Women in science: a case report of the 'My summer at Fiocruz' project

Mulheres na ciência: relato do caso do projeto 'Meu verão na Fiocruz'

Constância Ayres[1], Ana Cecília Cuentro[2,3], Marilia Nascimento[4,5]

DOI: 10.1590/0103-11042021E115I

ABSTRACT From January to February of 2020, the 'My summer at Fiocruz' project was carried out at the Aggeu Magalhães Institute (IAM), an Oswaldo Cruz Foundation (Fiocruz) unit located in the state of Pernambuco, whose aim was to allow girls from public high schools to access the institution's laboratories in order to develop short scientific research projects, and additionally, to debate the theme of the feminist struggle to reduce gender and race inequality in the field of science. This article is a case study about the project. The project was publicized by the Feminist Observatory of the Northeast at eight schools, the application for selection was done by sending one-minute videos, and the mentoring was carried out by women researchers from five IAM laboratories. In total, 12 girls were selected, who attended the laboratories from January to February 2020. The project culminated with an event held at the institution on February 11, 2020, the date on which the International Day of Women and Girls in Science is celebrated. Finally, the main difficulties for access to undergraduate research programs were identified, as well as the ways that could be followed to accelerate such a process in academia, mainly in the field of health.

KEYWORDS Gender inequality. Racism. Health. Feminism.

RESUMO *No início do ano de 2020, foi realizado no Instituto de Pesquisas Aggeu Magalhães (IAM), unidade da Fundação Oswaldo Cruz (Fiocruz) em Pernambuco, o projeto 'Meu verão na Fiocruz', cujo objetivo era permitir o acesso de meninas de escolas públicas do ensino médio aos laboratórios da instituição, para desenvolver curtos projetos de iniciação científica e, adicionalmente, debater sobre o tema da luta feminista para redução da desigualdade de gênero e raça no campo da ciência. Este artigo é um relato de experiência sobre o projeto. A divulgação do projeto foi realizada em oito escolas pelo Observatório Feminista do Nordeste, a inscrição para seleção foi feita por meio do envio de vídeos de um minuto, e a orientação nas pesquisas foi realizada por pesquisadoras de cinco laboratórios do IAM. No total, foram selecionadas 12 meninas que frequentaram os laboratórios de janeiro a fevereiro de 2020. O projeto culminou com a realização de um evento ocorrido no Dia Internacional das Mulheres e Meninas na Ciência. Ao final, foram identificados gargalos que dificultam o acesso de jovens de comunidades periféricas aos programas de iniciação científica, e os caminhos que podem ser seguidos para acelerar esse processo na academia, principalmente no campo da saúde.*

PALAVRAS-CHAVE *Iniquidade de gênero. Racismo. Saúde. Feminismo.*

[1] Fundação Oswaldo Cruz (Fiocruz), Instituto Aggeu Magalhães (IAM) – Recife (PE), Brasil. *tans@cpqam.fiocruz.br*

[2] Universidade Federal da Paraíba (UFPB) – João Pessoa (PB), Brasil.

[3] Observatório Feminista do Nordeste – João Pessoa (PB), Brasil.

[4] Universidade Federal de Pernambuco (UFPE) – Recife (PE), Brasil.

[5] Observatório Feminista do Nordeste – Recife (PE), Brasil.

When the black woman moves, the whole structure of society moves with her.
Angela Davis

Introduction

In Brazil, women correspond to 60% of graduate students with scholarships funded by the Coordination for the Improvement of Higher Education Personnel (Capes), as well as in teacher training programs[1]. However, this number decreases throughout academic training until the occupation of definitive positions in academia. In the Lattes Platform, on the page of the National Council for Scientific and Technological Development (CNPq), up to 2016 (the most updated data available), 53% of women with a master's degree versus 47% of men were registered; and with a doctorate degree, this number drops to 47.5% of women versus 52.5% of men. This demonstrates that, along the journey of academic life, there is a bottleneck for women: they do not complete the necessary degree, or do not achieve the necessary visibility, and consequently do not occupy academic positions in the same proportion as men – much fewer assume leadership positions of power. A great example of this is the health area, which is constituted mostly by women. If we consider a secular institution of such importance as the Oswaldo Cruz Foundation (Fiocruz), in 120 years of existence, there has only been one woman in the presidency. If we also take race into account in this analysis, this number is infinitely smaller for black women. In a survey conducted in 2018 by the Brazilian Institute of Geography and Statistics (IBGE), only 10.4% of black women complete higher education compared to 23.5% of white women. When we analyze the leadership positions at the main teaching and research institutions in the country, the absence of black women is glaring.

