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Study on the sociocultural profile of women working in a Brazilian nuclear area

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ABSTRACT

Female representation in nuclear technology is still a global issue in terms of gender equality and there are still a low number of women in this area. The objective of this work was to evaluate the female participation in a nuclear research institute (an institution linked to the Sao Paulo state and the Brazilian federal government), to verify how the women who work in this unit are distributed, what is their area and position at career levels. The survey was carried out through an online form, answered voluntarily, which had questions to outline the profile of these women, as well as to understand how the female presence was shown in the workplace. The results showed that the majority profile is white women, graduate students aged up to 41 years, natives of the Southeast, predominantly from São Paulo, who are/were mentored by men, who do not know the Women in Nuclear association and a considerable percentage are unaware of the pioneer researcher in their core area, showing the lack of information about female representation in this field. It is noticed that in Brazil, the construction of an equal representation in the nuclear area is in progress and still has a long way to go, showing that research such as the present survey and dissemination of events about women is something that needs to be done more frequently to emphasize the importance of female presence in the sciences.

Keywords: **nuclear technology, women, researchers, gender equity, female representation.**

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1. INTRODUCTION

The discussion on gender relations and education proves to be fundamental for the description of contemporary societies, as well as for the discussion of strategies in the educational field. Worldwide, gender inequalities are present in history, in which women are excluded or their participation is undervalued. At the present time, after the implementation of universalist policies of inclusion in Brazil, it is possible to observe a slow process of change in this scenario [1].

Marie Salomea Skłodowska Curie, Polish physicist and chemist, naturalized French, who conducted pioneering research on radioactivity and was responsible for the discovery of the chemical element's radium and polonium, had to overcome numerous difficulties in her trajectory as a woman, until she became a renowned researcher and scientist from the University of Sorbonne, France.

As a result of Marie's work, among other pioneers, two aspects arise inherent to the discussion of women's participation in science. The first would be to counter the false understanding that women would not be able to do science, an understanding supported by biomedical theories about anatomical or physiological differences in relation to men, which limited their intellectual potential and made them, exclusively or primarily, for motherhood and home care. The second would be the desire to create models to encourage young women to enter science [2].

IPEN (Energy and Nuclear Research Institute) is an autarchy linked to the Secretary of Economic Development (SDE) of the Government of the State of São Paulo and technically and administratively managed by the National Nuclear Energy Commission (CNEN), an agency of the Ministry of Science, Technology and Innovation (MCTI), of the Federal Government. Located on the campus of the University of São Paulo - USP, occupying an area of 500,000 m^2, IPEN operates in several sectors of the nuclear area in Brazil.

The present work aimed to identify the sociocultural profile of women working at IPEN, one of the most renowned institutes in research in the nuclear area in Brazil. The results found are discussed with the support of the literature that addresses the fields of women's performance, gender equal and ethnic-racial aspects of the population.

2. MATERIALS AND METHODS

The research developed in this article was carried out through Google forms sent via email between 2019/2020 to survey the profile of women at the *Instituto de Pesquisas Energéticas e Nucleares*, Energy and Nuclear Research Institute, IPEN/CNEN. The online questionnaire contained ten questions, described below:

1. What is your role at IPEN?
2. How do you identify yourself?
3. What is your age group?
4. What is your place of birth (City, State and Country)?
5. Do you work in which IPEN center?
6. What is your line of research or attribution?
7. If you are a student/researcher, are you being mentored by a man or a woman?
8. If you are a teacher/researcher, have you been mentored by a man or a woman?
9. Do you know the pioneering women in the nuclear field in the center you are part of IPEN or from Brazil?
10. Do you know Women in Nuclear or WiN Brazil?

The responses received were spontaneous contributions from women who make up the IPEN workforce, of which one hundred and five (105) women responded. According to data made available by the institute, there are around 600 federal civil servants currently working (men and women) and there are an estimated 733 students enrolled in 2020 at the institute, with 223 women studying in graduate school[1]. The answers were analyzed and compared with data from the literature.

