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Gender and funding opportunities in research: an analysis of the main Brazilian agencies

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Abstract: The underrepresentation of women in science, technology, engineering, and mathematics (STEM) fields highlights the need for development policies that promote equity and equal access to science and technology. Therefore, this study aimed to analyze research funding calls published by Brazilian agencies with a focus on gender equity policies. To this end, an analysis was conducted of the two main public research funding agencies in Brazil: CNPq and CAPES. It was observed that, while CNPq issued significant calls for proposals aimed at training and retaining women in the exact sciences and technology, CAPES's specific initiatives were few and focused primarily on awards. Furthermore, this research highlighted gaps in the frequency and dissemination of these calls, which may compromise the promotion of gender equality in the country. Therefore, we recommend expanding such initiatives, improving access mechanisms, and strengthening policies that encourage the inclusion and advancement of women in academic and professional fields.

KEYWORDS: Gender equity. Education. Public calls. Funding agencies.



Introduction

Although education plays an important role in social and economic development worldwide, gender inequality remains a persistent challenge across many regions. In many countries, girls have already reached or surpassed boys in enrollment and completion rates in primary and secondary education. However, these achievements are not universal, and in many cases marked by poverty, discrimination, or social vulnerability, there are still institutional and cultural barriers persistently limiting not only access, but also retention and educational performance for girls and women (UNESCO, 2025). Intersections of race, social class and gender wield influence over women's expectations regarding paid work, thus shaping their opportunities and career paths (DAMASKE, 2011).

Faced with these challenges, global education agendas have been working to promote girls' schooling as a strategy to reduce inequality and expand opportunities (DEJAEGHERE; ARUR, 2020). Even though girls represent the majority in general secondary education programs (55%), they remain underrepresented in vocational training programs, with only 46% participation in most countries analyzed (OECD, 2024). The sociocultural environment intensifies the negative effects of gender stereotypes on women's educational and professional trajectories. Furthermore, there is a scarcity of research concerning this topic in less developed countries, which limits the global understanding of gender equity in education (LÓPEZ; SIMÓ; MARCO, 2023).

In Brazil, the higher education census revealed that 73.9% of students enrolled in teacher education programs are women, in contrast to the female underrepresentation in technology and engineering fields (BRASIL, 2024). This disparity is also evident in data from the information systems of the Federal Council of Engineering and Agronomy (CONFEA) and the Regional Council of Engineering and Agronomy (CREA), which are responsible for the regulation of professionals in engineering, agronomy, geosciences and other technological fields in Brazil. As reported by these institutions, only 19.6% of the approximately 1 million registered professionals are women, while men account for 80.2% of the total (CONFEA, 2023).

Nonetheless, female presence in Brazilian higher education has grown stronger over the last decades. Between 2013 and 2023, the number of women entering undergraduate programs in exact and biological sciences increased from approximately 170 thousand in 2013 to 227 thousand in 2023, which represents a 29% increase. However, the proportion of men in the same time period was larger, being 56% higher than that of women (TOKARNIA, 2025).

Over the years, the number of registered professionals in Brazil has also grown, from approximately 455 thousand in 2000 to 1.4 million in 2018 (CONFEA, 2021). Despite the gradual increase of female presence in higher education and in historically male-dominated fields, this progress is still considered small given the existing gender inequality. Women's participation remains significantly lower in several fields, highlighting the persistence of institutional and cultural barriers.

In general, female participation in the labor market has shown gradual growth since 2016, both in STEM fields and in other professional areas. However, in 2024, the presence of women in the STEM professional field remained lower than that observed in other areas, accounting for 28.2% of STEM occupations compared to 47.3% in other activities (ZAHIDI, 2024).

This is also attributed to inequality in opportunities, income and social mobility between men and women. The intersectionality of social identities, such as gender, race and class, acts as an additional barrier for female university students, hindering their access, retention, and academic and professional development (SILVA; SILVA; FONTANA, 2023). In this sense, gender disparity in the fields of science, technology, engineering and mathematics (STEM), for example, result not only from individual factors but from a set of sociocultural, institutional and political constraints (EL-DEGHAIIDY *et al.*, 2025).

