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## SYSTEMATIC REVIEW

# Gender bias in the medical education of obstetrician-gynaecologists in the United States: A systematic review

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**Background:** The number of men entering obstetrics and gynaecology (Ob/Gyn) residencies and general Ob/Gyn practice is decreasing. Gender biases against their participation may affect career decisions.

**Objective:** This systematic review examines: (i) female patients' gender preferences and perceptions of men as Ob/Gyns and/or medical students; and (ii) the influence of gender on students' education and career decisions.

**Search strategy:** We identified relevant research via PubMed using variations of three concepts in combination: Ob/Gyn care, gender bias/preference, and medical education or career. We conducted the initial review in 2018 and repeated the search in March 2021, adding additional references via citation review of included research.

**Selection criteria:** We restricted the review to original research from the United States between 2000–2021.

**Data collection:** Fifteen studies met inclusion criteria, categorised into three groups: (i) patient's gender preference for Ob/Gyns; (ii) patient's gender preference for medical students during the Ob/Gyn clerkship; and (iii) influence of gender bias on Ob/Gyn career decisions.

**Main results:** Patients prioritised their physician's care attributes (eg technical skill, compassion, experience) over gender when choosing Ob/Gyns; however, provider gender was prioritised for medical students. Male medical students more commonly reported exclusion from clinical opportunities, although objective clinical exposure was like that of female counterparts. Despite perceived gender bias, male medical students reported increased Ob/Gyn interest post-clerkship; interest did not translate into residency applications. These findings are limited by study quality and heterogeneity.

**Conclusions:** Real and perceived gender bias among female patients and male medical students in Ob/Gyn may underlie declining numbers of men entering the field.

**KEYWORDS**

gender bias, obstetrics &amp; gynaecology, medical education, clerkship, career choice

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## INTRODUCTION

According to the Accreditation Council for Graduate Medical Education (ACGME), female physicians made up nearly 84% of residents in obstetrics and gynaecology (Ob/Gyn) in 2019, representing a consistently increasing proportion over the last decade.<sup>1</sup> The rising number of female Ob/Gyns corrects long-standing gender inequity in medical education and academic medicine. Additionally, with the American College of Obstetricians and Gynecologists (ACOG) acknowledging women's widespread experiences of trauma across the lifespan, and the role of Ob/Gyns in creating physically and emotionally safe environments for their patients, the rising proportion of female Ob/Gyns addresses patients' needs for gender-concordant care. Such requests may be further reinforced by female pronoun attribution and popular media portrayals of Ob/Gyns as women, reserving male pronouns for more antagonistic portrayals of Ob/Gyns.<sup>2</sup>

Gender bias against male Ob/Gyns may not be unwarranted set against numerous reports of male Ob/Gyn perpetrators of sexual assault and misconduct.<sup>3-6</sup> However, such gender bias, inclusive of preconceived notions about men's ability to understand and empathise with biological and sociocultural conditions faced exclusively by women, can affect women's abilities to develop therapeutic relationships with skilled, compassionate male Ob/Gyns. Gender bias within medical education systems can give way to gender-exclusive training environments that may further discourage male medical students from considering the career, resulting in the loss of gender-diverse perspectives.

The following systematic review synthesises quantitative and qualitative research findings on how patients' gendered biases affect medical student education, as well as career choices. Understanding the ways in which gender bias manifests will inform how to advise future trainees interested in careers providing sexual and reproductive health care (SRH). No ethics approval was required for this study.

## MATERIALS AND METHODS

We conducted this systematic review independently and without funding from any agency or granting mechanism, following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses, PROSPERO 2021 CRD42021231944) guidelines. We identified published studies exploring gender bias of male physicians providing SRH services and its influence on the career choice of medical students and Ob/Gyns. We searched PubMed for relevant literature, using keyword combinations for the three concepts: obstetric and gynaecologic care, gender bias or preference, and medical education or career choice (Table 1).

We conducted an initial literature search in January of 2018 and repeated our search strategy in August 2020 and March 2021 to include the most recent literature. Paired members of the research team (BTN, RAR, CRD) reviewed all titles and abstracts for primary studies for inclusion, with disagreements adjudicated via consensus. Duplicate studies were removed. The remaining studies underwent full review. We additionally reviewed the references for all included studies for additionally relevant research. Given expected differences across time and culture that might impact findings, we limited studies to those conducted in the United States (US) over the last two decades (from 2000); studies published after but conducted prior to 2000 were not considered. We categorised articles by sample population and their collection of qualitative and/or quantitative data, subsequently reviewing them for: (i) gender preferences for physicians providing SRH services; (ii) gender preferences for medical students during Ob/Gyn clerkships; and (iii) the influence of gender bias on physician career decisions in Ob/Gyn. Reviewers evaluated each study's quality and risk of bias; in the absence of controlled research, we relied on descriptions of the sample population, its size, and response rate to evaluate the contribution of cross-sectional and observational studies to our findings.