The continuation of academic careers for many girls is compromised by the same ideas that have existed for centuries, the same ones that have prevented women from studying and voting, the belief that their entry into public life would cause their distancing from private life, which would prevent women from exercising their natural aptitudes, from fulfilling their domestic activities and their role in the education of their children[2]. Believing this, many young women researchers find themselves at some point in their lives having to decide between getting married and having children or pursuing a master's or doctoral degree. This process of unequal distribution of power between different genders, transmitted from generation to generation, is socially constructed and is at the basis of the formation of the theory of knowledge (epistemology), and has been negatively impacting the occupation of leadership positions by women and the visibility of the few women who occupy these positions.

For many poor black girls, the possibility of going to university and pursuing an academic career is denied. The racist, sexist, and classist bases that structure our society[3,4], which have slavery and colonialism as legacies that still persist strongly among social relations, create everyday barriers so that these girls are unable to reach institutions, and when some of them manage to occupy these spaces, most of the time, the same structure prevents them from continuing their careers. Therefore, when we analyze the pattern of people who are in doctoral programs occupying definitive positions of power in teaching and research institutions, the profile is of white middle-class men. How to change this reality?

This is a global problem that is not restricted to the field of science, which is why it has been debated in several international spheres, with several multilateral organizations establishing agendas to solve the problem in the medium and long term. One of the Sustainable Development Goals (SDG 5) of the 2030 Agenda is to achieve gender equality and empower all women and girls. In this context, the United Nations published

Resolution A/RES/70/212, on December 22, 2015, which aims to give access and ensure full and equal participation of women and girls in science and technology. Thus, February 11 was named International Day of Women and Girls in Science, which focuses on the realization of activities that educate and create awareness about the gender inequality that permeates all fields of society. To celebrate the international date, in October 2019, Fiocruz, through the Vice-Presidency of Education, Information, and Communication (VPEIC), launched the public notice 'Mais meninas na Fiocruz' (More girls at Fiocruz), open to all foundation units outside of Rio de Janeiro, which aimed to encourage and strengthen the fundamental role that women play in scientific and technological research. In this sense, the Aggeu Magalhães Institute (IAM), the Pernambuco unit of Fiocruz, submitted and approved the project 'My summer at Fiocruz', which was dedicated to receiving state public high school girls to spend a month at the IAM laboratories and debate the theme of gender inequality.

For 35 years, Fiocruz has promoted the Scientific Vocation Program (Provoc) for high school youth, which was created by the Joaquim Venâncio Polytechnic School of Health (EPSJV), in Rio de Janeiro, in 1986. This is a long-term program, which is composed of an initial stage of 12 months and an advanced stage of 21 months[5]. However, at Fiocruz Pernambuco, the only school accredited to participate in this program is the Laboratory School (CAP), which is located within the campus of the Federal University of Pernambuco (UFPE) and is considered one of the best schools in the city, attended by middle-class students. In this sense, Provoc does not fulfill its role of social inclusion, as occurs at Fiocruz/RJ, which is highlighted by Ferreira[6]. In our project, we opted to select girls from schools in peripheral neighborhoods who came from the more popular classes, to provide this group with the opportunity to access science education, in an attempt to break the cycle that perpetuates the elitization of academia and excludes young black girls. The project aimed to value the participation in science of girls from state public high schools, providing them access to cutting-edge technologies and the practice of scientific activities in pioneering areas, thus arousing interest in the area and showing the reality of the professional life of women who work in science. Also with the purpose of promoting and strengthening the participation of young women in academic and professional environments, we evaluated the role of the project as an alternative way to build permanent and continuous paths of education for mainly black girls from public schools.

