MEETING REPORTS AND ANNOUNCEMENTS

Actions developed by the Brazilian Physiological Society to promote women’s participation in science

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INTRODUCTION

From September 3 to 6, 2018, the Brazilian Physiological Society (SBFis) promoted its annual congress, together with the XXXIII Annual Meeting of the Federation of Brazilian Experimental Biology Societies, from September 3–6, 2018, in Campos do Jordão (SP/Brazil). This conference and the symposium were among the most popular activities of the congress. This is important because the activities addressed important issues, including the fact that only 29% of the world’s researchers are women, and women have difficulty progressing in a scientific career. Our report discusses why and which strategies could change this reality. We believe this symposium has not only contributed to advance and bring insights to physiological sciences, but, more importantly, it inspired and motivated physiologists to think about gender balance and the contribution and participation of women in physiological science.

gender gap; physiology; science; women

and was given by Professor Pâmela B. Mello-Carpes, professor from the Federal University of Pampa, who received the Brazilian for Women in Science Award from L’Oreal, UNESCO, and Brazilian Academy of Sciences in 2017. The audience was composed of men and women, students and scientists, who filled the room during the 50-min conference, in which the speaker initially talked about underrepresentation of women in scientific and technological fields in all regions of world, and then about the Brazilian situation.

Women account for only 29% of scientists worldwide (60). Despite variations in this percentage among different regions of the world, most countries have fewer women scientists than men. These differences may be related to the importance given to science in each country: most of them have more male scientists, the ones that have a similar percentage of male and female scientists are often communist states, and female dominance was detected in countries with lower research output (39). In the United States (U.S.), the percentage of women finishing a PhD is nearing equal to that of men, but the number of women faculty members in fields such as biology, chemistry, and physics still is significantly smaller than that of men (57). In Europe, there is significant variation between countries and fields: in general, in European universities, 33% of junior faculty and only 11% of senior faculties are women (57). In South Africa institutions, 21% of full university professors are women (61). These data reveal a worldwide gender bias in science. If we observe the top academic achievement, we found only 11% of these top positions are filled by women, considering data from the U.S., Germany, Japan, China, France, United Kingdom, and Spain (38) (Fig. 1). Nobel Prize laureates are another example. Women won this prize 52 times until 2018; considering that Marie Curie received the award twice, 51 women received the Nobel vs. 856 men (including all categories) (Fig. 1).

Considering Brazilian reality, the speaker showed data regarding a higher average percentage of women who conclude the undergraduate level in Brazil compared with men. However, when these data are ranked by field, in careers related to science, the percentage of women is lower than men (41%) (27). On the other hand, current data from the Brazilian National Council for Scientific and Technological Development (CNPq) reveal that ~50% of the Brazilians researchers are women (13). This information agrees with the gender
report published by Elsevier in 2015 (20), which reported that women account for 49% of the authors of papers published by Brazilian researchers. Thus Brazil and Portugal are examples of countries with more equity in this criterion. Thus are we achieving gender equality in science? These numbers suggest yes. But are these data enough? The speaker invited the audience to think about who are in the leadership positions in science, the principal investigators of Brazilian laboratories, the coordinators of PhD programs, the presidents of scientific societies, the fellows of Productivity in Science (a fellowship given by CNPq to Brazilian researchers based on their scientific contributions), the editors of scientific journals, the speakers in science conferences, and other important Brazilian scientists who the audience may know. She asked whether the person who came to mind for each one of these positions was a man or a woman.

In fact, Pâmela showed data that reveal that equity in science in Brazil is far from being a reality. Only 14% of the members of the Brazilian Academy of Science (ABC) are women, and a woman has never been elected as an ABC president during its over 100-yr history (21). Among the fellows of Productivity in Science of CNPq, 64% are men (24) (Fig. 2). Few examples of scientific societies presided over by women can be mentioned; SBFis is an example. Apart from these data from Brazil, Dr. Mello-Carpes presented data showing that, in high-impact journals, women rarely are the first or corresponding authors (58), and frequently and more alarming, the gender of authors has an impact on the peer review process (35). Furthermore, men make up a higher number of speakers in scientific meetings than women, even when the organizing committee controls for representation of women and men (17, 46).

