



GENDER PREJUDICES TOWARD FEMALE SCIENTISTS' POSITION IN THE FAMILY AND THE WORKPLACE

Phan Thi Thu Ha

Vietnam Women's Academy, Viet Nam

Email address: phanha@ywa.edu.vn

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Abstract:

Based on the results of a quantitative survey of the subject "Gender prejudice against women in the field of science and technology" conducted by the Vietnam Women's Academy in 2021, the article analyzes gender stereotypes about the position of female scientists in the family and workplace. Research results show that the level of prejudice towards the position of female scientists in the family and the workplace is at an average level. However, a part of the respondents still have prejudiced thinking about the position of female scientists in the family as the keepers of the fire, keeping the family happy; putting family above career and in a position to support their husband's success rather than valuing their career. In addition, the research team also found some stereotypes towards the position of female scientists in the workplace such as women are suitable for professional positions, men suitable for professional leadership positions; women are more suitable for professional jobs than for management positions; Women are more suitable for deputy than the chief, especially in the fields of natural sciences, engineering, and technology.



ĐỊNH KIẾN GIỚI ĐỐI VỚI VỊ TRÍ CỦA NHÀ KHOA HỌC NỮ TRONG GIA ĐÌNH VÀ Ở NƠI LÀM VIỆC

Phan Thị Thu Hà

Học viện Phụ nữ Việt Nam, Việt Nam

Email: phanha@vwa.edu.vn

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Thông tin bài viết	Tóm tắt
<p>Ngày nhận bài: 16/9/2022</p> <p>Ngày sửa bài: 14/10/2022</p> <p>Ngày duyệt đăng: 30/12/2022</p>	<p>Dựa trên kết quả khảo sát định lượng của đề tài “Định kiến giới đối với phụ nữ trong lĩnh vực khoa học và công nghệ” do Học viện Phụ nữ Việt Nam thực hiện năm 2021, bài viết phân tích định kiến giới về vị trí của nhà khoa học nữ trong gia đình và nơi làm việc. Kết quả nghiên cứu cho thấy, định kiến đối với vị trí của nhà khoa học nữ trong gia đình và ở nơi làm việc ở mức độ trung bình. Tuy nhiên, vẫn tồn tại ở một bộ phận người trả lời các quan niệm định kiến về vị trí của nhà khoa học nữ trong gia đình như là người giữ lửa, giữ gìn hạnh phúc gia đình; đặt gia đình lên trên sự nghiệp và ở vị trí hỗ trợ chồng thành công hơn là coi trọng sự nghiệp của riêng mình. Bên cạnh đó, nhóm nghiên cứu còn nhìn thấy một số định kiến đối với vị trí của nhà khoa học nữ ở nơi làm việc như: nữ phù hợp với vị trí chuyên môn, nam phù hợp với vị trí lãnh đạo công tác chuyên môn; nữ phù hợp với các công việc chuyên môn hơn là giữ các chức vụ quản lý; nữ phù hợp với cấp phó hơn là cấp trưởng, đặc biệt trong các lĩnh vực khoa học tự nhiên, kỹ thuật và công nghệ.</p>
<p>Từ khóa:</p> <p><i>Định kiến giới; vị trí; nhà khoa học nữ; gia đình; nơi làm việc.</i></p>	

1. Introduction

Female scientists are an integral part of high-quality female human resources and have made many important contributions to the cause of national constructions to national construction and development. However, the number of women participating in the fields of science and technology is lower than that of men, especially in natural science, technique, and technology. According to the Ministry of Science and Technology, the amount of females joining science research accounts for 46% of the total number of people researching science (the Ministry of Science and Technology, 2021). The rate of female staff at the Vietnam Academy of Science and technology is 41% in 2015 (Thanh Ha, 2015). Besides, the participation of women in the process

of making decisions in the fields of science and technology is even lower. For instance, the percentage of female staff being in charge of scientific projects is noticeably lower than that figure of men. Another issue is the imbalance between the number of males and females in management and leadership, moreover, the rate of women in senior leadership has gradually decreased (Tran Thi Hong, 2018). One of the main reasons leading to those situations is gender prejudice. First of all, gender prejudice comes from the concept of dividing occupations by gender such as “women’s occupations” and “men’s occupations”. Many people believe that women are not suitable for occupations applying high technology and techniques such as industry, construction, and information technology... Therefore, from the beginning, women were afraid of

pursuing subjects and training in science, engineering, and technology. Even when they have entered the field of science and technology, women continue to face the prejudice that they do not have enough ability and will to succeed or be less productive than men. That has created obstacles, and barriers preventing women from working and dedicating.

