

Inequities Faced by Female Doctors Serving Communities of Need

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Journal of Medical Education and
Curricular Development
Volume 7: 1–6
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DOI: 10.1177/2382120520915895



ABSTRACT: The reasons for sex inequity in medicine are complex and partly interface ethnic background, specialty choice, and practice location. Multiple factors influence career choices including cultural values, balancing family responsibilities with professional growth, and career mentoring and support. Over the last 40 years, the Sophie Davis/CUNY School of Medicine (CSOM) has pursued a mission to increase diversity in medicine at the same time in which it has fostered the importance of primary care and service in underserved areas of New York State. Data from 1524 CSOM graduates show an increase in the number of women and underrepresented groups, with about a quarter of them working in Health Professional Shortage Areas (HPSAs). When compared with their male counterparts, our female graduates report lower income for similar work hours, with this disparity increasing slightly between female and male doctors working in HPSAs. In addition, our female graduates have chosen primary care specialties at a ratio of nearly 2:1 when compared with their male peers. Despite these inequities, our female graduates report satisfaction with their career choices, primarily due to a strong commitment to serving back patients in those communities where some of them come from. More research is needed to identify specific factors that perpetuate pay inequity at the state level to minimize the implications of disparity for women doctors, particularly those working in low-income communities.

KEYWORDS: Female doctors, sex disparity, HPSAs, underserved populations, medical education

RECEIVED: February 10, 2020. **ACCEPTED:** February 25, 2020.

TYPE: Short Report

FUNDING: The author(s) received no financial support for the research, authorship, and/or publication of this article.

DECLARATION OF CONFLICTING INTERESTS: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Introduction

Recent statistics indicate that women represent about 35% of the total physician workforce, with female physicians comprising 49% of the current medical student population in the United States.^{1,2} In New York State (NYS), female doctors account for 38% of the physician workforce across specialties.¹ Similar to the country as a whole, women account for 46% of the primary care physicians in NYS.³ Among women doctors, African-Americans and Latinas have been especially prominent in family medicine, internal medicine, pediatrics, and obstetrics/gynecology (63% and 58%, respectively).⁴

Despite efforts to increase diversity in the physician workforce at the national and state levels, only about 11% of medical school graduates are from groups underrepresented in medicine (URM).⁵ In NYS, the percentage of male graduates from URM groups is slightly higher than the percentage of female graduates (5.9% and 5.3%, respectively). Table 1 shows ethnic and sex breakdown estimates.

As highlighted by the Association of American Medical Colleges (AAMC),⁵ diversity in the physician workforce is associated with greater access to care, increase in the quality of services, and better health outcomes for patients with low income and those who are from ethnic minorities. Factors accounting for these outcomes include URM physicians' commitment to care for underserved populations, a high rate of cultural competency, and effective communication.^{6–9} The lack of diversity often inhibits minority and immigrant patients from comprehending physicians' diagnosis, treatment, and/or

instructions. These issues further exacerbate existing health care problems in communities of need.

Communities of need in medicine are identified by a multitude of factors, some of which may include financial, geographical, and informational issues. These issues often lead to reduced availability of health services and limited access to health care for minority and low-income populations.¹⁰ Some communities of need are categorized by the Health Resources and Services Administration as Health Professional Shortage Areas (HPSAs), areas with a shortage of health care providers in primary care, dental care, and mental health. The HPSA designations are based on geographic location, population groups, or facility type (i.e., correctional facilities or community health centers). As of 2017, there are 187 primary care HPSAs in NYS and 66 in New York City.¹¹

While examining the literature on the composition of the physician workforce in HPSAs, it became noticeable that there was a paucity of information on the topic in the last 10 years. Research focused on physician composition in the US rural areas suggests that physicians who are young, women, single, or minority are less likely to work in rural HPSAs.^{12,13} Studies focused on NYS HPSAs highlight that international medical graduates are more likely to work in these areas than U.S. medical school graduates,¹⁴ and that newly graduated primary care physicians without loans are more likely to work in shortage areas than their peers.¹⁵ Of particular relevance to this article is a study conducted in New York City which shows that minority registered nurses are more likely to work in HPSAs than



Table 1. US and New York State Medical School graduates by ethnicity and sex (2017-2018).

