

# Patient Satisfaction Ratings of Male and Female Residents Across Subspecialties

Methma Udawatta<sup>1</sup>, Yasmine Alkhalid<sup>1</sup>, Thien Nguyen<sup>1</sup>, Vera Ong<sup>1</sup>, Jos'lyn Woodard<sup>1</sup>, John P. Sheppard<sup>1</sup>, Courtney Duong<sup>1</sup>, Sonia Iyengar<sup>1</sup>, Christopher W. Migdal<sup>1</sup>, Virgie Mosley<sup>2</sup>, Isaac Yang<sup>1-2</sup>

1. Department of Neurosurgery, Ronald Reagan UCLA Medical Center, Los Angeles, California. 2. Office of the Patient Experience, Ronald Reagan UCLA Medical Center, Los Angeles, California.

## Background

- Although half of matriculating medical students are currently women<sup>1</sup>, female physicians are still heavily underrepresented in several fields, especially surgical specialties
- Only 10% of the residents in orthopedic surgery programs and 12% of residents in neurosurgery programs are females.<sup>2-6</sup>
- This gender disparities continues upward into leadership positions. In 2014, only 16% of American medical school deans were women.<sup>7</sup>
- Even in female-dominated fields such as OB-GYN and pediatrics, women are still underrepresented in research (as authors and journal editors) and departmental leadership roles.<sup>8-9</sup>
- Proposed obstacles to gender disparities in neurosurgery include a lack of role models, differential recruitment, the perception and existence of sexism during residency, and lifestyle or family planning concerns.<sup>2-6,10</sup>
- Our previous study showed that male physicians who handed out business cards were rated by patients as having better communication skills, medical expertise, and quality of care than males who did not hand out business cards. However, the same increase in the perceived quality of care provided with business cards was not seen in female physicians.<sup>8</sup>

**Objective:** To evaluate whether patients’ perceptions of residents were different between genders across subspecialties at our institution.

## Methods

### CI-CARE Patient Questionnaire and Survey Protocol

- Designed to evaluate patients’ healthcare experiences and improve delivery of care
- 18 multiple-choice questions (Likert scale of 1 to 5) and 2 free-response questions
- Questions on specific communication skills, how often the resident communicated their plans, whether the resident asked patients for their needs, questions, and concerns
- Three final questions referred to physicians’ **overall communication skills, medical expertise, and quality of medical care**
- Administered by trained undergraduate and medical school volunteers
- Participants: patients at academic medical centers in Los Angeles, between October 3, 2012 to June 6, 2013
- Exclusion criteria: patients who are unconscious, not lucid, cognitively impaired, exhibited language barriers, or refused to participate in the survey.

### Statistical Analysis

- Performed using SPSS. Mann-Whitney *U*-test for univariate analyses
- An alpha level of 0.05 for statistical significance was specified prior to running the tests

## Results

TABLE 1.

Characteristics of Residents Evaluated

Department	Males, n (%)	Females, n (%)	Total surveys, n (%)
Family medicine	95 (40.60)	139 (59.50)	234 (5.53)
Internal medicine	557 (50.14)	554 (49.86)	1111 (26.31)
Pediatrics	262 (27.52)	690 (72.48)	952 (22.55)
Neurology	135 (60.27)	89 (39.73)	224 (5.3)
OB-GYN	59 (11.78)	442 (88.22)	501 (11.87)
General surgery	394 (74.48)	135 (25.52)	529 (12.53)
Head and neck surgery	91 (66.42)	46 (33.58)	137 (3.24)
Neurosurgery	214 (100)	0 (0)	214 (5.07)
Orthopedic surgery	271 (84.69)	49 (15.31)	320 (7.58)
PGY	Males, n (%)	Females, n (%)	Total surveys, n (%)
1	733 (44.51)	914 (55.49)	1647 (39.01)
2	689 (48.66)	727 (51.34)	1416 (33.54)
3	254 (45.77)	301 (54.23)	555 (13.15)
4	137 (52.09)	126 (47.91)	263 (6.23)
5	265 (77.71)	76 (22.29)	341 (8.08)
	2078 (49.22)	2144 (50.78)	

TABLE 3.