Methodological strategies

Delineation of the project

The 'My summer at Fiocruz' project was conceived by Vice-Director of Research Constância Ayres and submitted to the public notice. The Feminist Observatory of the Northeast (OFNE) was invited to manage the project. The observatory was responsible for organizing and publicizing the project, selecting the girls, and organizing the seminar at the end of the project. OFNE is a political and professional, feminist, antiracist organization that works to contribute, by means of its projects, to the reduction of racial, gender, and income inequalities, with a focus on these issues in the Northeast. The project was approved in November 2019 and started in December 2019.

Selection of the girls

The project called for the selection of 12 girls from public schools to take part in the internship in the various research areas of IAM/Fiocruz, located in the city of Recife, PE. In the selection process, we innovated with regard to methodology, since selection

is usually made by the schools themselves. To apply, it was necessary to be in the first or second year of high school and send a video of up to one minute answering the question: *"Why do I want to spend my summer at Fiocruz?"*. Mobilization in schools in the Greater Recife area began in December 2019. Dialogues were established with students to talk about the importance of a project that encourages the participation of girls in science, of undergraduate research, of scholarships to help with travel and food expenses, as well as to answer any questions. Public schools in peripheral neighborhoods were prioritized. Schools were chosen with which Fiocruz already had ties due to previous projects. However, the publicity took place at the end of the school year, so it was necessary to expand the mobilization and publicize the project through social networks to other state or federal public schools. The project was presented in person at schools in the neighborhoods of Brasília Teimosa, Ibura, Centro, Várzea, Nova Descoberta, Engenho do Meio, Alto do Mandu, and Guabiraba, peripheral areas in the city of Recife.

For political and social reasons, black girls were prioritized, keeping in mind that, due to structural racism, black women are historically denied access to higher education and to positions considered as more valued, leaving them with undervalued jobs and unemployment[7-9].

Preparation of the girls

After the selection process for participants, meetings were held with the girls and their respective guardians to explain the project and its duration, and above all, to obtain legal authorization for the participation of the girls in the project. Two consent forms were prepared, one related to the commitment to participate in the internship with an established workload and in the closing ceremony, and another with respect to the authorization for image use, since the project called for the recording of a documentary that would report the day-to-day activities of the internship at Fiocruz.

On the first day of the internship, the OFNE team held a conversation with the girls and their guardians to explain in more depth the dynamics of the internship, to present the work areas, to talk about the importance of the opportunity, as well as to get to know the facilities of the institution, the tutors of the internship, and also, to choose in which areas they would like to work and to form pairs, according to their interests, in order to intern together. The areas defined for the internship were: entomology, parasitology, microbiology, virology, genomics, and immunology. A WhatsApp group was created to facilitate communication among the internship participants and the OFNE team. Weekly on-site shifts were done by the OFNE team at Fiocruz to closely accompany the development of the internship activities.

The internship

The internship was developed throughout the month of January 2020, in person, in which the young women were at the institution three times a week, completing a workload of 60 hours. They participated in theoretical and practical activities, always in the presence of their tutors. During the internship, the students developed several activities related to scientific practice, such as, for example, bibliographic searches, laboratory experiments, data analyses, and scientific presentations on the themes of their projects. A course on biosafety and a class on ethics and integrity in scientific research were also offered. Of the 12 girls, 4 also had the opportunity to undertake fieldwork in the communities, integrated with the Schistosomiasis Referral Service (SRE) and the Culicidae Vector Control Referral Service (SRCCV) at IAM. A roundtable discussion about racial and gender inequalities in our society was also held as part of the internship activities. The discussion was conceived

by OFNE and counted on the participation of the Fiocruz communication team, which recorded it.

It was also part of the project's political strategy that the young women would be supervised by Fiocruz researchers, in order to build references of women in science for the young women and to value and make visible the work of the institution's researchers.

