JAMA Ophthalmology | Brief Report

Sex Differences in Salaries of Academic Ophthalmologists in the United States

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IMPORTANCE Representation of women in medicine and ophthalmology has increased in recent years. However, substantial inequities still exist between salaries for male and female physicians.

OBJECTIVES To evaluate the status of disparities in compensation among US academic ophthalmologists and compare compensation across specialties.

DESIGN, SETTING, AND PARTICIPANTS This cross-sectional study analyzed data for full-time academic physicians practicing in 154 accredited US medical schools. Data from the Association of American Medical Colleges Faculty Salary Report for fiscal year 2019-2020 were used to evaluate disparities in total compensation for female and male academic ophthalmologists.

MAIN OUTCOMES AND MEASURES Median total compensation for female and male ophthalmologists in fiscal year 2019-2020.

RESULTS Female academic ophthalmologists were paid a mean of $50 300 (95% CI, $4600-$96 000) less than their male counterparts. This trend was present across other specialties with women earning less than men by amounts ranging between $25 100 (95% CI, $1000-$49 300) in nonsurgical specialties and $104 400 (95% CI, $62 800-$146 600) in general surgery. Including all academic ranks, women's total compensation was between 75% (general surgery) and 82% (nonsurgical specialties) of men's compensation.

CONCLUSIONS AND RELEVANCE These findings indicate that female academic ophthalmologists are paid less than their male counterparts. Future research and efforts to increase awareness and close the pay gaps seem warranted to encourage more women to pursue careers in ophthalmology and to achieve parity in the field.

JAMA Ophthalmol. 2022;140(5):519-522. doi:10.1001/jamaophthalmol.2022.0376
Published online March 24, 2022.

Supplemental content

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In recent years, there has been an increase in the number of female physicians. The Association of American Medical Colleges (AAMC) reported that the percentage of women in the physician workforce has increased from 28.3% in 2007 to 36.3% in 2019.[1] This increase in representation is reflected in the field of ophthalmology with a female representation of 14% to 17% in the early 2000s increasing to 25% in 2020.[2] Despite this increase, significant disparities still exist in academic rank, productivity, faculty retention and promotion, and compensation.[3,4] Studies have demonstrated substantial salary inequities among men and women, especially in surgical and procedural subspecialties.[5] Ophthalmology is not an exception. In fact, a study by Jia et al[3] demonstrated that female ophthalmologists were compensated significantly less than their male counterparts in the first year of practice. Proposed explanations suggested differences in years in practice, number of hours worked, practice type, and fertility choices; however, disparities persisted even when analyses controlled for these factors.[3]

Although previous studies evaluated sex disparities in remuneration of early career physicians and physicians in the private sector, there is a lack of data on the status of ophthalmologists in academic centers, which generally follow different compensation models.[6] Moreover, many of these studies used self-reported incomes or Medicare or Medicaid payments, which represent only a portion of physician salary, hence limiting the generalizability of the findings.[7] In this study, we evaluated whether male and female academic ophthalmologists are paid differently and compared results with other specialties, using a large database of physician compensation reported by the US academic centers.

Methods

This study adhered to the tenets of the Declaration of Helsinki. The institutional review board determined that review was not required because the research was not considered

human subject research. This cross-sectional study used data from the AAMC Faculty Salary Report for fiscal year 2019-2020[8] and followed Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guidelines. The report contains deidentified, aggregated data on total compensation for full-time medical school faculty that were categorized according to sex, degree, academic rank, and department. We did not have access to individual physicians' salaries. Details on the methodology of the survey are summarized in the eMethods in the Supplement.

We limited our analysis to clinical faculty with MDs (or equivalent degrees) in the departments that had data available for all ranks (ie, from instructor to full professor). We used a series of multiple regression models and included the number of individual physicians for weighting of the aggregated data.[9] The outcome variable was median total compensation, and the independent variables included academic rank, sex, specialty, and proportion of women in the specialty. To create more parsimonious models, we combined all nonsurgical departments into 1 category of "nonsurgical specialties" using a definition from the American College of Surgeons.[10] We decided a priori to estimate and compare differences in pay for each of the specialties and reported *P* values using a significance threshold of $P < .05$. Data and graphs were prepared using R statistical software (version 4.1.2; R Core Team) and modeling was conducted using the Stata statistical package (release 17, Stata Corp).

Key Points

Question What is the status of gaps in pay among male and female academic ophthalmologists?

Findings In this cross-sectional study, we used a large database that details total compensation for academic US physicians and found that female ophthalmologists were paid less than their male counterparts. This trend was present across other specialties.

Meaning These results suggest that inequities exist between salaries of female and male academic ophthalmologists and support implementing more efforts to achieve sex parity in academic medicine.

