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SUPPORT MEASURES FOR WOMEN SCIENTISTS IN KAZAKHSTAN

The research is devoted to the problem of gender inequality in the sphere of science in the conditions of sustainable development. The purpose of the article is to analyse measures to support women scientists in the digital space of Kazakhstan. The study used the methods of illustrative and content analysis. The results of illustrative analysis show that there is gender equality in science, but there is inequality in engineering and technological sciences. The results of content analysis show that since 2017, the issue of supporting women scientists with different activities is rarely raised, but specific financial, material and moral support is not observed. Therefore, an optimal model of financial support for women scientists to improve the social life and quality of development and research was developed. The theoretical significance of this article is to close the gap in the scientific problem of gender inequality. Practical significance can be reflected in programs, strategies and projects of public and private institutions.

Keywords: gender, science, women scientists, inequality, financial support

Introduction

Socio-economic and environmental changes in the world require a new approach to human existence, therefore, the scientific community has a huge role to play in solving these problems. The world is undergoing climate change, which is causing environmental, technological and economic disasters. In this context, the UN plays an important role, which has developed the sustainable development goals in 2015. The fifth sustainable development goal is gender equality, including gender equality in science. Since then, attention in the gender dimension of science and technology has been growing. However, there is gender disparity in the number of researchers worldwide – male researchers are more than female researchers, in the salary received – male researchers have more salary, also male researchers are more in STEM fields, etc. Thus, the research and development of women researchers is negligible, if significant, it is completely undervalued. Hence, the problem of underrepresentation of women scientists in the scientific community needs special attention and support. There are many studies that raise the problems of women scientists in universities and scientific organisations [1, p.581; 2, p. 345; 3, p. 1046]. One of the main problems is negative stereotypes, namely the public perception that women scientists are less responsible and reliable than men [4, p. 298]. Serious research and development requires a lot of effort, knowledge, skills and concentration [5, p. 23]. Concentration of women scientists may dissipate as they are socially responsible to family. There are not few countries in the world where women are obliged to keep the hearth and take care of the weaker members of the family. There are countries where women not only cannot pursue science, they also have no right to education. On the other hand, there are countries where women scientists are given financial support, moral and material support to carry out quality research that will lead to sustainable development. Many researchers have proved the benefits of financial support mechanisms for women scientists [6, p. 83]. Qualitative research requires creativity which is achieved in welfare. In this regard, the purpose of this study is to analyse the support measures for women scientists in the digital space of Kazakhstan.

Materials and methods

The Sustainable Development Goal points to the importance of gender equality in all aspects of life. One avenue for gender equality is in the field of science. Science contributes to solving global problems and has the potential to prevent socio-economic and environmental problems. There is a wealth of research on gender equality issues, but there is a lack of research on gender equality in science. Gender equality in science implies equal opportunities to conduct research, equal access to careers and infrastructure, and the ability to actively publish and be cited in scientific circles on an equal basis with men. Earlier studies have addressed

the theory of gender equality [1, p.581] and discrimination against women in labour, wages and career advancement [2, p. 345; 3, p. 1046; 7, p. 619]. Santos and Klasen elaborate on the theory of gender inequality and its impact on economic development. Supporting and promoting women's academic careers continues to be of interest to researchers. Feeney and Bernal[8, p.4] investigated the problem of counselling support for women scientists in universities. They concluded that women scientists can only seek counselling from women scientists, they can also set up a special association where they can share developments and get feedback on the research. Chapple and Ziebland [9, p. 767] investigated discrimination and the impact of negative stereotypes on career development. According to their study, female scientists are unable to reach leadership positions in science due to social expectations, low trust or lack of support. Provision of financial support is mentioned in earlier studies [10, p.404] where it is observed that provision of financial support is favourable indirectly and directly will affect the productivity of women scientists. In Kazakhstan, the problems of gender equality in the field of science is new and relevant. Previously, scientists raised the issues of gender equality of women's participation in marketplaces [11, p.343], the study of gender equality problems in foreign countries [12, p.7], but there is no analogue study in Kazakhstan.

