GYNECOLOGY

Medicaid coverage and access to obstetrics and gynecology subspecialists: findings from a national mystery caller study in the United States

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BACKGROUND: Previous research suggests that access to healthcare may influence the diagnosis and treatment of obstetrical and gynecologic pathologies. Audit studies, a single-blinded and patient-centered design, have been employed to measure access to care for health services. To date, no study has assessed the dimensions of access to obstetrics and gynecologic subspecialty care based on insurance type (Medicaid vs commercial).

OBJECTIVE: This study aimed to evaluate the mean appointment wait time for a new patient visit to female pelvic medicine and reconstructive surgery, gynecologic oncology, maternal-fetal medicine, and reproductive endocrinology and infertility when presenting with Medicaid vs commercial insurance.

STUDY DESIGN: Each subspecialty medical society has a patient-facing physician directory of physicians across the United States. Of note, 800 unique physicians were randomly selected from the directories (200 per subspecialty). Of the 800 physicians, each physician was called twice. The caller presented with Medicaid or, in a separate call, with Blue Cross Blue Shield. The order in which the calls were placed was randomized. The caller asked for the soonest appointment available for respective medical conditions based on subspecialty: stress urinary incontinence, new-onset pelvic mass, preconceptual counseling after an autologous kidney transplant, and primary infertility.

RESULTS: From 800 physicians initially contacted, 477 responded to at least 1 call in 49 states plus the District of Columbia. The mean appointment wait time was 20.3 business days (standard deviation, ±18.6). A significant difference was found in new patient appointment wait times by type of insurance, with 44% longer wait time for Medicaid (ratio, 1.44; 95% confidence interval, 1.34—1.54; $P<.001$). When the interaction between insurance type and subspecialty was added to the model, it was also highly significant ($P<.01$). More specifically, Medicaid patients in female pelvic medicine and reconstructive surgery had a longer wait time than commercially insured patients. Patients seeking care in maternal-fetal medicine had the least difference, but Medicaid-insured patient wait times were still longer than commercial-insured patient wait times.

CONCLUSION: Typically, a patient can expect to wait 20.3 days for a new patient appointment with a board-certified obstetrics and gynecology subspecialist. Callers presenting with Medicaid insurance experienced significantly longer new patient appointment wait times than callers with commercial insurance.

Key words: access to care, healthcare disparities, mystery caller study, wait times

Introduction

Timely access to care is a crucial domain of healthcare quality.[1] Increased intervals between the identification of a healthcare problem and treatment are associated with patient dissatisfaction and increase the risk of poor health outcomes in some patient populations.[2,3] Typical new patient wait times are growing across medical specialties, including obstetrics and gynecology. The mean wait time to see a general obstetrician-gynecologist increased from 17 days in 2014 to 26 days in 2017, according to a national

survey by Merritt Hawkins, a private firm that conducts market research.[4] Insurance status is one of many factors that may affect a patient's ability to access healthcare in a timely fashion.[5] Research by Chou et al[6] found that patients with Medicaid insurance were less likely to secure outpatient primary care appointments after an emergency department visit and had longer appointment wait times than patients with commercial insurance. Medicaid is a publicly funded program that provides health coverage for certain low-income individuals and families, including obstetrics and gynecology services, such as prenatal care, delivery, and cancer screening. However, coverage and providers vary by state and may be affected by state policies. The increased patient wait time is amplified for subspecialty care, where providers may be less likely to accept Medicaid insurance.[7]

Audit studies, also known as "mystery caller" studies, are an effective tool for determining appointment availability and evaluating patient experience in accessing care.[8] Most literature on patient wait times is in primary care. Audit studies have been widely used in the obstetrics and gynecology literature to assess patient access to services, such as contraception.[9] However, appointment wait time to access subspecialty care in obstetrics and gynecology and the effect of Medicaid-type insurance on access are unknown.

Our study aimed to evaluate wait times for subspecialty care in obstetrics and gynecology, including female pelvic medicine and reconstructive surgery (FPMRS), gynecologic oncology (GO), maternal-fetal medicine (MFM), and reproductive endocrinology and infertility (REI). Specifically, this study compared the wait times between

AJOG at a Glance
Why was this study conducted?
This study aimed to evaluate wait times and assess access to care to obstetrics and gynecology subspecialty care based on insurance type.
Key findings
Medicaid beneficiaries wait significantly longer for a new patient appointment with an obstetrician-gynecologist subspecialist than privately insured patients.
What does this add to what is known?
This study elucidates longer wait times for Medicaid beneficiaries compared with privately insured patients for obstetrics and gynecology subspecialty care and highlights the need for practical solutions.