The conference ended with the statement that broader ranges of measures should be taken to overcome the gap in gender diversity in science and to ensure equal opportunities for women to advance in a scientific career. Science needs and wants women developing research (4). Despite the lack of studies directly related to the impact of diversity in science, studies in the business field show that an equal degree of female representation on the board of a company increases its financial performance and promotes innovation and productivity (7, 32, 63). We can assume that, in some degree, these advantages would occur in science too. In fact, it was shown that gender diversity has a positive impact on team research innovation (18), and gender diversity allows science teams to be more innovative and more creative (45). Recognition and appreciation of the role of women in science depends on several approaches: to avoid “clichés” and stereotypes around women scientists (6); to stimulate women and girls to follow a scientific career (examples of successful women scientists are important) (5, 40); to adopt strategies that favor gender equality in science [for example, it was demonstrated that a real blind peer review process in grant support applications increases the number of awarded projects to female scientists (11)]; and to give support to women scientists regarding maternity and to recognize the gap in scientific productivity during pregnancy and breastfeeding period (26, 37), among others. Discussion was left for the symposium “Women in Science” that was held 2 days after the conference, as Professor Pâmela would be one of the speakers. After the session ended, several participants came to the speaker to discuss the theme and its importance, to report experiences of gender discrimination throughout their scientific career, to praise the conference, and other things. All of these expressions have confirmed the relevance and urgency of intensifying discussions on this topic.

The symposium entitled “Women in Science” was held on September 5. Four women scientists were invited to discuss important topics that affect women’s careers in science:

- Alice Rangel de Paiva Abreu: sociologist, awarded with the National Order of Scientific Merit from the Brazilian Government, Emeritus Professor of Federal University of Rio de Janeiro, RJ.

Fig. 1. Gender gap in science begins early in Bachelor degree studies and continues through the scientific career. Data are from the L’Oreal Foundation (38).

Fig. 2. Women and men National Council for Scientific and Technological Development (CNPq) fellows in different career stages from 2013 to 2017. Note that there is equality until the PhD level. Among the Productivity in Science Fellows (top of career), 64% are men. Data are from CNPq (13).
Pâmela B Mello-Carpes: neuroscientist, Fellow 2017 L’Oreal Women in Science in Brazil, Associate Professor of the Federal University of Pampa Uruguaiana, RS.

Fernanda Staniscuaski: biologist, Associate Professor of the Federal University of Rio Grande do Sul, RS, coordinator of the Parent in Science campaign.

Mauren Assis de Souza: physical educator, Assistant Professor of Federal University of Pampa Uruguaiana, RS.

The symposium lasted 2 h, and the program included four talks of 20–25 min each, followed by audience questions and panel discussion. This session attracted a large number of delegates (conference hall capacity filled and standing room only).

Maria Cláudia Irigoyen, Professor at the University of Sao Paulo, SP, was the chairperson of the symposium. In her introductory remarks, Professor Maria Claudia explained that gender differences and the importance of women participation in science are not a novel issue, but remain a major issue (50). Furthermore, the fact of discussing this theme can be considered a great advance. The chairperson introduced the speakers with a brief summary of their experiences in the symposium’s thematic and explained how the session would be conducted. This session was covered by a Brazilian television network, which intends to produce a broadcast on the subject.

The first speaker was Alice Rangel de Paiva Abreu, who has worked for a long time in the theme of gender and science. Her presentation, “Thinking Gender and Science: What Has Changed in the Last Twenty Years?”, showed an important transformation in the way the problem is described and understood. It evolved, as said by Londa Schiebinger (53), from “fix the numbers” to “fix the institutions” and “fix the knowledge.”

