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THE SPATIAL GENDER EQUALITY AND WOMEN'S LEADERSHIP IN SCIENTIFIC ACTIVITY IN UZBEKISTAN

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Abstract

This article talks about the importance of gender equality and leadership in scientific activity in the world in the current era of globalization and its importance. In addition, special attention is paid to the need of the times to ensure the legal freedoms and legal interests of women scientists in Uzbekistan, as well as the new reforms and opportunities implemented in this regard, including their place and role in society. We have collected (using statistic online database), analyzed gender equality and leadership in scientific activity during 2017–2021 in Uzbekistan. Our research shows that the number of women studying at the base doctoral institutes experienced a more significant increase, reaching 1355 in 2021. The number of graduates remained relatively steady, ranging from 117, 114 to 115 in the first three years including partial growth of 240. Notably, there was a substantial increase in 2021, with 331 women completing their doctoral studies. The statistical analysis showed that international research on gender equality and leadership in scientific activity is needed to expand the scientific exchange on this topic, as well as long-term, continuous research and sustainable development of gender equality and leadership concepts for future high education organization and education management integration will be useful.

Keywords: *Gender equality, Uzbekistan, women's leadership, scientific activities, doctoral, statistical analysis, spatial, globalization, new reforms, leadership concepts, management integration.*

Introduction. There are numerous standards in the world that showcase the prestige and cultural advancement of the state and society. However, there is one standard that undeniably demonstrates the emotional development of any nation and its people, which is gauged by the society's perception of women [1]. Cooperation between the Women's Committee of Uzbekistan (WCU) and the Asian Development Bank (ADB) has a long history, which began in the 2000s with support for the publication of the statistical compendium "Women and Men of Uzbekistan". Since then, in close cooperation with ADB, various projects and initiatives aimed at achieving gender equality in the Republic have been implemented. One of the areas of joint work is the conduct of a gender assessment in the country. The first such publication was published in 2005, the second one in 2014, and the current Country Gender Assessment Update (CGAU) is the third in a row [2]. Since the day of independence, gender equality has been one of the fundamental democratic principles of the Republic of Uzbekistan, which is enshrined in the Constitution of the country, which proclaims the equality of men and women. Uzbekistan has joined more than 60 international human rights agreements, joined a number of international organizations and conventions dedicated to the promotion of gender equality and the protection of women's rights. The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) was ratified by Uzbekistan in 1995, and CEDAW National Action Plans are approved and implemented on a regular basis. The Women's Committee of Uzbekistan (WCU) is the main driving force for ensuring gender equality in the country [3]. In each administrative territorial body, departments of the women's committee, headed by the deputy head of the administration for women's affairs, function operatively. The government provides ongoing support to the WCU. Thus, in one of the latest presidential decrees, measures are defined to radically improve activities in the field of supporting women and strengthening the institution of the family. In this regard, conducting a gender analysis and assessing the status of projects and initiatives aimed at improving the status of women and men is a timely important aspect of the effective work of the WCU [4]

Gender equality in Uzbekistan has experienced periods of decline and growth since independence in 1991. The Constitution of the Republic of Uzbekistan enshrined the principle of non-discrimination and ensuring equal rights for women and men, for which the Women's Committee of Uzbekistan (WCU), headed by the Deputy Prime Minister, was established in the government structure, which is a key player in promoting gender equality. The Women's Committee has a network of branches in each territorial administrative unit, headed by the Deputy Head of Administration for Women's Affairs. The last Decree of the President of February 2, 2018 creates conditions for the further development of the activities of the WCU and will contribute to more systematic approaches to gender equality issues. As the most pressing issues, the WCU highlights "employment, creation of new jobs, development of business and entrepreneurial skills" as the main problems of urban women. For rural women, “lack of local social and communal infrastructure, the need to develop family and home work” were identified as the most pressing issues to be addressed. Since the beginning of 2017, for the first time in the history of independent Uzbekistan, national virtual receptions have been created in each administrative unit in order to simplify the interaction of citizens with government services. The WCU conducts regular monitoring of women's applications submitted to virtual receptions in order to address the issues raised. To date, the main issues that women have addressed to virtual receptions have been requests for legal, social, housing, financial assistance, questions and suggestions related to cultural behavior, dress code, weddings and ritual events [4].