Of note, we use binary, gendered language moving forward in this review, reflecting its use in the literature identified, although

**TABLE 1** PubMed search strategy aimed at collecting original research exploring gender bias toward obstetrician-gynaecologists and medical trainees

Limits activated	Concept	Keywords/MeSH terms
AND	1. Obstetrics and gynaecology	(obstetrics[MeSH Terms] OR gynecology[MeSH Terms] OR obstetrics[Text Word] OR gynecology[Text Word] OR ob/gyn[Text Word] OR obstetrics & gynecology[Text Word])
AND	2. Gender bias	(bias, gender[MeSH Terms] OR sexism[MeSH Terms] OR gender[Text Word] OR gender bias[Text Word] OR gender preference[Text Word] OR sexism[Text Word])
AND	3. Medical education or career pathway	(education[MeSH Terms] OR career choice[MeSH Terms] OR medical education[Text Word] OR education[Text Word] OR career[Text Word] OR career choice[Text Word] OR specialty choice[Text Word])
NOT	4. United States-based studies	(Europe[MeSH Terms] OR Asia[MeSH Terms] OR Australia[MeSH Terms] OR Africa[MeSH Terms] OR South America[MeSH Terms] OR Canada[MeSH Terms])
FILTERS	English language, 2000–2021	

Searches combined as (1 AND 2 AND 3) NOT 4.

fully acknowledge the need for a more nuanced discussion of gender identities across the spectrum. We use 'male' and 'female' to denote biological gender and in instances where context suggests the experience of a cisgender individual (whose gender identity aligns with the gender they were designated at birth). In all other cases, we use 'man' and 'woman', conceding insufficient information for a more accurate description.

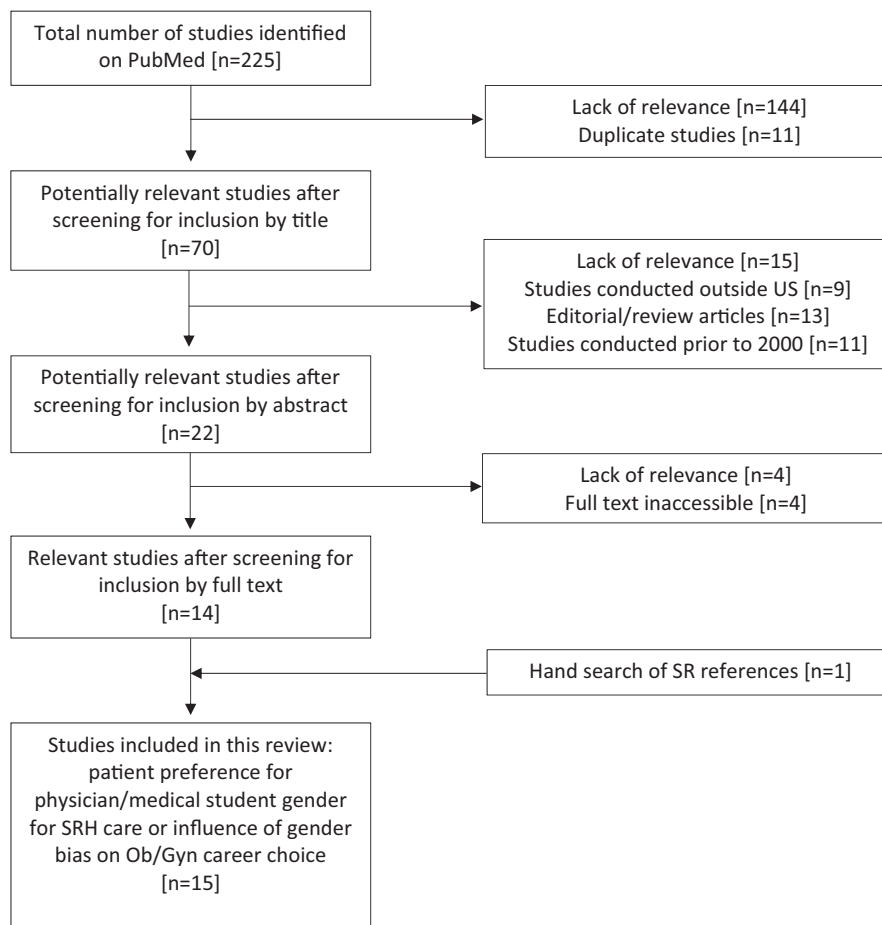
## RESULTS

Our search strategy returned 225 articles from PubMed. We excluded 211 articles for the following reasons: lack of relevance (163), duplicates (11), conducted outside the US (nine) or prior to 2000 (11), full text inaccessible (four), and editorials or reviews (13). Of note, we identified a single systematic review from 2012 that discussed patients' gender preferences for Ob/Gyns in relation to patient satisfaction and expected physician communication style.<sup>7</sup> Although we excluded the review, some of its themes informed our analysis. Hand-searching the references added an additional study, yielding 15 studies for full review (Fig. 1).