In fact, 23 yr ago, at the Beijing World Conference on Women in 1995 (59), the diagnosis was already presented: too few women in science, slow-moving careers, and a strong underrepresentation of women at the top level in research decision-making. More than 20 yr of research have shown that having more women in science was not only a question of human rights, but also a way to ensure that countries used more than just one-half of its manpower (36, 62). It showed that a more equal science is a better science (45). The wealth of evidence about gender equity in science and technology also showed that the focus must shift from individual support measures to the structural transformation of institutions (62).

An effective implementation of gender equality policies is, however, very challenging (62).

The first step is to have reliable statistics; Prof. Abreu highlighted the fact that, “We value what we measure but we very often do no measure what we value.” According to her, to have a clear picture of the situation of women and men in science is vital. Looking at the Brazilian picture, according to the CNPq statistics, it was shown that, for many years now, women are the majority of MSc and PhD graduates (29).

However, if you look at the research scholarships, a very competitive program that provides scholarships to the best researchers in the country, women do not attain more than 23–25% of the highest level, and 32% for the program as a whole (29). To have more indicators to understand why this is so, including the way that scholarships are granted and how committees are formed, is essential. Contrary to the MSc and PhD scholarships, accorded through the graduate programs in a decentralized process, the research scholarships are distributed by national committees of the different disciplinary areas, where sometimes the women’s representation is very low.

Despite the fact that women account for high number of MSc and PhD graduates, more women than men will leave at various stages of their career, creating a “leaky pipeline” (28, 56). Different processes of attraction, training and qualification, recruitment, and retention have different impacts on men and women and lead to many losses of women scientists along the way (28, 56).

To ensure a structural transformation in institutions toward greater gender equality is not easy. Prof. Abreu described many examples of programs from Europe and United States where gender equity programs were implemented1 and how the evaluation of the results showed the difficulty in the implementation of measures that change institutional values and norms toward a more equal role of gender in research. The main transformation in the way we think of gender and science is, however, the fact that increasingly one recognizes that more women in science leads to a better science (45). The speaker highlighted not only that more diverse groups and research teams lead to a more creative knowledge development, but also that research itself must consider sex differences. Many examples exist on how ignoring sex differences was detrimental to important medical results (cardiovascular diseases have different symptoms in men and women, and men and women react differently to the same treatments) and resulted in many adverse outcomes in innovation areas (great number of fatal deaths because security belts in cars were initially only tested in men), and today it is clear that clinical trials must include both men and women (5, 22).

The speaker finished her presentation, mentioning the eight transformative actions to achieve greater gender equity in science and technology listed by the Gender Working Group of the United Nations Commission on Science and Technology for Development in 1995 (23), which are still relevant today, and the forthcoming report of GenderInSITE, entitled “Pathways of Success,” which looks at “Bringing a Gender Lens to the Scientific Leadership of Global Challenges.” The eight transformative actions (23) are as follows: 1) gender equity in science and technology education; 2) providing enabling measures for addressing gender inequalities in scientific and technological careers; 3) making science responsive to the needs of society, the gender dimension; 4) making science and technology decision making more “gender aware”; 5) relating better with “local knowledge systems”; 6) addressing ethical issues in science and technology, the gender dimension; 7) improving the collection of gender disaggregated data for policy makers; and 8) providing equal opportunity for entry and advancement into larger scale science, technology, engineering, and mathematical disciplines and innovation systems.