Medicaid and commercial insurance for new patients seeking obstetrics and gynecology subspecialty care. We hypothesized that new patients with Medicaid insurance would have longer wait times than patients with commercial insurance. This study's focus on the population with Medicaid insurance is to understand the specific issues of access to subspecialty care in obstetrics and gynecology that this population faces and to understand the practical causes of disparities in access to subspecialty care in obstetrics and gynecology. By studying the population with Medicaid insurance, we hope to identify potential solutions to ensure equitable access to obstetrics and gynecology subspecialty care for these beneficiaries.

Materials and Methods
Study design and participants
Physicians in 4 American College of Obstetricians and Gynecologists (ACOG) subspecialty certifications (FPMRS, GO, MFM, and REI) were identified using the society-specific patient-facing physician directories. These 4 subspecialties make up most obstetrics and gynecology subspecialty care services in the United States, and all have patient-facing physician directories. Complex Family Planning physician phone numbers were not available.

The physicians were stratified by ACOG district to represent the entire nation. Only 1 physician per office was called, and duplicate telephone numbers and addresses were removed

from the randomly selected physicians. If physicians shared the same office, only 1 physician per office was included in the study and duplicates were randomly excluded. On compiling the geographic location and contact information of the offices of 800 randomly selected physicians, 2 sets of calls were made to each physician using the same scripted clinical vignette based on subspecialty. The clinical vignettes for each subspecialty were selected on the basis of common, distressing, nonurgent diagnoses (Appendix 1). Mystery caller sample size is typically determined by setting a margin of error, the maximum amount by which the sample results are expected to differ from the true population value. The sample size was calculated on the basis of the target population, the desired precision level, and the confidence level desired in the results (Appendix 2).

Of note, 4 female callers were trained to conduct the audit phone calls (1 caller per subspecialty). During 1 call, the caller claimed to have commercial insurance (Blue Cross Blue Shield [BCBS]). During another call, the caller claimed to be a Medicaid beneficiary. The order of call condition (BCBS vs Medicaid) was randomized using a random number generator. Calls to the same physician were made at least 24 hours apart. Each call attempted to obtain the earliest possible appointment time under the given scenario at the listed address. Although accounting for time zones, phone calls were placed during standard working hours (8

AM to 5 PM, except for the 12 PM to 1 PM lunch hour, local time) over 1 week (Monday to Friday) in March 2021. This 1 week of calling ensured estimated appointment times were not affected by long periods between calls and medical care seasonality. An appointment was never made to minimize the administrative burden to obstetrics and gynecology offices, and patient names or identifying information were not provided.

Callers recorded dates of earliest appointment time for each insurance type. In addition, the callers recorded if the call was not answered, was not accepting new patients, or went to the physician's cell phone or if the physician did not take Medicaid insurance. If the caller was on hold for over 5 minutes, the call was considered unanswered. Each physician's office was given 2 separate attempts to answer each insurance call, after which the physician was considered not reachable. This study design standardized the calls across diverse practice settings, such as academic vs private practice, to reduce bias and produce representative results. There was no variation in the call protocol used for different practice types to ensure that the results accurately reflect the target population.

The institutional review board approved this mystery caller study with an explicit exemption of informed consent from participating offices. Mystery caller protocol precludes participants from providing informed consent before their participation. However, after each call, a debriefing letter was sent to the participating practices informing them of the call, its purpose, measures taken to preserve privacy, and contact information for the investigator and institutional review board.

Data analysis
Physician demographics were collected from the National Plan and Provider Enumeration System and healthgrades. com. The earliest possible appointment time duration for commercial insurance holders and Medicaid beneficiaries was analyzed using R (version 4.0.1; R Foundation for Statistical Computing, Vienna, Austria).[10] As the time was

measured as the number of days since the call, a generalized linear mixed Poisson model with log-link was adjusted to the data. This Poisson model specified physicians as random effects (each physician could have up to 2 calls with valid data), insurance type as a fixed effect, controlling for subspecialty, physician gender, age groups, ACOG districts, day of the week, and physician medical degree. A sensitivity analysis, aimed at testing the robustness of confounders related to physician differences, was performed using only physicians who accepted both types of insurance. The results are presented in the original scale (number of days) in terms of the ratio between wait time for Medicaid and private insurance (ie, the exponentiated regression coefficient) and/or model-adjusted means in the number of days for the 2 insurance types. The models used R packages "lme4" and "emmeans."[11,12]