2. Materials and methods

Based on the quantitative data from the scientific project “Gender prejudices toward women in the fields of science and technology” carried on by Vietnam Women’s Academy in 2021, this article analyzes the gender prejudices toward female scientists’ position in the family and at the workplace. The project is carried on by a questionnaire with 283 male and female researchers and lecturers working in the fields of natural science at the Vietnam Academy of Science and Technology and the Vietnam National University of Forestry. The husbands of the female researchers and lecturers also attend this project. To study this issue, the research team has given several statements related to gender prejudices on the Likert scale, which includes 5 levels: 1= Strongly disagree; 2= Disagree; 3= Neutral; 4= Agree; 5= Strongly agree. The higher the average score is, the more prejudices they have.

According to some authors of several studies, people believe that women pay more attention to their families than their careers. They have to take a lot of time off work to take care of their children so they invest less in careers (Raphael et al, 2014). Women themselves also prefer occupations that do not affect their family responsibilities and are helpful in raising children such as education, psychology, and medicine (Suter, 2006). As a result, women might not think that jobs in STEM fields are family-friendly (OECD, 2008). In the study of Erica and Amanda (2017), both men and women prioritized taking care of their future families. However, women set more family-related goals than men do.

According to several studies, the concept that women, including female scientists, prioritize their being mother and wife still exists quite largely and the fields of Science and Technology do not create favorable conditions for women to perform their family roles well.

3. Results and Discussion

3.1. Prejudices toward the female scientists’ position in the family.

The study investigated the respondents’ opinions about gender-biased statements related to the female scientists’ being mothers and wives in their families. The survey data illustrated that in general, the respondents are confused with these statements and the average score is 3.03. However, the opinions of different groups of respondents have statistically significant differences. According to the result of comparing the mean between the two groups, the male researchers or lecturers show prejudice more clearly about the female scientists’ position in their families than the female scientists and their husbands do. The recorded scores are 3.28; 3.0 and 2.8, respectively. It can be seen that the average score of male researchers or lecturers is 0.48 higher than that of female scientists and 0.28 higher than that of female scientists’ husbands. It reflects the difference in point of view between female scientists and their male fellows quite clearly. While the female researchers/lecturers seem to disagree with the statement related to gender prejudice about women’s position in the family, the number of male fellows agreeing with those statements is higher than disagreeing. Male respondents’ replies are different from females. That the average score of men is 3.2 while the average score of women is 2.84 proving that the level of prejudice of men is higher than that of women. According to the professional title, the group of lecturers agreed with the given statements more than the group of researchers. The average score is 3.28 and 2.85, respectively.

Table 1: Prejudices toward female scientists’ position in family according to several criterias

(Criterias)		Number of participants	Mean	Std Deviation	P
Respondents	Female researchers/lecturers	130	2,83	0,74	0,000
	Male researchers/lecturers	109	3,28	0,83	
	Female researchers/lecturers’ husbands	42	3,0	0,84	
Professional title	Researchers	137	2,85	0,78	0,000
	Lecturers	100	3,26	0,80	
Gender	Female	130	2,83	0,74	0,000
	Male	151	3,20	0,84	

Like other professions, female scientists in the workplace have to handle professional tasks that are appropriate to their position. When they come back home, they also have to take on the roles that society assigns to them, as wives and mothers. Several studies show that women tend to prioritize jobs that allow them to do housework such as household chores and

raising children (Sue, 2006; OECD, 2008; Erica & Co; Amanda, 2017). We have introduced four gender prejudices about the roles of women in the family such as: Women must prioritize being mothers and wives over their work; The wife must sacrifice for their husband's career; The wife must keep the family happy; Difficult in balancing between family and work.

Table 2: Prejudices toward female scientists' position in family

Statements	Mean	Std Deviation	Options (%)				
			1. Strongly disagree	2. Disagree	3. Neutral	4. Agree	5. Strong ly agree
1. With women, being a mother and a wife is more important than being successful in career	3,47	1,107	0	28,1	15,6	37,5	18,8
2. Female scientists could not have a successful career and a happy family at the same time	2,66	1,153	15,6	37,5	15,6	28,1	3,1
3. As a wife, female scientists need to support their husbands' career rather than their own	3,31	1,256	6,2	31,2	3,1	43,8	15,6
4. Women's responsibility is to keep family happy	3,56	1,014	0,0	21,9	15,6	46,9	15,6