3. RESULTS AND DISCUSSION

According to the responses obtained from the questionnaire sent, 83.7% of the women identified as white, 9.6% declared themselves to be black women (black and brown), 6.7% yellow and no indigenous women (Figure 1).

[1] Data provided by the institute in 2020.

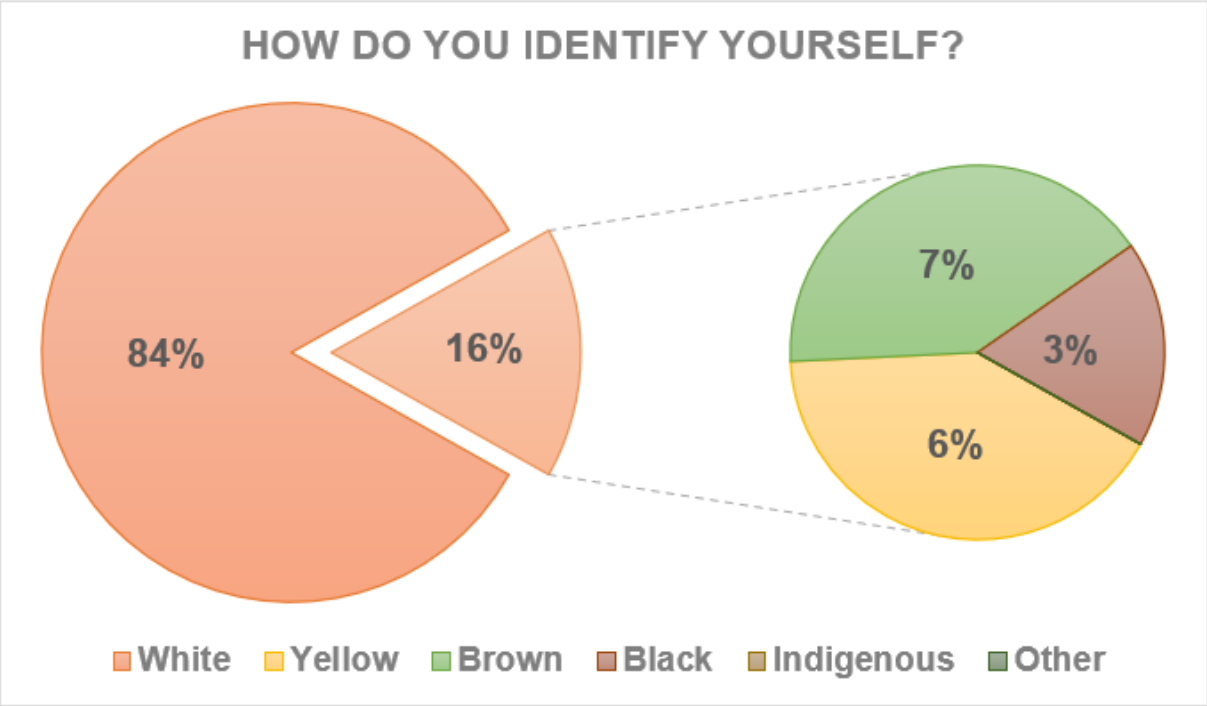

Figure 1: *How women identified themselves in IPEN.*

The Brazilian Institute of Geography and Statistics (IBGE) changed the identification by color, until in 2000 the five categories currently used in research were defined, in the order in which they appear in the questionnaire - white, black, yellow, brown and indigenous - which also appear in the 2010 Demographic Census[2], color is related to the term race, in which it refers to the different "categories" of human beings, used by Europeans, initially to designate indigenous peoples (non-whites), in the mid-sixteenth century [3].

The way society classifies individuals in a perception through physical traits, conditions a life trajectory of each person, which can result in stigmas and disadvantages for some and social capital for others. The myth of "racial democracy", established in Brazilian society, was built and consolidated through discourses and practices throughout Brazilian history. The situation of Afro-Brazilians in general occupies a position of inferiority in relation to whites in the labor market. This

[2] IBGE Ethnic-racial characteristics of the population, classifications and identities. Rio de Janeiro: 2013 Census.

is because black women occupy the lowest positions in the salary scales, either when compared to white and black men, or when compared to white women [4].