In 2017, several higher education institutions resumed recruitment for correspondence departments in various specialties, which allows students to receive higher education without the need to physically attend classes, except for the period of passing exams. The resumption of part-time university education has a good potential for achieving gender balance in higher education. Among students studying in the system of higher education, girls make up 38.2%, and men - 61.8%. In rural areas, in families with limited income, preference for higher education may be given to sons, since education in most cases is paid. This may also be due to the reluctance of parents to send their daughters to study far from home for a long period of time (given that that two-thirds of higher education institutions are located in the country's three major cities). The low proportion of women in higher education

compared to men may further serve as a serious barrier to increasing women's competitiveness in the labor market. Education and healthcare are traditionally considered "women's" areas. The choice of the direction of education is also largely determined by gender stereotypes, which then manifest themselves in the labor market. Technical areas of study lead to jobs in higher paying sectors, while liberal areas lead to lower paying jobs [5].

As part of the implementation of the National Action Plan (NAP) under the CEDAW Convention and the Universal Periodic Review (UPR), the WCU is implementing various activities that focus on combating traditional stereotypes regarding the role of women and men in the family and in society. For example, in 2017, the public organization "Meeting of mothers-in-law" was organized at each mahalla committee. Thus, in 2017, social and psychological assistance was provided to 3,113 families in a difficult situation, about 6,000 families were reunited, and alimony was paid to 5,376 mothers. However, it should be noted that the information activities of the WCU do not yet cover such issues as the choice of a profession by girls and the segregation of women in the labor market, programs to attract young women and girls to traditionally non-female sectors of the economy. Such programs and strategies could help reduce gender disparities in these sectors. Also, it is necessary to work out and include in the long-term strategy of the WCU additional structured, comprehensive and systematic measures to combat traditional stereotypes [6].

Women's choice of areas of education and the prospects for their subsequent employment are largely determined by gender stereotypes. In choosing a professional career, girls are often motivated not so much by the motives of employment and a successful career as by the desire to acquire qualifications that will be useful in family life, such as being a health worker, teacher or dressmaker. Women in rural areas are significantly less competitive in the labor market, given the limited number of locally available jobs, as well as the lack of educational training, professional qualifications and skills [7].

Another factor affecting women's employment is related to their unpaid reproductive functions. A 2015 study found that women in both Organization for Economic Cooperation and Development (OECD) and non-OECD countries spend roughly the same amount of time in unpaid work in traditional reproductive gender roles as men do in productive paid work. The need to balance income-generating activities with family and domestic responsibilities may explain why women are more likely to work part-time or in the informal sector [8].

Women in rural areas often earn income by participating in family businesses, such as working on the farm or doing handicrafts. A 2016 study by the United Nations Food and Agriculture Organization found that home-based work has a lot of untapped potential. However, few women and men in rural areas have sufficient access to the information and knowledge that would help them develop home-based skills or expand their small businesses. This study also showed that gender stereotypes play a decisive role in the distribution of responsibilities in families, limit the activities of women, their use of resources and their influence on decisions [9].

Women and men have different roles and responsibilities in the performance of domestic tasks. Men are usually responsible for activities that require brute strength, they are also more likely to acquire relevant technical knowledge and skills (such as driving and operating agricultural machinery), and they also have better business negotiation skills. Women, while responsible for housework and work in the fields, are also employed in home-based production for the purpose of selling and/or generating income; for example, in the manufacture of downy shawls from sheep wool, dairy products, sewing, baking, etc. In such processes, men are responsible for transporting and helping women to sell their products. Although women bear a significant share of the responsibilities of home-based production, they do not always manage the process and do not make decisions on their own.