From the survey data, we found that the participants have different opinions with the given statements. Most of them agree with the statement "Women's responsibilities are keeping family happy and harmony" with mean score of 3.56. From a long time ago, our ancestors had the concept that "Men make house, women make home" to mention the roles and responsibilities of men and women in the family. Men are in charge of heavy tasks and great jobs outside while women manage, take care of their family and nurture family happiness. Until now, this concept seems to be supported by many people including scientists. Moreover, the respondents also agree that women must prioritize being a wife and mother over other positions

in the workplace. The mean score of the statement "With women, being a successful mother and wife is more important than being successful in career" is 3.47, proving that the respondents think being a good mom and wife is the most important with a woman. Besides, most of the respondents (59.4%) agree that "As a wife, women should support their husband to succeed rather than pursue their own career" (Mean score = 3.31). This score reflects that the concept about women sacrificing to support their husband's success is still quite popular. The statement "Women could not have a successful career and happy family at the same time" is not approved by many respondents with a relatively low average score (2.66). That means women still have the ability to balance career and family.

Table 4: Prejudices about female scientists' position in family based on gender

Statements	Female	Male	P
1 With women, being a mother and a wife is more important than being successful in career	3,12	3,42	0,021
2 Female scientists could not have a successful career and a happy family at the same time	2,26	2,79	0,000
3 As a wife, female scientists need to support their husband's career rather than their own	2,64	3,06	0,002
4 Women's responsibility is to keep their family happy	3,32	3,54	0,06

After comparing prejudices of male and female groups about the position of women in the family, we found that men have more prejudice toward three statements than women. Those three statements called “To women, being a successful mother and wife is more important than being successful in career”; “Female scientists could not have successful careers and happy families at the same time”; “As a wife, the female scientists should help their husband succeed rather than pursue their own career”. The most obvious difference is in the statement: “Female scientists could not have successful careers and happy families at the same

time”. Men support this statement more than women with a mean score difference of 0.53. That means men have less faith in women’s balancing ability between family and career than women believe in themselves. Furthermore, men agree that women should sacrifice their career to support their husband (average score is 3.06) while women hold the opposite opinion (average score is 2.64). It seems that female scientists have overcome the prejudiced thinking “Behind the success of a man is a woman” to pursue their own success.

Table 5: Prejudices toward female scientists’ position in family according to professional title and having/not having children under 36 months

Statements	Professional title			Having children under the 36 months		
	Researcher	Lecturer	P	Yes	No	P
1 To women, being a successful mother and wife is more important than being successful in career	3,15	3,40	0,08	3,49	3,17	0,03
2 Female scientists could not have a happy family and a successful career at the same time	2,21	2,98	0,000	2,77	2,44	0,02
3 As a wife, women should support their husband to succeed rather than pursue their own career	2,65	3,22	0,000	3,02	2,83	0,2
4 Women’s responsibility is to keep family happy	3,39	3,50	0,4	3,42	3,46	0,7

The difference in prejudice about the position of female scientists in the family could also be found between groups according to criteria of professional title and having or not having children under 36 months. There are more lecturers who think that “Female scientists could not have successful careers and happy families at the same time” than researchers with relatively high mean score of 0.77. This result shows that lecturers do not believe that women could balance work and family. In addition, we could see the strong objection of the researchers toward the statement “As a wife, women should support their husband to succeed rather than pursue their own career”. The average score of researchers is 2.65 while that of lecturers is 3.22. The research data also shows that people having children under 36 months support the opinion that women should prioritize family over career more than people

without children under 36 months. The average score is 3.49 and 3.17, respectively.

It can be seen that average score does not clearly illustrate the prejudices toward female scientists’ position in the family. However, we recognize the prejudice level of the male researchers, lecturers and female scientists’ husbands. The prejudices related to gender such as “To women, being a successful mother and wife is more important than being successful in career”; “Female scientists could not have successful careers and happy families at the same time”; “As a wife, the female scientists should help their husband succeed rather than pursue their own career” are still largely known. Those prejudices even exist in the female scientists’ cognition although it is not as strong as in their male fellows’.

3.2. Prejudices toward the female scientists' position at the workplace

Nowadays, female scientists are proving their abilities and positions through significant contributions to society. However, gender prejudice is undeniably a burden they have to break in order to succeed. The female scientists have to face the prejudice not only toward their position at home but also their position and ability at work. Based on literature review and practical observation, the research team gave several gender - prejudiced statements such as: "Women only suit professional positions, not management positions"; "If holding a managerial position, women should only be deputy managers or in charge of corporate affairs"; "Women's contributions are less and not important as men's".