Results
Of note, 800 obstetrics and gynecology subspecialists were called in 49 states plus the District of Columbia. The typical physician who was called was 53.2 years old (standard deviation [SD], ±9.9), male gender (55.5%), and in ACOG district IX (Table 1). All physicians received 2 phone calls with the same clinical scenario. Of note, 323 physicians were excluded after 2 attempts to call them. Among these 646 phone calls, 139 (22%) went to voicemail, 93 (14%) did not accept Medicaid insurance, 83 (13%) required a referral before the appointment, 59 (9%) were a personal physician phone number, and 50 (8%) were not answered on 2 repeated attempts. The physicians who did not accept Medicaid were excluded from a sensitivity analysis. A total of 471 physicians (59.6%) were successfully contacted at least once and accepted new patients. Of the 477 offices included in the analysis, 91.8% were in urban zip codes, as defined by the US Census Bureau (Appendix 3).

The wait time for all subspecialties with all insurance types was 20.3 (SD, ±18.6) business days. The results of our analysis indicate a statistically significant difference in wait times by type of insurance,

FIGURE 1
Appointment wait time for Medicaid and Blue Cross Blue Shield
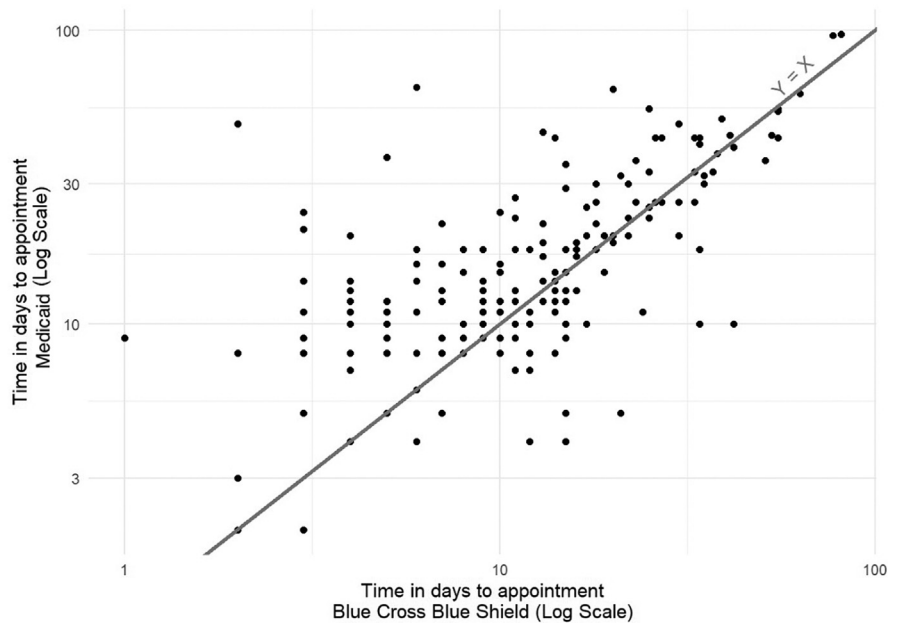
The *Y = X line* in our data illustrates that the waiting time for Medicaid patients is generally longer than the waiting time for non-Medicaid patients (*points above the line*). However, there are few cases where the waiting time for Medicaid patients is shorter (*points below the line*). The *line* serves as a reference for comparison.

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with a 44% longer wait time for patients with Medicaid insurance coverage (ratio, 1.44; 95% confidence interval, 1.34—1.54). The model-estimated means for wait times were 15.0 days (standard error [SE], 2.14) in the BCBS group and 21.6 days (SE, 3.14) in the Medicaid group. Figure 1 shows the association between both wait times for the physicians who provided both times. In it, there is a marked skew toward longer wait times for Medicaid among these physicians. Our second model looked at the moderation effect by subspecialty. To do this, the interaction between subspecialty and insurance type was added to the model. The interaction was found to be significant ($P<.001$). The appointment wait time was the longest for FPMRS (ratio, 1.69; 95% CI, 1.54—1.85), followed by GO (ratio, 1.40; 95% CI, 1.24—1.59), REI (ratio, 1.37; 95% CI, 1.18—1.60), and, lastly, MFM (ratio, 1.10; 95% CI, 0.98—1.24), (Figure 2).

