

Association for Surgical Education

# Women in academic surgery: why is the playing field still not level?



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## KEYWORDS:

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## Abstract

**BACKGROUND:** The purpose of this study was to explore career satisfaction and advancement for women in academic surgery.

**METHODS:** A 48-item web-based survey was emailed to women surgeons in academic centers across Canada, exploring career advancement, family planning, mentorship, discrimination, and career satisfaction.

**RESULTS:** The survey response rate was 38% (81 of 212); 18% of participants felt they experienced gender discrimination in medical school, 36% in residency, 12% in fellowship, and 41% as staff surgeons. More than half felt that their gender had played a role in the career challenges they faced. Responses to open-ended questions suggested that many surgeons struggled to balance their academic careers with family life. Despite this, participants rated their career satisfaction very highly.

**CONCLUSIONS:** There remain ongoing challenges for women in academic surgery including lack of gender equality, appropriate mentorship, and accommodations for surgeons with families. Continued advancement of women in academic surgery is dependent on addressing these concerns.

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The medical workplace has changed significantly over the last century. It was just over a hundred and fifty year ago that the first woman graduated from medical school in North America. Today, however, women make up 47% of the graduating medical school class.<sup>1</sup> Women also account for most practicing pediatricians, family physicians and obstetrician and/or gynecologists in North America.<sup>2</sup> Over the last decade the number of women in surgery, a traditionally male-dominated specialty, has steadily increased.

In the United States, they now make up 38% of surgical residents.<sup>1</sup> Despite this, women are not well represented in academic surgery positions, particularly in leadership roles, and the numbers drop off at startling rates as one ascends up the ranks. Women comprise only 22% of full-time faculty in surgery and only 1% of Chairs of Surgery.<sup>1</sup>

It remains unclear why the increased numbers of women in surgery have not been paralleled by an increase in numbers of women in leadership positions within the field. The few studies looking at this phenomenon have been contradictory. The most commonly proposed factors hypothesized to account for this inequity include family responsibilities,<sup>3,4</sup> inadequate mentorship,<sup>5</sup> a lack of desire,<sup>6</sup> and the “pipeline effect”, which theorizes that there simply has not been enough time to see the improvement in numbers.<sup>7</sup> Unfortunately, there is insufficient evidence to conclude that these factors adequately account for the lack of women in leadership roles within surgery. Studies have demonstrated that even when we adjust for variables such as maternity leave and part-time work, women remain substantially less likely than men to be promoted<sup>8–10</sup> and also earn lower salaries than their male counterparts.<sup>6</sup>

A less frequently advanced hypothesis for this lack of advancement is the ongoing effect of gender discrimination.<sup>11</sup> Although several studies have demonstrated gender-based sexual harassment is prevalent in the surgical field, it is not openly acknowledged.<sup>12</sup> A study by Cochran et al<sup>13</sup> demonstrated gender-based negative attitudes inhibited the career aspirations of female surgeons and that gender was a barrier to female surgeons’ career development in academic surgery.

The purpose of this national survey was to collect data about the experiences of women in academic surgery across Canada and understand what factors have affected their ability to advance in surgical careers.

## Methods

A 48-item web-based survey was sent to all Canadian women academic surgeons via email. Survey questions explored 6 main categories: (1) demographic information; (2) career aspects and advancement (research productivity, academic appointments, and administrative duties); (3) family planning and commitments; (4) mentorship; (5) discrimination; and (6) career satisfaction. The survey questions included multiple choices, yes and/or no, and ranking style questions (ie, rank in order of importance). There were several open text-boxes that allowed participants to elaborate on their answers. Participants were invited to share any comments or concerns they had with regards to the topic of women in academic surgery at the completion of the survey.

Three iterations of the email survey were sent to 212 possible participants identified by the faculty of surgery websites for academic medical centers across Canada. The University Health Network Research Ethics Board approved this study. At the closure of the survey, quantitative data were analyzed using descriptive statistical

methods, and the narrative data from text-boxes were analyzed for emerging themes.

## Results

Of the 212 surgeons invited to participate, 81 responded after the 3 iterations of the e-mail survey (38% response rate).

### Quantitative data

**Demographic information.** Surgical specialties included general surgery, cardiothoracic surgery, otolaryngology, neurosurgery, plastic surgery, orthopedics, and urology. The age of the participants ranged from 25 to 35 to greater than 55, and participants ranged from less than 5 years to greater than 16 years in practice, which is similar to the current demographic of practicing female surgeons in the U.S.<sup>1</sup> (see [Table 1](#)).

**Surgical career and advancement.** Fellowship training was obtained by 91% of the surgeons after completing their residency; 14% held a doctor of philosophy degree and 44% held a Masters degree as their highest academic degree. In terms of academic status, 14% identified as a clinician-scientist, 15% as a clinician-investigator, 55% as a clinician-teacher, 4% as solely clinician, and 13% as other. Seventy-one percent were affiliated with a core academic and/or university hospital and the remaining with an academic-affiliated hospital. The most common university rank was assistant professor (46%; [Table 1](#)). Fifty-percent of the participants had never received an academic promotion.

The hours worked per week ranged from 40 to 100 hours with the largest group of participants (30%) in the 51 to 60 hours range. Most participants averaged 5 to 6 days in the operating room per month (range 1 to 12; [Table 2](#)).

In terms of lifetime peer-reviewed publications, 30% had 1 to 5, 28% had 6 to 15, 16% had 16 to 25% and 26% had over 25. Female surgeons research productivity were highest in their first 5 years of practice. When asked which factors most impacted their ability to publish, time was by far the most commonly cited reason, followed by lack of funding and opportunities for collaboration (See [Table 3](#)).

**Mentorship.** Seventy-nine percent of the participants identified at least one mentor, and of these, 89% of the mentors were men. Ninety-five percent of the participants cited their mentor as another surgeon. Despite this, 54% of the participants indicated that they wished they had better mentoring. Specifically, many participants went on to elaborate on this in the open text-box stating they wished they had more women as mentors.

**Family planning and commitments.** Eighty-nine percent of the surgeons were married or in a long-term and/or common-law relationship, 10% single and 1% separated or divorced. A total of 79% had at least one child. The mean age of the surgeon at the birth and/or adoption of her first

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