	US PHYSICIANS (%)	NYS PHYSICIANS (%)	US MALE (%)	NYS MALE (%)	US FEMALE (%)	NYS FEMALE (%)
White	55.8	51.3	30.7	26.9	25.1	24.4
Asian	21.0	25.7	10.5	13.5	10.5	12.2
African-American/Black	5.7	5.8	2.4	3.1	3.3	2.8
Hispanic/Latino	5.4	5.1	2.8	2.7	2.6	2.4
American Indian or Alaskan Native	0.1	0.1	0.1	0.1	0.0	0.1
Multiple race/ethnicity	7.7	6.6	3.9	3.4	3.8	3.1
Other	4.3	5.5	2.3	2.9	2.0	2.6
Total	100.0	100.0	52.6	52.5	47.4	47.5

Source: Association of American Medical Colleges.⁵
Abbreviation: NYS, New York State.

their White, non-Hispanic peers.¹⁶ The available data on the physician workforce in NYS HPSAs are based on a decade-old study.¹⁷ Results from this study suggest that, even with initiatives to improve the provision of health services to populations in need, only about 14% of physicians in NYS work in HPSAs, with 10% being male and 4% female, nearly half of whom are from URM groups.¹⁷ About a third of the physicians practicing in HPSAs graduated from NYS medical schools (32%),¹⁷ suggesting the physicians' commitment to provide services to local communities of need. Along with the paucity of information on physician workforce in these communities, there has also been a lack of information on physician compensation in HPSAs.

The issue of pay disparity has affected the medical community for many years and is still a predominant problem for health care professionals. Prevailing literature on sex pay disparity distinctly points toward sex role expectations in the choices made by female physicians. A few studies found that female doctors are more likely than male doctors to have partners who are employed full-time, increasing the likelihood of conflict between work and home responsibilities.^{18,19} Similar research indicates that female doctors with children work less hours than female doctors without children and male doctors in general (with or without children).²⁰ Women take more time off during disruptions of usual child care than men, which could have implications for female career advancement.¹⁹ Female physicians also prioritize aspects of their work differently, with women ranking personal time and collegiality higher than pay as compared with male physicians.²¹ Additional research emphasizes more systemic issues which may also hinder job growth and ultimately impact pay, including the lack of female career mentors,^{22,23} limited presence of females in leadership roles,^{21,24,25} discordant feedback from attending physicians,²⁶ and less favorable evaluations from medical students.²⁷

Recent research on pay disparity among physicians highlights major sex differences.^{21,28,33} Overall, these studies point

to a differential in pay among female and male doctors ranging from US\$12 to US\$20 000. After adjusting for factors like years of experience, specialty choice, practice characteristics, hours worked, work effort, and productivity, these studies found that, in addition to earning less, female physicians worked more night shifts and were less likely to be in leadership positions than male physicians.²¹ Newly trained physicians also had a substantial pay differential regarding sex after controlling for these factors as well as immigration status.²⁸ The pay differential is also significant among physicians in academia after adjusting for faculty rank, publications, research time, funding, and reimbursements.^{29,30} These findings are supported by data from Medicare reimbursement claims showing that female doctors are reimbursed about US\$18 000 less than male doctors.³¹ This analysis controls for discrepancies in self-reported income, in addition to hours worked, productivity, and level of experience.

Along with sex, studies also explored racial pay disparities in the health care industry. Among New York City registered nurses who work full-time, African-American and Hispanic nurses earn less than the non-Hispanic Whites.¹⁶ When examining race and sex concurrently in primary care physician earnings, White male physicians earned up to 30% more than African-American male physicians, after adjusting for work effort, physician, and practice characteristics.³² This gap further widens when investigating female earnings, with female physicians earning less than the male ones across all races.^{32,33} Among primary care physicians, female physicians of any race earn up to 40% less than their White male counterparts.³² Irrespective of specialty choice, White and African-American male doctors are still found to earn significantly more than their female counterparts, after controlling for age, hours worked, time period, years in practice, practice type, and Medicare/Medicaid billable revenue.³³ These findings suggest that sex differences may have a stronger impact on pay disparity than ethnic differences. Furthermore, issues of sex

Table 2. Sophie Davis/CSOM graduates by race/ethnicity and sex (1977-2005).

BIOMEDICAL GRADUATES	MALE, N (%)	FEMALE, N (%)	TOTAL, N (%)
White	392 (63.0)	227 (36.7)	619 (40.0)
Asian	270 (49.1)	280 (50.9)	550 (35.5)
African-American ^a	84 (36.5)	146 (63.5)	230 (14.9)
Latino ^a	46 (37.7)	76 (62.3)	122 (7.9)
Unknown ^b	12 (44.4)	15 (55.6)	27 (1.7)
Total	804 (51.9)	744 (48.1)	1548 (100.0)

Source: CSOM student academic records (N = 1548).

