The Effect of Student Gender on the Obstetrics and Gynecology Clerkship Experience

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Abstract

Objectives: To explore the effects of the students' gender on their perception of quality and quantity of teaching, the amount of experiential learning, and their interest in obstetrics and gynecology.

Methods: Anonymous, self-administered surveys to third-year medical students rotating on the obstetrics and gynecology clerkship.

Results: Eighty-one of 91 students participated (89% response rate): 33 men, 46 women, 2 declined to reveal their gender. No significant gender differences existed regarding number of interactions with residents and faculty; number of deliveries, surgeries, or examinations performed; perceived quality of teaching; or feeling included as part of the clinical team. Male students were more likely to report performing specific surgical procedures, such as operating the bovie cautery during gynecological surgeries ($p = 0.005$). More men experienced patients refusing to allow them to participate in the clinical interview ($p < 0.0001$) and physical examination ($p < 0.0001$). Male students were also more likely to report feeling that their gender negatively impacted their clerkship experience ($p < 0.0001$). Although less likely to report preclerkship and postclerkship career interest in obstetrics and gynecology, male students were more likely to report that their interest increased at the end of the clerkship.

Conclusions: Male students were more likely to experience gender bias from patients on the obstetrics and gynecology service. Male students also described feeling socially excluded from female-dominated clinical teams. Obstetrics and gynecology educators need to consider methods of encouraging patients to accept medical student participation regardless of gender. Obstetrics and gynecology faculty and residents need to be sensitive to subtle forms of gender bias and ensure equal inclusion for both male and female medical students.

Introduction

OVER THE PAST 20 YEARS, the obstetrics and gynecology workforce in the United States has become increasingly female. The proportion of female practicing obstetrician-gynecologists in 2000 was 32%, compared with 12% in 1980.^{1,2} In 2006, estimates of active obstetrician-gynecologists who were women were around 40%.³ This proportion will likely continue to increase, as women also constitute the majority of current obstetrics and gynecology residents,³ and fewer male United States medical school graduates are entering the field of obstetrics and gynecology.^{3,4} Between the years 1998 and 2003, the proportion of male graduates from obstetrics and gynecology residency programs fell from 46% to 23%, a 50% decline.¹

Recent surveys of medical students' career preferences consistently show that men are less likely than women to express an interest in an obstetrics and gynecology career both

before and after the obstetrics and gynecology clerkship.^{5,6} Hammoud et al.⁶ found a slight increase in male interest in obstetrics and gynecology postclerkship but noted that this increase in interest was 2.7% compared with 16% for women. They argued that preexisting beliefs and perceptions about the field of obstetrics and gynecology held by students before the clerkship may be discouraging male students from considering entering this specialty.⁶ These studies of student career choices suggest that this gender trend will continue and that in the near future the field will be populated predominantly by women.

As the specialty becomes increasingly female, however, obstetrics and gynecology faculty need to ensure that the quality of the learning experiences on the obstetrics and gynecology clerkship does not differ by student gender. Several studies examining medical students' experiences of gender discrimination and sexual harassment have shown that many male students describe educational inequities, particularly on

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obstetrics and gynecology services.^{7,8} One study indicated that although male students did not differ from female students on the objective multiple-choice examination, proportionally more women received either honors or high passing overall grades for the clerkship.⁹ Another study showed that 25% of male students surveyed had been told that patients preferred women obstetricians and gynecologists and were, thus, discouraged from considering the field.¹⁰ Obstetrics and gynecology educators need to ensure that gender discrimination and educational inequities experienced by male students on the obstetrics and gynecology clerkship are not a primary contributor to the decreasing numbers of men entering the field.

We designed this study to better understand the effect of medical student gender on their experience during the obstetrics and gynecology clerkship. In particular, we wanted to assess the effects of the students' gender on their perception of quality and quantity of teaching, the amount and type of experiential learning, and their preclerkship and postclerkship interest in pursuing a career in obstetrics gynecology.

Materials and Methods

We conducted an anonymous, self-administered written survey of all third-year medical students rotating through a required obstetrics and gynecology clerkship at a large, urban medical university. Survey questions were developed with input from other obstetrics and gynecology faculty and residents as well as recently graduated and fourth-year medical students for content validity. Several recently graduated and fourth-year medical students piloted the survey and provided feedback about clarity and wording of the questions and survey layout and presentation. The survey contained questions asking about the number and quality of interactions with residents and faculty obstetrician-gynecologists during the clerkship, the number and types of hands-on experiences, and their perception of whether they felt their gender had affected their clerkship experience in a positive manner or negative manner. If they indicated they did feel gender affected their clerkship experience, either positively or negatively, they were asked to provide an example.

