



Closing the gender gap in academic radiology: reasons for hope?

Hedvig Hricak¹ · Rahel A. Kubik-Huch² · Yves Menu³

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Abstract

This Editorial Comment refers to the article by Bernard C. et al, Gender gap in articles published in *European Radiology* and *CardioVascular and Interventional Radiology*: evolution between 2002 and 2016, *European Radiology*, doi: 10.1007/s00330-019-06390-7.

In many European nations as well as the USA, women account for roughly half or more of all medical students but are underrepresented in a number of medical specialties, including radiology [1, 2]. This is a matter of concern not just for women but also for society as a whole. More and more, diversity in the workforce is being recognized as a strength that helps organizations better adapt to the needs of the increasingly diverse populations they serve and the ever-accelerating pace of change in the world [3–6]. As was pointed out in *Science* in a landmark opinion piece calling for more women in the sciences over a decade ago, heterogeneity in the workforce enhances critical analysis in decision-making and fosters greater innovation [4]. Given that academic radiology is the birthplace and seeding ground for innovations in medical imaging, it needs greater diversity, including more women, if it is to realize its full potential. As Dr. Christopher Hess pointed out during the ECR 2019 program *Women in focus: Be inspired*, “Gender diversity is not a metric; it is a tool for excellence” [7].

The timely, rigorous study by Bernard C. et al featured in this issue of *European Radiology* exemplifies the type of research necessary to track progress and identify weak areas,

based on which interventions can be developed to help close the gender gap in academic radiology [1]. The study examines the frequency of female authorship of peer-reviewed manuscripts published in *European Radiology* and *Cardiovascular and Interventional Radiology (CVIR)* over a 14-year period. It uses authorship as a proxy for women’s participation in academic research in diagnostic radiology and interventional radiology. The article provides an informative analysis of trends in these fields and a valuable benchmark against which future progress can be measured.

The study reveals a significant increase in the overall proportion of women authors publishing in *European Radiology* over the past 14 years; this includes significant increases in female first and last authorship. The numbers suggest that the proportion of women conducting research in diagnostic radiology has been growing steadily [1].

The study also shows that women are twice as likely to be first authors when the senior author is a woman [1]. This finding highlights the importance of mentorship of women—particularly by other women—and the need to ensure that the number of women at the top continues to rise. Like other recent research, it also runs counter to common negative stereotypes and some previous research, widely hyped in the news media, suggesting that successful women in male-dominated professions tend to undermine the careers of female colleagues—a behavior labeled, “Queen Bee Syndrome” [8–10]. In the field of diagnostic radiology, female leaders are actively supporting younger women, encouraging them to realize their potential. That is laudable and indicates the wisdom in the following words of Mrs. Elizabeth Balogun, another speaker at the *Women in Focus* program: “Our gender is not a choice, but therein lies our strength” [7].

While representation of women is growing in diagnostic radiology, it is not equally distributed among subspecialties.

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✉ Hedvig Hricak
hricakh@mskcc.org

¹ Department of Radiology, Memorial Sloan Kettering Cancer Center, 1275 York Avenue, C-278, New York, NY 10065, USA

² Institute of Radiology, Department of Medical Services, Kantonsspital Baden, CH-5404 Baden, Switzerland

³ Department of Diagnostic and Interventional Radiology, Saint Antoine Hospital, APHP-Sorbonne University, Paris, France

Bernard C. et al found that the proportion of female authors in *CVIR* did not increase significantly over the entire 14-year period studied, and the number of senior female authors in *CVIR* even declined somewhat between 2011 and 2016 [1]. While these findings are disappointing, it is important to note that they reflect women's predilection for some subspecialties, such as pediatric imaging, gynecological imaging, and breast imaging (an area where they account for more than half of authors in *European Radiology*) [1]. Women's choices of radiological subspecialties mirror their choices in medicine more broadly (for example, in 2014 in the USA, the proportion of women in pediatrics was found to be 60.4%, while that in orthopedic surgery was found to be 4.6%) [2]. As Bernard C. et al note, there are a variety of possible reasons why women may find certain subspecialties more congenial than others [1]. Some of these reasons—such as desires for work flexibility, better work/life balance and more time with family, or a tendency to be especially interested in caring for women and children—could be viewed as neutral. Others, such as a male-dominated culture that is discouraging to women, should be addressed through efforts at reform and education. However, while looking for solutions, we must avoid stereotyping male or female attitudes about gender roles. For example, a large meta-analysis of social science studies indicated that, contrary to widely held assumptions, reports of work/family conflict among men and women are more similar than different [11]. The discrepancy between expectations and reality in this case may be partly due to men's fears that openly discussing concerns about work/family conflicts, or taking advantage of benefits such as paid family leave, may cause them to be seen as insufficiently masculine and stigmatized; the authors note that acknowledging that men and women experience similar levels of work/family conflict could facilitate dialogue and lead to better work-family management for all [11]. Closing the gender gap is and will be a slow, multifactorial process influenced by local cultures and facilitated by a natural evolution through generations.

Bernard C. et al emphasize that their work provides a unique European perspective on the gender gap in academic radiology. They also note that it reveals striking differences among European countries, which may be related to differences in cultural attitudes and institutional policies [1]. As seen in Table 5 of their article, the proportion of female senior authors varies from 5% (Germany) to 20% (France, Spain and the Netherlands) [1]. More encouraging are the rising percentages of female first authors, ranging from 15% (Switzerland) to 45% (the Netherlands). In each country, the percentage of female first authors is higher than the percentage of female senior authors. This may be a sign that through growing participation of junior women, the gender gap overall is slowly closing.

Both men and women need to work actively to close the gender gap not just at the junior but also at the senior level, and

both men and women can benefit from becoming more aware of the unconscious biases and other factors that hinder progress. A convincing case has been made that the greater the share of women holding leadership positions in a workplace, the greater the likelihood is that they will support each other, and furthermore, recent research has found that female leaders promote more women than male leaders do [8–10]. Having a role model is important in every walk of life, and collectively, we need to promote greater numbers of qualified women to senior academic leadership positions.

However, while working together to close the gender gap, we also have to be mindful that not everybody wants greater responsibilities or a leadership position. A lack of interest in such goals can be seen in both male and female radiologists and is very evident among millennials. We always need to mentor and help, and this means listening, trying our best to understand, and respecting others' choices. Encouraging colleagues to see their potential to lead is worthwhile, but making a co-worker feel guilty because he or she does not want the additional pressures that come with leadership responsibilities will only cause harm.

Education and mentoring can help women at all career levels learn to become better advocates for themselves. An insightful article, entitled “Women don't ask,” points out that due to social pressures, women very rarely negotiate for salary, space, or research support (in comparison to women, men generally ask for what they want twice as often and negotiate four times as often, according to one source cited) [5, 12]. This failure to negotiate can in itself “sabotage” a woman's success, the author says [5]. Guidance from a trusted mentor, or, preferably, a variety of mentors, female and male, can help women overcome their anxieties about negotiation, develop winning negotiation strategies, and build networks through which they can find opportunities to expand their careers [5]. With conscious efforts on the part of women and men, women radiologists can thrive in academia and make their organizations shine more brightly than ever.

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Compliance with ethical standards

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- This is not applicable.

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