Gender asymmetry in higher education also manifests itself in areas of study – girls dominate in traditionally “female” areas such as health care and education, while young men are concentrated in technical disciplines such as finance, transport and communications, construction and engineering.

2. Materials and Methods

The research was carried out on the most widely used Statistics Agency stat.uz for period of 2017-2021 in Uzbekistan [10]. For the searching process, relevant information, such as keyword “gender equality” in scientific activity were added to a spreadsheet. The analysis was carried out in July 2023. The analysis was performed using Microsoft Excel 2021.

3. Results

Doctoral studies play a crucial role in shaping the future of academia and research. Here's an essay comparing the data bar chart diagrams for a comparison of Doctoral Studies between Women and Men. We will examine and compare the data presented bar chart diagrams, which provide insights into the progress of women and men in doctoral programs, focusing on the indicators of the number of doctoral students, those admitted to the doctoral program, and graduates of doctoral studies over the five-year period from 2017 to 2021.

When examining the number of doctoral students, it becomes evident that both women and men demonstrated a significant increase over the five-year period. When analyzed, the indicator numbers, which showed a very large increase, are the first indicators, the number of doctoral students. In 2017, the base doctoral institutes had 584 women enrolled in doctoral programs, while men had 1048. Over the following years, both groups witnessed an upward trend in enrolment. Women’s indicators were 629, 824,1040 during three following years while men’s were 1135, 1423, 1634. However, the number of women studying at the base doctoral institutes experienced a more significant increase, reaching 1355 in 2021. On the other hand, the number of men studying in doctoral programs also rose steadily, culminating in 2525 in 2021. Overall, both genders witnessed substantial growth, although men had a higher number of doctoral students throughout the entire period.

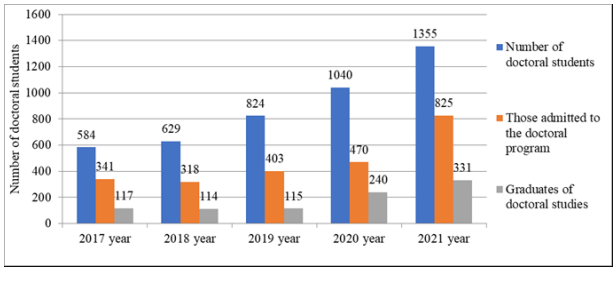


Figure 1. Number of women studying at the base doctoral institutes, admission and graduates.

Next, let's analyze the admissions to the doctoral program. Analyzing the admissions to the doctoral program reveals distinct patterns between women and men. The data indicates that the number of women admitted to the doctoral program fluctuated over the five-year period. In 2017, 341 women were admitted, and the number remained relatively stable until 2020, when it reached 470. However, there was a significant surge in admissions for women in 2021, with 825 individuals being admitted to the program. Conversely, the number of men admitted to the doctoral program showed a consistent increase over the years, with a steady rise from 586 in 2017 to 1175 in 2021. This data suggests that men had a more consistent upward trend in admissions, while women experienced more variability in their admissions numbers.

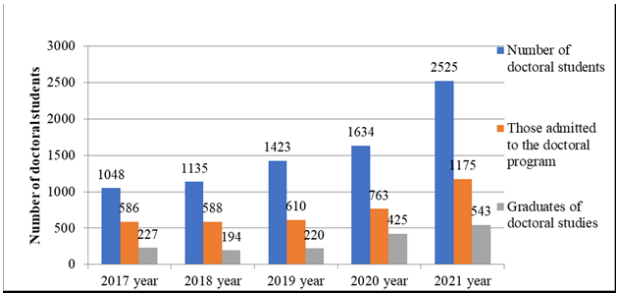


Figure 2. Number of men studying at the base doctoral institutes, admission and graduates.