According to the Census of Higher Education for the years 2018 and 2019, white women are the highest graduates in undergraduate courses, both distance and face-to-face[3]. Therefore, if white women graduate more, the probability that they will enter a postgraduate course or positions that require academic knowledge will be greater, with a consequent advance in their professional trajectory.

The science produced in Brazil is predominantly white and, in some areas of knowledge, it is even whiter. A portrait of the country's graduate studies shows that, on average, **one** in four registered in master's and doctoral programs is black. Graduate studies in Brazil are important because they train scientists who produce a good part of the national knowledge[4], hence the need for greater equity and representation of the general population.

In the present study, no woman identified herself as indigenous. Through public policies, indigenous women and men began to occupy spaces in academic circles in greater numbers, but we have already noticed that the laws created to reduce social problems are still not enough.

In 2019, a study was carried out on admission to the academic environment through higher education for indigenous peoples, starting in 2009. Silva, Bruno and Martins identified a 620% increase in new entrants since 2009; the increase is related to the implementation of the Quota Law in 2012[5], ensuring social and ethnic inclusion [5].

It is necessary to consider the difficulties encountered by indigenous women when they enter a university for their permanence there, until completion. They simultaneously need to maintain the fight for the defense of their cultural values, the territorial rights of their people and for the rights of their own gender, common to all women.

In 1922, one of the best-known representatives of the feminist movement in Brazil, Bertha Lutz, founded the Brazilian Federation for Feminine Progress, with the aim of fighting for women's political

[3] National Institute of Educational Studies and Research Anísio Teixeira – INEP. Technical summary of the higher education census. Brasilia in 2019.

[4] Council of Rectors of Brazilian Universities – CRUB. Only 1 in 4 enrolled in master's and doctoral programs in Brazil is black in 2020.

[5] Law No. 12,711, of August 29, 2012, which provides for the reservation of places for candidates who declare themselves to be black, brown and indigenous, people with disabilities, students who have completed high school in public schools and families with disabilities. income equal to or greater than 1.5 minimum wage per capita.

rights. In 1926, Bertha Lutz received the scientist Marie Curie and her daughter Irène Joliot-Curie in Brazil [6].

In the movements of that time, the predominance of white women in the movements was visible and caused conflicts of opinion. After slavery, black women worked as cooks, nannies, chambermaids and maids of all kinds, while white women did not accept these types of jobs. The American women's suffragette movement, which gave rise to several feminist movements in the world, black women already faced racial problems, as they did not have equal opportunities within feminist organizations. It was only in 1932 that women gained the right to vote in Brazil. Even with so many obstacles, the search for education and professionalization is continuous and conditioning is in areas primarily related to the female environment, such as teaching, nursing, pedagogy.

On the other hand, engineering and exact science courses were not wanted by women, since these areas, certain professions and scientific work were related to the male figure. It would take a cultural shift for this to slowly begin to change. Marie Curie, the only woman to win two Nobel Prizes, worked most of her life alongside her husband, Pierre Curie. Like Marie, many women became interested in the path of nuclear science, an area in constant discovery, provocative and demanding [6].

The insertion of women in this area is happening in a structural way and gradually, as it is possible to perceive through the notices of the International Atomic Energy Agency (IAEA) that in their selections have policies of incentives for the participation of women in the nuclear sector.

In research carried out by Cruz, the author identified the nuclear history of Brazil with a scenario of almost total absence or exclusion of women, including in publications. This author cites as an example the book, **The Brazilian Nuclear Program,** by Carlo Patti, based on interviews with the main characters in the history of the Brazilian nuclear program, in which the author does not mention any woman as the main theme in its 16 (sixteen) chapters. However, from the time of Madame Curie to the present day, there has been a constant transformation in the nuclear sector in what involves women [6].