All medical students participating in the core obstetrics and gynecology rotation from October 2006 through May 2007 were eligible for this study. Interested students completed anonymous surveys during the last week of their clerkship. Measures were taken to ensure that a student's choice of whether or not to participate would have no impact on her course evaluation or grade.

We used descriptive univariate statistics to describe participant characteristics. We performed bivariate analysis using chi-square analysis to explore factors associated with gender and the students' clerkship experience, such as amount of interaction with residents and attending physicians, quality of teaching, and the amount and degree of participation in physical examinations and clinical procedures. We also examined associations between gender and student interest in obstetrics and gynecology. We treated career interest variables as dichotomous, comparing no interest to any interest. We also examined factors associated with changes in levels of career interest in obstetrics and gynecology from before to after the clerkship. We chose $p \leq 0.05$ as indicating statistical significance.

This study was approved by the University of Pittsburgh School of Medicine Curriculum Committee Executive Subcommittee and was designated as meeting criteria for exempt by the University of Pittsburgh Institutional Review Board.

Results

Eighty-one of a potential 91 students completed the survey (89% response rate). Thirty-three students were men; 46 were women; 2 declined to reveal their gender. Analysis was limited to the 79 surveys in which participants revealed their gender. The proportions of men to women in our medical school classes have ranged around 50%–53% men and 47%–50% women. The specific class year from which most of the participants came consisted of 70 men (51%) and 66 women (49%). However, we are not able to calculate exact response rates for each student gender for several reasons. Our study time period did not allow us to include the entire medical school class for that year (i.e., surveys were distributed in 8 of 12 clerkship blocks for the year). Additionally, our clerkships often include students from other graduating classes (e.g., M.D./Ph.D. students, students who take additional time for research or personal reasons). Both of these issues complicate our ability to accurately determine the total number of men and women who were eligible to participate in the study.

Looking at how gender affected the students' clerkship experiences, there were gender-associated differences in some of the specific tasks and experiences that students had the opportunity to perform in the operating room. A larger proportion of male students reported operating the bovie cautery during both cesarean sections and gynecological surgeries (91% and 87%, respectively) compared with female students (72% and 57%, respectively). During gynecological surgeries, men were also more likely than women to have had the opportunity to suture skin (61% vs. 32%) and to participate in cervical dilation (10% vs. 0%). There were no gender differences in total number of cesarean sections and surgical procedures or other types of surgical tasks, including using a scalpel to cut skin or stapling skin. A comparison of the number and percentage of male and female students who performed a particular procedure is shown in Table 1.

There were no significant differences between men and women in the number of interactions with residents and faculty; number of deliveries, surgeries or examinations performed; perceived quality of teaching; or feeling included as part of the clinical team. Male students were equally as likely as female students to describe the resident and attending physicians as "effective educators" and "role models of professional behavior." They were also equally likely to agree that they had felt treated as "part of the team" during the clerkship. There were also no gender differences in feeling that expectations on the clerkship were clear and that the clerkship experience had adequately prepared them for the examination.

More men than women experienced patients refusing to allow them to participate in their care: 61% of men vs. 17% of women were denied an opportunity to interview a patient ($p < 0.0001$); 82% of men vs. 37% of women were denied participation in the patient examination ($p < 0.0001$). For women, the median number of patients who declined interviews or examinations was 1. For men, the median number of patients who declined interviews or examinations was 3.

TABLE 1. COMPARISONS OF NUMBER AND PROPORTIONS OF MALE AND FEMALE STUDENTS WHO REPORTED PERFORMING SPECIFIC PROCEDURES DURING CLERKSHIP (N=79)