In this context, formulating gender-specific public calls stands out as a strategy to reduce these gaps, promoting gender equity in academic and professional opportunities, in addition to encouraging women's retention and advancement in fields where they are still underrepresented. These public calls are initiatives that enable the granting of fellowships and research funding, defined by technical criteria (CNPq, 2020).

In Brazil, the institutionalization of public policies aimed at gender equity in science was marked by the creation of the *Women and Science*



Program in 2005, established by a group composed of the National Council for Scientific and Technological Development (CNPq), the Special Secretariat for Policies for Women (SPM), the Ministry of Science and Technology (MCT), and the Ministry of Education (MEC), among other participants. The program was structured around different axes, including the promotion of knowledge production on gender, the encouragement of the training and retention of girls and women in scientific and technological fields, and the advancement of equal opportunities within the national science and technology system (CNPq, 2021a).

Therefore, this study aimed to analyze the presence of gender equity policies in public calls promoted by Brazilian agencies, such as the National Council for Scientific and Technological Development (CNPq) and the Coordination for the Improvement of Higher Education Personnel (CAPES), in addition to provide recommendations to increase female inclusion through gender targeted or focused public calls, contributing to the advancement of educational equity. The public calls analyzed in this study reflect the different strategies for implementing the Women and Science Program over time, both in fostering research on gender and in promoting the training and inclusion of women in areas historically marked by gender inequality.

Materials and methods

This research is classified as bibliographic and documentary, as it draws on scientific literature and documents published by the funding agencies analyzed, adopting a quali-quantitative approach, as the public calls were quantified and analyzed for their content. In addition, the study has an exploratory character, which arises from the systematization of studies that investigate the incorporation of gender equity guidelines into funding opportunities in Brazil, in accordance with definitions found in the literature (GIL, 2008; MINAYO *et al.*, 2002).

Definition of funding agencies

The agencies chosen for the research were the National Council for Scientific and Technological Development (CNPq), an institution affiliated with the Ministry of Science, Technology and Innovation (MCTI), and the Coordination for the Improvement of Higher Education

Personnel (CAPES), a foundation affiliated with the Ministry of Education (MEC). These agencies were selected because they are the main federal institutions responsible for promoting scientific research and graduate studies in Brazil. The analysis focused on public calls, with particular attention to guidelines and criteria designed to encourage women's participation.

Data collection

The search for public calls was conducted on July 19, 2025, directly on the official portals of the funding agencies, using the open and closed public calls tab, or in the results tab, adopting the keywords *equity*, *woman* or *girl*, employed separately throughout the process. One limitation noticed in the CAPES website is the difficulty in identifying public calls for research funding specifically targeted at women. This is due to the fact that the calls available on the platform are presented only through titles and results, without a keyword search engine that allows filtering by thematic or target audience criteria.

Throughout the search process, public calls that were not directly related to encouraging female participation in research were identified. Thus, a screening process was conducted, considering only those that presented specific actions aimed at girls and women.

Data processing and analysis

After collecting and screening the calls, the data were organized into a spreadsheet containing information such as year of publication, funding agency, call title, primary focus, overall value of financial resources, and the objective of the call.

Subsequently, the selected calls were analyzed qualitatively, focusing on the identification of affirmative actions, specific criteria for women, or references to the promotion of gender equity. Common trends among the analyzed calls were also examined, to support the discussion of the results.



Results and discussion

National Council for Scientific and Technological Development – CNPq

Fourteen public calls were identified with keywords related to the theme. Of these, 12 focused primarily on gender equity and support for girls and women (Table 1). These calls highlight actions by CNPq and partner agencies to promote the inclusion and recognition of women, particularly in traditionally underrepresented fields.

Among the other two calls analyzed that did not directly fit the central theme of the research, one is related to MCTI/CNPq/MS/SCTIE/Decit/Bill & Melinda Gates Foundation Call no 31/2020 – Grand Challenges Explorations – Brazil: Data Science to Improve Maternal and Child Health, Women's Health and Child Health in Brazil (CNPq, 2021b). Launched in 2020, this initiative aimed to support research projects focused on scientific and technological advancement and innovation in the application of data science to improve indicators related to maternal and child health in the country.