In Brazil, we have several names of great importance and representation. In the questionnaire answered by 105 women who are part of IPEN, most of them (59%) know women protagonists in Brazilian nuclear history who work or have worked at IPEN, such as the researchers: Linda Caldas, Constância Pagano and Mitiko Saiki, the names most cited by women.

Women perform various tasks at the institute, including graduate students, professors and researchers, and technical-administrative employees. Among the 105 who responded, 60% are postgraduate students at IPEN-USP, 33.3% of the master's and 26.7% of the doctorate and 5.7% are equivalent to the postdoctoral fellows at the institute, that is, it can be concluded that the majority are graduate students. The remaining nearly 35% correspond to professors/researchers and other professionals essential to the sector's research, administration or radiation protection activities.

The number of women at the top of their careers in all activities today is still minimal. This evidence would be consistent with the metaphor "leaky pipeline", as the level of schooling increases, there would be a decrease in female representation in STEAM careers[6], which evade the career like water from a leaky pipe, reaching the conclusion that a small percentage of women reach the highest levels of education and even positions in the scientific area, thus representing a loss of relevant qualified labor.

No one in a position of authority along this trajectory has consciously decided to filter women out of the STEAM stream, but the cumulative effect of many diverse but related factors has resulted in a sexual imbalance that is observed today [7]. These factors are also identified in STEAM careers, as women occupy less than 25% of these jobs, even with the increase in women with university degrees [8].

Regarding the age group, the results of the present study show that the majority corresponding to 38.1% are aged up to 30 years old, then 29.5% are between 31 and 45 years old, 22.9% are between 46 and 60 years old. and 9.5% are over 60 years old, as shown in Table 1. Considering the area of activity, it is possible to verify that the lowest age group is graduate students, which is equivalent to 53.3%. As the age group advances, there is an increase in the concentration of women working in higher positions, including, IPEN only has professors/researchers aged 31 or over (considering the options offered in the questionnaire) and 10.5% are between 46 and 60 years old.

Table 1: Age group of IPEN women

Age Group

[6] STEAM is an English acronym for the disciplines Science, Technology, Engineering, Arts and Mathematics.

Active Women	Up to 30 years old	Between 31 and 45 years old	Between 46 and 60 years old	Over 60 years old	Total Answers
Master's student	26	5	3	1	35
PhD student	12	13	3	0	28
Professor/Researcher	0	2	11	6	19
Other	2	11	7	3	23
Total Answers	40	31	24	10	105

Considering the answers in relation to the age group and the area of activity, women who are in the highest age group are those with the highest level of education, but the number of women in more advanced levels decreases. The results obtained were: the number of women who are up to 30 years old and are masters students (26), women between 31 and 45 years old who are doctoral and post-doctoral students (18) and between 46 and 60 years old who are professors/researchers (11), that is, less than half of the master's students correspond to the number of professors/researchers, showing that they evade the trajectory, confirming this "leak" mentioned above also in women in the nuclear area.

Silva and Ribeiro mention narratives by scientists from different areas showing the trajectory of sexist prejudice, not perceived as such, and explicit situations of gender prejudice. Another aspect highlighted refers to the need to reconcile the profession with family responsibilities, which imply part-time work, the postponement or refusal of motherhood. The authors concluded that the trajectory of the respondents in the sciences was and is built in an environment based on masculine values and standards, which restrict, hinder and direct the participation of women in science [9].

Soares also discusses the causes of the disproportionate representation of women in science and technology (S&T) and attributes the problem to biological, cognitive or socialization differences between the two sexes. In addition, she also identifies those institutional standards also determine individual choices, which maintain and always reinforce these same standards. In other words, the issue of women in S&T is the result of inappropriate institutional structures and not suitable for female participation in STEAM areas. The structure of organizations does not provide professional success for women. This confirms why women do not continue their trajectory in the academic field [10].

The nuclear area is vast in applications, including industry, environment, agriculture, information technology, preservation of even cultural assets and applications in the biomedical field, as nuclear energy can be used for the diagnosis and treatment of diseases. Therefore, it is an area that is heavily researched, but there are problems of diversity in certain lines of research.