Mann-Whitney *U*-Test Analysis *P* Values Comparing Male and Female Residents on Communication (Specific Questions) by Department (Neurosurgery Excluded) and Type of Specialty (Surgical or Nonsurgical)

Category	Communicating plans and impact on patient	Asking about needs, questions, and concerns	Educating patient and family about condition and care
Surgical	<.001*	.976	.007*
Nonsurgical	.089	.025*	.492
All departments	<.001*	.029*	.042*

The \* symbol indicates significantly better scores for female residents.

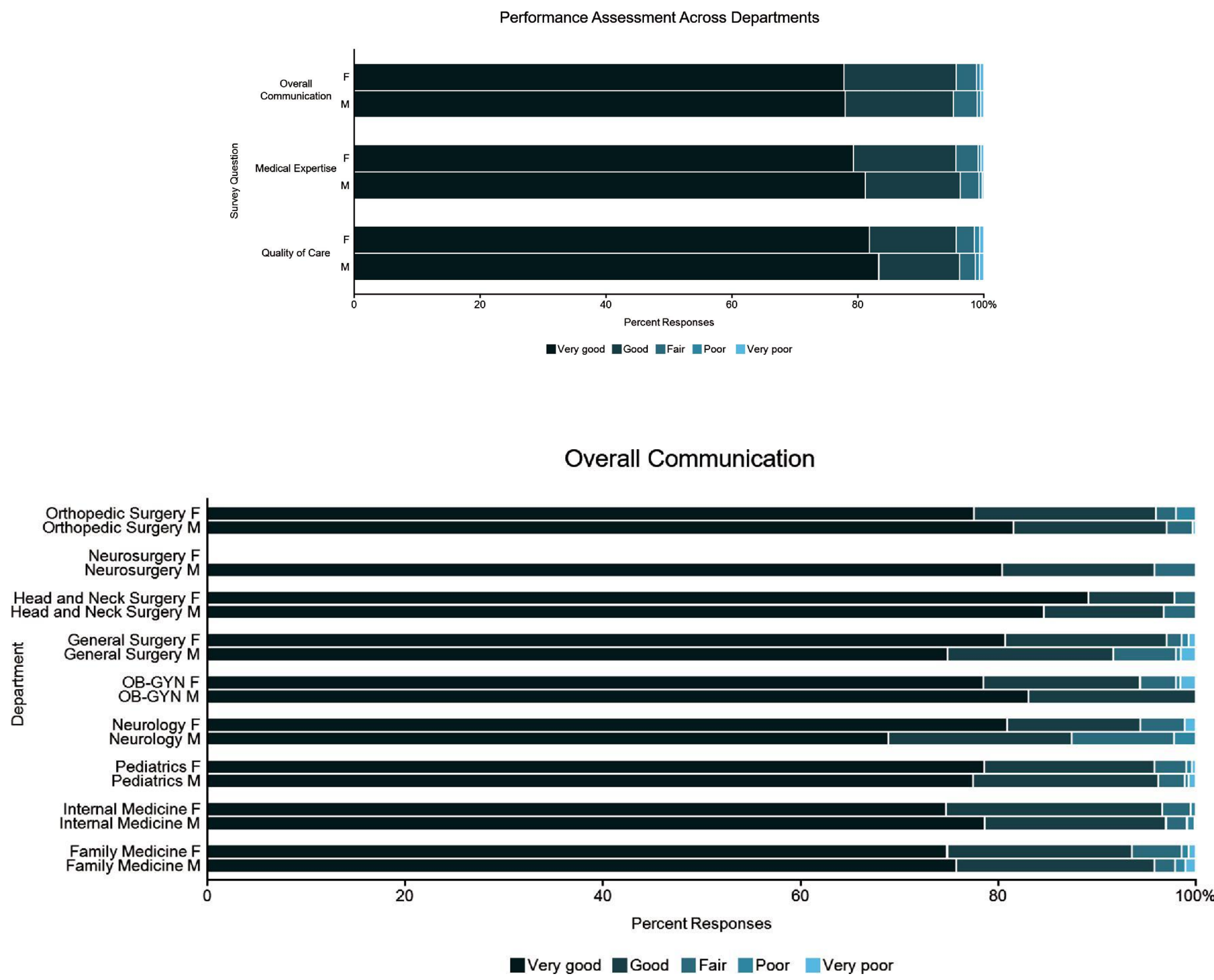


TABLE 2.

