Letters

RESEARCH LETTER

Association of Salary Differences Between Medical Specialties With Sex Distribution

Sex-based differences in physician compensation persist. Female physicians tend to make less money than their male colleagues in their first jobs[1] and as faculty members.[2-4] Various explanations have been proposed; however, concerns such as predictable hours, length of workday, and frequency of after-hours duties did not account for salary differences,[1] whereas specialty explained about half of observed salary differences between women and men.[1,4] Prior studies have not detailed whether specialties with higher representation of women have lower compensation in general. We sought to create a physician salary model based on the proportion of women in each specialty, hypothesizing that more women in a specialty would be associated with lower salaries for both men and women.

Methods | We used deidentified summary data from the American Association of Medical Colleges (AAMC) faculty salary survey reports from January 2018 through December 2019, which were not subject to institutional review board oversight or informed consent requirements, per University of Michigan definition of human subjects research. We limited our analysis to faculty holding MD degrees at the assistant professor, associate professor, and professor ranks.

An observation within the AAMC data set contained the median salary for each unique combination of specialty, rank, and clinician sex; we did not have access to individual clinician salaries. We used hierarchical linear modeling to allow clustering of the men's and women's median salaries within specialties. We constructed 2 such models of the summary data, predicting median salary using SAS Proc Mixed. Model 1 included sex and the percentage of women within each specialty and rank. Model 2 replicated model 1 and included the interaction between sex and the percentage of women within each specialty and rank. Both models included academic rank and the quartile of the number of individuals with data for the unique combination of specialty, rank, and clinician sex as covariates. Data analyses were completed with SAS version 9.4 (SAS Institute), and the significance threshold was $P < .05$, 2 tailed.

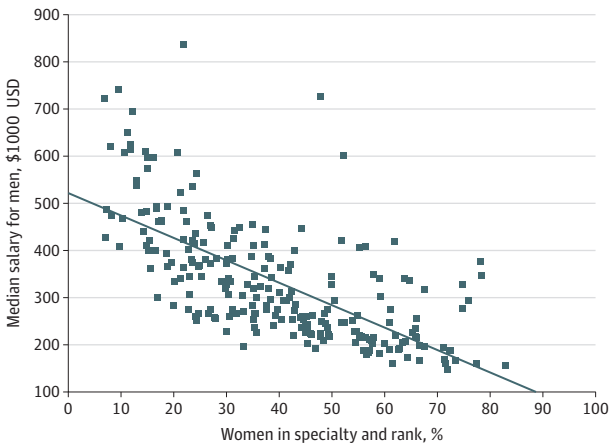
Results | Reports include salary information from 118 961 full-time faculty at 151 US medical schools. Restrictions by professional title resulted in a sample size of 70 578 individuals, including 29 296 women and 41 490 men.

A total of 573 observations encompassing 95 specialties with 3 possible ranks per specialty were used in the model. In model 1, the difference between women's and men's median salaries was $24 806 (95% CI, $19 326-$30 285), and there was an association with the percentage of women within each specialty and rank such that for every 10% increase in the percentage of women present, there was a $8255 (95% CI, $2991-$13 519) decrease in mean salary for men (**Figure**) as well as women. In model 2, the term for interaction between sex and the percentage of women present was significant (β, 0.70 [95% CI, 0.32-1.09]; $P < .001$).

Subgroup analysis revealed that the association of the percentage of women with salary was twice as strong for women as it was for men. For every 10% increase in the percentage of women present, men's median salary decreased by $7465 (95% CI, $977-$13 952), while women's median salary decreased by $15 003 (95% CI $8315-$21 691).

Discussion | In this analysis, the more women there were in a given specialty, the less money all physicians in that specialty tended to earn. These findings may partially be rooted in the US medical payment system, which values procedures more than other services. Our society has traditionally encouraged men to engage in agentic behaviors, such as those involved in interventional procedures, while encouraging women to exhibit communal behaviors involving interpersonal connection and communication,[5] which are often associated with the so-called cognitive specialties. It is quite possible that women are attracted to and even encouraged to enter specialties that involve more traditionally feminine caregiving services, for which reimbursement is lower, particularly pediatrics, where women account for almost three-fourths of resident trainees. Moreover, scholars have speculated that women's participation in medicine or certain subspecialties might itself ultimately lead to decreased prestige and pay for the entire medical profession.[6]

Figure. Median Salary for Men as a Function of the Percentage of Women Represented in Rank and Specialty



Scatterplot with the linear association between the percentage of women and the median salary for men in each specialty and academic rank. For every 10% increase in the percentage of women present in a specialty, men's median salary decreased by $7465 (95% CI, $977-$13 952).

Our analysis of the AAMC database involves group-level summary statistics and thus is limited in its ability to investigate individual factors in salary differences; however, our findings show that efforts to narrow the physician sex pay gap will need to address the larger systemic issues involved. The days of devaluing women's work should be long behind us; yet, in the medical profession, the work has hardly begun.

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