The study result shows that the prejudices of respondents toward female scientists' position at work are at average low level with the average score 2.60. That means the female scientists' position and role at workplace are recognized. According to the criteria of professional title, respondents, having/not having children under 36 months, the frequency of working together with the respondents, the results of difference

testing shows a statistical significance between the groups of participants.

There is a huge difference between researchers and lecturers about the prejudice toward female scientists' position at workplace. The lecturers show more prejudices than the researchers (the average score is 2,24 and 3.07 with $p = 0,000$). The male colleagues have stricter opinions than the women scientists and the husbands about the position of female scientists at the workplace, the average score is 2.96; 2.3 and 2.68 respectively. Although the prejudice level of the husbands is lower than that of male researchers, it is higher than that of female researchers and lecturers. That means the closest people with the female scientists such as their husbands and their male colleagues do not highly appreciate their dedication and do not really support them in promotion. Also, female scientists with children under 36 months hold more prejudice than those without children under 36 months, the average score is 2.83 and 2.49. Male coworkers who do not work with the female frequently show disagreement toward women's management and contribution (average score is 3.52). However, people who usually or often work with female scientists support them. (average score is 2.24 and 2.73)

Table 6: Prejudices toward female scientists' position at the workplace according to several criterias

Criterias		Number of participants	Mean	Std Deviation	P
Professional title	Researcher	136	2,24	0,78	0,000
	Lecturer	100	3,07	0,96	
Respondents	Female researcher/lecturer	130	2,30	0,76	0,000
	Male researcher/lecturer	108	2,94	1,05	
	Husband of female researcher/lecturer	42	2,68	0,90	
Having children under 36 months	Yes	80	2,83	0,99	0,009
	No	175	2,49	0,92	
Frequency of working together	Sometimes	37	3,52	0,89	0,000
	Often	56	2,73	0,99	
	Always	14	2,24	1,07	

With specific gender preconception, female scientists have to face more prejudice such as: Women suit to manage corporation affairs, men suit to manage professional tasks (average score 2.72); Female scientists suit with professional tasks rather

than management (average score 2,70); If women are managers, they should only be deputy managers, especially in fields of science and technology (average score 2.64)

Table 7: Prejudices toward female scientists' position at the workplace

Statements	Mean	Std Deviation	Level of agreement (%)				
			1. Strongly disagree	2. Disagree	3. Neutral	4. Agree	5. Strongly agree
1. Female scientists suit professional tasks rather than management tasks	2,70	1,01	7,0	45,4	22,0	21,6	4,0
2. If women are managers, they should only be deputy managers, especially in the fields of science, technique and technology	2,64	1,09	12,7	41,3	19,6	22,1	4,3
3. Male scientists are suitable for project leaders than female	2,58	1,09	12,6	47,1	15,8	19,1	5,4
4. Female scientists are suitable for managing corporation affairs rather than professional tasks	2,72	1,05	9,1	40,9	22,8	22,8	4,3
5. The female's contributions are not as much as male's	2,58	1,08	13,3	43,7	19,4	19,0	4,7
6. The female's contributions are less important than male's	2,42	1,10	18,8	45,8	14,4	16,2	4,7

27,1% of respondents agree and 22.8% of them have neutral attitudes about the statement “ Women suit to manage corporation affairs, men suit to managerial tasks”. In society, the above concept still exists in a part of people. The fact has proven that female leaders are handling corporation tasks which does not required much professional expertise (Nguyen Thi Thu Ha, 2015). Besides, 25.6% of respondents support the opinion ‘Female scientists suit with professional rather than management tasks’ and 22% of the respondents show a neutral opinion. This result reflects that there are a number of respondents holding the opinion that female scientists have inadequate ability to be managers. Female scientists are believed to suit professional work. Moreover, several people think that if women are managers, they should only be deputy managers and support the male head manager. 25.4% of people agree that “ If women are in management, they should only be deputy managers, especially in fields of science and technology” and 19.6% neither agree nor disagree.

This concept contains both gender bias about management positions and gender stereotypes about

careers because the field of natural sciences, engineering and technology are believed to belong to male domains. Therefore, highest leadership position must be taken by men. Thinking about leadership is thinking about men or thinking of male leaders and female deputy is one of the reasons for the fact that women rarely hold leadership positions in all fields.

