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PERSPECTIVAS
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Brazilian female scientists on the move

Cientistas brasileiras em movimento

Científicas brasileñas en movimiento

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The advancement of democracy and social justice are intrinsically related to the promotion of gender equity policies. As several studies have shown, the face of social inequality in Brazil is that of a woman [1]. In addition to poverty, several other forms of violence resulting from sexism [2] and misogyny exist, which are dramatically accentuated for black, indigenous, and transsexual women [3]. In crisis situations, such as the one experienced by the COVID-19 pandemic, these women are always the most affected [4,5].

This article draws attention to the various ways in which gender inequality is expressed within the Brazilian academic picture and how female scientists are organizing to face them.

The obstacles faced by women who seek to access the academic world and build a successful carrier are numerous, especially within the so-called "hard sciences" [6,7,8]. The higher the prestige of a university and research center, the lower the probability women being present as students, faculty members, or leaders [9,10,11]. Within a university administration, the situation is no different [12]. "Being a woman" often places them in the condition of managing conflicts between students and teachers, reiterating positions related to care. According to a United Nations Educational, Scientific and Cultural Organization (UNESCO) report [13], female participation in hierarchical positions related to decision-making is lower when compared to men. The access of women to funding and to prominent positions is lower, a conjuncture that puts them at a disadvantage within academic productivity. The COVID-19 pandemic further exposed these inequalities, generating profound impacts on women's scientific production, according to Castro & Chaguri [14]: "*...every day, women scientists are pushed – during a pandemic or otherwise – into universes of academically confined knowledge production, facing mistrust or complacency as to the scope and potential of their ideas and innovations. In the extraordinary times of social isolation, ordinary difficulties are even more present, hindering us from following the painful negotiation between public and private on which we organize our careers*".

In the case of scientists who are mothers, the lack of recognition of parental rights results in prejudice and discrimination in the university environment, aggravated by the lack of public policies. As advisors to graduate students, we have witnessed the very unequal toll imposed on men and women who become parents during their academic development. We thus highlight the work that Parent in Science has developed in raising society's awareness to the situation of researchers who are also mothers. In a survey conducted in 2020 [15,16], with more than 15,000 respondents, the group demonstrated

that motherhood and the age of the child significantly interfered with the academic productivity of female researchers. Of the respondents with children under one year of age, 61.1% of the fathers were able to publish articles, against only 32% of the mothers. They also identified that this decrease in productivity is maintained in the mother-scientists' carrier for four to five years after the child's birth. These data are important to guide public policies to support mothers in the academic field, especially within the most vulnerable groups, since motherhood should not be identified as a problem, but as a women's fundamental right, as established by the prerogatives of gender equality of the *Sustainable Development Goals* (SDGs) of the United Nations (UN).

Today, the subject of under-representation of women in science is much more present in the debate within universities, research institutions, and agencies that promote science and technology thanks to the growing activism of researchers. This activism has already produced some results, such as the change made by the Brazilian National Research Council (CNPq) in the Lattes Platform (https://lattes.cnpq.br/) in 2021, in which they allow graduate students and scientists to register their periods of maternity leave; and *Law n. 13,536/2017* [17] that grants maternity leave for research fellows. Similarly, it is important to mention institutional policies and actions, such as the creation of committees in universities and other research and teaching organizations to promote gender equity and combat sexual harassment. In addition to promoting programs and events that give visibility to the role and to the important contributions of women in the various areas of knowledge. As an example, we highlight the debate *A Importância de uma Política Dirigida para Mulheres na C&T* [*The Importance of a Policy Directed Toward Women in S&T;* available on the YouTube: https://www.youtube.com/watch?v=7ppM4QE0fOM], promoted by the CNPq on the International Women's Day, and the integrated agenda of events of Oswaldo Cruz Foundation (Fiocruz), related to the International Day of Women and Girls in Science [18].