Abbreviations: CSOM, CUNY School of Medicine; URM, underrepresented in medicine.

^aURM ethnicities.

^bMissing race/ethnicity for 27 graduates.

inequality in the medical profession have not yet been fully examined in areas where doctors are needed the most, such as within HPSAs.

Over the last 40 years, the Sophie Davis/CUNY School of Medicine (CSOM) has upheld the mission to train physicians from underrepresented groups. Our achievements include greater access to medical education for women and populations underrepresented in medicine, increased emphasis on careers in primary care, and promoting a strong commitment to service in communities of need in NYS. This article examines sex differences in medicine, with a particular focus on ethnic background (URM and non-URM), specialty choice (primary care and non-primary care), practice location (HPSA and non-HPSA), and income among graduates between 1977 and 2005.

Methods

This study used a mixed-methods approach including data from various sources: AMA 2012 Physician Masterfile (N = 1491, 96%), CSOM student academic records (N = 1548, 100%), and CSOM graduate survey information (N = 425, 30%). Study participants provided written informed consent as per approved protocol of the institutional review board of The City University of New York (CUNY). There were no significant differences between study respondents and non-respondents regarding sex and ethnicity. This mixed-methods approach allowed for a multifaceted comparison of our female and male alumni taking into account ethnicity, specialty choice, and practice location. These factors were the basis for exploring sex inequities in compensation and the graduates' overall contribution to the physician workforce in NYS.

Preliminary analysis focused on examining the demographic characteristics of our alumni, including their sex and ethnic distributions. Several comparisons were then conducted by specialty career choice (primary care and non-primary care) and practice location (HPSA and non-HPSA) across sex and ethnic groups. Primary care specialties included internal medicine, family medicine, pediatrics, and obstetrics/gynecology. Furthermore, we examined the graduates' levels of income by

specialty choice and HPSA employment, and the overall satisfaction with their career choice.

Results

Overall, the sex distribution of CSOM graduates is similar to the general physician workforce in NYS and the United States as a whole. The CSOM has been successful in providing access to medical education to youth from diverse ethnic and socioeconomic backgrounds. Between the years 1977 and 2005, nearly half (48%) of the CSOM graduates were female. There was a shift in sex distribution since 1998 with nearly 60% of the graduates being female by 2005. About a quarter (23%) of the graduates were from underrepresented minority groups and more than half (57%) were first-generation Americans. Among our female graduates, 30% were from ethnic backgrounds underrepresented in medicine (Table 2).

Data from the AMA Physician Masterfile suggest that 2 out of 5 CSOM graduates (41%) have specialized in *primary care*, with women choosing primary care specialties at a much higher rate than men (65% and 35%, respectively). As shown in Table 3, the percentage of women in primary care across all ethnicities is higher than that of men in any singular ethnicity. Of the women working in primary care specialties, approximately a third (32%) come from URM groups.

About a quarter of CSOM graduates have worked in *HPSAs* (24%), with female physicians comprising half of this workforce. Of these female graduates working in HPSAs, approximately half come from URM groups (46%).

Consistent with the literature on sex inequity in the provision of health care services,^{34,35} graduates from the CSOM differed in reported income levels based on sex, career choice, and practice location, $\chi^2(3, N = 425) = 23.07, P < .01$. There were no significant sex differences among graduates in relationship status (married or single) or the number of hours worked.

Among CSOM primary care physicians, about 85% of female physicians reported income of US\$200 000 or less compared with 51% of their male peers, irrespective of practice location (in or out of HPSA), $\chi^2(1, N = 425) = 93.43, P < .001$.

Table 3. Sophie Davis/CSOM graduate primary care physicians by race/ethnicity and sex (1977-2005).