The seminar

The seminar entitled 'Women in Science: Building Alternatives to Overcome Racial and Gender Inequalities' was collectively built among the young women, the OFNE, and the project's creator. The seminar, in allusion to the International Day of Women and Girls in Science, was the final activity of the project, and its purpose was to debate the context and presence of women in science, in the academic environment, and all the racial and gender inequalities present in these spaces and throughout society. The process was structured so that the young women were present at all the panels, as debaters or mediators, at the accreditation, at the tributes, and remained involved throughout the whole event. At the end of the seminar, tributes were made to the tutors and researchers at the institution.

The seminar was structured in the following manner: opening panel with institutional speeches by Fiocruz, UFPE, University of Pernambuco (UPE), and OFNE and a presentation by the director of one of the partner schools. Then, we had three panels: the first focused primarily on *machismo* in society; the second was about the role of the university in training women scientists; and the third was about negritude and Afrofuturism. We invited women who are members of civil society organizations and feminist movements in the city, and women scientists from several different areas of knowledge to compose the panels and debate the proposed themes. The result was a rich debate with intense participation from those present.

Results and discussion

In total, we received 57 videos from young women from various parts of the state of Pernambuco, in which the 12 girls were selected based on the creativity of the videos and justification for their interest. Priority was given to black girls. Most of them were in the second year of high school, between 14 and 18 years old. Regarding the area of residence, there was great heterogeneity, the majority being from the Greater Recife area, mainly from neighborhoods in the city of Recife and from Olinda, Paulista, Camaragibe, and São Lourenço da Mata. There was only one girl from the rural area of the state, from Santa Cruz do Capibaribe.

The reports by school administrators demonstrated how important the development of this type of project is for those girls who have almost no learning opportunities or access to knowledge besides school. This highlighted the political and social importance of the project in the creation of alternatives and professional and life possibilities for girls.

Beyond technical learning in the areas of parasitology, microbiology, immunology, virology, entomology, genomics, and biosafety, the internship also promoted debates with the OFNE team on historical, political, economic, and social issues that influence the low participation of black women in science, and the inequalities that affect them in our society. These conversations also contributed to the political and social construction of the girls. As highlighted at the beginning, women are the majority at the beginning of academic life, but throughout the training process, the situation is inverted, and there is still a significantly lower participation of women in positions of power and decision-making. Over the course of training in the academic life of girls, there is no space to debate and reflect on the causes of these inequalities. We believe that if the subject is approached at the beginning of the training process, during undergraduate research,

critical thinking can be developed – in the young researchers – that will impact this final statistic and contribute to reducing inequities.

The project had great repercussion in social media and local newspapers. Several feature stories were produced for channels such as TV Tribuna and Rede Globo, as well as a program for the Frei Caneca radio station aimed at publicizing the project's closing ceremony, which was open to the public. There was great demand in the media of schools and girls wanting information about future editions of the project. This already demonstrates the need for these types of initiatives here in the region, based on the high degree of student interest.

At the end, a six-minute documentary was produced about the internship experience, which interviewed some young women and members of the OFNE, and which also captured excerpts and images from the seminar on the International Day of Women and Girls in Science, the final activity of the project.

The internship positively impacted both the young women, who had the opportunity to accompany and experience the daily activities at Fiocruz, and the very dynamics of the institution, which during the stay of the young women and by means of the internship's proposal, began to debate the participation of women, mainly of African descent, in higher education and academic environments, and how important it is to build strategies that encourage and empower young girls from public schools to be present and access this space.

The seminar that concluded the project was widely publicized, not only in social networks, but also in the media at large, reaching an external audience outside the academic world. Throughout the day, an average audience of 50 people participated in the event, including civil society organizations and students from UFPE, UPE, and other universities. It is worth noting that there was a greater presence of researchers from other institutions than from Fiocruz itself, which reveals little interest from the institutional community. This fact demonstrates the need to create alternatives that arouse and promote the interest of people to address the theme of gender-race inequality in academia.