According to the IAEA, women make up less than a quarter of the workforce in the nuclear sector worldwide, undermining not only diversity within the industry but also competitiveness [11]. In the present survey, when asked about the line of research or attribution, most of them work in the area of health or biotechnology, which is equivalent to 15.2%, but we can consider that some researches, such as in the areas of radiopharmacy, radioprotection or, medical physics are also related to biotechnology, since they are fields that are applicable in health sciences, considering these areas, the amount becomes greater, equivalent to 40%.

The choice of areas more focused on the biomedical area, suggests the feminization of health occupations and professions, that even many working around nuclear energy, they apply their knowledge to the biotechnological field. This is caused, due to the Brazilian historical factor, that female professionalization started in the 19th century was related to functions that women traditionally perform, activities such as caring, educating, serving, which were understood as a gift or vocation. [12].

Although women's access to higher education has been through so-called "feminine" careers, this is how they were able to build progress in the struggle to social space conquest. Keller portrays in her studies how feminism changed science, she talks about “second wave” feminism which was one of the strongest social movements of modern times that helped to make great changes mainly to change gender paradigms in the field in which they worked and how, the presence of women in positions of leadership and authority in the sciences, led to these changes [13].

Other areas that also attract attention are the areas of production of materials, agricultural sciences, which correspond to 13% each. As the graduate program at IPEN is in nuclear technology, it is expected that a large part will apply in nuclear physics or nuclear instrumentation, corresponding to 9.5%.

IPEN has a nuclear reactor (IEA-R1) that is used for the production of radioisotopes for use in industry and in nuclear medicine, production of radioactive sources for industrial gammagraphy, and research in nuclear physics and with that, a percentage of 7.6 % work with research directly linked to

the reactor or nuclear fuel, since it is possible to irradiate samples to carry out multi-element analysis and research related to the fuel element of a nuclear reactor.

Another area mentioned above, in the field of nuclear energy, is information technology, which corresponds to 4.8%; they are works using artificial intelligence to produce materials, computer simulations and scientific dissemination. The industrial and nanotechnology, which corresponds to 3.8% and 2.8% respectively, are areas that are under development with the production of materials or with the application of ionizing radiation in materials, and it is still an underexplored field that continues to expand.

Regarding management and heads of sectors, 7.6% of the respondents also identified with this attribution and relating to the age group, they are women over 31 years old, but due to the large percentage of women over 31 years old, which is equivalent to 62%, is considered a small number of women working as managers, bosses or leaders of the sector. However, if we restrict and relate the data of managers, heads or leaders of the sector who are teachers/researchers and are older than 46 years, this percentage is lower and equivalent to approximately 4.8%.

These data can also be related to research carried out by Negri in 2019, she says in her work, that even with 54% of doctoral students in Brazil being women, they are not well represented at the highest levels of the career, showing that only 24% of the beneficiaries of the productivity grant granted to the most productive scientists in Brazil are women. And in a leadership position, this number is even lower, for example, in the Brazilian Academy of Sciences, women are underrepresented and reach only 14% [14].

Bringing as a discussion to managerial and leader jobs, Hirata stated that the jobs considered more important, stable and with formal employment relationship, especially those linked to managerial positions, were generally held by men, while the jobs considered precarious and with less attribution of responsibilities were represented by women [15]. With this, it can be concluded from the results that few women assume leadership positions even if they are qualified, however when they are not leaders, women have a majority among researchers, according to a CNPq survey[7].

[7] Data collected through the Lattes Platform by the National Council for Scientific and Technological Development (CNPq) in 2016.

According to the demographic census, about 11.30% of the Brazilian population had completed higher education in their education, being 6.71% women, black or brown, and 17.70% white women[8]. In the Southeast region, about 13.7% of the population had completed higher education, 6.77% black or brown women and 19.9% white women[7].

