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A qualitative study of gender differences in the experiences of general surgery trainees

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ABSTRACT

Background: Women surgeons continue to face unique challenges to professional advancement. Higher attrition rates and lower confidence among female surgical residents suggest that experiences during residency differ by gender. Few studies have investigated gender-specific experiences during training. This study identifies gender-based differences in the experiences of general surgery residents that could affect professional development.
Materials and methods: Male and female general surgery residents at the University of Pittsburgh Medical Center participated in a semi-structured interview study exploring the significance of gender in training. Recurring themes were identified from transcribed interviews using inductive methods. Two individuals independently coded interviews. Themes were compared for male and female residents. Certain themes arose with greater frequency in reference to one gender over the other.
Results: Twenty-four male and eighteen female residents participated (87.5%) in the study. Fewer female residents self-identified as a "surgeon" (11.1% *versus* 37.5%, $P < 0.001$). Residents felt that patients and physicians more frequently disregarded female residents' professional role ($P < 0.001$). Female residents also more often mentioned perceiving aggressive behaviors from attendings and support staff (9% *versus* 1% and 10% *versus* 3%, respectively). Relative to men, women more often mentioned lack of mentorship (0% *versus* 8%), discomfort (4% *versus* 8%), feeling pressured to participate in unprofessional behaviors (2% *versus* 5%), and having difficulty completing tasks (5% *versus* 10%, $P < 0.001$).
Conclusions: Women experience gender-based challenges during surgical training. Further investigation is needed to determine how these experiences affect professional development.

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Introduction

An increasing number of women are becoming surgeons.[1,2] Despite this increase, landmark studies have shown that female surgeons face unique challenges to professional advancement.[3-5] Few studies have investigated gender-specific challenges before the transition to autonomous surgical practice. Higher attrition rates among female surgical residents[6] contribute to under-representation of women in surgery and suggest that experiences during residency may differ by gender. Lower confidence in operative skill among women surgical residents[7,8] also supports gender-based differences among trainees. Research to date, however, has not explored the extent to which gender-divergent experiences within training occur or whether such differences interfere with the professional development of women surgical trainees.

It is important to consider whether women surgical residents encounter "gender-specific deterrent(s)"[9] that could hinder their professional development. As a first step in investigating this issue, we interviewed surgical residents about gender-based challenges in training and the potential effects of these experiences on how they function as professionals and as surgeons. Residents were interviewed, first by anchoring the discussion on the meaning of the professional title "doctor" and the activity of presenting oneself as a physician and surgeon. Our goal was to identify themes in their experiences that could help guide the discipline's larger discussion of diversity in surgical education.

Methods

Study design and recruitment

This was a qualitative interview study[10] to examine whether residents perceive gender differences in training and in their sense of professional identity. All general surgery residents ($n = 48$) in the University of Pittsburgh School of Medicine were eligible (Table 1). There were no exclusion criteria. This study was approved by the Institutional Review Board at the University of Pittsburgh (PRO#17030607). Informed consent was obtained from all subjects before their participation.

Table 1 – Distribution of study participants.

Clinical postgraduate level (PGY)	Participants		Nonparticipants	
	Female	Male	Female	Male
1	3	4	0	0
2	3	4	0	0
3	2	4	0	0
4	0	2	0	4
5	2	4	0	0
Lab residents	8	6	0	2
Subtotal by gender	18	24	0	6
Total residents = 48	42		6	

Instrument development

We developed a semi-structured interview to explore residents' beliefs about the significance of (1) gender in the use of the professional title, (2) gender in patient care, and (3) gender in surgical training (see Table 2). Content validity of interview questions was determined by three experts in surgical education (K.A.H., G.G.H., and E.B.L.) and two in qualitative research methods (E.B.L. and M.E.H.). Interview questions were subjected to an iterative judgmental review process, first through independent assessment and then through group discussion. Once content experts agreed that there were no further ambiguities with respect to question relevance or definitions, the instrument was considered complete.[11]

Procedure

Participants provided written informed consent before completing interviews. No incentives were provided for participation. Individual interviews were conducted, and audio was recorded by a single individual (S.P.M.) who was trained in interviewing techniques. We chose peer interviewing with the hope that women and men would be candid[12] about the effects of gender on training. The semi-structured interviews began with yes or no questions about whether they introduce themselves as "doctor" when addressing patients and whether they feel comfortable describing themselves as a surgeon (Table 2, questions #1-2). These closed-ended questions served to anchor residents' subsequent discussions about professional identity, gender, and training. Following residents' responses to the initial interview questions, the interviewer asked open-ended questions intended to clarify each participant's narrative. These questions were related to how residents felt the use of a professional title might influence their interactions with patients or colleagues, gender-based challenges to being identified as a physician or delivering optimal patient care, and the influence of gender-specific stereotypes on professional activities and the training experience. Core questions 1-10 were asked of everyone. Additional probes were asked if the participant recalled an experience or answered affirmatively in response to a core question. Accuracy was assessed later by having a sample of participants read through and confirm the content of his/her transcription.

Qualitative data coding

All participants ($n = 42$) were included in data analysis. Interviews were transcribed verbatim and then any identifiable content was redacted. The investigators (G.G.H., E.B.L., and S.P.M.) developed a preliminary coding scheme by analyzing a subset of the interviews using inductive methods,