Results

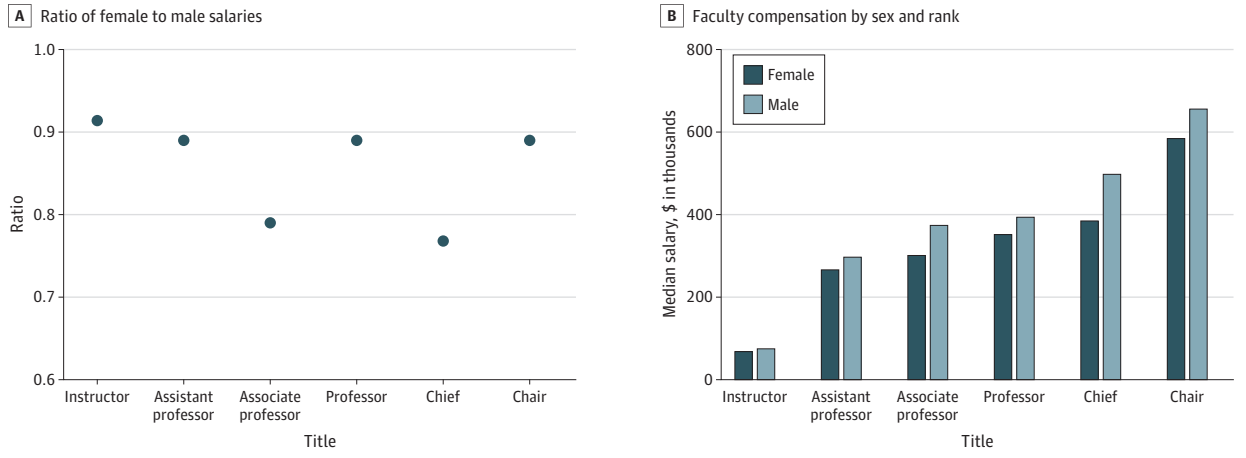
The 2019-2020 Faculty Salary Report contains total compensation for 122 732 full-time faculty from 154 accredited medical schools in the United States. We included a total of 84 980 faculty (40.8% female), which comprised 1607 faculty (39.8% female) in ophthalmology, 16 142 faculty (32.5% female) in other surgical specialties, and 67 231 faculty (42.8% female) in nonsurgical specialties.

The total compensation of female ophthalmologists was lower than that of their male counterparts across all faculty ranks, with the absolute difference in median compensation ranging from $6000 (instructor level) to $112 000 (chief). The same trend was present across all specialties, with women earning a lower salary at all faculty levels (eTable in the Supplement).

Female ophthalmologists were paid 77% of male median salary, ranging between 77% (chief level) and 91% (instructor level) (**Figure 1**). When compared with other specialties, ophthalmology had the second lowest ratio of female-to-male salary (after general surgery, at 75%), and the proportion was higher among nonsurgical specialties (at 82%) (**Figure 2**).

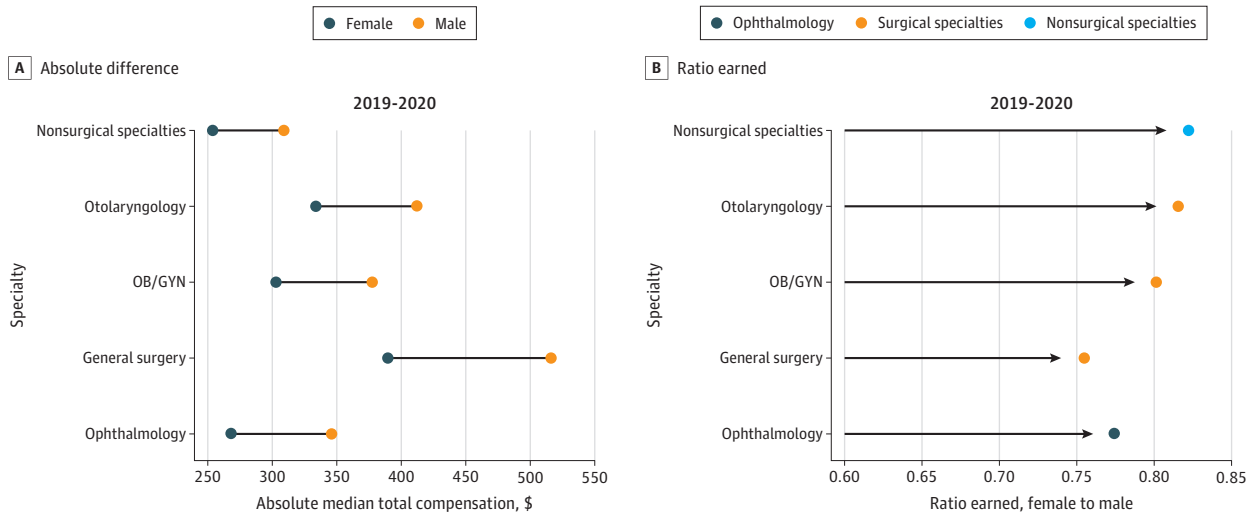
Using regression models to adjust for academic rank, specialty, and proportion of women in the specialty, we found that the absolute difference between male and female ophthalmologists' median compensation was $50 300 (95% CI, $4600-$96 000). A similar trend was identified across all specialties; women earned less than men by amounts ranging between $25 100 (95% CI, $1000-$49 300) in nonsurgical specialties and $104 400 (95% CI, $62 800-$146 600) in general surgery (**Table**). No differences in pay gaps between ophthalmology and

Figure 1. Compensation by Sex for Ophthalmology Faculty at US Medical Schools



Female ophthalmologists earned from 77% to 91% of their male counterparts' salaries in the fiscal year 2019-2020.

