131 (85.1%)	
Do you feel that your doctor treats you the same way as patients who are not overweight? ^e				
Not sure	69 (21.6%)	37 (24.8%)	32 (18.8%)	0.411 ⁱ
Treated worse	4 (1.2%)	2 (1.3%)	2 (1.2%)	
Treated the same	245 (76.8%)	110 (73.8%)	135 (79.4%)	
Treated better	1 (0.3%)	0 (0)	1 (0.6%)	
Overall satisfaction with care provided to OW/obese patients ^f				
7-point Likert scale	7 (6 - 7)	7 (7 - 7)	7 (6 - 7)	0.012 ^g
Dissatisfied or neutral	39 (12.1%)	9 (6.2%)	30 (17.1%)	0.003 ^h
Satisfied	283 (87.9%)	137 (93.8%)	146 (82.9%)	

^an = 290. ^bn = 325, no patient answered "never". ^cn = 310. 44 patients responded that they did not discuss. ^dn = 293. ^en = 319, responses were not in Likert scale. ^fn = 322. ^gThe Wilcoxon rank sum test was used to compare the patients' perspectives between two specialties. ^hChi-squared test was conducted to examine the association between the patients' responses and specialties. ⁱFisher's exact test was conducted to examine the association. FP: family practices; IQR: interquartile range; OBGYN: obstetrics-gynecology; OW: overweight.

no significant differences by specialty ($P = 0.56$). Over half of patients (67.7%) perceived their physician to be comfortable in discussing weight-loss treatment with FP patients perceiving higher level of comfort by their physician than OBGYN patients (75.9% vs. 58.4%, $P = 0.006$). Most patients felt their physician used sensitivity when discussing their weight (85.7%), and that their physician offered the same quality of care as delivered to patients with a normal BMI (76.8%). No differences by specialty were noted when assessing these items. There was significant difference in overall satisfaction score between two specialties ($P = 0.012$). A higher proportion of OBGYN patients (93.8%) reported feeling satisfied with the quality of care delivered when compared to FP patients (82.9%, $P < 0.01$).

Table 4 reports the factors associated with patients' overall satisfaction with care. Of all factors including patients' demographics, clinical environment perspectives, and practice type, the only significant factor associated with physician understanding of having a higher BMI was the weight scale in a private setting ($P < 0.05$). For example, for those patients who said that the weight scale was not located in a private setting compared to patients who said it was, the odds of reporting that her physician did not or somewhat understood was 5.64 times higher (95% CI: 3.21 - 9.89) compared to reporting the physician understood.

Significant factors ($P < 0.05$) related to the perception of being treated with respect and courtesy included patients' age and weight scale privacy (Table 4). Patient's age (31 - 50 years old vs. 21 - 30 years old: adjusted OR = 0.28, 95% CI: 0.10 - 0.77, $P = 0.014$; 50 years and over vs. 21 - 30 years old: adjusted OR = 0.36, 95% CI: 0.13 - 0.97, $P = 0.043$) was independently associated with the perception of the physician treating the patient with courtesy and respect. Older patients were significantly less likely to feel like their physician treated them with courtesy and respect. Visiting either practice was not significantly associated with perception of understanding ($P = 0.697$), being treated with respect and courtesy ($P = 0.465$).

Concerning whether the physician was comfortable discussing weight-loss and obesity treatment options with them, specialty, education, and weight scale privacy were independently associated. For example, compared with patients who visited FP practices, patients who visited OBGYN reported that they felt the physicians were significantly more uncomfortable (adjusted OR = 1.91, 95% CI: 1.06 - 3.46) than perceiving comfortable or neutral, given patients' education level and weight scale privacy constant in the model.

There was no significant factor associated with whether patients felt their physician used sensitivity when discussing their weight or whether patients felt that they were treated the same way as patients who were not overweight.

Regarding the patients' overall satisfaction, specialty was the only significant factor. Patients who visited OBGYN were 3.22 times (95% CI: 1.47 - 7.07, $P = 0.004$) more likely to report overall satisfaction with care compared those who visited FP.

Discussion

Results from our study indicated that the majority of patients re-

Table 4. Factors Related to Patients' Overall Satisfaction of Clinical Practice by Specialties

Factors significant in the analysis	Adjusted OR ^a	95% CI
How well does your physician understand what it feels like to be OW/obese (reference, understanding) ^b		
Scale in a private setting (no vs. yes)	5.64	(3.21 - 9.89)
Scale in a private setting (not noticed vs. yes)	3.19	(1.43 - 7.10)
Does your physician treat you with courtesy and respect (reference, always) ^c		
Age (31 - 50 vs. 21 - 30 years)	0.28	(0.10 - 0.77)
Age (51 or above vs. 21 - 30 years)	0.36	(0.13 - 0.97)
Scale in a private setting (no vs. yes)	2.87	(1.23 - 6.71)
Scale in a private setting (not noticed vs. yes)	0.83	(0.17 - 4.04)
How comfortable is your doctor when he/she discusses weight-loss and obesity treatment options with you (reference, comfortable) ^b		
Specialty (OBGYN vs. FP)	1.91	(1.06 - 3.46)
Education (high school graduate vs. associate or more)	2.16	(1.17 - 3.97)
Scale in a private setting (no vs. yes)	2.43	(1.30 - 4.56)
Scale in a private setting (not noticed vs. yes)	1.64	(0.65 - 4.15)
Overall satisfaction with care provided to OW-obese patients (reference, dissatisfied/neutral) ^c		
Specialty (OBGYN vs. FP)	3.22	(1.47 - 7.07)

^aMultiple logistic regression models were adjusted for age (21 - 30 years, 31 - 50 years, 51 years or above), weight status (overweight, class I, II, III obesity), race/ethnicity (Whites, Blacks, others), education (high school or less, associate's degree or higher), specialty (OBGYN, FP) and participant's note on the weight scale in a private setting (yes, no, did not notice). ^bThe ordinal logistic regression was conducted. ^cThe binary logistic regression was conducted. CI: confidence interval; FP: family practices; OBGYN: obstetrics-gynecology; OR: odds ratio; OW: overweight.

ported they were treated with both courtesy and respect whether they were seen at an FP or an OBGYN office. However, FP physicians appeared to be more comfortable discussing weight issues and more likely to understand their patients' weight experience. In contrast, patients cared for by OBGYN practices had significantly worse experiences regarding weight-related communication and clinical environments. The present study revealed that weight bias continues to be an ongoing issue and is significantly more problematic in OBGYN offices.