Finally, we turn our attention to the graduates of doctoral studies. The data reveals varying numbers of graduates for both women and men throughout the five-year period. When considering the number of graduates, both women and men showcased notable achievements. The data shows that women consistently produced a considerable number of graduates each year. For women, the number of graduates remained relatively steady, ranging from 117, 114 to 115 in the first three years including partial growth of 240. Notably, there was a substantial increase in 2021, with 331 women completing their doctoral studies. Similarly, the number of male graduates fluctuated, with a range of 194 to 543. The highest number of male graduates was recorded in 2021, reflecting a positive trend in completion rates. Although men had a higher number of graduates in certain years, women consistently contributed to the pool of doctoral graduates throughout the five-year period.

In conclusion, the comparison of the data between women and men in doctoral studies highlights intriguing insights. While both groups experienced growth in the number of doctoral students, women exhibited a more pronounced increase. The admissions to the doctoral program showcased fluctuations for women but a steady upward trajectory for men. Interestingly, the number of female graduates remained relatively stable, whereas male graduates showed significant variation. These findings underline the progress made by both women and men in pursuing doctoral studies, contributing to the advancement of knowledge and research in their respective fields.

Given is in the Table 1 which presents data concerning Republic of Karakalpakstan and thirteen regions of Uzbekistan number of male students in higher education organizations in 2017-2021. Almost 178509 male students in 2017 and we can see increase to 439391 male students in 2021 all Uzbekistan regions. Between them the largest number of male students in Andijan from 11376 to 24432, in Samarkand from 18814 to 41828 and in Tashkent from 71795 to160491 in 2017-2021.

Table 1.
Number of male students in higher education organizations.

Regions	2017	2018	2019	2020	2021
Republic of Uzbekistan	178509	200805	238454	311486	439391
Republic of Karakalpakstan	9479	10475	11991	17489	22479
Andijan	11376	11489	12917	16322	24432
Bukhara	9470	10952	12704	18770	22508
Jizzakh	7248	7886	9152	12715	15682
Kashkadarya	9643	10648	12337	15229	26768
Navoi	4198	4796	5421	6818	8948
Namangan	7471	8511	10211	13820	21408
Samarkand	18814	21001	24205	31256	41828
Surkhandarya	5496	7241	9009	12624	20301
Syrdarya	2426	3134	3983	4593	7745
Tashkent	5224	9595	12444	17538	25551
Fergana	10785	12572	16609	24758	28741
Khorezm	5084	6157	7400	9998	12509
Tashkent city	71795	76348	90071	109556	160491

Table 2 lists of the female students in higher education organizations in Uzbekistan from 2018 to 2022. We can see that the number of female students has increased three times from 159399 to 494758 in 2018-2022. Among them, the largest number female students in Republic Karakalpakstan from 11797 to 28877, in Samarkand from 13929 to 37956 in Fergana from 14604 to 42180 and in Tashkent from 45214 to 147995 in 2018-2022.

By 2017, the ratio of women's wages to men's wages was 64.8 percent of total wages (or 35.2 percent less). The three lowest-paid occupations with the largest share of working women: education, health, and the social sector, also had low rates of research opportunities. As of 2018, the public sector provided 98 percent of its employees with social security. In it, 69% of women are engaged in technical and scientific research. There are significant gender differences in the areas of study in specialties in higher education institutions. In 2018, 42 percent of female tertiary graduates worked in education, while 45 percent of male tertiary graduates worked in science, technology, engineering and mathematics [10].

In order to further expand women's opportunities to receive higher education, a mechanism for additional quotas based on additional state grants has been put into practice since 2020. This mechanism contributed to ensuring gender equality in enrollment in higher education. Today, the share of women studying in the higher education system is 46 percent.