Through the data registered in the Directory of Research Groups in Brazil, in the Lattes Platform and in the CNPq, the distribution of researchers by maximum degree by region was 60.7% in the doctorate, 28.0% in the master's, 3.4% in the undergraduate, in the northeast region. In the Southeast region, 74.4% in the doctorate, 17.8% in the master's and 3.1% in the University graduate.

Among all Brazilian Universities, the University of São Paulo has around 83.5% of PhD researchers. Distribution of foreign researchers according to Federation Unit, in São Paulo 3.4% of researchers are foreigners[6]. In the year 2020, according to the survey carried out by Open Box da Ciência, based on data registered on the CNPq Lattes Platform, about 40.3% of women have a doctorate (31,394) and 59.69% (46,501) are male doctors. This survey was carried out from the five largest areas of knowledge, they are: areas of linguistics, letters and arts; engineering; applied social sciences; exact and earth sciences; and health sciences with more than 77,800 researchers[9].

Through the quantitative results obtained in the research carried out at the Institute, it can be observed that the Southeast region had a greater number of researchers when compared to other regions of Brazil. IPEN is located within the University of São Paulo (USP), in São Paulo/SP.

As a result, the number of women from other regions is lower, when compared to women born in the Southeast, as can be seen in Figure 2. The difficulty of women in leaving their hometown or country of origin to dedicate themselves to research is quite high conflicting, as several questions, insecurities, doubts and uncertainties begin to arise with the new reality.

[8] Data collected through IBGE in 2010 and 2016.

[9] Data collected through the Research Support Foundation of the State of Paraíba (FAPESQ).

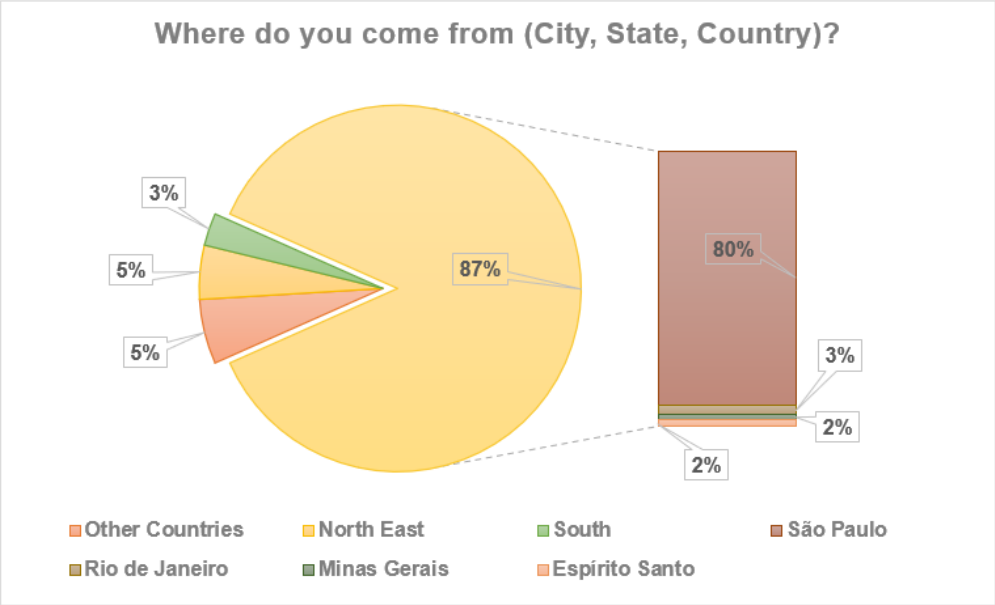

Figure 2: *Answers regarding the naturalness of women.*

When questioning the graduate students about their orientation in the research, about 54.7% responded that they are being mentored by men and 45.3% by women. In terms of researchers/teachers, about 57.1% answered that they were guided by men and 42.9% by women (Figure 3). One of the reasons for this discrepancy is the evasion of women in graduate studies, who often must choose between an academic career and motherhood, among other circumstances that will be discussed below.

