APDVS 2025 Spring Meeting

Scientific Abstract Session Presentations

1. Single Center Trends in Open Abdominal Case Volume in ACGME Trainees Over Time

- *Presenter: Juliet Blakeslee-Carter MD (University of Alabama at Birmingham)*
- *Authors: Juliet Blakeslee-Carter MD, Brigitte K. Smith MD, Benjamin J. Pearce MD*

Background:

There remains a role for open aortic surgery within the landscape of progressively evolving endovascular techniques for management of abdominal aortic disease. Therefore, graduates from Vascular Surgery training programs must be equipped to address open aortic surgery. Programs are faced with the challenge of adequately preparing gradates in an environment where open aortic surgery cases are decreasing nationally. In addition to decreasing volume of aortic surgery on a national level, the complexity of patients receiving open aortic surgery is progressively increasing as endovascular techniques advance to handle more complex anatomy. As a result, open aortic surgery is increasingly being performed at a concentrated number of centers, further challenging many training programs. This is a retrospective review of graduate case logs at a single institution between 2004 & 2023 aimed at investigating trends in trainee exposure to aortic surgery over time.

Methods:

This is a single institution retrospective review of Accreditation Council for Graduate Medical Education (ACGME) graduate case logs for graduates of both the traditional (5+2) fellowship (2004-2023) and the integrated (0+5) residency (2015-2023). Graduates were grouped into three time periods to compare outcomes across time. Primary endpoints include total cases, total open abdominal cases, and total open aneurysm cases. Secondary analysis includes total endovascular aortic cases and graduate gender-based differences in case volume.

Results:

A total of 30 trainees graduated from this institution between 2004 and 2023. Of these, 76.6% were Fellows (n=23) and 23.3% were Residents (n=7). On average, graduates performed 1,325.2 ± 439 total cases with no significant difference between fellowship and residency graduates. Total case volume did not have any significant variation across time in linear regression analysis (Beta=-0.5, R^2=0.002, $F(1,28)$=0.001, p=0.937). On average,

graduates performed 69.5 ± 17.5 open abdominal cases with no significant variation between fellowship and residency graduates. There was no significant change in open abdominal cases across time in univariate linear regression (Beta=-0.164, R2=0.002, F(1,28)=0.065, p=0.835). Open aortic aneurysm repairs and open reconstruction of aortoiliac disease were the most frequent cases within the open abdominal category, with graduates performing on average 27.2 ± 7.6 open aneurysm repairs and 26.4 ± 10.3 open repairs of occlusive disease. There was no variation in total case volume or open abdominal cases when compared across genders. There was significant variation in individual graduates – however this appears to be individual variation in case logging rather than a trend across time.

Conclusions:

No variation in open abdominal cases performed by ACGME graduates was observed across time in this single institution retrospective review. Data from this study suggests that trends in exposure to aortic surgery during training predictably parallel national trends in aortic surgery – with a notable concentration of cases occurring in large academic centers. Results of this study can further discussions regarding utility of advanced aortic fellowships and assist future trainees with selecting programs that align with their clinical career goals. The ability to perform complex open and endovascular operations is a cornerstone of the vascular surgery specialty and results of this study highlight that recently graduated trainees remain dynamic in their abilities and are prepared to address open abdominal surgery.

2. Gender Differences in Confidence Feedback for Vascular Surgery Trainees

- *Presenter: Erin Buchanan (University of Utah)*
- *Authors: M. Libby Weaver, Ting Sun, Erin Buchanan, Emily Ninmer, Amanda C Filiberto, Tyler J. Loftus, Brigitte K. Smith*

Objective:

Prior research demonstrates disproportionate emphasis on ‘confidence’ in narrative feedback for women trainees in non-surgical specialties. Such feedback is often low-quality without corrective guidance. Whether similar feedback is given to women trainees in surgical specialties is unknown. Therefore, we investigated gender differences in agentic word use in operative feedback for vascular surgery trainees.