The young women highlighted that the project offered a moment to get to know areas of science previously unknown to them, which are not presented in formal schools, and which ended up strengthening the desire of some of them to work in the area, such as, for example, the area of genomics. The experience of one of the interns who undertook an external activity in the municipality of Ipojuca (PE) along with her tutor, and the contact that she had with the social conditions experienced by the visited community, reinforced her desire to be a doctor and work to help people in vulnerable situations who do not have adequate health care. According to an article in 'Radis' magazine, one of the project participants reports that:

> *During the internship at Fiocruz, we went one day to do fieldwork in Porto de Galinhas and I visited some very vulnerable areas, I didn't believe people could live in these conditions.*

Another point is that the internship provided another way of learning for them, so that they are able to study, enter a higher education program, and thus provide better living conditions for their families. These young women were not only able to learn more about higher education programs and professions to follow, but also to assume the desire to transform the social reality in which they are included, building alternatives for the future.

Some reports given by participants in the project demonstrate this.

> *I want to work in a hospital, but I don't want to be a doctor, I want to be the head of the hospital [...] I want to be able to give my family everything they couldn't give me, especially my grandmother, who raised me.*

We have to be very strong because we know that the world is already full of prejudice, we need to study a lot, because, for example, a white person, a white man, has many more privileges, much more ease in society than I do, since I was born a black woman, so I have to fight to show that I'm just as capable.

I now feel that I have more strength to fight for my goals, not to be afraid to get where I want, and being a black woman, I know that I'll have difficulties, but we can't remain silent in the face of prejudice, we have to fight for there to be more and more black women in this area.

Just as reported by Arantes and Peres[5], who described the experience of undergraduate research of two young women from low-income families, this project reverberated in the possible professional choices chosen by the young women.

The project and the presence of young women in the institutional environment made it possible to start a very urgent and necessary debate on the inequalities faced by women to be in higher education, in academia, occupying historically denied spaces, such as the natural, exact, and medical sciences. The project was a concrete initiative to strengthen other possibilities and realities for young women, by showing that, with incentives and opportunities, they can go much further. Additionally, the project played a fundamental role within the institution, breaking a pre-established idea that youth from disadvantaged communities, because they do not have the desired cultural capital, would have difficulties in learning the techniques. The participation of the girls showed exactly the opposite: the speed in learning, the maturity, and the mastery of the subject in the presentations, the responsibility in carrying out their activities, the resourcefulness in moderating the panels at the seminar, and the feedback that was obtained by the supervisors surprised the institution, breaking a false paradigm established in most scientific research institutions. In fact, opportunities are what is lacking. It is likely that the experience presented by the young women in the peripheral neighborhoods, which have well-structured social organizations, contributed to this process.

Projects such as 'My summer at Fiocruz' are fundamental for the construction of equal conditions of access to academia, higher education, and jobs that until very recently were denied to women – and also because they make visible and value the work of researchers and scientists who work in different areas of knowledge, but whose work is made invisible. May we develop more proposals like these to contribute, in this manner, to the access of young, black, female students from public and peripheral schools.

Based on the debates at the event and on the great majority of bibliographic production on policies to reduce racial and gender inequality, there is already a consensus that diversity increases productivity and innovation in the academic and industrial environments[10]. It has been demonstrated that research groups that work in an inclusive way between the different genders, but with a greater share of women with a high level of education, are more productive, in terms of innovation, in those disciplines in which there are more women in the faculty[11].

In this sense, how can we build scientific knowledge that actually contributes to the reduction of economic, racial, and gender inequalities and that is accessible to society? How to collaborate in the construction of alternatives that make academic and scientific spaces more democratic?

Historically, the scientific knowledge produced in the different areas, whether in the humanities, health, or in the so-called hard or exact sciences, was built on the basis of what we call axiological neutrality, which means that scientific and intellectual knowledge, in order to be validated scientifically before society, cannot come under any type of influence, whether ideological, cultural, or by the subjective values of researchers. In

sociology, for example, this is a basic premise, which built the foundations of this discipline and formed its first presuppositions – 'The Classics', as Émile Durkheim, Karl Marx, and Max Weber are known, were responsible for this consolidation, the first, Durkheim, having a strong foundation in the presuppositions of the exact sciences, which were held as a mirror for the construction of sociology.