Most of the reviewed articles (13/15) were descriptive studies, inclusive of interviews (one), surveys (11), and a secondary analysis of Graduate Medical Education (GME) Census data (one). The remaining two articles described an experimental study exploring patient preference for fictitious Ob/Gyns based on images and descriptors<sup>8</sup> and a prospective cohort study evaluating medical student interest in Ob/Gyn prior to and at the completion of their third year Ob/Gyn clerkship.<sup>9</sup> We determined four studies to be of low quality based on low sample sizes, poor response rates, and limited generalisability. These studies are listed in Tables 2–4, and while formative for our understanding, will not be discussed with depth in the following results.

### Perceptions of healthcare provider gender

Seven of the 15 studies queried patients' gender preferences for healthcare providers in SRH settings (Table 2); four of the seven did not find gender reported as a high priority among patients selecting their Ob/Gyn. Survey respondents prioritised other qualities over physician gender, such as the provider's technical skill, experience, knowledge, and compassion.<sup>8,10,11,12</sup> For example, Johnson *et al.* (2005) surveyed 234 Ob/Gyn patients, noting greatest patient



**FIGURE 1** Flowchart, inclusion of studies. Arrows: to the right = excluded studies, to the left/down = included studies. Ob/Gyn, obstetrics and gynaecology; SR, systematic review; SRH, sexual and reproductive health; US, United States.

**TABLE 2** Summary of original research studies exploring gender bias toward physicians providing obstetric and gynaecologic care

Primary author, publication year	Study type: method of data collection	Population • Sample n (response rate): • Setting: • Specific characteristics:	Primary findings
Carroll <i>et al.</i> , 2007 <sup>14*</sup>	Descriptive study: patient interviews	<ul style="list-style-type: none"> <li>• 34 women†</li> <li>• Rochester, New York</li> <li>• Patients originally born in Somalia</li> </ul>	<ul style="list-style-type: none"> <li>• Patients preferred gender-concordant care, especially for gynaecologic issues including history of female circumcision.</li> <li>• Missing one's healthcare appointment was reported to be preferred by many women over being examined by a man.</li> </ul>
Johnson <i>et al.</i> , 2005 <sup>11</sup>	Descriptive study: patient surveys	<ul style="list-style-type: none"> <li>• 264 women (97%)</li> <li>• Hartford, Connecticut</li> <li>• Patients receiving care at 13 Ob/Gyn clinics</li> </ul>	<ul style="list-style-type: none"> <li>• 66.6% of patients reported no gender preference for Ob/Gyn.</li> <li>• For patients who self-reported gender bias, gender of current Ob/Gyn did not correlate with gender preference.</li> <li>• When asked about physician qualities considered when choosing an Ob/Gyn, 'experience' (96%), 'knowledge' (92.4%), and 'ability' (86%) were selected most often.</li> <li>• Of patients able to choose their Ob/Gyn, 56.5% selected a man.</li> </ul>
Odunakan <i>et al.</i> , 2015 <sup>29*</sup>	Descriptive study: patient surveys	<ul style="list-style-type: none"> <li>• 50 women†</li> <li>• Midwest United States</li> <li>• Patients originally born in Somalia</li> </ul>	<ul style="list-style-type: none"> <li>• Patients expressed discomfort with gender discordant physician examinations, particularly abdominal, breast, and pelvic exams.</li> <li>• Patients were also uncomfortable with gender discordant medical interpretative services for all components of the physical exam, particularly abdominal, breast, and pelvic.</li> </ul>
Plunkett <i>et al.</i> , 2002 <sup>10</sup>	Descriptive study: patient surveys	<ul style="list-style-type: none"> <li>• 125 women†</li> <li>• Chicago, Illinois</li> <li>• Privately insured patients postpartum or post-gynaecologic surgery</li> </ul>	<ul style="list-style-type: none"> <li>• 42% of patients considered gender when selecting Ob/Gyn. When asked directly about gender preference of Ob/Gyn, 52.8% preferred a woman; 9.6% preferred a man; 37.6% reported no preference.</li> <li>• Participants rarely rated Ob/Gyn gender as more important than physician experience, bedside manner, or competency.</li> </ul>
Schnatz <i>et al.</i> , 2007a <sup>12</sup>	Descriptive study: patient surveys	<ul style="list-style-type: none"> <li>• 72 women (97%)‡</li> <li>• Hartford, Connecticut</li> <li>• Peri- and post-menopausal patients (age 45 and older)</li> </ul>	<ul style="list-style-type: none"> <li>• 87.9% did not select gender as factor affecting choice of Ob/Gyn.</li> <li>• When rating Ob/Gyn qualities and attributes, experience, knowledge, and ability were most important.</li> <li>• Patient preference for gender-concordant care was weakly associated with appointment involving pelvic exam.§</li> </ul>
Schnatz <i>et al.</i> , 2007b <sup>31</sup>	Experimental study: patient surveys	<ul style="list-style-type: none"> <li>• 901 women (90.4%)</li> <li>• Hartford, Connecticut</li> <li>• Patients, visitors, and staff at one hospital and several community/outpatient sites</li> </ul>	<ul style="list-style-type: none"> <li>• When participants were shown photographs and no descriptors of professional attributes of fictitious Ob/Gyns, 83% (<math>n = 706/854</math>) chose a woman.</li> <li>• The number of participants who chose a woman (38%, <math>n = 331/876</math>) was significantly less than the number who chose a man after descriptors were added to the photographs (62%, <math>n = 545/876</math>; <math>P &lt; 0.001</math>).</li> </ul>
Zuckerman <i>et al.</i> , 2002 <sup>13</sup>	Descriptive study: patient surveys	<ul style="list-style-type: none"> <li>• 537 women (81%)</li> <li>• Brooklyn, New York</li> <li>• Participants recruited from various public locations</li> </ul>	<ul style="list-style-type: none"> <li>• 61% (<math>n = 327/537</math>) of women preferred gender-concordant Ob/Gyn care.</li> <li>• Gender preference for Ob/Gyn varied by patient religion, with Hindu (74%) and Muslim (89%) participants most commonly reporting preference for women in comparison to Protestants (56%), Catholics (58%), and Jews (58%; <math>P = 0.01</math>).</li> <li>• Gender of Ob/Gyn was found to be as important as physician experience, age, or office location when selecting provider.</li> </ul>