Methods:

A retrospective review of operative narrative feedback for vascular surgery residents and fellows assessed using the Society for Improving Medical Professional Learning(SIMPL) operative application from 2018-2023 was performed. Natural language processing models were used to categorize themes. Assessments with agentic adjectives were qualitatively analyzed by gender using open-and focused-coding.

Results:

We identified 1,010 operative narrative assessments of vascular trainees(n=303 for women trainees(30%);n=137 by women faculty(13.6%)) from 25 programs. Agentic themes were identified in 130 assessments and were more common in assessments of women(41.5%). The most common reinforcing theme was preparation/planning(n=39, 30%). The most common corrective theme was efficiency(n=27, 20.8%). Comments about 'confidence' were present in 32 assessments(24.6%). Over half(n=18, 56.3%) were assessments of women trainees, with only 3 written by women faculty. Sixteen comments encouraged the trainee to be more confident, with 12(75%) directed toward women. All assessments stating the trainee should be more confident were from male faculty. While 8 male trainees received feedback about having good levels of confidence, only 2 women received such comments, and 2 assessments praised the trainee for admitting she was not confident enough.

Conclusion:

Women vascular trainees receive more agentic-themed operative feedback. Comments regarding lack of confidence are directed at women trainees and are exclusively from men faculty. Given confidence is an intrinsic trait, rather than an actionable behavior, women trainees receive more low-quality negative feedback, disproportionately limiting their ability to improve operative performance. Attention to quality of faculty feedback is warranted to mitigate gender disparities in training.

3. Operative Confidence of Graduating Vascular Surgery Trainees

- *Presenter: Jin Park (Thomas Jefferson University)*
- *Authors: Jin Park, MD, Nicola Habash, MD, Sameh Yousef, MD, Dawn Salvatore, MD, Michael Nooromid, MD, Paul DiMuzio, MD, Babak Abai, MD*

Objective:

Vascular surgery has undergone a shift towards minimally invasive techniques that has impacted vascular training. This study assesses factors that influence the operative

confidence of recent vascular surgery graduates in performing critical open and endovascular procedures.

Method:

A 16 question online survey was distributed to vascular surgery trainees who graduated from 2022 to 2024. Multivariate linear regression was performed to evaluate the effects of demographic and program related variables on the operative confidence of 22 procedures. Analysis of variance and unpaired t test was used to identify differences in procedural confidence by case volume and between endovascular and open procedures respectively.

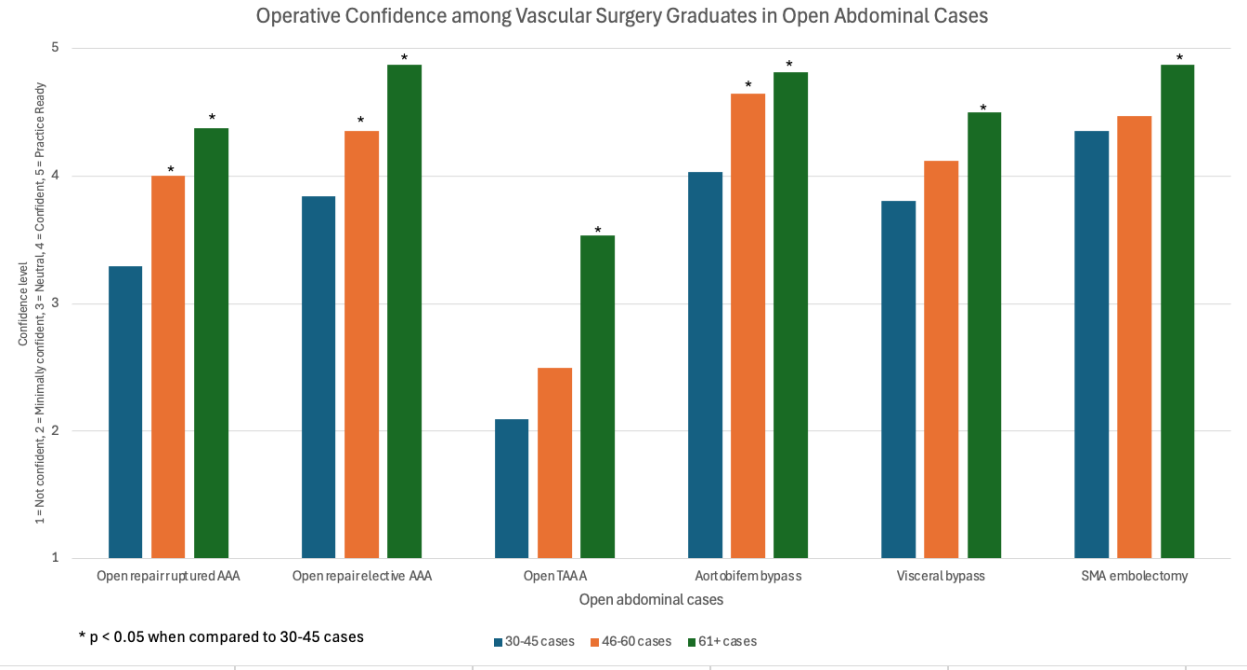
Results:

Of 67 graduate trainees, 70.1%, 37.3%, 19.4%, 23.9%, 16.4%, 10.4% required at least moderate supervision for open repair of thoracoabdominal aortic aneurysm (TAAA), ruptured and elective abdominal aortic aneurysm (AAA), visceral bypass, aortobifemoral bypass, and mesenteric embolectomy respectively. Graduating with more than 45 open abdominal cases demonstrated improved operative confidence in open repair of ruptured AAA ($p=.024$), elective AAA ($p=.039$), aortobifemoral bypass ($p=.006$) compared to those with 30-45 cases. Graduating with greater than 60 open abdominal cases improved confidence in TAAA repair ($p=.004$), visceral bypass ($p=.005$) and mesenteric embolectomy ($p=.006$) (Figure 1). There were higher confidence levels for endovascular repair of ruptured ($p<.001$) and elective AAA ($p<.001$), thoracic endovascular aortic repair ($p<.001$), aortoiliac stent ($p<.001$), visceral stent ($p<.001$) compared to their respective open procedures. There was no difference in confidence between femoral popliteal stent versus bypass ($p=.097$) and transcarotid artery revascularization versus carotid endarterectomy ($p=.063$). 100% graduate trainees were confident in lower extremity thromboembolectomy, brachiocephalic fistula creation, femoral and carotid endarterectomy, below and above knee amputations. Gender($p=0.389$), fellowship or integrated vascular training($p=0.425$), location of the program($p=0.856$), community or university-based($p=.775$), number of attendings($p=0.515$), age($p=0.156$) had no significant effect on operative confidence.

Conclusion:

Graduating vascular surgery trainees indicate a lack of confidence in certain core open vascular procedures. This decrease in confidence is associated with case volume. Graduates with lower case volumes should consider additional training or practice where there is direct senior supervision. Studies are needed to address these confidence deficits to ensure graduates are adequately prepared for independent practice.

Figure 1: Mean Operative Confidence among Vascular Surgery Graduates in Open Abdominal Cases



4. Enhancing Communication and Teamwork in Vascular Surgery: Evaluating the Impact of a Structured Morning Report

- *Presenter: Yana Etkin, MD (Hofstra/Northwell University)*
- *Authors: Jeffrey Silpe MD, MS-HPEd, Yana Etkin MD*

Background:

While morning report sessions are a long-standing staple in many surgical specialties, their utility and benefits within the context of a dedicated vascular surgery service have not been well-characterized. We hypothesized that implementing a daily structured morning report could enhance faculty–trainee communication, and positively influence perceptions of patient safety and teamwork.

