

ORIGINAL RESEARCH

18. From Observation to Participation: Gender Differences and Surgical Exposure among Medical Students

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► <https://www.youtube.com/watch?v=hJlcIJ1w8oM&list=PLhqNq3xJClbafO0Y5bvBcgMmXpgzJxd44&index=5&t=796s>

Introduction: Surgical rotations are critical to the clinical education of medical students, bridging theoretical knowledge with practical experience. In many medical institutions, the transition from passive observation to active participation in surgical settings remains inconsistent and may be influenced by gender disparities. This study aimed to assess the extent of surgical exposure among clinical medical students in Georgia, with a particular focus on gender-based differences in opportunities to participate actively during general surgery rotations.

Methods: A cross-sectional survey was conducted among undergraduate medical students from the University of Georgia, Ilia State University, European University, Caucasus University, and Caucasus International University in Tbilisi, following ethical approval. The survey was carried out from June 27 to July 18, 2025. Participants were asked about the duration of their general surgery rotation, the number and types of procedures they observed and assisted with, and their involvement in basic surgical tasks. Perceptions of supervisory support, feedback, and overall satisfaction were measured using a Likert scale. Gender-based comparisons were analyzed using independent sample t-tests, with statistical significance at $p < 0.05$.

Results: Of the 96 respondents (mean age: 24.05 ± 2.65 years), 52 were female (54.2%) and 44 male (45.8%). Most students (58.3%) spent 2–4 weeks in general surgery rotations. Only 70.8% had the chance to perform basic surgical skills under supervision. Male students were more likely to have scrubbed in during surgeries compared to females. Males also reported significantly more opportunities to perform basic surgical tasks ($p = 0.007$) and assist in operations ($p = 0.017$). While both genders reported similar perceptions of supervisor approachability, female students rated their overall learning experience lower on average. 43.8% of all students strongly disagreed they had sufficient hands-on practice, and only 16.7% received regular constructive feedback. When asked whether the experience increased their interest in pursuing a surgical career, only about one-third agreed or strongly agreed, with a slight but not statistically significant male predominance.

Conclusion: This study showed the presence of gender-based disparities, with male students receiving significantly more hands-on opportunities. Addressing these gaps through more structured and equitable training is essential to ensure that all students gain meaningful surgical experience.

Table 1. Survey of Medical Students' Surgical Exposure, Participation, and Satisfaction

Exposure to Surgical Procedures

Approximately how many weeks did your General Surgery rotation last?	
Less than 2 weeks	5
2–4 weeks	56
5–8 weeks	26
More than 8 weeks	9

How many surgeries did you observe during your rotation?

Less than 2 weeks	22
1–5	47
6–10	17
More than 10	10

How many surgeries did you assist in (scrubbed in)?

None	66
1–3	24
4–7	3
More than 7	3

Which types of procedures were you exposed to?

Appendectomy	34
Hernia repair	38
Laparotomy	57
Mastectomy	85
Cholecystectomy	51
Amputations	87
Other	44

Did you have the opportunity to perform basic surgical skills under supervision?

Yes	68
No	28

Perception and Satisfaction

How would you rate the overall learning experience during your surgery rotation?

Excellent	15
Good	26
Average	33
Poor	22

Statement

I was actively involved during ward rounds.

Strongly disagree	25
Disagree	21
Neutral	28
Agree	15
Strongly agree	7

I was given chances to scrub in and assist in surgeries.

Strongly disagree	41
Disagree	21
Neutral	13
Agree	15
Strongly agree	6

My supervisors were approachable and willing to teach.

Strongly disagree	15
Disagree	7
Neutral	30
Agree	27
Strongly agree	17

The rotation improved my clinical and procedural confidence.

Strongly disagree	25
Disagree	14
Neutral	29
Agree	14
Strongly agree	14

I had enough hands-on practice during the rotation.

Strongly disagree	42
Disagree	29
Neutral	17
Agree	5
Strongly agree	3

I received constructive feedback regularly.

Strongly disagree	32
Disagree	22
Neutral	26
Agree	9
Strongly agree	7

I am now more interested in pursuing surgery as a career.

Strongly disagree	24
Disagree	13
Neutral	27
Agree	13
Strongly agree	19

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