Abbreviations: Ob/Gyn, obstetrics and gynaecology.

\*Low-quality study.

†Response rate not known/specified

‡Sample population subset extracted from Johnson *et al.*, 2005.

§Results potentially confounded by large number of patients expressing no gender difference.

satisfaction ratings among patients able to choose their Ob/Gyn provider; more than half (56.5%) chose a man for their care. For the 19.2% of patients expressing a gender preference, the gender of the provider they ultimately chose did not correlate with

their stated gender preference for Ob/Gyn.<sup>11</sup> In an experimental study, Schnatz *et al.* (2007b) recruited patients, visitors, and staff from Hartford Hospital and its surrounding clinics in Connecticut to investigate the influence of physician appearance and gender

**TABLE 3** Summary of studies exploring gender perceptions of medical students providing obstetrical and gynaecological care

Primary author, publication year	Study type: method of data collection	Population	
		• Sample n (response rate):	• Setting: • Specific characteristics:
			Primary findings
Chang <i>et al.</i> , 2010 <sup>15</sup>	Descriptive study: medical student surveys	• 79 students: 46 women, 33 men (89%) • Pittsburgh, Pennsylvania • Medical students post-Ob/Gyn clerkship	<ul style="list-style-type: none"> <li>• No statistically significant difference found between men and women for number of interactions with residents/faculty, number of deliveries/surgeries/exams performed, perceived quality of teaching, and feeling included as part of the team.</li> <li>• More men than women experienced patients refusing to allow them to participate in the clinical interview and physical exam (<math>P &lt; 0.0001</math>).</li> <li>• 64% of men (vs 2% of women) reported feeling their gender negatively impacted clerkship experience (<math>P &lt; 0.0001</math>).</li> </ul>
Coppola <i>et al.</i> , 2014 <sup>17</sup>	Descriptive study: patient surveys	• 234 women* • Tucson, Arizona • Patients receiving care at four private practice Ob/Gyn clinics	<ul style="list-style-type: none"> <li>• Patients more likely to include students in their care if they were women vs men (RR = 1.3, 95% CI 1.2–1.5), especially with pelvic exams (RR = 1.8, 95% CI 1.4–2.4).</li> <li>• Patients were more likely to allow men in training to perform pelvic exam if they were already scheduled to see a man for care (RR = 1.8, 95% CI 1.1–2.9) or if they had prior clinical experience with medical students (RR = 2.0, 95% CI 1.2–3.3).</li> </ul>
Jiang <i>et al.</i> , 2012 <sup>16</sup>	Descriptive study: medical student surveys	• 157 students: 66 men, 91 women (100%) • Hartford, Connecticut • Medical students post-Ob/Gyn clerkship	<ul style="list-style-type: none"> <li>• Men were 1.69 times as likely to report being denied involvement in gynaecologic exams (95% CI 1.24–2.29).</li> <li>• Of the 44 men who reported being excluded from gynaecologic exams, 68% (<math>n = 30</math>) reported being denied at least three times throughout clerkship and 16% (<math>n = 7</math>) 10–15 times.</li> </ul>

Abbreviations: Ob/Gyn, obstetrics and gynaecology; RR, relative risk.