Methods:

In 2021, a quality-improvement initiative introduced a daily, 30-minute virtual morning report for a vascular surgery service at a single academic institution. Participants included all vascular surgery trainees (residents and fellows) and faculty. An anonymous, institution-specific survey was administered 3 years after implementation. The survey incorporated original Likert-scale, multiple response, and open-ended questions. Questions from the Accreditation Council for Graduate Medical Education (ACGME) Resident and Faculty Survey that evaluated patient safety and teamwork were also analyzed. Aggregate results of ACGME survey based on 25 faculty members and 12 trainees' responses before (2018-2020) and after morning report implementation (2021-2023) were compared. Primary outcomes included perceived improvements in clarity of patient care plans, communication effectiveness, teamwork and patient safety.

Results:

Of the eligible participants, 100% of trainees (n=14) and 60% of faculty (n=6) completed the post-implementation survey. Survey results revealed high participation and positive perceptions of morning report. Among respondents, 70% attended daily, and 80% rated the structure and organization as "very good" or "exceptional" and felt engaged in case discussions. Majority of participants reported that morning report covered relevant clinical hand-off information effectively (90%) and adequately prepared the team for daily patient care (80%). Most trainees reported that the morning report increased their efficiency (93%), and reduced workload by clarifying responsibilities (64%). Enhanced team communication was the key benefit of the morning report for 95% of participants. Suggestions for improvement included increasing faculty attendance, shortening the duration, and fostering more interactive discussions.

The ACGME survey results demonstrated significant improvements in perceptions of hand-off quality, teamwork, and the culture of patient safety following the implementation of the morning report. Before its introduction, 72% of faculty and 83% of trainees agreed that information was not lost during hand-offs; these perceptions improved to 84% and 92%, respectively, after implementation. Faculty reported marked improvements in teamwork, with perceptions of effective collaboration in patient care rising from 73% to 95%, and their perception of teamwork skills being effectively modeled increasing from 77% to 92%. Similarly, 92% of trainees felt that teamwork skills were modeled before implementation, compared to 100% afterward. Additionally, perceptions of how the program emphasizes a culture of patient safety improved significantly, with faculty responses increasing from 84% to 95% and trainee responses from 92% to 100%.

Conclusions:

Implementing a structured morning report significantly enhanced communication, teamwork, hand-off quality, and perceptions of patient safety within the vascular surgery service. These findings suggest that morning reports are a valuable, low-resource intervention for improving the educational environment, fostering collaboration, and promoting a stronger culture of patient safety in vascular surgery training programs.

5. Exploring the Influence of Gender-Concordant Representation and Mentorship Among Female Surgical Residents and Medical Student Applicants

- *Presenter: Lydia Faber, BS (Wake Forest University)*
- *Authors: Lydia Faber, BS; Caroline Minnick, BS; Elizabeth C. Wood, MD; Gloria D. Sanin MD, Gabriela Velazquez MD*

Background:

Gender disparities persist within surgical training and practice, as evidenced by the underrepresentation of women in surgical leadership roles and persistent wage gaps, despite gradual progress in recent years such as increasing numbers of female trainees in surgical specialties. Additionally, there remains a significant gap in research focused on the experiences and attitudes of female surgery trainees, particularly regarding the influence of female faculty and program leadership on shaping their training. This study aims to explore medical student and resident perspectives on female representation in surgical specialties and examining the influence of female mentorship on career choice, aspirations, and professional growth.

Methods:

This is a prospective study in the form of a Likert-type scale survey distributed to fourth-year medical students and residents at Atrium Health Wake Forest Baptist Medical Center in surgical fields, excluding obstetrics and gynecology. Variables collected included, demographics, access to mentorship during medical school, the influence of mentorship on career choice, outcomes of the mentorship, and gender-related residency program challenges. Results are analyzed via descriptive statistics.

Results:

Of the 34 responses, 13 were medical students and 21 were surgical residents. There was no significant difference between female sex, race, or socioeconomic background between the groups (Table 1). The average age of the residents was 31.3 ± 2.4 years (range 26.0–37.0), while the average age of the medical students was 26.5 ± 1.2 years (range 25.0–29.0).