Mann-Whitney *U*-Test Analysis *P* Values Comparing Male and Female Residents on Skills by Department (Neurosurgery Excluded) and Type of Specialty (Surgical or Nonsurgical)

Department	Overall communication	Medical expertise	Quality of care
Family medicine	.809	.663	.405
Internal medicine	.131	.234	.461
Pediatrics	.751	.549	.875
Neurology	.038*	.066	.351
OB-GYN	.332	.359	.568
General surgery	.118	.662	.077
Head and neck surgery	.470	.027*	.014*
Orthopedic surgery	.501	.016 <sup>^</sup>	.472
All departments	.936	.112	.198
Category	Overall communication	Medical expertise	Quality of care
Surgical	.80	.11	.41
Nonsurgical	.93	.74	.60

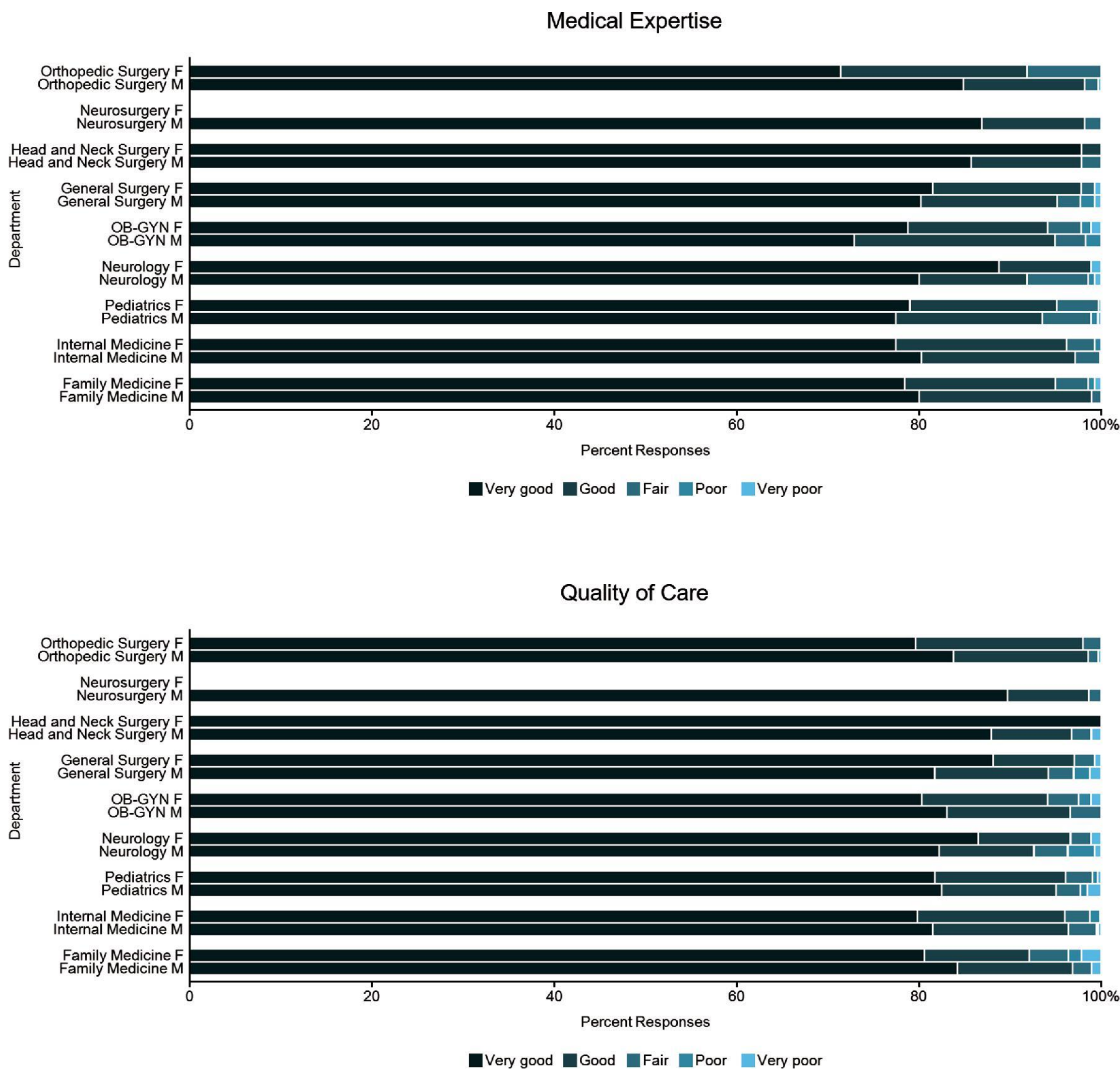
The \* symbol indicates significantly better scores for female residents and the <sup>^</sup> symbol indicates significantly better scores for male residents.