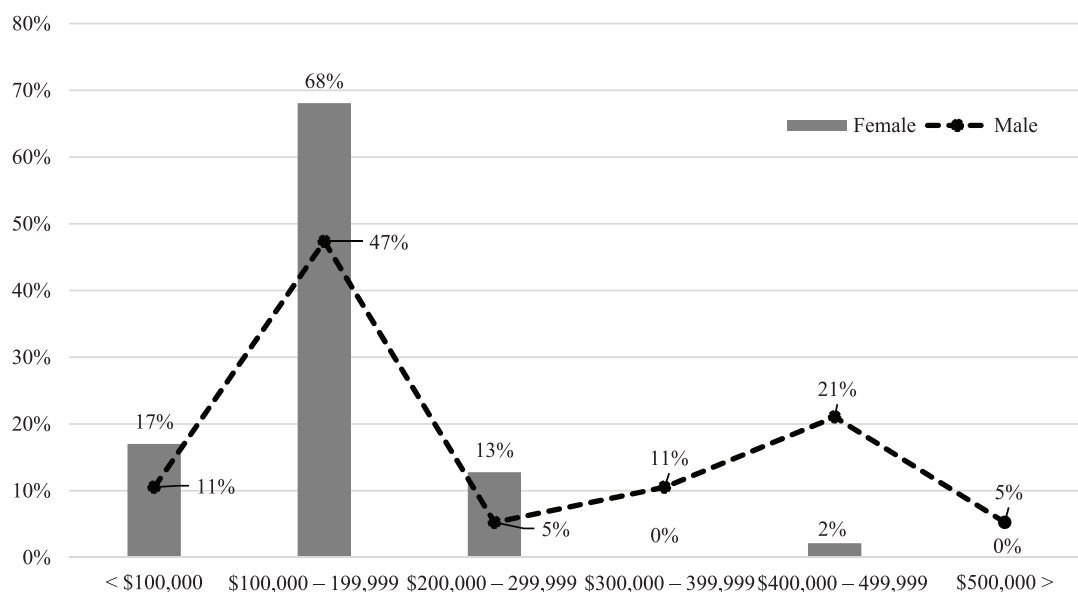
PRIMARY CARE	MALE, N (%)	FEMALE, N (%)	TOTAL, N (%)
White	88 (42.9)	117 (57.1)	205 (33.5)
Asian	78 (34.4)	149 (65.6)	227 (37.1)
African-American ^a	29 (25.7)	84 (74.3)	113 (18.5)
Latino ^a	17 (29.3)	41 (70.7)	58 (9.5)
Unknown ^b	3 (33.3)	6 (66.7)	9 (1.5)
Total	215 (35.1)	397 (64.9)	612 (100.0)

Source: AMA Physician Masterfile data (N=1491).

Abbreviations: CSOM, CUNY School of Medicine; URM, underrepresented in medicine.

^aURM ethnicities.

^bMissing race/ethnicity for 9 graduates.

**Figure 1.** Primary care physician income by sex (in HPSAs). HPSAs indicates Health Professional Shortage Areas.

Although there is no significant difference among female physicians, a larger percentage of male physicians reported this level of income when working in HPSAs (58%) compared with male colleagues working out of HPSAs (44%). See detailed percentages in Figures 1 and 2.

This disparity is less acute among non-primary care physicians, with 38% of female physicians making less than US\$200,000 compared with 17% (in HPSA) and 24% (outside of HPSA) of their male counterparts making a similar amount.

While looking at the intersection of race and sex in HPSA earnings, the findings reinforce the importance of sex disparities in pay over ethnic differences. Although a higher percentage of non-URM female physicians reported earnings up to US\$200,000 than their URM counterparts, nevertheless all female physicians earned less than URM and non-URM male physicians. More than 20% of male physicians working in HPSAs reported incomes of US\$300,000 or more, irrespective of race, whereas no female physician reported this

level of income (Figure 3). Despite these differences, 4 out of 5 female graduates (80%) reported satisfaction with their career choice.

Discussion

Multiple factors may influence disparities in medicine, including sex, ethnic background, specialty choice, and practice location. This article examines the intersection of these different factors and the resulting pay inequalities among CSOM graduates between 1977 and 2005. The CSOM has graduated female physicians underrepresented in medicine who have chosen primary care specialties and worked in communities of need at rates higher than their peers in NYS and the United States. Unfortunately, pay disparities still exist among the graduates, particularly those providing necessary services in communities of need.

Although pay disparities have been discussed in the medical profession, pay disparities in areas of high need such as