Although students were less likely to have a direct female mentor, all students reported they had access to female residents, faculty, and leaders within their desired specialty. Neither residents nor students were deterred by the lack of female mentorship in their decision to pursue a surgical career. Residents, however, were less likely to have access to female residents and faculty during medical school. Nearly all residents reported the presence of female residents, faculty, and leaders during their residency training (Table 2). Additionally, 84.6% of students rated the quality of the mentorship during medical school as "good" or "excellent," compared to 61.9% in the resident group.

Regarding the influence of mentorship on career decisions, residents were more likely to report that mentorship helped them navigate training challenges, while students were more likely to receive exposure to new specialties, opportunities to strengthen applications, and improved confidence (Table 3). The number of female mentors, faculty, or residents was less likely to influence career decisions for residents compared to students. Of the 4 male residents, all reported unsatisfaction with the number of female surgical faculty while only 17.6% of female residents were unsatisfied. Furthermore, 90.5% of residents endorsed satisfaction with their current work-life balance and surgical career choice (Table 4).

Conclusion:

Overall, similar responses were observed between residents and students. Medical students are more likely than residents to encounter female mentors and role models, likely due to the gradual but ongoing improvement in female representation in surgical fields over time. Despite these advancements, high levels of unsatisfaction among residents regarding female faculty representation, particularly male residents, underscore the need to address gaps in female faculty and leadership roles. Bridging these gaps could foster a more inclusive environment, improve mentorship opportunities, and promote gender equity within surgical fields, which will ultimately benefit both residents and the broader surgical community.

Table 1. Descriptive information for demographic characteristics, overall and by MD student and surgical resident status [Mean (SD) or Count (%)]

Variable	Overall (N=34)	MD Students (N=13)	Surgical Residents (N=21)	p-value
Age (years)	29.5 (3.1)	26.5 (1.2)	31.3 (2.4)	<0.0001
Female sex	27 (79.4)	10 (76.9)	17 (81.0)	1.0
Race				0.587
Asian	4 (11.8)	1 (7.7)	3 (14.3)	
Black	2 (5.9)	1 (7.7)	1 (4.8)	
Hispanic/Latino	3 (8.8)	0 (0)	3 (14.3)	

White	22 (64.7)	10 (76.9)	12 (57.1)	
Mixed Race	3 (8.8)	1 (7.7)	2 (9.5)	
First Generation Medical Student	20 (58.8)	9 (69.2)	11 (52.4)	0.541
Socioeconomic Background				0.335
Low-income	2 (5.9)	1 (7.7)	1 (4.8)	
Middle-income	21 (61.8)	6 (46.2)	15 (71.4)	
High-income	11 (32.4)	6 (46.2)	5 (23.8)	
Family Structure				0.684
Single	11 (32.4)	5 (38.5)	6 (28.6)	
Partnered	5 (14.7)	2 (15.4)	3 (14.3)	
Married	16 (47.1)	6 (46.2)	10 (47.6)	
Divorced	2 (5.9)	0 (0)	2 (9.5)	
Children				0.361
No children	31 (91.2)	13 (100)	18 (85.7)	
1 child	1 (2.9)	0 (0)	1 (4.8)	
2+ child	2 (5.9)	0 (0)	2 (9.5)	
Primary reason for choosing specialty				0.708
Passion for specialty	29 (85.3)	12 (92.3)	17 (81.0)	
Prestige of field	1 (2.9)	0 (0)	1 (4.8)	
Influence of mentorship	3 (88.2)	1 (7.7)	2 (9.5)	
Other	1 (2.9)	0 (0)	1 (4.8)	
Current/Intended Field				0.001
General Surgery	20 (58.8)	2 (15.4)	18 (85.7)	
Neurosurgery	2 (5.9)	0 (0)	2 (9.5)	
Ophthalmology	1 (2.9)	1 (7.7)	0 (0)	
Orthopedic Surgery	3 (8.8)	3 (2.3)	0 (0)	
Otolaryngology	3 (8.8)	3 (2.3)	0 (0)	
Plastic Surgery	2 (5.9)	1 (7.7)	1 (4.8)	
Urology	2 (5.9)	2 (15.4)	0 (0)	
Vascular Surgery	1 (2.9)	1 (7.7)	0 (0)	
Female surgeon(s) exposure prior to medical school				0.715
None	18 (52.9)	8 (61.5)	10 (47.6)	
Limited	7 (20.6)	3 (23.1)	4 (19.0)	
Moderate	5 (14.7)	1 (7.7)	4 (19.0)	
Extensive	4 (11.8)	1 (7.7)	3 (14.3)	