The second call that did not directly fit the research theme was CNPq/MPA nº 14/2024 – Diagnosis of Shellfish Gathering Activities in the North and Northeast Regions of Brazil, launched in 2024 (CNPq, 2024). This call focused on supporting research aimed at developing a comprehensive diagnosis of shellfish gathering activities in these regions, considering ecological, socioeconomic and value-added aspects of the product, with particular attention to the role played by women in this context. The objective was to support decision-making processes and the formulation of public directed towards this sector.

Regarding public calls targeting specific actions and focused on gender equity, the first CNPq call was CNPq Call nº 045, launched in 2005 (CNPq, 2005), see Table 1. This call was launched in the same year as the creation of the Women and Science Program, representing one of its first concrete initiatives in the field of scientific research funding on the themes on gender relations, women and feminism, with four editions held in 2008, 2010, and 2012. It is possible to notice, according to the data presented in Table 1, that these calls prioritized the production of academic knowledge on gender inequality and their various social manifestations.

Since 2012, calls have been looking to include training, extension programs and funding, shifting to professional development and advancement initiatives. CNPq/SPM-PR/SUDECO Call nº 33/2012 aimed to support innovative extension programs focused on the professional development of women in socially vulnerable or low-income situations (CNPq, 2012). Since 2013, Call nº 18/2013, with editions in 2013, 2018 and 2023, presented a distinct and more applied scope, focusing efforts not only on analyzing the topic but also on the effective training of girls in STEM fields.

Call nº 18/2013 stood out for connecting public and private institutions (the CNPq, the Secretariat of Women's Policies of the Presidency of the Republic and Petrobras) through initiatives to train and engage girls and young women researchers in engineering, exact and computer sciences (CNPq, 2013). In 2018, Call nº 31 continued this policy, expanding support for the technical and academic training of these women, reinforcing their retention and skill development in areas with low female representation (CNPq, 2018).

Call nº 31/2023 maintained this commitment, focusing on both the access and retention of women, as well as the professional advancement of women in these careers. The target audience was girls and women enrolled in the final years of elementary school (8th and 9th grades), high school in public schools and undergraduate students in STEM Fields (CNPq, 2023a). Policies of this nature, implemented from the earliest stages of educational development, are essential to mitigate the early reproduction of gender stereotypes that limit the development of professional interests and aspirations. Empirical evidence indicates that children as young as six years old can already internalize concepts associating brilliance and intelligence with male figures, which directly affects girls' self-perceptions of competence and, consequently, limits their interest in areas such as mathematics and science (BIAN; LESLIE; CIMPIAN, 2017). In this sense, it is also problematic to associate success in STEM with brilliance, which creates yet another barrier that discourages female participation, especially among those who do not perceive themselves as exceptionally talented (NYUL *et al.*, 2025).

Call nº 36/2023 expanded this effort by offering research grants abroad to Black, Indigenous, Quilombola and Roma women, promoting inclusion and representation in international academic settings (CNPq, 2023b). Furthermore, it was noted that this call was the only



international initiative specifically focused on women's education and empowerment.

Although these calls have varied scopes, they all converge on correcting gender asymmetries, working both to generate knowledge and to actively promote the inclusion and training of women in underrepresented fields. This set of initiatives encompasses a wide range of participants, going from established researchers and professionals in vulnerable situations to elementary and higher education students, thus constituting a coordinated strategy to expand access and strengthen female participation across different age groups and sociocultural contexts.

Regarding investments in public calls (Table 1), Figure 1 reveals a trajectory marked by discontinuity in CNPq investments aimed at women between 2005 and 2023, with a predominance of initiatives related to the inclusion, education and careers of women in science. There was a long initial period of low contributions, followed by a significant peak in 2014, focused on the training and sociotechnical inclusion of women, indicating a specific and isolated action, without continuity in subsequent years. Between 2015 and 2017, there were no recorded investments, followed by a specific action in 2018 and a new period of absence between 2019 and 2022. In 2023, the largest investment of the entire period analyzed occurred, with an investment of over R\$100 million, concentrated exclusively in actions aimed at supporting the inclusion, education and scientific careers of women.