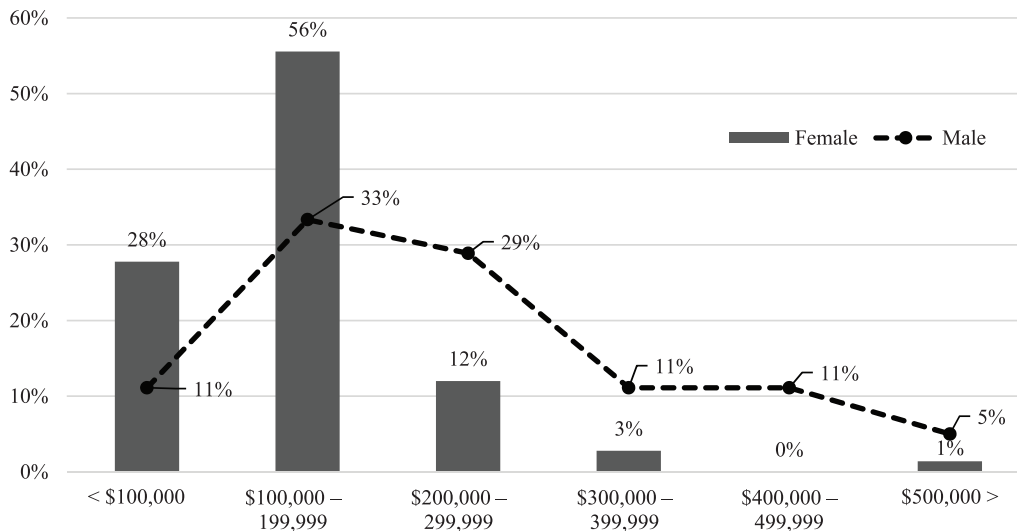


Figure 2. Primary care physician income by sex (out of HPSAs). HPSAs indicates Health Professional Shortage Areas.

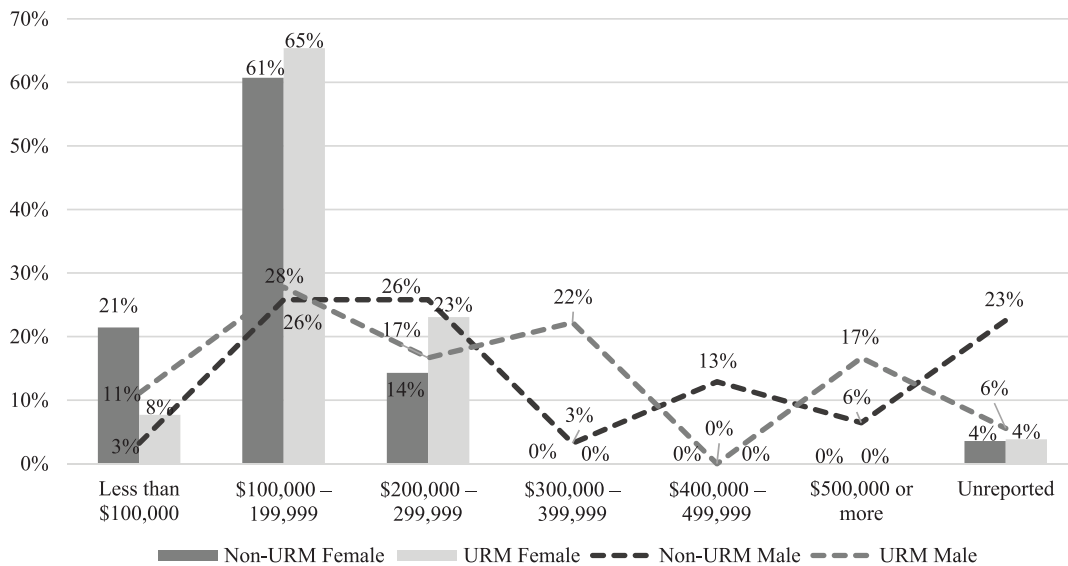


Figure 3. Income of physicians working in HPSAs by URM status. HPSAs indicates Health Professional Shortage Areas; URM, underrepresented in medicine.

within HPSAs have not been fully examined. This article elucidates a problem not yet widely explored in the medical education literature. Female doctors working in HPSAs are being paid significantly less than their male peers, irrespective of race. The URM female physicians as well as their non-URM counterparts are not being adequately compensated when controlling for specialty choice, hours worked, relationship status, and practice location. Consistent with the literature,^{32,33} the results indicate that female physicians of all races earn less than male physicians of any race. Sex seems to be a defining factor of pay inequity in the medical profession.

Factors previously identified in the medical literature on sex disparity include culturally ingrained sexism, difficulties in balancing family responsibilities and professional growth, and a lack of effective career mentoring.^{18,27} Therefore, to lessen the

difficulties encountered by female graduates and minimize sex inequity, medical schools must adopt a multifaceted approach that includes a holistic admissions process, a population health curriculum emphasizing the relevance of primary care in local communities, and a strong professional advising/coaching system for female students.

More research is needed to identify specific factors that perpetuate inequity in pay at the state and national levels to minimize the implications of disparity for women doctors, particularly those working in low-income communities.

Author Contributions

AM-M is fully responsible for the concept and design of the work; acquisition, analysis and interpretation of data. AM-M and ZH contributed to the literature review, discussion of findings and presentation of data.

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