### **EDITORIAL**

DOI: https://doi.org/10.20453/reh.v35i3.7082



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# The role of Peruvian female dentists in science

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As in other health professions, dentistry has historically been dominated by men; however, in recent decades, this trend has shifted globally, with an increasing number of women graduating and practicing in this field (1, 2). Despite this significant increase in the workforce, the presence of women in leadership positions and scientific research remains disproportionately low. This phenomenon is referred to as "the glass ceiling," which describes the invisible barriers that women face, limiting their professional progress in research and leadership.

## OVERVIEW OF SCIENTIFIC PRODUCTION IN PERUVIAN DENTISTRY AND THE PARTICIPATION OF WOMEN

In 2022, a bibliometric study on national scientific production in dentistry during 2011-2020 showed that research has been primarily conducted by men, who showed a notable and consistent increase in the number of scientific publications, with peaks in 2019 and 2020. However, this trend was not observed in women. It was reported that the two most productive male authors published 38 and 31 manuscripts, while the two most productive female authors published 23 and 15 manuscripts during the same period (3). This disparity in scientific production is concerning, particularly because the Peruvian context has significant research gaps, as well as challenges in accessing funding, well-equipped laboratories, and internship opportunities.

In 2015, a major milestone for national scientific production was achieved with the implementation of Law No. 30220, the University Law, which promoted research and established the requirement for full professors to hold doctoral degrees and maintain regular scientific output. This reform generated the position of faculty researchers and introduced a special bonus for those who qualified. In addition, the regulation introduced standards and productivity indicators in research, which were incorporated into the university licensing process overseen by the National Superintendence of Higher University Education (SUNEDU, by its acronym in Spanish). However, in 2022, Law No. 31520 was enacted, effectively dismantling the University Law,

Online: September 30, 2025



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Guerrero ME. The role of Peruvian female dentists in science. Rev Estomatol Herediana. 2025; 35(3): 161-163. DOI: 10.20453/reh.v35i3.7082

which could represent a setback to the effort to promote more research-oriented universities. In this context, it is essential to reinstate the university licensing system and to maintain and strengthen science, technology, and innovation policies that directly contribute to creating the necessary conditions for the development of research in Peru.

### LEADERSHIP AND BARRIERS TO THE PROFESSIONAL ADVANCEMENT OF FEMALE SCIENTISTS

Globally, the low representation of women is not limited to scientific production but also to academic and administrative leadership positions (4, 5). In Peru, more than 70% of presidents and vice presidents of professional associations have been men; however, this trend appears to be positively changing. For the 2024-2026 term, Dr. Marisol Castilla Camacho was elected president of the Peruvian Prosthetics Society, becoming the first woman to hold this position since the institution was founded in 1946.

Women remain underrepresented as speakers at scientific conferences, with evidence showing that the smaller the gender gap within organizing committees, the greater the likelihood of women being invited as speakers. On the other hand, fewer female dentists are recognized as opinion leaders in the field, a phenomenon known as "the leaky pipeline effect." Female scientists and academics tend to progress more slowly or less frequently in the discipline compared to men. This may also explain the higher proportion of female speakers in short oral presentation sessions (6).

In this scenario, it is essential to promote gender equality within committees and scientific events, which requires implementing institutional actions that encourage female dentists to pursue and attain leadership roles. Increasing gender equality among dental leaders is crucial to achieving the Sustainable Development Goals (SDGs) adopted by Peru and 192 other countries, particularly SDG 3 (Good Health and Well-being) and SDG 5 (Gender Equality) (7). Failure to do so could result in the loss of valuable intellectual capital in dentistry.

To reduce gender gaps and foster greater participation of Peruvian women in science and leadership within dentistry, proactive strategies must be implemented. Some key recommendations include:

Fostering highly qualified human resources: It is essential to train new female researchers and recruit at the highest level, since limited human resources significantly hinder progress. In recent years, research groups composed of women with local training, as well as those who have completed doctoral studies abroad, have become more consolidated. Although there is limited published information on whether it is more advantageous to return to the country immediately after completing doctoral studies or after a period of professional experience abroad before repatriation, it is crucial to promote participation in international collaboration networks, which is essential for accessing not only other financial sources, but mainly established scientific cultures.

On the other hand, the limited availability of university faculty positions—within a higher education system affected by political influences in public universities—and the instability of contracts in private institutions hinder the continuity of knowledge transfer. In this context, established female researchers in the country must often wait for the opening of funding opportunities that would allow them to create their own research groups, a process that can take several years due to the structural rigidity. Furthermore, slow bureaucratic procedures frequently hinder creative and intellectual potential. One possible solution is to simplify administrative procedures for importing research equipment, materials, and supplies.

Ensuring equal pay and opportunities: Institutions must guarantee fair and transparent salaries and audit their faculty promotion practices to eliminate gender-based disparities.

**Developing mentoring programs and role models:** The appointment of more women to leadership positions would provide role models for younger generations, encouraging them to pursue similar academic and research careers. Besides, mentoring programs can enhance research productivity and foster professional development.

Institutional support and family support policies: Institutions must commit to diversity, equity, and inclusion through financial support, the implementation of sustainable policies, and compliance with accreditation standards. Developing family-friendly policies—such as establishing on-campus childcare centers, providing paid maternity leave, and allowing flexibility in faculty promotion timelines—is essential to support mothers in their academic careers. Similarly, optimizing ethics committees should be a priority for institutions, as they often restrict and delay the generation of scientific knowledge.

Finally, academic institutions must evaluate their practices and policies to determine whether the intended outcomes are being achieved. Only then will the future dental workforce be well prepared to provide the highest quality care to all patients and to increase the participation of women in leadership positions that may shape the future of dentistry in Peru.

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