Procedure	Number male students performed (%) n = 33	Number female students performed (%) n = 46	p value
Cesarean sections			
Used suction	29 (88)	36 (78)	NS
Cut suture	29 (88)	43 (93)	NS
Sutured skin	10 (30)	17 (37)	NS
Stapled skin	27 (82)	35 (76)	NS
Sutured fascia	7 (21)	8 (17)	NS
Retracted soft tissue	30 (91)	40 (87)	NS
Suctioned infant	2 (6)	7 (15)	NS
Retracted bladder	30 (91)	40 (87)	NS
Used bovie on soft tissue	11 (33)	13 (28)	NS
Used bovie for cautery^a	30 (91)	33 (72)	0.037
Used scalpel on skin	1 (3)	2 (4)	NS
Removed placenta	12 (36)	9 (20)	NS
Gynecology surgery			
Used suction	26 (84)	30 (68)	NS
Cut suture	28 (90)	34 (79)	NS
Sutured skin	19 (61)	14 (32)	0.034
Stapled skin	21 (68)	30 (70)	NS
Retracted soft tissue	27 (87)	39 (89)	NS
Retracted bladder	26 (87)	33 (75)	NS
Performed speculum examination	12 (40)	12 (27)	NS
Placed cervical tenaculum	7 (23)	8 (18)	NS
Used cervical dilator	3 (10)	0 (0)	0.032
Performed cervical block	2 (7)	2 (5)	NS
Used bovie on soft tissue	8 (26)	17 (39)	NS
Used bovie for cautery	27 (87)	25 (57)	0.005
Inserted ports	1 (3)	2 (5)	NS

^aBold indicates $p \leq 0.05$.

An equal number of female and male students described being denied participation by an attending physician in the clinical care of a patient. Although more men reported having a patient decline their participation, there was no difference in the number of pelvic or breast examinations performed by either male or female students in the outpatient clinic or on labor and delivery. In the outpatient clinic, 40% of the women and 33% of the men performed 4–6 pelvic examinations; 22% of women and 24% of men performed 8–9; and 29% of women and 24% of men performed >10. On labor and delivery, students regardless of gender had fewer opportunities to perform pelvic examinations: the majority of men (85%) and women (79%) performed ≤ 3 examinations in this setting, with the same proportion (36%) of each gender performing no pelvic examinations on labor and delivery. However, there was a trend for more women (73%) than men (55%) to have performed ≥ 4 pelvic examinations under anesthesia in the operating room ($p = 0.085$).

Men were also more likely to report that their gender negatively affected their experience during the clerkship (64% vs. 2% women, $p < 0.0001$). In contrast, women were more likely to report that their gender positively affected their experience during the clerkship (64% vs. 3% men, $p < 0.0001$). Nineteen of the 21 men who thought that their gender negatively affected their clerkship experience provided written examples. Most (14 of 19) of the examples described patients' reluctance or refusal to allow the student's participation in their care because of the student's gender. In the other 5 examples, the men described believing that their gender con-

tributed to feeling left out among primarily female obstetrics and gynecology residents. For example, one man complained that "the only small talk was about shopping." Two men described thinking that some residents immediately assumed they were not interested in the field because of their gender. One wrote "[the resident] gave me zero attention because I'm a guy and, therefore, must not be interested in OB."

There were also some differences in career interests between male and female students. Male students were more likely than female students to list radiology and orthopedic surgery among their top five career choices ($p = 0.001$ and 0.032 , respectively). They were less likely compared with women to list obstetrics and gynecology and pediatrics among their top five career choices (both $p = 0.005$). Before the clerkship, 67% of the men vs. 33% of the women expressed no interest in obstetrics and gynecology as a career. At the end of the clerkship, the number of men expressing no interest in obstetrics and gynecology dropped to only 33%, with 24% expressing some interest and 42% expressing moderate interest. In contrast, the proportion of women (33%) expressing no career interest in obstetrics and gynecology did not change. Looking at change in level of interest, 48% of the men increased their level of interest, 44% noted no change in level of interest, and 9% reported decreased interest. Among women, 27% described increased level of interest, 39% noted no change in interest level, and 34% reported decreased interest. These differences in change in level of career interest in obstetrics and gynecology from before the clerkship to the end of the clerkship between male and female medical students were

statistically significant ($p = 0.024$), with men being more likely to increase their career interest during the clerkship.