One of the main combat strategies for Brazil's female scientists is the constitution of groups and networks in different areas of knowledge. We have already mentioned Parent in Science, a pioneer in the defense of mother scientists; a rapid search in digital media, however, shows that feminist associativism in academia is gaining more and more ground. Multiple projects integrate women from different areas of knowledge and regions of the country, such as: Meninas e Mulheres na Ciência [Girls and Women in Science], Mulheres na Bioconstrução [Women in Bioconstruction], Mulheres na Ecologia [Women in Ecology], Rede Brasileira de Filósofas [Brazilian Network of Women Philosophers], Matemáticas Negras [Black Women Mathematicians], Mulheres Negras PhD's [Black Women PhD's], Mulheres e Inovação [Women and Innovation], Mulheres e Meninas na Fiocruz [Women and Girls at Fiocruz], Meninas nas Ciências Exatas [Girls in the Exact Sciences], Meninas Negras na Ciência [Black Girls in Science], Mulheres Negras Fazendo Ciência [Black Women Making Science], Mulheres Históricas [Historical Women], Mulheres na T.I. [Women in IT], Mulheres na Computação [Women in Computing], Cientistas Feministas [Feminist Scientists], Rede Mulheres na Zoologia [Women in Zoology Network], Mulheres na Ciência de Dados e Estatística [Women in Data Science and Statistics], among others. More recently, in the context of the COVID-19 pandemic, the Brazilian Network of Women Scientists (RBMC) was created, of which we are honored to join the executive group.

Another aspect that marks women's activism in science is the proposition of projects aimed at stimulating the interest of elementary school girls in the areas of STEM [19]. In a non-exhaustive survey, the RBMC identified dozens of projects, led by STEM researchers, that seek to develop in public school girls the courage to dream of university. By way of example, we can mention: Manas Digitais [Digital Sisters/Federal University of Pará]; Meninas velozes: Meninas Acelerando no Fundamental [Fast Girls: Girls Speeding Up in Elementary School/University of Brasília]; Meninas na Computação [Girls in Computing/Federal University of Amapá]; Meninas na Ciência de Dados [Girls in Data Science/Federal University of Bahia]; Futuras Cientistas [Future Scientists/Northeast Strategic Technology Center]; Pequenas Cientistas [Little Scientists/Federal University of São Carlos]; Alfabetização Científica e sua Representatividade no Ambiente Escolar [Scientific Literacy and its Representativeness in the School Environment/Federal University of Pernambuco]; ComCiências das Minas [Girls' ConScience/Catholic University of Minas Gerais]; "A Menina que Calculava" ["The Girl Who Calculated"/University of Brasília]; Investiga Menina! [Girl, Research!/Federal University of Goiás]; #include<gurias> [State University of Rio Grande do Sul]; Girl Up Brasil, among many others. It is important to highlight that most of these projects are conducted with little or no institutional

support, in an academic culture that generally undermines outreach activities. In the text *Mulher Preta e Cientista: Transgredir para Resistir* [Black Woman and Scientist: Transgress to Resist], Hilário et al. [20] draw attention to another especially important aspect: to advance gender equity in science it is also necessary to strengthen the formation of teachers "*to deal with real children: black, poor, white, indigenous, quilombolas* (...)*. Train teachers to teach students to transgress that which was established for them. Create a culture of curiosity and discipline*".

This observation brings us to the last point we would like to address, the importance of public policies sensitive to the diversity of experiences that are contained in a women's trajectories. The need to partition by race, gender, and social class has been increasingly evidenced in the debates aimed at guiding academic practices in the areas of Science and Technology (S&T) and institutional policies aimed at diagnosing situations of inequalities; leading their objectives to combat these inequalities and, above all, monitoring the effectiveness of the actions implemented.

In this sense, the RBMC has argued that public policies aimed at promoting gender equity in science, as well as academic practices adopted by universities, research institutions, and academic development agencies should observe four dimensions: intersectionality, fighting against regional inequalities, intergenerational commitment, and the defense of women's protagonism and participation in decision-making spaces.

Brazil's female scientists on the move want to be at the forefront of the policy of their universities, they want to be heard and have their opinions considered in the formulation and implementation of S&T policies. They want to promote new academic practices that guarantee to young researchers an academic environment in which they are not victims of sexual and moral harassment and in which their values are not challenged by being a woman. They want their work and discoveries to be considered and for the pioneers to be recognized and valued in the history of science.

Social and racial quotas have made universities more diverse and, therefore, promoted a much more favorable environment for innovation in S&T. But we need to go further. An important debate currently in progress refers to the necessary expansion of transsexual students in undergraduate and graduate school. In this same direction, it is necessary not only to include black and indigenous women but to build the political and institutional conditions so that their knowledge and epistemologies find a place in the bibliographies of the courses offered. On the move, women scientists strive for inclusion, recognition, and visibility and they are contributing, in this process, to the promotion of a more collaborative, supportive, creative, and innovative academic practice. That is, a feminist scientific practice [21] that allows men and women, in their diversity, to fully exercise their work and contribute to the development of Brazilian science.

Contributors

Both authors elaborated the text.

Additional informations

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