In the second presentation, Pâmela Mello-Carpes talked about “Possible Factors Associated with Women’s Difficulty to Progress in the Scientific Career.” She started by recounting the gender gap numbers presented earlier and invited the

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1The programs mentioned are as follows: EGERA (https://www.egera.eu/), GARCIA (http://garcia-project.eu/), GenPORT (https://www.genderportal.eu/), ADVANCE (https://www.nsf.gov/crssprgm/advance/), and Athena SWAN (https://royalsociety.org/topics-policy/diversity-in-science/athena-swan-charter-awards/).
audience to think how they could explain this gap. Some possible explanations were discussed:

1. Biological differences between women’s and men’s brains. The speaker presented some data from neuroscience researches describing sex differences regarding brain connectivity (33). Although there are different patterns associated with sex, there is a great overlap in the cerebral volume and the cortical thickness between men and women (52). This means that, if you randomly remove the resonance image from one brain, it would be very difficult to tell if it were from a man or a woman; that is, the male and female brains are much more similar than different. These sex-related brain differences do not imply differences in important characteristics, such as intelligence and leadership needed to be a scientist (19). Biological differences should not be used to explain the science gender gap.

2. Gender-implied bias. The implied bias refers to the dissociation between what a person believes and would like to do, and hidden influences of implied associations. The implied bias can explain our socially constructed understanding about the role of women and men in our society: even when we consciously consider that there are no important differences in these roles, these social understanding unconsciously influence our actions (12, 51). In science, however, the gender bias presence was proved: men present reluctance to accept it, which makes it difficult to adopt strategies to avoid it (31).

3. Sexual harassment in science. Sexual harassment is present in the scientific environment, and it is an important factor that helps to explain the distance of the scientific career by many women. Recently, we are addressing more this important issue and discussing the importance of handle it (8, 30, 43).

4. Culture of domestic work as female work. Considering that in most of Brazilian families the house working was attributed mostly to women (2), the woman’s work journey is much longer than a man’s. Yet, considering that work in science generally involves work beyond the laboratory hours, including article review, grant applications, etc., women end up taking less time to devote themselves to it, lagging behind in scientific competition with men.

5. Maternity and care responsibility in general. It is not a novelty that women are commonly the main caregiver of children, which requires time and dedication. Because of being the caregiver, during pregnancy and the first months of a baby’s life, the mothers need to be away from the laboratory, so their scientific production decreases, and the competitiveness is affected. In general, women are negatively judged if they take a maternity leave; in the same way, they are also negatively judge if they do not take the leave (44). It is important to consider that, even women who do not have children can suffer from the burden of care for others; this is because the care of relatives, like elderly parents, often ends up as the responsibility of women (55).

6. Less recognition of successful women scientists. Although we have examples of successful women scientists, they are generally less recognized than male scientists. Most of the scientists who we learn about in school or watch in media are men. This fact leads to a lack of examples, which influences our choices in life, so girls and young women, although unconsciously, understand that this career is more appropriated for men, and so do not choose it (34).

Obviously, this is a complex theme, so many additional factors could influence the gender gap in science, but the talk was limited to the presentation of evidences and discussion of the ones cited.

The third speaker was Fernanda Staniscuaski. She talked about “The Impact of Motherhood in Women’s Scientific Career.” Fernanda started relating her personal experience and the impact that motherhood had in her scientific life: her scientific publications index, which was growing in that phase of her career, dropped after the birth of her first child, so she was not able to obtain research grants in subsequent years. Exposing this situation in a social media post, several women commented saying that they had been, or were passing, through the same situation. The reports revealed, in general, that motherhood has a negative impact on women’s scientific careers. From this, Fernanda and some colleagues started the Parent in Science project. The group is composed of scientist mothers (and one father) who decided to face the mission of bringing knowledge about an issue that, in general, was ignored in the scientific environment: the impact of parenthood on the scientific career.

The speaker showed preliminary data from the Parent in Science research (unpublished), in which were collected data from 1,299 respondents (until the moment of the presentation) through an online questionnaire. The data showed that, most of times, the mother is the main caregiver of children, and in 54% of the cases, she is the unique caregiver. Consequently, mothers had a shorter time to work at home, and 45% did not have time at all. Scientists with children experienced a similar impact that Fernanda observed in her scientific publications: a decrease following childbirth. Such a drop was never experienced by women who had no children. As a consequence, 81% of the female scientists consider the impact of motherhood in their career as negative. The project data are being expanded now to include more respondents.