Discussion

We found that medical student gender did not affect most aspects of the clerkship experience. Indeed, being male did not disadvantage the students in the amount or quality of teaching from residents and attending physicians. Additionally, male students had an opportunity to engage in the same number of hands-on experiences regarding examinations, deliveries or surgical procedures; in fact, for some procedures, male students had more opportunities. Although the overall number of students who sutured skin or performed a cervical dilation was low and, thus, renders any conclusions about gender differences in performing these procedures questionable, the finding that more men than women performed these procedures should generate some thought and examination of how students request procedural training and how educators provide these experiences. For example, residents and attending physicians, believing that male students prefer the surgical aspects of the field, may have tried to appeal to this interest in allowing male students to perform these surgical tasks. A study by Schnuth et al.¹⁰ examining influencing factors for students choosing obstetrics and gynecology noted that men were more likely to describe opportunities to perform surgery and working under pressure as positive influences attracting them to the field. Another potential explanation for this difference may be that male students were more likely than female students to ask to perform these surgical procedures. Studies have noted that women use more passive styles of obtaining and seeking mentorship.^{11,12} Potentially, then, women may be less assertive in requesting procedural experiences. Additional studies, including qualitative studies, examining how students seek and obtain educational experiences are needed. Educators also need to be attuned to potential gender differences in seeking procedural experiences and to ensure that all students, regardless of gender, are offered opportunities for participation.

Despite similar experiences with teaching and participation in examinations and procedures, more male participants were likely to agree with the statement that their gender negatively affected their clerkship experience. This sentiment probably is primarily explained by the larger number of male students compared with female students who had a patient decline their participation in either history taking or an examination. Male students in other studies have described discrimination from female patients. Indeed, the story by Schnuth et al.¹⁰ indicated that male students were more likely than female students to report that patients had discouraged them from pursuing a career in obstetrics and gynecology. In this regard, it is not surprising that male students may perceive certain challenges in competing for jobs, patients, and market share in the field of obstetrics and gynecology.

These clerkship experiences of patient gender bias, however, are not supported by studies examining obstetrician-gynecologist gender preferences by female patients. In fact, the majority of studies examining this issue have shown that gender is not the primary characteristic emphasized by women patients when selecting their obstetrician-gynecologist.^{13–17} In most of these studies, the majority of the women patients

surveyed described no gender preference^{13–15} and no difference in patient satisfaction based on physician gender.¹⁴ Even when a slight preference for female gender was noted, the women emphasized physician experience and interpersonal/communication styles over gender.^{16–18}

The high proportion of male students who had a patient decline their participation in clinical care may reflect gender bias specific to medical students' experiences and not practicing obstetrician-gynecologists. Often, medical student interactions with patients are brief, with limited opportunities for developing a continuing relationship. When women know very little about a provider, they may use provider gender as a proxy for other characteristics. For example, one study noted that when women were shown a picture showing female and male obstetrician-gynecologists, 83% selected the female provider. However, when such descriptors as "warm bedside manner and compassionate" and "competent and excellent surgeon" were added to the male provider's pictures and "graduated from the Medical University of Kalamazoo" and "pleasant personality" were added to the female provider's pictures, 62% of the women chose a male provider.¹⁷ Because women patients know very little about the medical student's personality and skills and they recognize that the interaction will be transient, with the student often in the role of an observer, they may be choosing to minimize their embarrassment and discomfort by restricting student participation based on gender. Even in our study, there were no gender differences in the number of pelvic or breast examinations performed despite the large proportion of male students reporting patient refusal. Whereas the number of males reporting patient refusal for examinations was significantly higher than the number of female medical students, the total number of refusals was low—a median of 3. This might explain why overall experiences were similar. It is likely that most patients allowed student participation and, thus, provided students of both genders with adequate opportunities for this experiential learning.

Despite no differences noted in teaching quality or feeling part of a team, a few male medical students described experiences of more subtle forms of gender bias. Studies in the general surgery literature have noted such gender bias experiences in reverse, with more women than male students perceiving a predominance of "old boy" or gender-biased attitudes within general surgery.^{19,20} In this study, we obtained the information about subtle gender bias from the qualitative portion of the study and only from a small number of the participants. Whereas their experiences were likely in the minority and, thus, accounted for the overall lack of difference in perceived quality of teaching or feeling part of a team, potential subtle forms of gender bias need to be further explored in future studies, and medical educators need to be alert to its possible existence and strategize methods of addressing it.