As of the 1960s/1970s, scientists and intellectuals of feminist epistemology, such as Sandra Harding and Donna Haraway, and intellectuals of black feminism, such as Patricia Hill Collins, among others, came to dismantle these prerogatives, in favor of a scientific practice that is, in Haraway's words, 'situated and embodied'[12,13]. This concept seems to indicate that axiological neutrality is a fallacy, since it has historically served to maintain privileges and narratives that white men have always built, that is, scientific knowledge has always been situated and grounded in these voices, which, hidden behind neutrality, have been building a type of knowledge that contributes to maintaining the privileges of those who occupy academic spaces. It is worth noting that the inclusion of more women or other minority groups in the scientific knowledge production system, in addition to contributing to innovation, will help science to rethink its questionable universality and neutrality[14].

With reference to the racial issue, three points have played a central role in black feminist thought: the meaning of self-definition and self-evaluation; the interconnected nature of oppression; and the importance of redefining culture, very well pointed out by Collins[15]. These three themes have had great relevance in the field of sociology, but they can also make an enormous contribution in the field of health since they propose a redefinition of our view of social reality, which historically makes the culture of black women invisible, since they make reference to white patterns of culture and sociabilities. Shifting these references, based on this self-definition and self-assessment proposed by Collins, contributes to the construction of scientific knowledge outside this white standard and to the reconstruction of the cultural and historical narratives of black women about their social reality.

We know that some diseases have a higher incidence in the group of women. For example, the incidence of hospitalization for acute myocardial infarction has been increasing in recent years, but this increase has been greater in young women[16]. Other diseases are known to be more prevalent in the group of black people, such as lupus, some subtypes of breast cancer[17,18], arterial hypertension, maternal and child mortality, and the historical epidemic of violence against women, among others. But science has not provided adequate answers to solve these problems, which range from the environmental context that interferes with the development of the disease, difficulty in the diagnosis or access to the health system, and precariousness in care and treatment, often associated with institutional racism[3]. Almost two decades ago, the Brazilian Ministry of Health published the 'Manual on the Most Important Diseases, for Ethnic Reasons, in the Brazilian Population of African descent', which describes the main diseases in Brazil with the greatest incidence in the population of African descent[19]. However, since then, no major change has been observed in relation to the reduction of cases of these diseases, which demonstrates that the measures taken to mitigate this problem have not been effective. Thus, the increasing participation of black women in science – and particularly in the field of health – will contribute to expanding our knowledge about these serious problems, mainly in the field of global health, and provide solutions to this group of people that has been undervalued, but which has been at the foundation of our society since always.

The transfer of scientific knowledge to poor communities has been a major bottleneck in the realization of the core activity of science, that is, the transformation of the knowledge generated in scientific research into technologies that provide for an improvement in

people's quality of life. Something that became very clear in this project is how much the participating girls were already part of movements and collectives in their communities and attentive to the local problems faced[20]. Thus, we believe that, following their example, the inclusion of more girls with this profile will be fundamental to direct the production of knowledge and accelerate the transfer of knowledge by means of new technologies to be used by the actual community. See the report by one of the project participants below.

> *Animal life has always interested me. My family has always taught me to be empathetic with other lives,* [she explains. Her dream of taking care of other living beings comes along with the urge to change reality]. *I am studying to become a video game technician, so I've already done some projects, like an app that includes more women in programming, another one about Chinese culture, about depression, and one about the singer Chico Science and the environment. It was the way I found to make a difference in society.*

In this sense, it is urgent to realize that the inclusion of more women in science, and with special attention to black women, is not necessary only as a social mechanism of reparation for this minority group, but also is the only way to guarantee the overcoming of the deficiency that has permeated the whole epistemology, since its formation until the present day. Diversity of reason, pluralism, experience, and knowledge produced by peripheral groups are essential for the survival of science itself. The connection between diversity and excellence stands out, with all of its implications in terms of scientific and technological progress, which are linked to economic development[14].