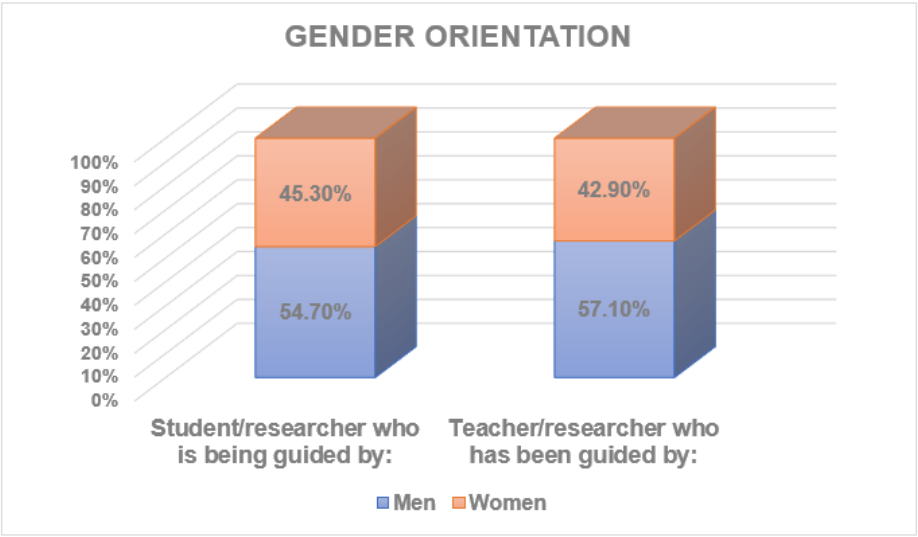

Figure 3: *Guidance according to the advisor's gender.*

The discussion on gender equal has been studied from the perspective of feminist movements, where debates and changes in social representations, both male and female, can be observed. In terms of women's right to vote, paid work, school education, participation in politics, among other participations in social life, are some examples of women's actions [16].

In the "scientific" studies of the fourteenth century, women's performance was considered inferior. According to the book Hereditary genius, its laws and consequences, published in 1869, the researcher of the mind Francis Galton reaffirms “the intellectual superiority of the aristocracy and of the distinguished members of society in opposition to the intellectual inferiority of the poor and of women” [17].

Intellectual differences between men and women were a biological fact and, therefore, permanent. In this way, there were no efforts to offer formal education to women, only what was necessary to perform domestic activities well, educate their children and meet the needs of the home and husband [16]. Throughout history, this claim has been demystified. However, one can still hear conservative and sexist discourses about women's intellectual capacity. A constant consequence of these archaic thoughts are the discrepant salary differences between men and women in the same position and the barriers faced by women to reach higher positions.

The obstacles faced by women can be explained by two mechanisms: horizontal segregation and vertical segregation. Horizontal segregation, through the action and influence of education and family, leads women to make choices, exercise activities and determine different life strategies than men, including the choice of careers. Vertical segregation, on the other hand, includes the social mechanism “glass ceiling” used to represent the difficulties that women face to conquer higher-level positions, as they can even “see” the highest position, the “ceiling”, but not reaches. This means that women do not progress in the work environment and maintain more subordinate positions than men, including in Science and Technology careers [18].

4. CONCLUSION

From this survey, carried out through a voluntarily answered questionnaire, it is possible to conclude that 83.7% of the women declare to be white, 61% are between 18 and 45 years old, most of these

women are from the southeast of Brazil, where IPEN is located. The institute functions as a research center and has a graduate program linked to the University of São Paulo. About 60% of the women who answered the questionnaire are graduate students and of these, 54.7% are supervised by men. As for the women who are linked to the institute only as researchers/scientists, 57.1% answered that they were supervised by men during their academic trajectory. About the line of research or assignment, most of them worked in the area related to health sciences, it is the highest concentration, equivalent to 40%. Only 7.6% of the women held management and leadership positions. The best known women within the institute are: Linda Caldas, Constância Pagano and Mitiko Saiki, the names most cited by women. The Brazilian nuclear area is in constant construction for a sector of equity in terms of female representation, and still has much to do; research such as this work among many other initiatives on gender equity, such as events about women in the sciences, is something that needs to be done more often, support networks and public policies for the recognition and valorization of women are actions that need to be better developed.