Table 2.
Number of female students in higher education organizations

Regions	2018	2019	2020	2021	2022
Republic of Uzbekistan	159399	202537	260026	369048	494758
Republic of Karakalpakstan	11797	13451	17998	24106	28877
Andijan	10229	13119	14573	23219	29224
Bukhara	9943	12067	16855	21451	30194
Jizzakh	6846	8848	10676	14273	18402
Kashkadarya	7743	10115	12606	17454	26821
Navoi	6845	8215	10197	12762	17649
Namangan	8231	9898	12169	20421	25337
Samarkand	13929	16888	23571	28944	37956
Surkhandarya	7829	11122	13004	19608	25897
Syrdarya	3677	5106	5004	9016	11574
Tashkent	5287	8470	10971	17277	26734
Fergana	14604	19210	23657	33591	42180
Khorezm	7225	8816	12789	16232	25909
Tashkent city	45214	57212	75956	110691	147995

4. Discussion. The causes of gender asymmetry in higher education are varied. In rural areas, the preference for higher education for boys is primarily due to the reluctance of parents to send their daughters to study far from home for an extended period of time, given that two-thirds of higher education institutions are located in the cities of Tashkent, Samarkand and Andijan. Because of the relatively high cost of education, families may prefer sons

over daughters. It is believed that the daughter will marry and move in with her husband. Consequently, investing in a daughter's higher education may be an unreasonable burden on the family budget. At the same time, the groom's family is often unwilling to pay for the daughter-in-law's education, so many middle- and high-income families continue to pay for their daughter's higher education even after they marry her. The cost of living and traveling to higher education can also be a factor that reduces opportunities for young men and women.

Another factor is the age of 19-22, which is considered optimal for girls to get married. In a situation where there is a choice between higher education and marriage, young women, or their parents, often prefer family building. Therefore, young girls with a high degree of probability will not be able to repeat their attempt to enter a university if they do not pass the competition in the first year after graduating from a college, lyceum or 11th grade school. The level of education of women is also affected by their fertility function: the birth rate in Uzbekistan is the highest among women aged 20 and over. However, family attitudes towards higher education are changing as awareness of its value grows. Daughters-in-law with a high level of education are becoming more in demand in both urban and rural families, as they have a higher potential to contribute to the family budget

In the state policy of reforming the higher education system, innovations are also taking place, as a result of which positive changes in the gender perspective can be expected. Since 2017, 15 higher education institutions have restored correspondence departments in various specialties. Correspondence form of education is intended for students who combine training with work, sports or other activities and has a lower commercial value. For young women, this form of education will provide an opportunity for higher education, combining education with childcare and other family responsibilities. The abolition of distance learning has been a major barrier for many women to pursue higher education and thus gain access to better job opportunities.

At the institutional level, the proportion of women among the staff in the higher education system is quite high - 48.6% of the total number of employees. Among them are eight women academicians, 310 doctors of sciences (16%) and 3,025 candidates of sciences (33%). Women occupy a significant number of leadership positions in scientific and educational institutions: 20 women are vice-rectors of higher educational institutions, two are rectors, 34 are deans of faculties, and 390 are heads of departments.

However, the high proportion of women in the "Management and Specialists" segment is mainly due to teaching positions (over 42%) with a downward trend. The reasons for this trend need further study.

5. Recommendations:

• The support of the donor community is needed to analyze the factors contributing to the decline in the share of female students in higher education, including factors related to the economic situation and lack of infrastructure;

• Support from the donor community is needed to conduct a labor market demand assessment and gender analysis to identify employment opportunities for women in non-traditional sectors such as industry, energy, transport, construction, information and communications technology, finance;

• At the national level, support is needed for special measures to improve gender balance in the choice of academic subjects and areas of study, such as setting quotas for scholarships, organizing internships, mentoring programs, and creating incentives for hiring women in non-traditional sectors;

• Community outreach with the participation of the WSC and other non-state actors carried out under the GPA developed for projects should promote technical and vocational education and training for girls, as well as opportunities for the education of women in non-traditional technical disciplines. Currently, there are very few women scientists in Uzbekistan in the technical field.

Conflict of interest The authors have no conflict of interest.

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