\*Response rate not known/specified.

on Ob/Gyn provider selection. The researchers presented photographs and profiles of fictitious Ob/Gyns to 901 participants, asking them to select a provider. When given only the photograph, 83% chose a woman. When given profiles describing humanistic qualities (ie compassion, bedside manner) and technical skills, with the same photographs, significantly more participants selected a man compared to a woman (62% vs 38%;  $P < 0.001$ ). Participants ranked 'quality care', 'compassion', and 'knowledge' as most important when selecting an Ob/Gyn. 'Gender' was listed among the top three factors among less than 20% of respondents. The authors concluded that gender might only be important in the absence of information about an Ob/Gyn's qualities.<sup>8</sup>

In contrast, the three remaining studies highlighted preferences for gender concordance, particularly when linked to the patient's cultural background. Zuckerman *et al.* (2002) recruited 537 women across Brooklyn, New York, finding that 61% ( $n = 327/537$ ) preferred a gender-concordant sexual and reproductive health-care provider, which was primarily linked to the patient's religion—Muslim (89%,  $n = 24/27$ ) and Hindu (74%  $n = 23/31$ ) women more commonly expressed preferring to see a woman, as compared to Protestant (56%), Catholic (58%), and Jewish (58%) women.<sup>13</sup> Carroll *et al.* (2007) also described gender-concordant preferences in qualitative interviews with 34 Somali refugees in Rochester, New York. In this case, these women shared cultural concerns and the need for sensitivity surrounding female circumcision: 'Most of the Somali women like women [physicians]. [...] You know you can discuss some stuff more with women than men. Because of the

culture thing. Yeah, a lot of Somali women they don't discuss any health problem with men [...] It's better to explain to your husband than another man'.<sup>14</sup>

### Perceptions of medical student gender

The above studies suggest that patients prioritise specific physician qualities over physician gender for SRH services. However, provider characteristics and qualifications may not always be accessible, such that patients' decisions are necessarily driven by appearance and gender. This situation significantly affects male medical students, who may be unable to overcome gendered initial perceptions during their clerkships.

Three studies reporting on patients' gender preferences for medical students (Table 3) noted that men were more frequently denied opportunities to provide SRH compared to women at their institutions.<sup>15–17</sup> Chang *et al.* (2010) surveyed 79 medical students following their Ob/Gyn clerkship at the University of Pittsburgh, finding that men, as compared to women, more commonly felt their gender negatively impacted their experience (64% vs 2%;  $P < 0.0001$ ). Men, as compared to women, from this study also reported significantly more instances where patients refused to allow them to conduct clinical interviews (61% vs 17%;  $P < 0.0001$ ), as well as physical examinations (82% vs 37%;  $P < 0.0001$ ).<sup>15</sup> Jiang *et al.* (2012) surveyed 157 medical students at the University of Connecticut School of Medicine, similarly, describing men as nearly twice as likely to report being denied involvement in

