

Women Representation in Scientific Publications

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In 2015, the United Nations General Assembly named February 11 the International Day of Women and Girls in Science. This date has been celebrated since 2016, with the aims of raising awareness of women's excellence in science and reminding the international community that science and gender equality must advance hand in hand.¹

Data from the United Nations and UNESCO indicate that women represent less than 30% of researchers worldwide and demonstrate how barriers and underrepresentation of women and girls still persist, especially in areas such as science, technology, engineering, and mathematics.¹

To this day, the overload of domestic work and family care leaves women at a disadvantage in academia, generating disparities not only in the development of studies and the publication of articles, but also in representation among researchers, which is crucial for a more comprehensive discussion and for the diversity of the topics chosen for study. Cultural, social, and economic factors and beliefs can limit the educational opportunities available to women, further discouraging their participation in scientific research.

Notwithstanding some actions, gender inequality is still predominant in science. Although men and women hold approximately the same number of bachelor's and master's degrees, at the highest academic ranks, the balance is tipped in favor of male scientists. In the European Union and the United States, only 20% and 21% of full professors are women, respectively. This number is even lower for natural science professors.²

Regarding representativeness in clinical trials, a study conducted by Denby et al. demonstrated that women constituted only 10.1% of clinical trial leadership committees. This number was substantially lower than the already low proportion of women doctors or researchers in the cardiovascular therapeutic area. In 55.5% of leadership committees, there was no female representation, and publications of cardiovascular clinical trials had women in only 9.3% of the first or 10.0% of the last author position.³

Prior studies suggest that gender diversity in research teams can produce higher quality research. Greater visibility of women in clinical trial leadership roles could increase recruitment of female participants and attract more women investigators to cardiovascular clinical research. A vicious cycle has been observed for women in academic medicine, with the exclusion of women leading to further exclusion, lack of recognition, and slow rates of promotion.³

When bringing this analysis and discussion to the Cardiovascular Imaging Department of the Brazilian Society of Cardiology, we observed a different scenario from the one reported regarding the number of women as first or last authors of articles published between 2017 and 2022 in *ABC Cardiovascular Imaging*. Women were the majority during this period, with the exception of 2018 (Figure 1).

In relation to the position of women as editor-in-chief, a study conducted by Pinho Gomes et al. examined the representation of women and men. The analysis included 41 medical categories and used data from the 2019 Clarivate Analytics Web of Science Journal Citation Reports. The results indicated a significant underrepresentation of women, corresponding to only 1 in 5 editors-in-chief of the leading medical journals. Some categories had no female editors-in-chief (dentistry, oral surgery, and medicine; allergy; psychiatry; anesthesiology; and ophthalmology), while others had a greater presence of women as editors-in-chief (primary health care, microbiology, and genetics and heredity). In 27 of the 41 categories, women represented less than a third of editors-in-chief, for example, 1 in 10 for critical care medicine, 2 in 10 for gastroenterology and hepatology, and 3 in 10 for endocrinology and metabolism.⁴

The journal *ABC Cardiovascular Imaging* has had 17 editors since 1988, and 5 of them were women (Figure 2): Vera Marcia Lopes Gimenes (1994 to 1996; 2008 to 2009), Cláudia Gianini Monaco (2003 to 2004), Ana Clara Tude Rodrigues (2014 to 2015), Viviane Tiemi Hotta (2018 to 2019), and Daniela do Carmo Rassi Frota (2022 to 2023). Women currently represent 45% of the journal's associate editor positions.

Increasing representation of women on editorial boards, especially in editor-in-chief positions, is crucial to combating the inequalities present in academic publishing and academia in general. The underrepresentation of women in these positions is the result of several factors. First, women tend to decline invitations to editorial positions due to the expectation that these positions could interfere with family and/or professional commitments. This is related to the unequal distribution of responsibilities, where women often have more unpaid obligations and bear greater burdens or even the sole responsibility for

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Publications in *ABC Cardiovascular Imaging*

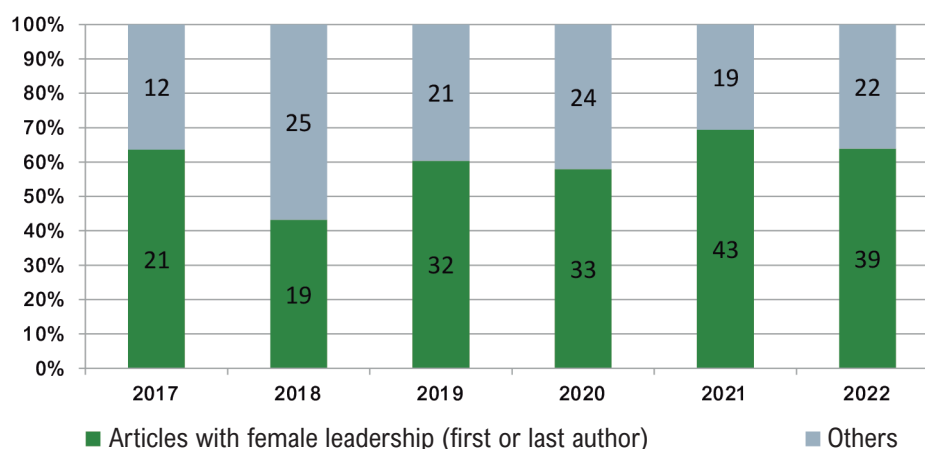


Figure 1 – Number of articles published in *ABC Cardiovascular Imaging* with women as first and/or last authors, from 2017 to 2022.



Figure 2 – 2023 Congress of the Cardiovascular Imaging Department with the editors-in-chief of *ABC Cardiovascular Imaging*

mental work in domestic and family care. This uneven load can limit the time available for research and leadership. Furthermore, career interruptions, such as maternity leave, and gender bias contribute to hindering women's professional progression.⁴

Unconscious gender bias also devalues women's academic performance and perpetuates stereotypes that exclude women from leadership positions, including editor-in-chief. The lack of mentoring and appropriate female role models also negatively impacts women's advancement in academic careers. It is essential to increase the presence of women on editorial

boards, especially as editors-in-chief, in order to address these deeply rooted inequalities. The presence of a female editor-in-chief is linked to greater representation of women on editorial and advisory boards, as well as in peer review. Given that editors-in-chief are often chosen from editorial boards, addressing the underrepresentation of women on these boards is a priority for achieving gender parity in leadership positions.

To achieve gender equality, it is necessary to act early, showing young girls how important it is to have a profession and providing good examples of scientifically successful women. The lack of female mentors and role models in

cardiology has been repeatedly cited as a potential deterrent to the recruitment and retention of women in the field. The phrase “You cannot be what you cannot see” has often been cited in the context of academic cardiology.

Thus, despite the increasing representation of women in science and academic activities, as well as the greater awareness of gender inequality in these contexts, it is essential to promote public policies that encourage women

in leadership positions, in addition to a sociocultural change that values the achievements and merit of women, respecting their role at the heart of the household.

Finally, it is also important to highlight the value of sisterhood among women and rich and of prolific partnerships that further enhance women’s roles in the world of science so that, in the near future, more girls and women will achieve gender equality in all settings.

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