Figure 2. Compensation by Sex for Ophthalmology Faculty Compared With Other Medical Specialties



Median compensation of female faculty was lower than that for male faculty across specialties. Nonsurgical specialties include anesthesiology, dermatology, emergency medicine, family medicine, internal medicine, neurology, pathology, pediatrics, physical medicine and rehabilitation, psychiatry, and radiology and their respective subspecialties. OB/GYN indicates obstetrics and gynecology.

Table. Estimated Median Total Compensation Adjusted for Specialty[a]

Specialty	Proportion of women in specialty, %	Sex	Total compensation (95% CI), $1000	Difference (95% CI)	*P* value
Ophthalmology	39.80	Male	327.4 (294.1 to 360.8)		
		Female	277.1 (246.1 to 308.1)	−50.3 (−96.0 to −4.6)	.03
General surgery	21.90	Male	501.3 (466.4 to 536.2)		
		Female	396.9 (375.0 to 418.8)	−104.4 (−146.0 to −62.8)	<.001
OB/GYN	66.50	Male	355.5 (345.6 to 365.5)		
		Female	313.1 (306.5 to 319.7)	−42.4 (−54.9 to −29.9)	<.001
Otolaryngology	27.50	Male	405.5 (375.0 to 436.0)		
		Female	346.4 (318.9 to 373.9)	−59.1 (−100.2 to −18.0)	.005
Nonsurgical	42.80	Male	298.5 (283.5 to 313.5)		
		Female	273.4 (254.5 to 292.2)	−25.1 (−49.3 to −1.0)	.04

Abbreviation: OB/GYN, obstetrics and gynecology.

[a] Women were paid significantly less than men in all specialties. Adjusted by rank and proportion of women in the specialty, with an interaction between sex and specialty (ophthalmology, general surgery, OB/GYN, otolaryngology, nonsurgical).

each of the other specialties were identified. In addition, independent of an individual's sex, if an individual was in a specialty with higher female representation, the total compensation for that specialty was lower. In fact, for each 10% increase in number of women, there was an associated decrease of $49 100 (95% CI, $36 000-$62 100) in the total compensation for that specialty ($P < .001$).

Discussion

In this study, we used a large database of academic salaries and demonstrated sex differences in annual faculty compensation that were more prominent among surgical specialties. Ophthalmology had one of the lowest ratios of female to male salaries; female academic ophthalmologists earned only 77% of what their male counterparts earned, which was only higher than general surgery. These findings are in line with previous literature, which showed that surgical and procedural specialties had lower representation of women and larger disparities in salaries.[4,5,11]

Previous studies have suggested that salary inequities might stem from women not performing lucrative procedures or having lower surgical volume, a different relationship with industry, and different rates of grant acquisition.[7,12,13] However, inequities persisted even when comparing base salaries and productivity.[3,7] Moreover, academic programs, which were the focus of our study, generally follow the salary models for compensation; hence, types of procedures performed by faculty or surgical volume might not be factors driving individual physician salary.[6] In the AAMC Faculty Salary database, we found that specialties with a lower representation of women (ie, general surgery, otolaryngology, and ophthalmology) had higher pay gaps. This is in line with findings by Felfeli et al,[7] which sug-

gested that lower female representation in ophthalmology is one of the factors contributing to pay gaps. Other theories that have been offered are that women may be less effective in salary negotiations, may not seek advancement, or may have a different work-life balance.[3]

Limitations

Our study has some limitations, including the inability to adjust for other factors that may have affected salary, such as physician age, years in practice, geographic location, and fellowship training and clinical productivity. These data are not collected or included in the AAMC database. In addition, because longitudinal salary data were not available, we were unable to analyze trends in pay gaps over time.

Conclusion

Our study showed that female academic ophthalmologists are paid less than their male counterparts. These results highlight the importance of women's representation and empowerment in the field. Future research and efforts to increase awareness and close the pay gaps are warranted to encourage more women to pursue ophthalmology and achieve parity in compensation.

ARTICLE INFORMATION

Accepted for Publication: January 29, 2022.

Published Online: March 24, 2022. doi:10.1001/jamaophthalmol.2022.0376

Author Contributions: Dr Emami-Naeini had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.
Concept and design: Emami-Naeini, Lieng.
Acquisition, analysis, or interpretation of data: All authors.
Drafting of the manuscript: Emami-Naeini, Lieng.
Critical revision of the manuscript for important intellectual content: All authors.
Statistical analysis: Emami-Naeini, Lieng.
Obtained funding: Lieng.
Administrative, technical, or material support: Emami-Naeini.
Supervision: Emami-Naeini.

Conflict of Interest Disclosures: None reported.

Funding/Support: Dr Lieng is supported by training funds from the J. William Kohl Summer Scholarship for Medical Students.

Role of the Funder/Sponsor: The funder had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

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