Among the 477 physicians included in the analysis, 123 did not accept

Medicaid insurance. The physicians who did not accept Medicaid insurance were skewed toward males (63%), subspecialty REI (42%), and nonacademic (72%). In a sensitivity analysis, we removed these 123 physicians and used the same model with only physicians who accept both insurance types. This analysis could better control for physician-level confounders (eg, physicians who accept Medicaid insurance could have academic positions in larger proportions, hence less time for practice leading to larger wait times for those with Medicaid insurance). However, the results were similar (ratio, 1.40; 95% CI, 1.13—1.73; $P<.001$), and the conclusions were the same as the primary analysis that was already presented.

Comment
Principal findings
This national audit study found that appointment wait times for obstetrics and gynecology subspecialists were

FIGURE 2
Moderation effect of subspecialty on type of insurance
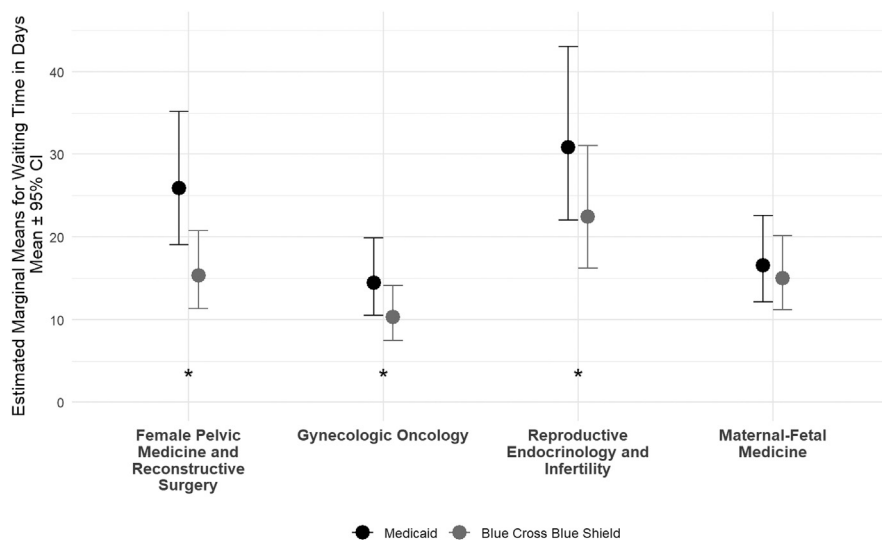
The *asterisks* indicate a significant difference between insurance types at an alpha level of .05.

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significantly longer for patients with Medicaid insurance than patients with commercial insurance across all subspecialties. Specifically, the study found a statistically significant difference in wait times with a model-estimated mean wait time of 15.0 days (SE, 2.14) for the commercial group and 21.6 days (SE, 3.14) for the Medicaid group.

Results in the context of what is known
Published mystery caller investigations of wait time for non—obstetrics and gynecology specialties in the United States demonstrate a range from about 8 days for cosmetic botulinum toxin injections by a dermatologist[13] to 36 days for a general dermatology appointment[14] to 50 days for adolescent psychiatry.[15] Previous studies have demonstrated longer appointment wait times for Medicaid-insured patients than privately insured patients in primary care[16,17] and in many specialties, including dermatology,[18] neurosurgery,[19] urology,[20] and oncology.[21] Data on wait time have not been reported for all specialties. Rabice et al[22] reported a wait time of 23 days for an appointment with an FPMRS specialist. No

other published study has reported on wait times for other obstetrics and gynecology subspecialties or differences in access by payor status.

Clinical implications
A longer waiting period for care may allow a patient's condition to deteriorate, can be distressing for the patient, and may adversely affect the patient's home and work lives. For instance, Strong et al[23] showed a substantial worsening in psychological distress and physical symptoms when benign gynecology surgery was delayed. Medicaid disproportionately covers individuals who identify as Black, indigenous, or people of color (BIPOC). It may represent a racial disparity within the US healthcare system and underlying systemic racism. Longer wait times for Medicaid beneficiaries in obstetrics and gynecology may partly explain the disparity in outcomes for BIPOC communities, although additional research on these disparities is needed.

Longer time waiting for provider care can negatively affect patients' reported overall satisfaction with the care experience, likelihood to recommend, and perception of the overall treatment

provided by the physician.[24] These effects could negatively affect the Hospital Consumer Assessment of Health Providers and Systems scores. The Centers for Medicare & Medicaid requires these scoring tools.