**TABLE 4** Summary of studies exploring influence of gender on student and physician career choice

Primary author, publication year	Study type: method of data collection	Population <ul style="list-style-type: none"> <li>• Sample n (response rate):</li> <li>• Setting:</li> <li>• Specific characteristics:</li> </ul>	Primary findings
Chang <i>et al.</i> , 2010 <sup>15</sup>	Descriptive study: medical student surveys	<ul style="list-style-type: none"> <li>• 79 students: 46 women, 33 men (89%)</li> <li>• Pittsburgh, Pennsylvania</li> <li>• Medical students post-Ob/Gyn clerkship</li> </ul>	<ul style="list-style-type: none"> <li>• Men were more likely to express increased interest in Ob/Gyn as a career after the Ob/Gyn clerkship (48% of men vs 27% of women; <math>P = 0.024</math>).</li> </ul>
Emmons <i>et al.</i> , 2006 <sup>19</sup>	Descriptive study: Ob/Gyn provider surveys	<ul style="list-style-type: none"> <li>• 248 Ob/Gyns: 126 women, 122 men (49.8%*)</li> <li>• United States</li> <li>• Members of ACOG</li> </ul>	<ul style="list-style-type: none"> <li>• Men (35%) were more likely than women (19%) to report not choosing Ob/Gyn again if they could restart career (<math>P &lt; 0.02</math>).</li> <li>• Job satisfaction was nonsignificant between genders.</li> <li>• Men were more likely to consider their gender to be a limitation on practice options than women (34% vs 14%; <math>P &lt; 0.001</math>).</li> <li>• Men were more likely to hold leadership position in professional society (<math>P = 0.01</math>) and earn greater income (<math>P = 0.002</math>).</li> </ul>
Gariti <i>et al.</i> , 2004 <sup>32†</sup>	Descriptive study: medical student surveys	<ul style="list-style-type: none"> <li>• 137 students: 59 women, 78 men (51.1%)</li> <li>• Indianapolis, Indiana</li> <li>• Fourth year medical students</li> </ul>	<ul style="list-style-type: none"> <li>• Increasing numbers of female Ob/Gyns seen as detracting factor for men (38.5%) vs women (10.2%) considering Ob/Gyn as career (<math>P &lt; 0.0005</math>).</li> <li>• Student experience with faculty and resident interactions, Ob/Gyn clerkship perceptions and satisfaction, and performance during the clerkship were nonsignificant between genders.</li> <li>• Of respondents from 2003 class year, nine applied into Ob/Gyn for residency; two were men.</li> </ul>
Hammoud <i>et al.</i> , 2006 <sup>9</sup>	Prospective cohort study: medical student surveys	<ul style="list-style-type: none"> <li>• 292 students: 128 women, 164 men (60%)</li> <li>• Colorado, New York, Michigan</li> <li>• Third year medical students at three medical schools</li> </ul>	<ul style="list-style-type: none"> <li>• Interest in Ob/Gyn prior to entering Ob/Gyn clerkship was strongest predictor of interest at end of clerkship (<math>P &lt; 0.0001</math>).</li> <li>• 1.3% of men considered Ob/Gyn prior to clerkship, 3.4% post-clerkship.</li> <li>• 5% (<math>n = 24/483</math>) of all students at the three institutions chose to specialise in Ob/Gyn; none were men.</li> </ul>
McAlister <i>et al.</i> , 2008 <sup>18</sup>	Descriptive study: secondary analysis of GME Census data	<ul style="list-style-type: none"> <li>• 1055 Ob/Gyn residents (&gt;95%)</li> <li>• United States</li> <li>• GME Census data for Ob/Gyn residents from 2001-2006</li> </ul>	<ul style="list-style-type: none"> <li>• Men who entered Ob/Gyn residencies were just as likely as women to remain in programs they entered and complete training in timely manner (odds ratio = 1.31, 95% CI 0.92-1.13).</li> </ul>
Schnuth <i>et al.</i> , 2003 <sup>30†</sup>	Descriptive study: medical student surveys	<ul style="list-style-type: none"> <li>• 203 students: 72 men, 131 women (51%)</li> <li>• East Lansing, Michigan</li> <li>• All four years of medical students at one medical school</li> </ul>	<ul style="list-style-type: none"> <li>• Men felt more strongly that gender influenced choice to pursue Ob/Gyn career (<math>P &lt; 0.001</math>).</li> <li>• Both men and women agreed on belief that patients care about physician gender and do not prefer men as their Ob/Gyn.</li> </ul>

Abbreviations: ACOG, American College of Obstetrics and Gynecology; GME, Graduate Medical Education; Ob/Gyn, obstetrics and gynaecology. \*Sensitivity analysis of response rate found that respondent to non-respondent demographics, including age, gender, and geographic location, were nonsignificant.

†Low-quality study.

gynaecological examinations by patients (relative risk (RR) = 1.69, 95% CI 1.24-2.29), compared to women. Of the 44 men reporting gender-based exclusions, almost 70% reported being denied at least three times during their clerkship; nearly one in six men reported being denied 10-15 times.<sup>16</sup> From a patient perspective, Coppola *et al.* (2014) surveyed 234 patients in Arizona on their preference for medical student gender, noting that patients were twice as likely to allow women than men to perform an educational pelvic exam (RR = 1.8, 95% CI 1.4-2.4). Of note, patients with prior exposure to care by medical students, independent of prior student gender, were more likely to allow men to perform pelvic exams (RR = 2.0; 95% CI 1.2-3.3).<sup>17</sup>

While these studies validate male medical student's concerns about exclusion from participating in clinical Ob/Gyn care, some men's negative perceptions may not always be supported by objective assessments of their training experiences. Of the 79 medical student surveys by Chang *et al.* (2010), 21 men felt their gender negatively impacted their clerkship experience, and five specified they felt excluded by Ob/Gyn residents due to their gender. One man remarked that a resident 'gave [him] zero attention because [he's] a guy and, therefore, must not be interested in OB.' Nevertheless, male and female medical students in this study did not ultimately differ in the number of deliveries, surgeries, or pelvic and breast exams during their medical student Ob/Gyn



clerkship. Further, the students generally perceived no differences in the quality of teaching and team inclusion, by student gender.<sup>15</sup>