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REFERENCES

[1] BARRETO, A. A mulher no ensino superior: distribuição e representatividade. **Cadernos do GEA**, v. 6, p. 5-46, 2014.

[2] SCHIEBINGER, Londa. O feminismo mudou a ciência. **Bauru: Edusc**, p. 32, 2001.

[3] ALMEIDA, S. L. **Racismo Estrutural: A raça e racismo**. São Paulo, Polén, 2019.

[4] GÓIS, J. B. H. Quando raça conta: um estudo de diferenças entre mulheres brancas e negras no acesso e permanência no ensino superior. **Revista Estudos Feministas**, v. 16, p. 743-768, 2008.

[5] SILVA, V. R.; BRUNO, M. M.; MARTINS, F. B. **Ingresso de mulheres indígenas nas universidades cresce 620% desde 2009.** 2019. [http://www.generonumero.media/ingresso-de-mulheres-indigenas-nas-universidades-cresce-620-desde-2009/ - accessed on Jun 1, 2021].

[6] CRUZ, C. F. **Empreendedorismo Feminino na área nuclear: um levantamento histórico do setor e a atuação feminina no Brasil**. Masters dissertation, Desenvolvimento Econômico, UFPR, 2019.

[7] CLARK BLICKENSTAFF, J. Women and science careers: leaky pipeline or gender filter? **Gender and education**, v. 17, n. 4, p. 369-386, 2005.

[8] BEEDE, D. et al. Women in STEM: A gender gap to innovation. **Economics and Statistics Administration** Issue Brief, n. 04-11, 2011.

[9] SILVA, F. F.; RIBEIRO, P. R. C. Trajetórias de mulheres na ciência:" ser cientista" e" ser mulher". **Ciência & Educação (Bauru)**, v. 20, p. 449-466, 2014.

[10] SOARES, T. A. Women in science and technology: restricted success. **Química Nova**, v. 24, n. 2, p. 281-285, 2001.

[11] GASPAR, M.; DUBERTRAND, M. Toward closing the gender gap in nuclear science. **IAEA Bulletin**, 2018, p. 21.

[12] MATOS, I. B.; TOASSI, R. F. C.; OLIVEIRA, M. C. Profissões e ocupações de saúde e o processo de feminização: tendências e implicações. **Athenea digital: revista de pensamiento y investigación social. Barcelona.** v. 13, n. 2 (jul. 2013), p. 239-244, 2013.

[13] KELLER, E. F. Qual foi o impacto do feminismo na ciência? **Cadernos pagu**, p. 13-34, 2006.

[14] NEGRI, F. **Mulheres na ciência no Brasil: ainda invisíveis?** Centro de Pesquisa em Ciência, Tecnologia e Sociedade (IPEA). [https://www.ipea.gov.br/cts/pt/central-de-

conteudo/artigos/artigos/177-mulheres-na-ciencia-no-brasil-ainda-invisiveis – accessed on Jun 11, 2021].

[15] HIRATA, H. Taller las transformaciones del trabajo: genero, flexibilizacion e insercion laboral feminina. **CENTRO DE ESTUDIOS DE LA MUJER (CEM)**, 1999.

[16] GALINKIN, A. L.; BERTONI, L. M. Gênero e educação: um caminho para a igualdade. **Em Aberto**, v. 27, n. 92, 2014.

[17] SAAVEDRA, L.; NOGUEIRA, C. Memórias sobre o feminismo na psicologia: para a construção de memórias futuras. **Memorandum: Memória e História em Psicologia**, v. 11, p. 113-127, 2006.

[18] OLINTO, G. A inclusão das mulheres nas carreiras de ciência e tecnologia no Brasil. **Inclusão Social**, v. 5, n. 1, 2011.