TABLE 4.

Mann-Whitney *U*-Test Analysis *P* Values Comparing New (PGY1-2) and Experienced (PGY3-5) Residents on Skills by Department and Type of Specialty (Surgical or Nonsurgical)

Department	Overall communication	Medical expertise	Quality of care
Family medicine	.339	.720	.595
Internal medicine	.692	.584	.780
Pediatrics	.003*	.040*	.015*
Neurology	.084	.021*	.028*
OB-GYN	.391	.363	.577
General surgery	.432	.015*	.390
Head and neck surgery	.458	.457	.732
Neurosurgery	.099	.035	.247
Orthopedic surgery	.271	.175	.883
All departments	.021*	<.001*	.015*
Category	Overall communication	Medical expertise	Quality of care
Surgical	.232	.003	.351
Nonsurgical	.152	.118	.085

The \* symbol indicates significantly better scores for experienced residents.



## Conclusions

- Patients rank female residents as being significantly better at communicating their plans, responding to patients’ requests and questions, and educating patients and family members
- However, there was no difference between patient perceptions of overall communication, medical expertise, and quality of care between genders when aggregating all specialties.
- In head and neck surgery, women were rated as having better medical expertise and quality of care.
- In neurology, women were viewed as better communicators.
- In orthopedic surgery, male residents were rated as having better medical expertise.

## Discussion

- Female physicians have been shown to improve patient care.
- Other studies show that compared to male physicians, female physicians:
    - Spend 5 more minutes interviewing patients<sup>11</sup>
    - Engage in more positive talk, partnership building, and spend more time both asking questions and giving information<sup>12</sup>
    - Are more likely to discuss prevention, educate and counsel patients
  - Patients treated by female physicians have lower 30-d mortality rates and lower 30-d readmission rates<sup>13,14</sup>

Yet, women in medical school and residency consistently underestimate their performance, while outperforming male counterparts.<sup>15-21</sup> Male residents are more likely to receive positive comments on qualitative evaluations, and more likely to receive consistent feedback on specific ways to.<sup>22-23</sup>

- Acknowledging the uneven gender distributions in various medical departments is the first step in delving into and unraveling the factors propagating their inequity.**
- We must examine why women are not perceived as providing better care even when shown to exhibit better communication skills and objectively provide better medical care to patients
  - Further systemic reforms are required to support women in pursuing fields without any restrictions imposed by latent gender norms in the current system

## Limitations & Future Directions

- Retrospective study
- Surveyed two institutions (in a diverse metropolitan area) which may not represent the entire population
- Participant demographics were not recorded
- Gender bias could not be analyzed in neurosurgery because of a lack of women in this specialty at the time
- Our next study will examine whether gender biases exist in residents’ self-perception of their communication skills, medical expertise, and quality of care

