

## Women in the world of science and scientific publishing

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Recent months have witnessed widespread mobilization of women in numerous countries and fields, with various objectives. Feminist struggles were expressed in the marches protesting the explicitly misogynous U.S. President's inauguration and Brazilian women's resistance to further curtailment of Brazil's already limited right to abortion. The movement has branched out, exposing countless cases of sexual harassment and abuse. The women strengthened each other to speak out, sharing their experiences through *MeToo* (<https://twitter.com/hashtag/MeToo>).

Among scientists (and it could not logically be otherwise), allegations of abuse reveal the power relations between thesis supervisors and students, between senior and junior scientists, leading to situations just as serious as those mentioned above, hindering the academic careers of countless promising young women scientists <sup>1</sup>. These situations led the National Science Foundation to demand notification and adoption of measures to control harassment as a condition for the transfer of financial resources <sup>2</sup>.

Even more subtle is the daily prejudice that we tend to deny, assuming that gender has no bearing on research evaluation. A recent review of gender bias in scientific journals identified women's underrepresentation, not only among authors, but especially among referees and editors <sup>3</sup>. The bias is not uniform: in the field of mathematics, women represent only 15% of the researchers and are even less represented as editors, with only 10% <sup>4</sup>. The situation is even more serious in the most prestigious scientific journals like *Science*. Based on the last authors listed in a sample of articles published in 2015, the share of women publishing in *Science* as either or junior or senior authors was one-third less than their overall percentage in academic institutions in the United States <sup>5</sup>.

In Brazil, about half of the publications for the quadrennium 2011-2015 were written by women, a significant increase compared to 38% in the period 1996-2000. However, among the researchers who receive research productivity grants, destined by the Brazilian National Research Council (CNPq) to researchers, in order to value scientific production, women are more present at the lower levels <sup>6</sup>. In part, this difference can be explained as resulting from a cohort effect, but it may also be the reproduction of the same pattern observed in organizations in general. The proportion of women in upper-echelon executive positions is far lower than that of men, even in companies with a large female workforce.

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This bias is reinforced by the media's portrayal of science: only 25% of the scientists cited in mainstream newspaper articles were women. And it does not suffice for journalists to justify such bias by claiming that men were the most qualified to be interviewed for the news stories <sup>7</sup>.

According to a recent study on productivity and article impact according to gender, women's productivity was some 30% lower than that of men, gender had no effect on the impact of articles among the group of the most productive authors, and the difference in productivity was explained by the fact that men had more seniority and were older (a cohort effect) <sup>8</sup>. Importantly, the study only analyzed articles by Swedish authors, and Sweden is known to have one of the world's most egalitarian and extensive laws on maternity and paternity leave.

Several measures have been proposed to address the inequality between men and women in science. Journals of such stature as *Nature* acknowledged the bias and took steps that allowed increasing the proportion of female referees from 14% to 22%, between 2011 and 2015 <sup>9</sup>. In Brazil, the last Brazilian Congress of Epidemiology innovated by promoting gender equity in round tables and panel discussions <sup>10</sup>, a criterion that has also oriented the work by the Scientific Committee for the upcoming Brazilian Congress of Collective Health, to be held in July 2018 <sup>11</sup>.

But this is still not enough. We at *Cadernos de Saúde Pública/Reports in Public Health* are committed to gender equality as part of our mission. The three Editors-in-chief are women, we all have children, and we are perfectly aware of the effort it has taken to come this far. Fifty percent of the members of our editorial body are women, which is still not enough considering that women are the majority in the Public Health field. If we plan to increase women's presence in science, we need to increase women's visibility and guarantee more leadership positions for women. This is one of the best ways to attract young women to careers in science, while contributing to a more just, inclusive, and egalitarian world. Let us embrace diversity!

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