Given this context, the recurring lack of calls focused on gender research through time reinforces the low prioritization of this topic. Overall, the observed pattern highlights a fragility in the institutionalization of funding policies aimed at gender equality, with isolated advances not sustained over time.

Table 1 – CNPq public calls aimed at initiatives for women over the years

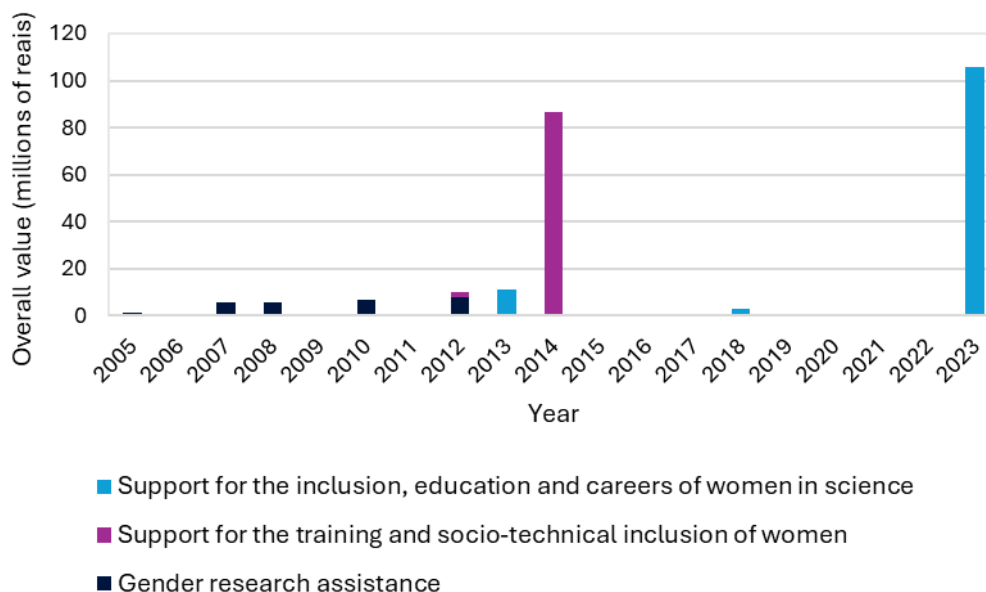
Call	Year	Primary focus	Overall value (BRL millions)	Approach
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Call CNPq n° 045/2005	2005	Support for research on gender dynamics, women and feminism.	1.2	Support on gender research
Call MCT/CNPq/MS-SCTIE-D ECIT/CT -Saúde n° 022/2007	2007	Support for research projects on women's health.	6.0	Support on gender research
Call MCT/CNPq/MS/SCTIE/ DECIT n° 54/2008	2008	Research on abortion and teenage pregnancy.	1.0	Support on gender research
Call MCT/CNPq/SPM-PR/M DA n° 57/2008	2008	Support for research on gender dynamics, women and feminism.	5.0	Support on gender research
Call MCT/CNPq/SPM-PR/M DA n° 020/2010	2010	Research on gender, women and feminism, with the intersection of race, class and sexuality.	7.0	Support on gender research
Call MCTI/CNPq/SPM-PR/M DA n° 32/2012	2012	Support for research addressing gender dynamics and their intersections.	8.0	Support on gender research
Call CNPq/SPM-PR/ SUDECO n° 33/2012	2012	Professional training for women in vulnerable situations in traditionally male sectors.	2.0	Support for the training and socio-technical inclusion of women
Call n° 18/2013 MCTI/CNPq/SPM-PR/Petrobras – Girls and Young Women Studying Exact Sciences	2013	Encouraging the training and retention of women in engineering, exact and computer sciences.	11.0	Support for the inclusion, education and careers of women in science
Call CNPq/MDA/ SPM-PR n° 11/2014	2014	Support for extension centers focusing on rural and forest women.	86.5	Support for the training and socio-technical inclusion of women
Call CNPq/MCTIC n° 31/2018 – Girls in Engineering, Exact and Computer Sciences	2018	Encouraging the participation and training of girls and women in technical areas.	3.0	Support for the inclusion, education and careers of women in science
Call CNPQ n° 31/2023 Girls in Engineering, Exact and Computer Sciences	2023	Encouraging the entry, training and advancement of girls and women in careers in engineering, exact and computer sciences.	100.0	Support for the inclusion, education and careers of women in science
Public Call “Atlânticas” MCTI/CNPQ/MIR/ MMULHERES/MPI n° 36/2023 for scholarships abroad (SWE and PDE)	2023	Select Black women (Black and Brown), Quilombolas, Indigenous and Roma women, to develop part of their doctoral research or postdoctoral project abroad.	6.0	Support for the inclusion, education and careers of women in science