At the end of the event, some actions that can and should be taken to deal with the issue of underrepresentation of women in leading positions in academia were given as examples, and these actions are supported by scientific articles that prove how such measures contribute to the reduction of inequalities. Only recruiting more girls to participate in programs to expand access to academia is no longer enough. We have proof that, in the field of health, women are already the majority. However, without due implementation of policies that guarantee equal treatment and conditions with infrastructure for the inclusion and visibility of women in the workforce, access will continue to be in vain. There is a risk of these small actions becoming just examples of *tokenism*, that is, a symbolic inclusion, which is nothing more than a superficial concession to demonstrate that the institution has policies to address the level of inequality. For Arya[21], these issues must be resolved at all levels, from documents that demonstrate clearly established policies, the workforce, the student body, and even the curricula, and that whatever does not contemplate all of this only perpetuates *tokenism*.

Thus, institutions should:

- Institutionalize undergraduate research access programs for young women from peripheral communities, supplementing the lack of similar practices in the public school system;

- Provide technical-scientific education for young women, but also work on other skills that contribute to facing the problem of inequalities, by means of more specific mentoring, as experienced in this project;

- Establish indicators for monitoring the impact of policies to reduce racial and gender inequality;

- Adopt integrated approaches to deal with this problem;

- Hold events that consider an equitable number of speakers from different genders and races;

- Promote the debate internally on this theme;

- Conduct educational campaigns on combating *machismo* and institutional racism;

- Search for alliances with popular movements and collectives;

- Provide adequate infrastructure for a greater inclusion of women in academic activities;

- Warn professionals who exhibit sexist, sexist, or racist behavior;

- Encourage a greater participation of women in leadership positions.

Final considerations

To establish a new institutional cultural change that promotes a greater inclusion of women scientists and encourages the occupation of leadership positions in science by women, it will be necessary to establish clear directives, with goals and indicators so that it is possible to monitor the impact of the actions implemented. It is not enough only to recruit more girls, it is necessary to create a favorable anti-racist and anti-sexist environment that contributes to strengthening and expanding the productive capacity of women. Investing in the training of young scientists is fundamental to create from the beginning an awareness of the difficulties and importance of occupying leadership positions.

Only recently have Capes and the CNPq started to extend graduate scholarships for maternity cases. The CNPq, also recently, created a section for women to include on their Lattes CV information about the birth or adoption of children. These are small steps forward on the long road that we will have to travel. Identifying the source of gender inequality in leadership positions is fundamental, and more studies are needed for effective policies to be implemented.

In this sense, the aforementioned perspectives point to the need to recover ethical and political commitments in the construction of scientific knowledge, and showing who is in its construction is a beginning, as well as considering for whom this knowledge is developed – thus situating whoever produces it and to whom this knowledge serves, the occupation of academic spaces by women being a fundamental part of this process, especially the occupation by black women, to whom these spaces are historically denied. Projects such as 'My summer at Fiocruz' and events such as the seminar in allusion to February 11 are fundamental and strengthen this political and social proposal, which contributes to the democratization of these spaces and to their access.

This project received great visibility and was widely publicized on social media, TV, and radio, with the production of a documentary at the end. This was a successful example of an initiative that we hope will be disseminated to other sectors and institutions, and which will have an impact on the training of the new generation of scientists, with a new posture, critical analysis, and spirit of collectivity, so that we can supplant all of the difficulties historically imposed on us, women, and fully exercise scientific activities, contributing to a fairer, more egalitarian society that is aware of its rights.

Collaborators

Ayres C (0000-0003-0787-749X)*, Cuentro AC (0000-0002-1576-2038)* and Nascimento M (0000-0001-9254-5208)* contributed equally to the writing of the manuscript. ■

*Orcid (Open Researcher and Contributor ID).

References

1. Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) 2016. [acesso em 2020 jan 1]. Disponível em: https://www.capes.gov.br/36-noticias/9375--mulheres-representam-60-dos-bolsistas-da-capes.

2. Schumaher S, Ceva A. Mulheres no poder: trajetórias na política a partir da luta das sufragistas do Brasil. 2. ed. Rio de Janeiro: Edições de Janeiro; 2015.