Benchmarks for appropriate appointment wait times in obstetrics and gynecology are lacking. Farrell et al[25] published a report highlighting the development through consensus of recommended obstetrics and gynecology appointment wait times in Canada. Interestingly, Farrell et al[25] conducted a Medline literature search and found no publication on appointment wait times for obstetrics and gynecology subspecialty care.[24] The adoption of the recommendations by Farrell et al[25] in the United States could help reduce disparities in appointment wait time by insurance status and potentially improve outcomes affected by wait times. Additional research is needed to elucidate this complex relationship.

Research implications
Our findings demonstrate a disparity in wait times by payor source. Further studies are needed to determine the clinical effect of this disparity. To reduce the disparity in wait time, more information is needed about the cause. We hypothesized that longer appointment wait time in patients Medicaid with insurance may be due to the lower physician reimbursement rate compared with patients with commercial insurance. A state-by-state analysis demonstrated a dose-response relationship between the number of physician payments for Medicaid and more patient access.[26] Increasing the obstetrics and gynecology subspecialty workforce could decrease wait times overall, but not necessarily reduce the disparity by payor source.

Strengths and limitations
The study limitations include obtaining contact information for physicians from public directories. Inaccurate phone numbers, physician retirement, and relocation were barriers to data collection. The inability to reach an office for

both the Medicaid and BCBS scenarios resulted in some subspecialists' lack of complete data. Another study limitation is that 91.8% of subspecialists were in urban zip codes.

The study strengths include those commonly associated with an audit-style study design and a large sample size. The nature of such a study allows for minimal biases and accurately reflects the patient experience. In addition, the data collection methods lend strength to this study, specifically the use of 1 female "mystery shopper" per subspecialty, which allowed for control over the delivery of the clinical vignette and comprehensive data collection.

Conclusions

Appointment wait times are a valuable measure of access to care within the American healthcare system. This study found that patients with Medicaid can expect to wait significantly longer for obstetrics and gynecology specialty care than patients with private insurance. This difference in wait times highlights the effect of social determinants on access to healthcare within the American healthcare system. Social determinants, such as race, ethnicity, and poverty, affect healthcare access and outcomes. Additional research is necessary to understand the practical causes of this disparity to identify potential solutions that can ensure equitable access to obstetrics and gynecology subspecialty care for Medicaid beneficiaries. It is important to consider the role of social determinants in addressing these disparities and improving access to care for all individuals. ■

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Appendix 1

	SUPPLEMENTAL TABLE 1			
	Scripted clinical vignettes used during mystery calls			
Specialty type	**Medical condition**	**Age**	**Referral source**	**Symptoms**
Female pelvic medicine and reconstructive surgery	Stress urinary incontinence	65 y	PCP	Leaking when she runs and coughs started 5 y ago; PCP has tried pelvic floor physical therapy
Gynecologic oncology	New-onset pelvic mass	65 y	PCP and ED	Presents with early satiety, pelvic pressure; ED noted unilateral fixed 10-cm mass
Maternal-fetal medicine	Preconceptual counseling autologous kidney transplant	35 y	PCP	Nulliparous patient who received an autologous kidney transplant desiring preconceptual counseling
Reproductive endocrinology and infertility	Primary infertility	35 y	PCP	Nulliparous patient desires to have a child but unable to conceive after 1 y of unprotected sex with a partner who has conceived previously

ED, Emergency Department; *PCP*, Primary Care Provider.

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Appendix 2

Equation employed to calculate sample size

$$Minimum\ Necessary\ Sample\ Size = \frac{N_{population\ size}}{1 + (N_{population\ size})(error\ margin^2)}$$

Appendix 3

SUPPLEMENTAL TABLE 2	
Characteristics of physicians who were contacted	
Variables	N=477
Physician gender	
Female	217 (45.5)
Male	260 (54.5)
Physician age (y)	
Mean (SD)	53.2 (9.85)
Median (IQR)	53.0 (31.0—92.0)
Age category (y)	
<40	37 (7.8)
40—49	171 (35.8)
50—59	159 (33.3)
≥60	110 (23.1)
Subspecialty	
FPMRS	162 (34.0)
GO	126 (26.4)
MFM	102 (21.4)
REI	87 (18.2)
Provider credential text	
Doctor of osteopathic medicine	8 (1.7)
Doctor of medicine	469 (98.3)
Professional title	
Academics	177 (37.1)
Not academics	300 (62.9)
Graduation year	
1960—1986	69 (14.5)
1986—1993	77 (16.1)
1993—2000	88 (18.4)
2000—2005	75 (15.7)
2005—2012	54 (11.3)
Missing	114 (23.9)
Business days until appointment	
Mean (SD)	20.3 (18.6)
Median (IQR)	14.0 (1.00—184)
Missing	189 (39.6)
Medicaid acceptance	
Yes Medicaid	354 (74.2)
No Medicaid	123 (25.8)