Table 2. Medical school mentorship exposure and effectiveness, overall and by MD student and surgical resident status [Count (%)]

Variable	Overall (N=34)	MD Students (N=13)	Surgical Residents (N=21)	p-value
During medical school did you have…				
A direct female mentor?				0.389
Yes	21 (61.8)	7 (53.8)	14 (66.7)	
No	12 (35.3)	5 (38.5)	7 (33.3)	
Unsure	1 (2.9)	1 (7.7)	0 (0)	
Female faculty in your field?				0.160
Yes	29 (85.3)	13 (100)	16 (76.102)	
No	5 (14.7)	0 (0)	5 (23.8)	
Female residents in your field?				0.421
Yes	31 (91.2)	13 (100)	18 (85.7)	
No	3 (8.8)	0 (0)	3 (14.3)	
Female faculty in leadership roles?				0.057
Yes	27 (79.4)	13 (100)	14 (66.7)	
No	7 (20.6)	0 (0)	7 (33.3)	
A formal mentorship program?				0.849
Yes	6 (17.6)	3 (23.1)	3 (14.3)	
No	28 (82.4)	10 (76.9)	18 (85.7)	
Number of female mentors in medical school				0.125
0	7 (20.6)	3 (23.1)	4 (19.0)	
1-2	24 (70.6)	7 (53.8)	17 (81.0)	
3-4	2 (5.9)	2 (15.4)	0 (0)	
5+	1 (2.9)	1 (7.7)	0 (0)	
Female mentor encouragement of surgery career in school (N=21)				0.325
Neither encouraged nor discouraged	6 (28.6)	3 (42.9)	3 (21.4)	
Somewhat encouraged	3 (14.3)	0 (0)	3 (21.4)	
Strongly encouraged	12 (57.1)	4 (57.1)	8 (57.1)	
Meeting frequency with female mentor in medical school (N=21)				0.119
Rarely	4 (19.0)	1 (14.3)	3 (21.4)	

Occasionally	11 (52.4)	2 (28.6)	9 (64.3)	
Regularly	6 (28.6)	4 (57.1)	2 (14.3)	
Female mentor made surgery feel more inclusive/achievable (N=21)				0.608
Yes	15 (71.4)	6 (85.7)	9 (64.3)	
No	6 (28.6)	1 (14.3)	5 (35.7)	
Mentorship offerings in medical school (select all)				
Emotional support	6 (17.7)	2 (15.4)	4 (19.0)	0.785
Career guidance	19 (55.9)	5 (38.5)	14 (66.7)	0.107
Clinical skills training	7 (20.6)	3 (23.1)	4 (19.0)	0.778
Research opportunities	10 (29.4)	4 (30.8)	6 (28.6)	0.891
Networking opportunities	11 (32.4)	5 (38.5)	6 (28.6)	0.549
Role modeling	17 (50.0)	6 (46.2)	11 (52.4)	0.724
Work life balance	11 (32.4)	4 (30.8)	6 (28.6)	0.891
Quality of mentorship experience in medical school				0.190
Very poor	2 (5.9)	0 (0)	2 (9.5)	
Poor	4 (11.8)	2 (15.4)	2 (9.5)	
Neither good nor bad	4 (11.8)	0 (0)	4 (19.0)	
Good	12 (35.3)	4 (30.8)	8 (38.1)	
Excellent	12 (35.3)	7 (53.8)	5 (23.8)	