Source: Authors own work



Figure 1 – Investments related to women in CNPq calls – 2005-2023



Source: Authors own work

Coordination for the Improvement of Higher Education Personnel – CAPES

Identifying public calls on the CAPES website focusing on women, gender equity, or female participation was difficult due to the site's search and indexing limitations. Given this limitation, it was impossible to determine whether the lack of results was due solely to search difficulties or whether there are few or no public calls for proposals focused on policies that encourage female participation.

Through the searches conducted, both on the CAPES website and on Google (carried out due to the absence on the official website), only initiatives related to awards on this topic were identified, as shown in Table 2, and specific actions in events or publications, with no public calls found with an explicit focus on supporting women in science.

The Future Scientists Award was created from the program of the same name ("Future Scientists Program"), launched in 2012 by the Federal Government through the Northeast Strategic Technologies Center (CETENE), linked to the MCTI. The initiative aimed to promote the development of critical thinking and transdisciplinary scientific

practice in STEM fields, targeting high school students and teachers in state public schools. Among the program's initiatives, the Scientific Immersion Program stands out, held in research centers, where participants develop experimental activities aimed at promoting female protagonism in science (CETENE, 2024a). Another initiative is the Study Bank, a preparatory course for the National High School Exam (ENEM), which selects students for higher education, offered with a scholarship and aimed at female students or those who identify as female (CETENE, 2024b); and the Future Scientists Award.

Table 2 – CAPES actions aimed at initiatives for women over the years

Initiatives	Year of operation	Main point
Future Scientists Award	2025	Support and provide visibility to female students, teachers and tutors in public schools to increase female participation in exact sciences.
CAPES Elsevier Award – Women in Science	2024	Visibility of female scientific production as a way of contributing to gender equity in science.

Source: Authors own work

This award had two editions (2024 and 2025) and aimed to recognize 27 students in each edition, one from each Brazilian state, who passed the Scientific Immersion Module of the Future Scientists Program the previous year and entered undergraduate programs at public universities. In addition to the students, 27 professors (one per state) and 15 tutors, three from each region of the country, with projects approved by the program were also recognized. Of the 69 awards, 20% were destined to black, brown, indigenous and quilombola candidates, 5% to people with disabilities and another 5% to transsexual, transgender, transvestite and intersex women (CAPES, 2024a).

The CAPES Elsevier "Women in Science" Award, a joint initiative between CAPES and Elsevier, held its sixth edition in 2024 in Brasília. The award recognized 15 scientists, three from each region of the country, across the exact, medical and human sciences. The selection process considered scientific impact indicators, such as weighted citations by discipline on Elsevier's SciVal platform, in addition to the requirement of at least five publications in the nominated discipline from 2019 to 2023 (CAPES, 2024b).



Challenges and future perspectives

The underrepresentation of women, particularly in STEM fields, is related to the hierarchical social structure of gender dynamics in these fields. However, interventions to increase female participation have often focused on women's interests rather than on hiring practices by managers (FRIEDMANN; EFRAT-TREISTER, 2023). Furthermore, policymakers and funding agencies should intensify interventions specifically targeting women, such as addressing stereotypes about occupations and support in STEM professions, which is precisely at the heart of the role modeling sessions studied (GONZÁLEZ-PÉREZ; CABO; SÁINZ, 2020).