In the sequence, the speaker presented the few initiatives we have in Brazil to try to minimize the negative impact of maternity in women’s scientific careers: 1) in 2014, CNPq granted a 1-yr extension of the scientific productivity fellowship for women who gave birth during the grant period (14); 2) CNPq and CAPES (Coordination of Improvement of Higher Level Personnel/Brazil) granted a 4-mo extension of Master and PhD fellowships for women who gave birth during the development of their courses; and 3) in 2017 the Serrapilheira Institute (a new Brazilian nongovernmental research funding institution) considered motherhood in its first funding program, extending the year of PhD obtention 1 or 2 yr, according to the number of children (54). Obviously, these initiatives are not enough. Other countries have more significant initiatives. As an example, the speaker cited the Maternity Fund from Australia, a program that provides funding for female researchers to hire a research/laboratory assistant to progress research.

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2 See https://www.parentinscience.com/sobre-o-parent-in-science.
while the primary researcher is on maternity leave, or to assist the primary researcher following the maternity leave (1).

The speaker ended discussing what we need to do to diminish the negative impact of motherhood on women’s scientific careers (26). Between the options suggested, we highlighted the necessity to consider the maternity leave period in the funding agency’s proposal evaluations, and, going beyond the academic and scientific field, to the political sphere, we need a real paternity leave, since in Brazil women are granted a 4- to 6-mo maternity leave, whereas men can have only 5–20 days of paternity leave. She also talked about the First Maternity and Science Brazilian Symposium, which occurred in Porto Alegre/RS, in May 2018 (48). The event was a great opportunity to get together scientists, grant agencies, and policy makers to discuss this topic. All of the conferences and discussions are available online (49).

The fourth talk was given by Mauren Assis de Souza, and it was entitled, “The Importance of Science Diffusion as a Career Option For Girls.” As previous speakers, Mauren started mentioning that examples of successful women scientists are important, and they are rarely in school and other environments that influence young people’s career choices (10). Next, Mauren highlighted the importance of including female examples in the scholar curriculum, demonstrating their contributions to

Table 1. Summary of the main topics covered in the activities and suggestions for ways to correct the concerns derived by the discussions