It seems that the prejudices toward females' positions are shown more clearly than that toward their roles. The average scores of the statements “Females' contributions are less than males” or “Females' contributions are less important than males” are 2.58 and 2.42. This score presents the agreements of the respondents, which means the contributions of women are recognized in quantity and quality as men.

By gender, the average score of males is higher than that of females in every statement of prejudice toward the position and role of female scientists at the workplace. This shows that the prejudice of men is presented most obviously in the statement: “Male scientists are more suitable for the leader of research projects than female fellows” with the average score

difference of 0.68. Following is the concept “Women only suit to manage corporation affairs, men suit to manage professional tasks” with the average score

difference of 0.65. Moreover, men seem to barely recognize that women’s contributions are as important as theirs with mean score difference of 0.6.

Table 8. Prejudices toward women scientists’ position and role in workplace according to gender and frequency of working together (P<0.001)

Statements	Gender		The frequency of working together		
	Women	Men	Sometimes	Often	Always
1. Female scientists are suitable for professional tasks rather than management tasks	2,40	2,98	3,59	2,81	2,38
2. If the women are managers, they should only be deputy manager, especially in the fields of science, technique and technology	2,39	2,86	3,46	2,78	2,43
3. Male scientists suit to be project leader than female fellows	2,21	2,89	3,59	2,71	2,14
4. Female scientists are suitable for managing corporation affairs while male fellows are suitable for professional tasks	2,38	3,03	3,59	2,94	2,46
5. Female’s contributions are less than male’s	2,33	2,80	3,54	2,65	2,07
6. Female’s contributions are less important than male’s	2,10	2,70	3,32	2,65	1,86

We also recognize that men colleagues unusually working with female scientists have quite a lot of prejudices, the average score is relatively high (from 3.32 to 3.59). Comparing this group with people usually working with the female scientists, the biggest difference is shown in the statements: “Male scientists are more suitable for the leader of research projects than female fellows” (average score difference 1.45); “Females’ contributions are less than males” (average score difference 1.47); “Females’ contributions are less important than males” (average score difference 1.46).

It can be seen that this is the difference related to professional position, women’s contributions rather than management position. The men working with women fellows infrequently show less agreement with women’s being the project leader and also believe that women’s contributions are less important in both quantity and quality than theirs.

Although the number of respondents showing gender prejudices about female scientists’ roles and positions is at average low level, some scientists still hold the opinion that “Women are suitable for management while men suit to lead professional tasks”; “Women are suitable for professional tasks rather than management tasks”; “If women are in management, they should only be deputy managers, especially in fields of science and technology”. The respondents

who are lecturers, men, the ones with children under 36 months and the males colleagues working unusually with female fellows have more prejudices than other groups of respondents. Especially, compared to other groups of respondents, the lecturers and the male colleagues working unusually with female fellows have a noticeable number of prejudices. Those prejudices in the groups of managers and leaders would negatively affect the mindset, the judgment, the way they train and choose female employees, all of these would be a barrier preventing women from promoting and developing.

3.3. Conclusion

In conclusion, the number of respondents holding prejudice toward female scientists’ position at the workplace is at average level. However, some respondents still hold the view that women are the one keeping the family happy and they should prioritize their family and husband’s success over their own career. Notably, these mindsets even exist in women’s thinking although it is not as strong as male fellows’ and husbands’. Besides, the research team also find other prejudices toward women’s position at the workplace such as “Women are suitable for handling professional tasks while men suit to managerial tasks”, “Women suit professional tasks rather than managerial tasks”; “Women suit the deputy rather than head position, especially in the fields of science and technology”.

There are more prejudices about the management positions of women than their contributing roles. We could see that the female scientists themselves and their husbands and the usually-working-together colleagues still hold prejudice about their position in family and at the workplace. Therefore, it is not difficult to understand when in society there are groups of people who do not work in this field or have little contact with female scientists who give inappropriate views and assessments about them.

According to the given data, the research group has suggested some recommendation. First of all, we should spread and strengthen people's awareness of gender equality in society in general and particularly in the fields of science and technology. We should especially pay attention to the groups of husbands and male scientists because compared to other groups of respondents, they are the ones holding the most prejudice toward the female scientists in the fields of science and technology. The content of gender education should focus on the equal roles of women and men in family as well as at the workplace and the ability and contribution of female scientists. Moreover, the female scientists themselves should overcome the prejudices in their own thinking and then in their colleague and family member mindsets. For example, they could learn and boost their awareness of gender equality and develop some necessary skills such as arranging and balancing the time for work and for family.

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