In analyzing public funding calls for research, a gap emerged in the availability and visibility of these initiatives. Although important calls have encouraged female education and training in areas such as STEM, access to these calls remains difficult, which can also hinder the participation of interested women, in addition to the lack of more frequent public calls. This indicates a weakness in initiatives aimed at encouraging gender equity in science and education, which restricts the expansion of female participation and hinders the overcoming of historical inequality. Initiatives of this nature, when well-coordinated, not only promote access for historically underrepresented groups but also strengthen the integration between teaching, research and extension programs, contributing to the consolidation of collaborative networks and more equitable institutional development (PACÍFICO *et al.*, 2025).

To overcome gender inequality in science, it is essential that funding agencies adopt strategies that make public calls aimed at women more accessible and visible. This includes implementing more efficient search systems, with clear categorization by topic and target audience, as well as expanding the frequency and scope of these calls. Actions should go beyond initial incentives for admission, also encompassing strategies for professional development, retention and advancement of women in scientific careers.

In parallel, it is necessary to recognize the dynamics of resistance that can emerge in historically masculinized environments, such as STEM fields. Studies show that, when perceiving symbolic threats to their prototypical position in these fields, some men react defensively, especially those who consider the association between their gender and

belonging to the field legitimate (DANBOLD; HUO, 2017). Even if this reaction occurs only in some part of the group, hostility from a single member or supervisor can be enough to compromise the institutional climate and discourage diversity.

In this sense, public policies should consider not only increasing female representation but also how this inequality is communicated socially. Recent evidence suggests that shifting the narrative framing from an underrepresentation of women to an overrepresentation of men can generate more intense emotional reactions and more effectively mobilize collective action, especially among women (LIAQUAT *et al.*, 2025).

Thus, addressing gender disparity requires both structural inclusion actions and attention to discussions that influence the perception and acceptance of equity in power and decision-making spaces. In this process, educational leaders play a strategic role by promoting more inclusive institutional cultures. Thus, higher education institutions can become agents of change, actively working toward a more inclusive and equitable society (ZHAO *et al.*, 2024).

Conclusion

This study found that despite initiatives focused on awards and discussions on gender equity, public calls for research funding specifically to support girls and women in science are still scarce. The difficulty in finding calls highlights the need to improve both the offering and the dissemination of these policies to ensure greater participation and reach. Therefore, it is important to develop better dissemination strategies, as well as promote and expand the number of these calls, including initiatives that go beyond simply encouraging admission, but also result in the inclusion and advancement of women in the academic and professional fields.

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Gênero e oportunidade de fomento na pesquisa: uma análise das principais agências brasileiras

RESUMO: A presença limitada de mulheres em áreas de ciência, tecnologia, engenharia e matemática (STEM) evidencia a necessidade de políticas de fomento que favoreçam equidade e acesso igualitário à ciência e tecnologia. Assim, este estudo teve como objetivo analisar chamadas públicas de fomento à pesquisa publicadas por agências brasileiras com foco em políticas de equidade de gênero. Para isso, foram analisadas as duas principais agências públicas de fomento à pesquisa no Brasil: CNPq e CAPES. Foi observado que, enquanto o CNPq apresentou editais expressivos voltados à formação e permanência de mulheres em ciências exatas e tecnologia, a CAPES apresentou poucas iniciativas específicas, destacando apenas premiações. Além disso, essa pesquisa evidenciou lacunas na frequência e divulgação dessas chamadas, o que pode comprometer a promoção da equidade de gênero no país. Assim, recomenda-se ampliar tais iniciativas, melhorar os mecanismos de acesso e fortalecer políticas que incentivem a inserção e ascensão feminina no campo acadêmico e profissional.

PALAVRAS-CHAVE: Equidade de gênero. Educação. Chamadas públicas. Agências de fomento.

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