Results and discussion

Supporting women scientists helps unlock the potential of human capital in science. According to official data, there are 18,014 researchers in Kazakhstan as of 2022, with 54 per cent female researchers and 46 per cent male researchers. However, the concentration of female researchers is observed in the humanities and social sciences. Figure 1 shows the data on the proportion of women and men in science.

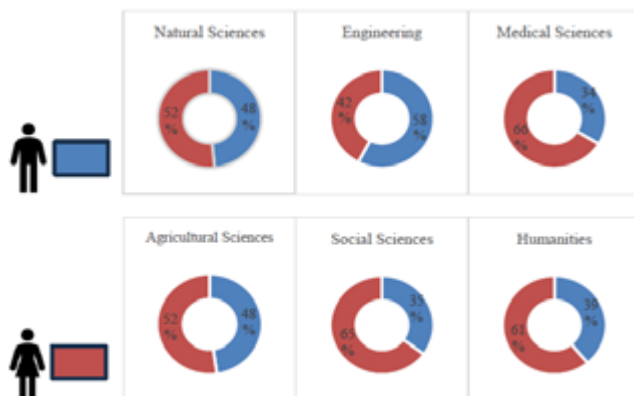


Figure 1 – Percentage of the number of female scientists in the fields of science
 Note: Compiled by the authors on the basis of data from the National Statistical Bureau of the Republic of Kazakhstan

According to the figure, except for engineering and technology, the number of female researchers is higher in the other fields. As we know, the research that will lead us to innovative developments are STEM areas. For Kazakhstan, the development of engineering science and research in this area is relevant, as the country has huge reserves of natural resources, which it exports. Consequently, in economic development Kazakhstan pursues the goal of production of domestic and import-substituting goods. In this regard, the potential of women scientists in engineering fields has not been revealed. Thus, based on this, the following conclusions can be drawn, firstly, there are more female researchers than male researchers. Secondly, female researchers are concentrated in humanities and social sciences, male researchers are concentrated in engineering and technological sciences. It should be noted that engineering and technology research and development generate more margins than social sciences and humanities. Third, major scientific developments are done by men. According to the patent office, 25 per cent of the total number of patent works are inherent to women.

The first steps were taken in 2017 (figure 1), following the UN's 2015 announcement of the key Sustainable Development Goals. In 2017, women scientists in the humanitarian field established the Society of Women Scientists. However, there is no information about the society's activism at the moment. In addition to social activists, universities have undertaken the creation of

unions and societies that provide methodological, counselling support to women scientists. Also, every year, each domestic university maintains a digital content of prominent women scientists in their university. This shows the achievements and scientific developments of domestic women in the field of science. In addition, UNDP organises training events for women researchers in Central Asian countries, where they share new research methods and developments with each other. The experience of the community of women researchers who study abroad is interesting. Their aim is to support and motivate women researchers in Kazakhstan to apply for foreign scholarships and grants in the field of science. Also, this community shares experience and research skills. In 2023, the Astana Hub innovation cluster launched a project that aims to teach digital skills to women from the age of 18. Digital skills include working on MS Office, app development and basic programming.

Thus, in Kazakhstan, support for women scientists is provided on a voluntary basis. The main direction is moral support, training, marathons and conferences. However, foreign countries and private companies practice material and financial support of women scientists, which is the main thing in conducting scientific research. It is well known, most of the women are limited in action as they are socially responsible to family and childcare. In addition to this, it has been proven by scientists that women tend to work in lighter jobs as they have to combine their personal life with work.