Table 3. Medical school mentorship influence, overall and by MD student and surgical resident status [Count (%)]

Variable	Overall (N=34)	MD Students (N=13)	Surgical Residents (N=21)	p-value
Mentorship influence on career decision (select all)				
Confirmed interest in field	11 (32.4)	9 (69.2)	12 (57.1)	0.481
Exposure to new surgical field	10 (28.6)	5 (38.5)	5 (23.8)	0.362
Navigation of challenges	13 (38.2)	3 (23.1)	10 (47.6)	0.152

Strengthened application	17 (50.0)	8 (61.5)	9 (42.9)	0.290
Improved confidence	23 (67.6)	10 (76.9)	13 (61.9)	0.363
Did not influence my decision	3 (8.8)	1 (7.7)	2 (9.5)	0.855
Rate the influence of each factor on your decision to pursue a surgical specialty				
Having a direct mentor that is female				0.435
No influence	19 (55.9)	5 (38.5)	14 (66.7)	
Slight influence	6 (17.6)	3 (23.1)	3 (14.3)	
Moderate influence	5 (14.7)	3 (23.1)	2 (9.5)	
Strong influence	4 (11.8)	2 (15.4)	2 (9.5)	
Number of female faculty in your field				0.528
No influence	18 (52.9)	5 (38.5)	13 (61.9)	
Slight influence	11 (11.8)	5 (38.5)	6 (28.6)	
Moderate influence	3 (8.8)	2 (15.4)	1 (4.8)	
Strong influence	2 (5.9)	1 (7.7)	1 (4.8)	
Number of female surgical faculty, broadly				0.736
No influence	17 (50.0)	5 (38.5)	12 (57.1)	
Slight influence	10 (29.4)	5 (38.5)	5 (23.8)	
Moderate influence	5 (14.7)	2 (15.4)	3 (14.3)	
Strong influence	2 (5.9)1	1 (7.7)	1 (4.8)	
Witnessing females in positions of leadership				0.934
No influence	13 (40.6)	5 (38.5)	8 (38.1)	
Slight influence	7 (20.6)	2 (15.4)	5 (23.8)	
Moderate influence	9 (26.5)	4 (30.8)	5 (23.8)	
Strong influence	5 (14.7)	2 (15.4)	3 (14.3)	
Number of female residents in your chosen field				0.155
No influence	13 (40.6)	2 (15.4)	11 (52.4)	0.031
Slight influence	6 (17.6)	3 (23.1)	3 (14.3)	
Moderate influence	10 (29.4)	6 (46.2)	4 (19.0)	
Strong influence	5 (14.7)	2 (15.4)	3 (14.3)	
Number of female residents in surgical fields broadly				0.964

No influence	15 (44.1)	6 (46.2)	9 (42.9)
Slight influence	11 (11.8)	4 (30.8)	7 (33.3)
Moderate influence	4 (11.8)	2 (15.4)	2 (9.5)
Strong influence	3 (8.8)	1 (7.7)	2 (9.5)

Table 4. Surgical resident perspectives on current program female representation [Count (%)]

Variable	Unsatisfied	Slightly satisfied	Completely satisfied
Number of female surgical faculty in your field	**7 (33.3)**	**9 (42.9)**	**5 (23.8)**
Female	3 (17.6)	9 (52.9)	5 (29.4)
Number of female residents in your program	**0 (0)**	**3 (14.3)**	**18 (85.7)**
Female	0 (0)	2 (11.8)	15 (88.2)
Number of female faculty in leadership in your department	**6 (28.6)**	**12 (57.1)**	**3 (14.3)**
Female	3 (17.6)	11 (11.8)	3 (17.6)
Work-life balance	**2 (9.5)**	**13 (61.9)**	**6 (28.6)**
Female	2 (11.8)	12 (70.6)	3 (17.6)
Surgical career choice	**2 (9.5)**	**3 (14.3)**	**16 (76.2)**
Female	2 (11.8)	3 (17.6)	12 (70.6)