3. Carneiro S. Racismo, sexismo e desigualdade no Brasil. São Paulo: Selo Negro; 2011. (Coleção Consciência em Debate)

4. Akotirene C. Interseccionalidade. São Paulo: Jandaira; 2020.

5. Arantes SLF, Peres SO. O passaporte de Lorrayne: juventudes, pobreza e o acesso à educação científica. In: Arantes SLF, Silva K, Miranda VER, organizadores. Programa Institucional de Extensão Ações Afirmativas e Relações Étnico-Raciais. Barbacena: Editora UEMG; 2017. p. 120-148.

6. Ferreira CA. O Programa de Vocação Científica da Fundação Oswaldo Cruz: fundamentos, compromissos e desafios. In: Ferreira CA, Peres SO, Braga CN, et al., organizadores. Juventude e Iniciação Científica: políticas públicas para o ensino médio. Rio de Janeiro: EPSJV; UFRJ; 2010. p. 27-52.

7. Arantes SLF. Iniciação científica no ensino médio: a educação científica e as disposições sociais de jovens dos segmentos desfavorecidos. [tese]. Rio de Janeiro: Universidade Federal do Rio de Janeiro: 2015. 252 p.

8. Arantes SLF, Peres SO. Metodologias ativas em programas e projetos de Iniciação Científica, Educação Científica e Divulgação Científica. Brazilian J. Develop. 2021; 7(2):13496-13515.

9. Campelo AM. Dualidade Educacional. In: Pereira IB, Lima JCF, organizadores. Dicionário da Educação Profissional em Saúde. Rio de Janeiro: EPSJV; 2008.

10. Nielsen MW, Alegria S, Börjeson L, et al. Gender diversity leads to better science. Proc Natl Acad Sci USA. 2017; (114):1740-1742.

11. Joshi A. By whom and when is women's expertise recognized? The interactive effects of gender and education in science and engineering teams. Admin. Scien. Quart. 2014; (59):202-239.

12. Haraway D. Saberes localizados: a questão da ciência para o feminismo e o privilégio para a perspectiva parcial. Cadernos Pagu. 2010; (5):07-41.

13. Barbosa CP. Epistemologia feminista enquanto uma ramificação da epistemologia social: uma análise a partir de Donna Haraway e Sandra Harding. Intuitio. 2020; 13(1):e35521.

14. Cascace M. Guidelines for Gender Equality Programmes in Science. Roma: Prages; 2009.

15. Collins PH. Aprendendo com a outsider within: a significação sociológica do pensamento feminista negro. Soc. Est. 2016; 31(1):99-127.

16. Arora S, Stouffer GA, Kucharska-Newton AM, et al. Twenty-year trends and sex differences in young adults hospitalized with acute myocardial infarction. Circulat. 2019; 139(8):1047-105.

17. Carey LA, Perou CM, Livasy CA, et al. Race, breast cancer subtypes, and survival in the Carolina Breast Cancer Study. JAMA. 2006; 295(21):2492-2502.

18. Dietze EC, Sistrunk C, Miranda-Carboni G, et al. Triple-negative breast cancer in African-American women: disparities versus biology. Nat Rev Cancer. 2015; 15(4):248-254.

19. Brasil. Ministério da Saúde, Secretaria de Políticas de Saúde. Manual de doenças mais importantes, por razões étnicas, na população brasileira afro-descendente. Brasília, DF: Ministério da Saúde; 2001.

20. Ayres V. Meninas que fazem o verão. Radis. 2020 [acesso em 2020 mar 2]; (211):28-29. Disponível em: https://radis.ensp.fiocruz.br/index.php/home/reportagem/meninas-que-fazem-o-verao.

21. Arya R. Black feminism in the academy. Equality, Diversity and Inclusion: An international Journal. 2012; 31(5/6):556-572.

Received on 08/31/2020
Approved on 07/23/2021
Conflict of interests: non-existent
Financial support: Oswaldo Cruz Foundation (Fiocruz), Project No. VPGDI-014-FIO-19-2-36