## References

1. AAMC. Medical School Applicants, Enrollment, New Hires, High. <https://www.aamc.org/newsroom/press-releases/medical-school-applicants-and-enrollment-data.html>. Accessed March 21, 2019.
2. WHO. White Paper Committee. Banat U, Abood A et al. The future of neurosurgery: a white paper on the recruitment and retention of women in neurosurgery. *J Neurosurg*. 2008;109(3):379-386.
3. Barnett NG. Gender issues in surgical training: from recruits to residents. *Am Surg*. 2007;73(2):161-162.
4. Balentine LC, Hall AJ, Bernstein JS. Women in surgical residency training programs. *J Bone Joint Surg Am*. 2003;85A(12):2477-2480.
5. Bernstein JS. Male residents' gender inequality in orthopedic surgery. *Clin Orthop Rel Res*. 2013;471(8):1754-1757.
6. Rothman JJ, Rodriguez A, Liu A et al. Positive trends in neurosurgery enrollment and attrition analysis of the 2000-2009 female neurosurgery resident cohort. *J Neurosurg*. 2016;124(3):854-859.
7. Janssen J. Women's career perceptions of the gender gap in American medical education. *Gender Health*. 2017;20(2):249-250.
8. Bernstein JS, Vinters HV. Women in medicine: current status, barriers, and strategies. *Ann NY Acad Sci*. 2012;1259:445-448.
9. Fishman M, Williams VA, Goodwin SM, Ross LF. Gender differences in the authorship of original research in pediatric journals, 2007-2016. *J Pediatr*. 2017;181:244-248.e1.
10. Opper M, Lippert C, Chang LK et al. Evaluating the use of business cards among neurosurgery residents and its impact on patient satisfaction. *Neurosurg Focus*. 2017;5:88-71.
11. McHenry D, McAlpine CD, Rosenthal M. Are patients' office visits with physicians getting shorter? *N Engl J Med*. 2001;344(2):159-164.
12. Pines D, Lipkin M, Kung'uani A. Sex differences in patients' and physicians' communication during primary care medical visits. *Med Care*. 1991;29(11):1083-1093.
13. Tsayras V, Jena AB, Figueroa JF, Chow EJ, Burstin HR, Jha AK. Comparison of hospital mortality and readmission rates for Medicare patients treated by male vs female physicians. *JAMA Intern Med*. 2017;177(2):206-213.
14. Wain CL, Hsu R, Cohen N, Nien PK, Denay AS, Sathyanarayanan R. Comparison of postoperative outcomes among patients treated by male and female surgeons: a population based matched cohort study. *BMJ*. 2017;355:e2566.
15. Wain CL, Hsu R, Nien N, Liu T, Bouvier C, Chaudhry EM. Competency-based student self-assessment in a surgery resident. *J Surg Res*. 2002;100(1):21-24.
16. Meyer RM, Grigoriu LD, Napolitano KS, Gagner PG. Gender differences in the self-assessment of surgical residents. *Am J Surg*. 2005;189(5):647-650.
17. Bayar S, Bowler EM. Gender differences in self-evaluations of performance. *J Pers Soc Psychol*. 1980;38(5):694-695.
18. Bayar S. Gender differences in the accuracy of grade expectations and evaluations. *Sex Roles*. 1989;13(4):279-286.
19. Chapman EA, Hershberger R, Aysa A. Gender and the self-perception of confidence and competence in medicine. *Psychol Sci*. 1992;3(2):141-145.
20. Steiner J, O'Hanlon C, Barker JH, Bragston SJ, Hershman P, Spelman J. Clarifying the concepts of confidence and competence to produce appropriate self-evaluation measurement scales. *Med Educ*. 2003;34(11):933-939.
21. Grant MS, Linn M, Smith R, McManis J, Sideris A. Resolving gender bias: evaluation of surgical residents' self-evaluations of performance. *Acad Med*. 2002;77(2):202-210.
22. Mueller AS, Jenkins TM, Osborne W, Dagel A, O'Connor SM, Acosta VM. Gender differences in attending physicians' feedback to residents: a qualitative analysis. *J Grad Med Educ*. 2017;9(5):577-585.