### Gendered perceptions of obstetrics and gynaecology as a career choice, by student and physician gender

Whether or not students' objective clerkship experiences are impacted by patients' gender preferences, student perceptions may be more likely to impact career decision-making, as explored in six studies (Table 4). Two studies examined students' changing interests in Ob/Gyn careers following their clerkship. Chang *et al.*'s (2010) 79-student end-of-clerkship survey noted that while more than half of men reported their clerkship experience being negatively impacted by their gender, men were more likely than women at the same institution to report increased interest in Ob/Gyn careers (48% vs 27%,  $P = 0.02$ ); the number of men interested in an Ob/Gyn career doubled from 11 to 22 students post-clerkship.<sup>15</sup> In a prospective cohort study, Hammoud *et al.* (2006) followed 292 third year medical students through their Ob/Gyn clerkship across three different medical schools in New York, Colorado, and Michigan. Among the student cohort, women as compared to men, were more likely to maintain interest in or consider Ob/Gyn as a career post-clerkship; men were more likely to have their lack of interest unchanged ( $P = 0.0001$ ). Pre-clerkship factors noted to be significantly linked to post-clerkship interest in Ob/Gyn included 'anticipating OB/GYN as a career field pre-clerkship' and 'being female' ( $P < 0.0001$ ). The investigators additionally used the National Resident Matching Program (NRMP) to determine the number of students from all three medical schools who ultimately applied into Ob/Gyn residencies. Of the 5% (24/483) of students who applied for an Ob/Gyn residency position, none identified as male.<sup>9</sup>

Two studies explored provider attitudes about patient gender bias. McAlister *et al.* (2008) evaluated attrition rates among Ob/Gyn residents from the 2001–2006 ACGME Census, noting that men were not significantly more likely than women to be deterred by their residency training experience.<sup>18</sup> The study suggested that while male medical students may be less interested in pursuing careers in Ob/Gyn, they are as likely as their female counterparts to remain in the field once started. Emmons *et al.* (2006) explored career satisfaction among Ob/Gyn physicians by gender in a survey. Only half ( $n = 248$ ; 49.8%) of members responded out of the 500 randomly selected members from the ACOG mail list database, survey respondents were not demographically different from non-responders in the study. Both men and women completing the survey reported similar levels of job satisfaction. However, more men reported wanting to change specialties if they could restart their career (35% vs 19%;  $P < 0.02$ ) and being more likely to consider their gender to limit practice options (ie urban vs rural practice, number of job interviews, finding a satisfactory job, and sub-specialisation).<sup>19</sup>

## DISCUSSION

While Ob/Gyns are trusted to provide sensitive SRH services, men are under increasing scrutiny as more reports are published concerning cases of sexual assault and abuses of power perpetrated by male Ob/Gyns.<sup>3–6</sup> However, no studies in this systematic review of gender bias toward Ob/Gyn physicians and trainees examined or noted concerns about patient safety or infringement on reproductive autonomy. Further, more than half of included studies on patients' gender preferences for their Ob/Gyn did not detect significant gender bias among patients toward physicians,<sup>8,10,11,12</sup> noting that patients more commonly prioritised physician qualities before gender. However, medical students and Ob/Gyn residents, by nature of being in training are unable to communicate these qualities during initial patient encounters such that gender may more strongly influence their experience. Additionally, patient preferences from these studies may reflect their experience or acceptance and toleration of men as their physicians, related to a more equal gender distribution of actively practising Ob/Gyns at the time of study—41% identified as male in 2019.<sup>20</sup>

The disproportionate increase in women entering Ob/Gyn residency programs<sup>1</sup> will likely facilitate patients' preferences, expectations for, and receipt of gender-concordant SRH in ways that may exacerbate the negative effects of gender bias on training. With fewer opportunities to receive care from male Ob/Gyns, patients' gender biases may become more evident; all three studies examining clerkship experiences noted men disproportionately reporting exclusion from clinical experiences.<sup>15–17</sup> In studies noting the positive effect of Ob/Gyn clerkships on men's interest in the field,<sup>9,15</sup> increased interest did not translate into more residency applications. As specialisation in Ob/Gyn was more likely to be predicted by pre-clerkship interest, non-patient factors might be driving career decisions. That some male students reported exclusion by educators suggests a bias favouring gender-concordant care ingrained within and perpetuated by the structure and culture of medical education rather than patients in clinical practice. While excluding male students from various Ob/Gyn experiences may be intended to protect both patients and students, students are left unexposed to moments that may define career pathways or develop them into better advocates for Ob/Gyn patients.