| Topic                                                                 | Suggestions                                                                 |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Only 29% of the world’s researchers are women.                       | ● Attract more women to science by:                                          |
|                                                                     | 1. Avoiding “clichés” and stereotypes around women scientists.               |
|                                                                     | 2. Stimulating women and girls to follow a scientific career (examples of  |
|                                                                     |    successful women scientists are important).                              |
|                                                                     | 3. Promoting gender equity in science and technology education.              |
|                                                                     | 4. Providing enabling measures for addressing gender inequalities in        |
|                                                                     |    scientific and technological careers.                                    |
|                                                                     | 5. Proving equal opportunity for entry and advancement into larger scale   |
|                                                                     |    STEM disciplines and innovation systems.                                  |
| There are stereotypes around women scientists.                       | ● Discuss this issue as a problem of all scientists (men and women),       |
|                                                                     |    collecting and sharing data, and promoting the evidence that the        |
|                                                                     |    diversity improves science quality.                                      |
|                                                                     | ● Stimulate the creation of a women’s committee in scientific societies,   |
|                                                                     |    to handle the gender balance.                                           |
|                                                                     | ● Develop activities related to gender and science in scientific events,   |
|                                                                     |    encouraging the discussion of this theme, and stimulating initiatives to|
|                                                                     |    promote gender balance.                                                 |
| Women have difficulty achieving top-level positions and leadership   | ● Eliminate the myth about brain differences between man and woman. The    |
| positions.                                                          |    differences do not imply differences in important characteristics to a |
|                                                                     |    scientists, such as intelligence and leadership.                         |
|                                                                     | ● Disclosure women scientists’ work, promoting role models.                |
|                                                                     | ● Awake colleagues about the gender bias and the implicit bias, discussing |
|                                                                     |    ways to avoid this.                                                      |
| Successful women scientists are less recognized.                     | ● Stimulate an effective implementation of gender equality policies in      |
|                                                                     |    academia institutions.                                                   |
|                                                                     | ● Promote policies to avoid gender bias.                                    |
|                                                                     | ● Consider maternity leave in the women’s curriculum evaluation.           |
| Women rarely are the first or corresponding authors in high-impact   | ● Disclosure women scientists work, promoting role models.                   |
| journals and the gender of authors has an impact in the peer review  | ● Include successful women scientists’ examples in school classes.          |
| process in journals and fund agencies.                              | ● Promote the real blind peer review process in papers and grant support   |
|                                                                     |    applications.                                                            |
|                                                                     | ● Incentivize the formation of a gender mixed and diversity body review    |
|                                                                     |    committee.                                                               |
|                                                                     | ● Provide a list of senior women scientists who could act in specific field’ |
|                                                                     |    s review board of fund agencies and scientific journals.                |
| Men make up a higher number of speakers in scientific meetings than   | ● Encourage gender-mixed organizing committees for scientific meetings.     |
| women.                                                              | ● Control the representation of women and men in conferences, adopting a    |
|                                                                     |    gender-inclusive policy.                                                 |
| Maternity and culture of domestic work as female work.               | ● Give support to women scientists regarding maternity (policies, funding). |
|                                                                     | ● Recognize the gap in scientific productivity during pregnancy and the    |
|                                                                     |    breastfeeding period.                                                    |
|                                                                     | ● Extension of the fellowship for women who gave birth during the grant    |
|                                                                     |    period.                                                                  |
|                                                                     | ● Consider motherhood leave break in the curriculum evaluation for funding |
|                                                                     |    agencies’ proposal evaluations.                                          |
|                                                                     | ● Provide funding for female researchers, to hire a research/laboratory    |
|                                                                     |    assistant to progress research while the primary researcher is on       |
|                                                                     |    maternity leave, or to assist the primary researcher following the       |
|                                                                     |    maternity leave, taking as an example the Maternity Fund from Australia. |
|                                                                     | ● Beyond the academic and scientific field, in the political sphere, fight |
|                                                                     |    for a real paternity leave (some countries already have, but in Brazil   |
|                                                                     |    it is not a reality).                                                     |
|                                                                     | ● Discuss the issue in the scientific field and academia spaces.            |
| Sexual harassment in science.                                        | ● Assume that sexual harassment occurs and is an important issue to handle  |
|                                                                     |    in the scientific community.                                             |
|                                                                     | ● Valorize actions to avoid sexual harassment.                              |
| Great difficulty of mobility that women face in comparison with men, | ● Promote facilities to promote women scientific mobility, as specific     |
| which reflects in less national and international scientific         |    grants, additional funds that allow women to travel to conferences and    |
| cooperation.                                                        |    scientific missions with their child, and others.                        |
| Medical and biological research must consider sex differences.       | ● Stimulate that clinical trials include both men and women.                |
|                                                                     | ● Stimulate that basic research/animal studies include both male and        |
|                                                                     |    female animals.                                                          |

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science, and to disclose and recognize the work of women scientists (10).

Mauren showed data revealing that most of the young scholars do not even consider being a scientist. The percentage of girls who do not want to be a scientist is greater than the percentage of boys (9, 16). Additionally, a previous study developed in South Brazil showed that only 4% of high school students of a public school were able to name a female scientist (40); on the other hand, the same study showed that an educational theoretical-practical intervention could help students to understand the contributions of women to science (29).

The talk continued, with examples of how to bring close students and scientists, including women: it could be done through outreach activities coordinated by women scientists (10, 16, 40, 42). Considering the importance of science to society and the advantages of diversity in science (45), this type of activity should be considered a priority.