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SUPPLEMENTAL TABLE 2
Characteristics of physicians who were contacted *(continued)*

Variables	N=477
District	
District I	48 (10.1)
District II	43 (9.0)
District III	51 (10.7)
District IV	64 (13.4)
District IX	39 (8.2)
District V	35 (7.3)
District VI	45 (9.4)
District VII	37 (7.8)
District VIII	44 (9.2)
District XI	35 (7.3)
District XII	19 (4.0)
Missing	17 (3.6)
Rural or urban	
Metropolitan area	438 (91.8)
Micropolitan area	2 (0.4)
Missing	37 (7.8)

	Total selected (N=800)	Physicians not contacted (not in the analysis) (n=323)	Physicians contacted (in the analysis) (n=477)
Physician gender			
Female	375 (46.9)	158 (48.9)	217 (45.5)
Male	425 (53.1)	165 (51.1)	260 (54.5)
Physician age (y)			
Mean (SD)	53.6 (9.99)	54.2 (10.2)	53.2 (9.85)
Median (IQR)	53.0 (31.0—92.0)	53.0 (34.0—88.0)	53.0 (31.0—92.0)
Physician age category (y)			
<40	58 (7.2)	21 (6.5)	37 (7.8)
40—49	279 (34.9)	108 (33.4)	171 (35.8)
50—59	258 (32.2)	99 (30.7)	159 (33.3)
≥60	205 (25.6)	95 (29.4)	110 (23.1)
Subspecialty			
FPMRS	200 (25.0)	38 (11.8)	162 (34.0)
GO	200 (25.0)	74 (22.9)	126 (26.4)
MFM	200 (25.0)	98 (30.3)	102 (21.4)
RPI	200 (25.0)	113 (35.0)	87 (18.2)
Provider credential text			
Doctor of osteopathic medicine	11 (1.4)	3 (0.9)	8 (1.7)
Doctor of medicine	789 (98.6)	320 (99.1)	469 (98.3)

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SUPPLEMENTAL TABLE 2
Characteristics of physicians who were contacted *(continued)*

	Total selected (N=800)	Physicians not contacted (not in the analysis) (n=323)	Physicians contacted (in the analysis) (n=477)
Professional title			
Academics	314 (39.2)	137 (42.4)	177 (37.1)
Not academics	486 (60.8)	186 (57.6)	300 (62.9)
Graduation year			
1960–1986	116 (14.5)	47 (14.6)	69 (14.5)
1986–1993	111 (13.9)	34 (10.5)	77 (16.1)
1993–2000	139 (17.4)	51 (15.8)	88 (18.4)
2000–2005	110 (13.8)	35 (10.8)	75 (15.7)
2005–2012	85 (10.6)	31 (9.6)	54 (11.3)
Missing	239 (29.9)	125 (38.7)	114 (23.9)
District			
District I	80 (10.0)	32 (9.9)	48 (10.1)
District II	75 (9.4)	32 (9.9)	43 (9.0)
District III	74 (9.2)	23 (7.1)	51 (10.7)
District IV	102 (12.8)	38 (11.8)	64 (13.4)
District IX	94 (11.8)	55 (17.0)	39 (8.2)
District V	56 (7.0)	21 (6.5)	35 (7.3)
District VI	65 (8.1)	20 (6.2)	45 (9.4)
District VII	58 (7.2)	21 (6.5)	37 (7.8)
District VIII	69 (8.6)	25 (7.7)	44 (9.2)
District XI	66 (8.2)	31 (9.6)	35 (7.3)
District XII	39 (4.9)	20 (6.2)	19 (4.0)
Missing	22 (2.8)	5 (1.5)	17 (3.6)

Data are presented as number (percentage), unless otherwise indicated.

FPMRS, female pelvic medicine and reconstructive surgery; *GO*, gynecologic oncology; *IQR*, interquartile range; *MFM*, maternal-fetal medicine; *REI*, reproductive endocrinology and infertility; *SD*, standard deviation.

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