Our study has several limitations. Our participants were from one class of medical students at a single medical school, and, thus, our results cannot be generalized to other institutions with clerkships containing different structure and characteristics. Further studies surveying additional medical school classes both at our institution and at other medical schools are needed. Our participation among eligible students was high at 89%, but we have no information on those who did not choose to participate and cannot assess for potential

confounders associated with participation. Our sample does have a slightly higher proportion of female students (57%) compared with the usual gender distribution in our medical school classes, which also introduces the possibility of sampling bias. Additionally, with a relatively small sample size and the small number of procedures a medical student is likely to experience, we face a real possibility of a beta error in our comparison of hands-on experiences for male and female medical students. Despite our attempts to implement multiple methods of protecting participants' identity, the timing of completion of the survey before the clerkship had completely ended may have introduced some reporting bias. We also did not assess the potential influence of gender of faculty with whom the students associated, such as their PBL leaders or faculty preceptors in the various clinical areas. Half of the faculty responsible for student teaching in our department is male. The presence of role models of a particular gender in a specialty field may influence the experience and subsequent career choices of medical students. For example, one study examining women choosing to enter into surgical specialties noted that women from institutions with more female surgeons or role models were more likely to pursue careers in surgery.²¹ Future studies are needed to explore other potentially influential aspects of the clerkship, such as the gender of faculty members with whom the students had much interaction. Finally, we did not assess participants' final career choices to determine if their postclerkship interest was associated with actually pursuing a career in obstetrics and gynecology. All nine of the students who entered into obstetrics and gynecology residency programs from that class year were female.

Despite these limitations, our study is the only one of which we are aware that examines the effect of student gender on the obstetrics and gynecology clerkship experience in this level of detail. We illustrate that medical student gender does not influence the quality or quantity of learning experiences during the obstetrics and gynecology clerkship. Indeed, the clerkship experience has the potential to increase the number of male medical students interested in considering an obstetrics and gynecology career. As in the study by Hammoud et al.,⁶ many of the male medical students entered the obstetrics and gynecology clerkship with no or little interest in considering the field as a potential career. Among our sample population, there was a male preference for such specialties as radiology and orthopedics and a female preference for obstetrics-gynecology and pediatrics that reflect findings from other medical student surveys.^{4,22} However, we saw an increase in interest in obstetrics and gynecology at the end of the clerkship among male medical students. Hammoud's study⁶ also found an increased interest in obstetrics and gynecology after the clerkship among male students, although the change in that study was rather modest; only 2 of 164 men were interested in obstetrics and gynecology before the clerkship and 5 were interested at the end of the clerkship. Our study began with 11 of 33 men indicating preclerkship interest and 22 interested at the end of the clerkship. One potential explanation for this finding is the general increase in interest in a specialty that occurs after student participation in that specialty's clerkship.²² We note, however, that we did not see a similar change among the women in the number of students who initially expressed no interest in considering entering obstetrics and gynecology at the beginning of the

clerkship and reported some consideration of the field by the end of the clerkship. Before the clerkship, 31 of 46 women indicated some level of career interest in obstetrics and gynecology, and the same number were interested at the end of the clerkship. We do not have any data from other clerkships to see if our male students tended to show more enthusiastic responses than our female students to a specialty at the end of other clerkships. Our study finding may suggest that whereas male students may hold preconceived ideas or biases against obstetrics and gynecology before the clerkship, their experience during the clerkship may have some influence in changing their perceptions about the field.

Our findings have several educational implications for clerkship directors and others involved in medical student education in obstetrics and gynecology. Clinical settings that host medical students for clerkship experiences may need to consider methods of encouraging patients to accept medical student participation regardless of their gender. Male students should also be made aware that these patient gender biases are not significant issues for practicing obstetricians-gynecologists. Efforts should be made to correct student misconceptions about patient gender preferences in the obstetrics and gynecology marketplace and to minimize the experiences and effects of having patients decline medical student participation.

Although there were no gender differences in students' perception of teaching quantity or quality from faculty or residents, a few male medical students described feeling excluded or ignored by the predominantly female residents. Although none of the students described any experiences of blatant gender harassment or mistreatment, this lack of attention can represent a more subtle form of gender bias. Obstetrics and gynecology educators need to encourage both faculty and residents to be equally inclusive and supportive of both male and female medical students.

Conclusions

Although medical student gender did not affect the amount or quality of teaching or number of hands-on experiences during their obstetrics and gynecology clerkship, male students were more likely to experience gender bias, primarily from patients. Obstetrics and gynecology educators need to consider methods of encouraging patients to accept medical student participation regardless of their gender. Future studies should include qualitative examinations of male and female students' clerkship experiences and how they perceive that their gender affects this experience.

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Disclosure Statement

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