

What Will It Take to Achieve Gender Equality in Radiology?

Sadia Khanani, MD; Elizabeth Valencia, MD, JD; Amy Lynn Connors, MD

Although women represent the majority of medical student applicants and matriculants,¹ they remain underrepresented in many nonprimary care fields, including radiology and surgery.² This gender disparity is even more pronounced in leadership positions.³ Gender diversity not only leads to equity but also fosters innovation, growth, workforce engagement, and productivity.^{4,5} In this article, we review the gender disparities in radiology, the need for equitable gender representation, and potential strategies to bridge the gaps in gender disparity.

Current State of Gender Diversity in Radiology

The underrepresentation of women in radiology has remained relatively stable in recent years. According to the American Association of Medical Colleges' physician specialty data report, men represented 73.5% and women represented 26.5% of the total 28,008 active radiologists in 2019,² a slight uptick from 2015,

when men were 75.3% and women were 24.7%.⁶ The percentage of women entering a US radiology residency has not significantly changed in the past three decades, with approximately 25.5% of residents in 1990 being women,⁷ compared to approximately 27% of residents in 2019-2020.⁸

This contrasts sharply with specialties such as family medicine, pediatrics, geriatrics, obstetrics/gynecology, dermatology, and psychiatry, where women represent a significant portion or even a majority of the workforce.² Gender discrepancy in academic leadership positions is even more stark. Although women are more likely to enter academic medicine,⁹ only 25% of radiology vice chairs or section heads and 9% of department chairs are women.³

Why Don't Women Enter Radiology?

Although underrepresentation of women in radiology results from many factors, it begins at the residency level. Women have represented a large portion of medical students for multiple years – indeed, they now comprise the majority—so why has the percentage of them in radiology residency not changed? Why is it that the specialty's lifestyle factors such as better work-life

integration and compensation do not appeal to more women?¹⁰ Several studies have attempted to answer these questions.

Lack of patient contact has been reported to be an essential factor in the decision of many women not to pursue radiology.¹¹⁻¹³ A survey of medical students by Fielding, et al,¹² revealed that patient contact and intellectual stimulation were the most important factors in choosing a specialty; regardless of gender, medical students perceived radiology as lacking patient contact. These findings are similar to another study by Zener, et al,¹³ in which direct patient care was valued by significantly more female Canadian medical students who did not pursue radiology than those who did. However, the perceived lack of patient contact cannot entirely account for the gender discrepancy. Indeed, pathology, a specialty that has even less patient contact than radiology, boasts a greater percentage of active female physicians.^{2,13}

Other factors affecting women's decision not to pursue radiology may include the competitiveness of the specialty and its requirement of physics knowledge.^{12,13} Zener, et al, reported that despite similar pre-medical backgrounds, significantly more women were dissuaded by the specialty's emphasis on an understanding of physics.¹³ In another

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study, about one-third of women stated that competition affected their decision to not pursue a residency in radiology, compared to one-fifth of men who chose not to pursue radiology.¹² In addition, radiation exposure, a lack of acknowledgement by patients, working in a dark room, and little if any prior exposure to the field have also been cited as factors.^{12,13} Conversely, intellectual stimulation, work environment, and impact on patient care have been reported to be major factors in attracting students to radiology.¹¹

Why Do We Need More Women in Radiology?

To help reduce gender disparity in radiology, understanding why gender parity matters is essential. The impact of gender diversity is better described in the corporate world, where a positive correlation has been cited between the presence of women in leadership and serving as board members and economic outcomes. The Peterson Institute and Ernst Young found that an organization with 30% female leaders could add more than 1% to its net margin. For a typical firm with a 6.4% net profit margin, this study's findings would represent a 15% boost to profitability.¹⁴ Similarly McKinsey and Company reported that companies in the top quartile for gender diversity were 21% more likely to outperform on profitability and, conversely, companies in the bottom quartile for gender and ethnic diversity were 29%

less likely to achieve above-average profitability.¹⁵

Aside from its clear economic impact, gender diversity has been shown to positively affect innovation.¹⁶ However, some data suggest this correlation remains true only if women hold management and other leadership positions.¹⁷ A study by BCG and the Technical Institute of Munich found that companies with the greatest gender diversity generated about 34% of their revenues from innovation and products in the most recent three years, compared with 25% of revenues for those with the least diversity.¹⁷ A higher percentage of women in managerial positions, moreover, correlates positively with disruptive innovation, such as the kind that Amazon brought to the retail industry.¹⁷

How Do We Close the Gender Gap?

Recruiting more women into radiology is the first major challenge to overcome in tackling the field's gender gap. This can be accomplished in large part by dispelling the perceptions uncovered by the previously cited surveys of medical students. Diagnostic radiology may have less patient contact than many other specialties, but it is a gross misperception that radiology has no patient contact or that radiologists sit in dark rooms all day. Indeed, breast imaging, pediatric radiology, and interventional radiology have significant patient contact,

and nearly all radiologists have some contact with patients, rendering inaccurate the perception of radiologists as "invisible readers of images."¹⁸

One potential solution may be earlier exposure to radiology and its subspecialties. Fourth-year radiology electives are available at many medical schools;³ however, most students have chosen their specialty by the end of their third year.¹⁹ It has been shown that exposure to radiology in their first year of medical school increases student interest and improves their impression of the field.^{3,20} Hence, making radiology an early and fundamental part of medical school curriculum could help to improve the gender disparity in the long run.

Providing other alternatives for early exposure, particularly to female students, is also important. The absence of female role models has been shown in prior studies to impact career choices among female medical students.²¹⁻²³ To overcome this challenge, departments can encourage their female faculty to lecture or to participate on medical school committees, potentially helping more students to identify female radiologists as role models.

Opening up opportunities for mentorship is another promising approach. Mentorship has been shown to significantly impact the career trajectory of medical students.²⁴ Indeed, offered early in their academic career, mentorship can give young women a realistic overview of radiology and

help to dispel worries about competition, physics requirements, and radiation exposure.^{12,13} Finally, mentorship offers a platform to discuss work-life integration, intellectual stimulation, income benefits, and perhaps most important of all, career advancement beyond the reading room. In fact, one systematic review identified mentorship and leadership development as key components for advancing female leadership in health care overall.²⁵

Conclusion

Despite many advances in technology, patient care, and other aspects of radiology, women remain greatly underrepresented in the field. Overcoming the status quo begins with boosting recruitment of female students to radiology residency programs and progresses through ensuring their advancement to leadership positions throughout the specialty and beyond. To this end, every academic and private radiology practice would do well to assess their own organization's current state with respect to gender equity and lay out a plan for closing the gaps.

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