The speaker also shared some Brazilian initiatives to stimulate research and university professors to develop actions in this topic, such as 1) “Girls in the Exact Sciences” (Elas nas Exatas), a partnership between Elas Fund, Carlos Chagas Foundation, and Unibanco to support projects aiming to approximate girls to exact and technological sciences (25), and 2) “Girls in Exact Science, Engineering and Computing,” a call from CNPq whose objective is to support projects aimed to train girls for the careers in exact sciences, engineering, and computing in Brazil (15). The purpose of these initiatives is to stimulate the interest for science in girls and young women, at both elementary and high school levels of education, and help to reduce students’ evasion in these careers.

After the presentations, the audience contributed with different questions and comments addressing all speakers and further enriching the symposium. Other factors that affect women’s scientific careers were discussed, such as the great difficulty of mobility that women face in comparison with men, which reflects in less national and international scientific cooperation. The main topics covered in the activities and suggestions for ways to correct the concerns derived by the discussions are summarized in Table 1. The symposium needed to be concluded, with still many delegates raising comments and wishing to share their own experiences, since this topic always generates important discussion. In fact, conversations and interactions between the audience and speakers continued outside afterwards.

We consider that, altogether, both activities promoted an important debate on the participation of women in science, especially in physiology. Four important actions were proposed from the discussion on women in science. First is the creation of a women’s committee at SBFIs. This committee was inspired by the committee from the American Physiological Society (3) and will be responsible for discussing the participation of women in physiological sciences in Brazil, helping SBFIs to promote gender balance in the organization of its board of directors and committees, and also in speakers invited to meetings and events. Second is the organization of a list of senior women physiologists who could act in the review board of Brazilian funding agencies and scientific journals, since this is a possible way to diminish the disadvantages that women find in peer review processes (41). Third is to request a blind peer review process in research grant-in-aid applications, since it was shown that this can increase the number of awarded projects to female scientists (11). CNPq, the Brazilian national agency for research support, can provide an anonymous, complete, extensive, and detailed extract of the curriculum vitae through the Lattes platform, which can be used in these evaluation processes. Fourth is the development of activities related to gender and science in the Annual Congress of SBFIs in the years ahead, since it will encourage the discussion of this theme and stimulate initiatives to promote gender balance (42). The SBFIs president, Professor Maria José Campagnole-Santos, was present in both events, supported the initiatives.

These two activities, both the conference and the symposium, were among the most popular in the congress. It could be inferred, therefore, that the theme was relevant for the entire scientific community, including men and women, since we had a mixed-gender audience. Most scientists and students enrolled in the meeting seemed to agree with that, participating in great number and contributing to the discussions. We believe that this symposium has not only contributed to advance and bring insights to physiological sciences, but, more importantly, it inspired and motivated physiologists present at the sessions to think about gender balance and the contribution and participation of women in physiological sciences. Moreover, it raised the issue of the need to develop strategies, educational actions, and public policies to more effectively promote participation of women in science. From our point of view, changes in education and governmental policies are the most appropriate ways to recognize women scientists’ contributions to physiology and science in general (12).

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DISCLOSURES

No conflicts of interest, financial or otherwise, are declared by the authors.

AUTHOR CONTRIBUTIONS

P. B. M.-C., M. J. C.-S., and M. C. I. conceived and designed research; P. B. M.-C., A. R. D. P. A., F. S., M. A. d. S., M. J. C.-S., and M. C. I. performed experiments; P. B. M.-C., A. R. D. P. A., F. S., M. A. d. S., M. J. C.-S., and M. C. I. analyzed data; P. B. M.-C., A. R. D. P. A., F. S., M. A. d. S., M. J. C.-S., and M. C. I. interpreted results of experiments; P. B. M.-C. prepared figures; P. B. M.-C., M. J. C.-S., and M. C. I. drafted manuscript; P. B. M.-C., A. R. D. P. A., F. S., M. A. d. S., M. J. C.-S., and M. C. I. edited and revised manuscript; P. B. M.-C., A. R. D. P. A., F. S., M. A. d. S., M. J. C.-S., and M. C. I. approved final version of manuscript.

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