Prior to this study and for at least the last decade, educational interventions have attempted to target trainee physicians to address weight-based stigma and the pervasive consequences that come with it [19, 20]. While medical schools do not typically explicitly focus on weight bias [21] many schools have education on empathy, implicit bias, and health disparities [22]. This, with the growing body of literature that addresses the obesity crisis and the known harmful effects of weight stigma, should foreshadow a change in provider behavior. Consequently, changes in patient perceptions would be expected to follow as well. However, limited studies have evaluated the success of these educational interventions, and there is little understanding of the impact on patient behavior. In a 2018 study, Johns Hopkins Medical School evaluated weight bias over 6 years. They demonstrated that many students continued to regard obesity negatively and another national survey of medical students reported its etiology as a lack of willpower from the patient [9, 23]. It has been clearly outlined that obesity bias is bidirectional between both physician and patient. Significant work has been implemented to adjust providers' perceptions of patients with obesity, in order to ensure that patients do not approach their care with the expectation of differential treatment based on their weight. In our study, 95% of patients reported appropriate exam tables, 68% with correctly sized gowns and more than 80% of respondents felt that weight was discussed sensitively, which is substantially different from previous research [9, 19]. Additionally, over 90% of patients felt their physician treated them with courtesy and respect.

This study highlights a positive trend toward eliminating obesity bias in health care. In addition to modifying inherent anti-fat biases, physicians and their teams must be attuned to concerns and sensitivities of their patients with elevated BMI and provide a clinical environment to meet their specific needs. Modifications to accommodate patients with elevated BMI are not simply good practice, but also dictated by American Disabilities Act of 1990, Title III, under the context of obesity as a disability [24]. As such, physical barriers to entering and using existing facilities should be identified, adjusted, or removed. These include examination rooms that are more accommodating for patients with obesity, larger examination tables with a wider base to facilitate ascending to the table, larger specula for female exams, and larger cloth gowns. While the present study showed areas of necessary improvement, it is reassuring that the majority of patients in both specialties received courteous and respectful treatment from their providers.

Areas for improvement

The study results have provided an updated insight into the

perceptions of women with elevated BMI, which will facilitate improved treatment of this population. Patients of OBGYNs reported significantly less weight-friendly experiences. This is a missed opportunity to connect and support patients through weight management. Two areas of improvement for the office environment include scale placement and appropriate gown size. Undressing is often a necessary aspect of seeing an OBGYN provider, which inherently brings attention to body image and can create anxiety for patients with obesity. It is critical to provide the appropriate environment and equipment to minimize anxiety. Further, providers can better harness the power of empathy. Psychiatric and neurologic data support how empathy can enhance patient adherence to care plans, and instructors can integrate this concept into medical training [25]. The discrepancy between the specialties offers an opportunity for OBGYNs to improve their clinical environments and their demeanor when discussing weight in the office. With regards to factors associated with patients' perception of clinical practice, the difference between two specialties did not significantly contribute to the perception. Patients' factors such as age, patients' weight status and their own weight perception, and physician's experience were significant predictors for different domains of perceptions.

Strengths and weaknesses of the study

The strengths of our study are that it compared two specialties that were different and critical to the care of women with overweight and obesity. Further, results were drawn directly from patients. Additionally, patients' BMI was verified through measurements taken by health care staff as opposed to a self-reported measure. The limitations of this study are that the cross-sectional design based on a convenient sampling means only associations can be determined, not causation. It is also limited in that many of the surveys were collected from a residency clinic, which may not truly represent the FP and OBGYN specialties at large. Further, the sample size limits the generalizability of results. Lastly, patients are more frequently required to undress for examination in OBGYN offices, which may impact survey responses.

Conclusion

Literature has extensively documented the prevalence of obesity bias in the current healthcare environment. We demonstrate that patients visiting FP clinics generally had a more positive perspective on the clinical environment, as well as their provider's ability to discuss weight-loss and obesity options. This provides an important insight into the developments needed for the field of OBGYN related to weight and obesity-related care. Particularly as an increasing amount of work demonstrates the negative effect of obesity on reproduction, menstruation, and overall women's health. Interestingly, although patients reported lower satisfaction from OBGYN clinics regarding clinical environment (scales in private location and gowns of appropriate size), OBGYN patients reported a higher overall satisfac-

tion with the care provided to overweight/obese patients. This could indicate that patients are prioritizing different concerns when visiting FP versus OBGYN clinics.

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Conflict of Interest

None to declare.

Informed Consent

Not applicable.

Author Contributions

Elizabeth Culberson: writing - original draft and editing; Lisa Kellar: data curation, writing - review and editing; Rose Maxwell: writing - review and editing; Leah Whigham: writing - review and editing; Miryoung Lee: statistical analysis, writing - review and editing. All authors contributed to the article and approved the submitted version. Steven Lindheim: formulation of study idea, project administration, writing - review and editing.

Data Availability

Any inquiries regarding supporting data availability of this study should be directed to the corresponding author.

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