Of note, men may bring their own gender bias into the Ob/Gyn clerkship, which may prevent them from considering Ob/Gyn as a potential career path, leaving them to perceive exclusions as gender-related. An unfortunate side effect of women gaining greater demographic representation among Ob/Gyns and residents has been the propagation of existing gender-based discrimination against women, negatively affecting their compensation across the field,<sup>21,22</sup> as well as their reputation and perception as less competent or not 'real surgeons'.<sup>23–25</sup> This review noted a consistent lack of interest in Ob/Gyn among male students surveyed

prior to the clerkship, suggesting the need to explore men's perceptions of stigma in Ob/Gyn or their outlook regarding work within a women-dominated field.

## Limitations

Findings from this review are limited by the quality and heterogeneity of available studies. Most studies included in this review were descriptive, cross-sectional surveys that did not consistently validate men's perceptions of gender bias against counts of actual exclusion. Surveys were prone to selection bias, and studies requesting students to report on experiences of exclusion were prone to social desirability bias. Future research might consider a prospective, multi-year study that includes complete classes of medical students, with third party management of de-identified data. Mixed methods studies that directly query the role of gender in men's decisions to specialise in Ob/Gyn are needed. Additionally, as gender bias toward providers of sensitive SRH services is unlikely to be limited to Ob/Gyn physicians, future reviews might include urologists or advanced practice clinicians providing SRH. Lastly, we recognise that this systematic review is written from a binary lens; future research should include perspectives and experiences across the spectrum of gender.

## Implications and recommendations

Our review indicated that patients want well-trained, respectful physicians to care for their SRH needs. Provider gender is not the sole priority among the majority of patients if they can be assured of their provider's proficiency and professionalism. Medical students should not be discouraged by virtue of their gender. While clinical rotations may increase men's interest in Ob/Gyn, they are not sufficient to increase their commitment to Ob/Gyn residency training. Beyond patient gender bias, preconceived gender biases held by male students prior to starting the clerkship might also contribute to the declining proportion of male medical students entering Ob/Gyn residency. These factors include male students' concerns about Ob/Gyns being undercompensated and a training environment that favours clinical exposure for female students, without additional support and professional development for men who might become interested in the field.

Leaders in Ob/Gyn note the importance of gender diversity within the field and the need to expand their roles beyond the care of women alone to include the care of transgender individuals who also require access to SRH services<sup>26</sup> as well as cisgender men who rely on the expertise of Ob/Gyn providers for family planning and infertility services.<sup>27</sup> While a trauma-informed approach to the care of female patients necessitates providing the option of gender-concordant care, patients may not always prefer a female provider. Further, gender diversity lends itself to pedagogical diversity and diversity of perspective, which are essential for supporting a wide range of medical learners and patient backgrounds.

To ensure diversity and remain inclusive, Ob/Gyn needs to adopt affirmative inclusion. Unlike affirmative action whereby opportunities and resources are redistributed to a marginalised group, affirmative inclusion in Ob/Gyn acknowledges the need to increase the proportion of men represented to improve workforce diversity, pedagogical thought, and patient autonomy.<sup>28</sup> To be successful, affirmative inclusion in Ob/Gyn will require the engagement of many different stakeholders to support culture change. Opportunities in Ob/Gyn include:

1. educational or professional development programming that centres the experience of men or other non-cisgender identities in Ob/Gyn
2. formal mentorship for men or other non-cisgender identities to help overcome gender-based barriers to obtaining clinical experience and navigating the work and training environment
3. advocating for transparency and equity in the compensation of physicians across specialties, with attention to disparities in the reimbursement of similar procedures performed by Ob/Gyn vs urologic surgeons
4. incorporate and directly address gender-based discrimination in Ob/Gyn into implicit bias trainings at the level of the medical school and residency training program, as well as encourage dialogue among men with gender-based reservations about the field
5. conducting further research that more directly characterises the experience of gender bias among male and other non-cisgender identifying students, how patient and provider bias might be addressed and prevented in the educational and clinical settings, and how interventions can impact the gender diversity of applicants to residency in Ob/Gyn.

## CONCLUSION

While the declining proportion of men in Ob/Gyn may reflect the growing proportion of women entering medicine, patient gender bias toward Ob/Gyn physicians may not be the primary contributor to decreasing numbers of men in Ob/Gyn. Men may have preconceived notions about the field or how they will be viewed by female patients and physicians, which can be reified by gender-based exclusions encountered during their clerkship. Medical educators in Ob/Gyn should work to create a gender-inclusive working and training environment as a means of maintaining diversity in Ob/Gyn.

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## AUTHOR CONTRIBUTIONS

All authors made substantial contributions to the development of this manuscript. BTN, CRD, and RAR conceived, planned, and carried out the review, with LHS contributing to the analysis of collected data. All authors contributed to writing up the review.

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