Table 1 – Measures to support women scientists in the digital space of Kazakhstan

Organisation name	Purpose of creation	Activities
Society of Women Scientists. (since 2017).	The first movement of women scientists in the Republic of Kazakhstan. The aim of the communities is to address the issues of multilingual education, to use innovations in language teaching in the modern world.	The last event was held in 2023. There was a presentation of the main project of the community - presentation of the encyclopaedia «Famous Kazakhstani women scientists» Activity is weak
Union of Women Kazakh National University (since 2018).	The aim of the union is to protect the rights and legitimate interests of women, strengthen the role of women in the public, economic, social and cultural life of the university and the country.	The Union is active. Teachers, students and young scientists of KazNU are involved. A very active community
«Women in Science» NARIKBAYEV UNIVERSITY. (since 2018).	The aim of the community is to represent and protect the rights of women scientists and their scientific interests.	Conferences, masterclasses, round tables. Not active at the moment

Union of Girls' Scholars Abroad. (as of 2019).	Motivation	Kzphdgirlsunion - instagram page doctoral students of foreign universities share their knowledge and motivate their subscribers. Lack of activity
Astana Hub, EPAM and Techno Woman (from 2023)	The aim is to train more than 2,000 unemployed women in IT professions, enabling them to create their first projects.	IT-Aiel Project. Free course, 8 weeks. Teaching digital skills and freelancing, with the aim of helping to achieve financial stability.
UNDP project with financial support from the Government of Japan. (since 2017).	Enhancing the skills of women scientists	marathons, master classes allowed to expand understanding of such issues as building a personal brand, commercialisation of scientific approaches
Note - Compiled by the authors		

Thus, in order to unlock the potential of women researchers in Kazakhstan, volitional measures should be taken in the form of financial assistance for training, software, travel, equipment and nannies for childcare. In this regard, we have developed an optimal model of measures to support women researchers with outputs (Figure 2).

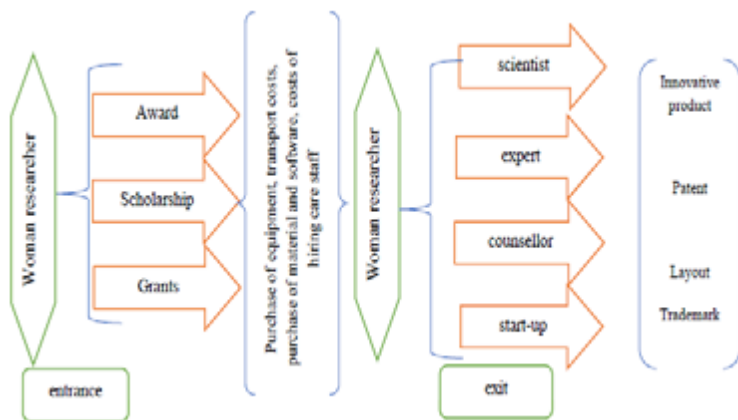


Figure 2 – Optimal model of financial support for women researchers

Note – Compiled by the authors

Figure 2 epitomizes the incentives for women with financial mechanisms to improve and deepen skills and overcome domestic obstacles to realise scientific ideas. A female scientist is not different from an ordinary woman, she also solves social and domestic problems to ensure the normal life of the family unit of society. Accordingly, a woman scientist may have difficulties in implementing scientific developments, learning new skills, etc. The optimal model shows that financial and material stimulation of women researchers will probably give a new impetus and women will qualitatively improve their activities in the field of science and thus can expand their career opportunities. Namely, a woman who will have sufficient scientific knowledge and skills will be able to become an expert, consultant and develop her own know-how and launch her own business. There are many examples of this, such as the field of agro-culture, where women are practically developing innovations and launching or improving businesses in the agro-industry (AGRITECHNICA). To summarise, it can be concluded that the scientific potential of women scientists is enormous and can be harnessed for sustainable development.

Conclusions

This article mainly addresses the issue of gender inequality in science. The article provides both an overview of previous studies and our vision of supporting women researchers in Kazakhstan to support sustainable development objectives. The article uses illustrative and content analyses to show the proportion of women researchers in the field of science and measures of support for women researchers by both the state and private individuals, namely public figures who are not indifferent to science in Kazakhstan. Illustrative analysis shows that the share of women researchers in humanities, medical, agrarian, natural and social sciences exceeds slightly the share of men researchers. The share of women in engineering and technological sciences significantly exceeds the share of male researchers. It should be noted that the science labour market has a deficit in engineering personnel. For Kazakhstan there is an acute issue of personnel training in engineering directions, as in the near future 75 % of personnel in the labour market will be STEM specialists. Content analysis shows that the problems of gender inequality in science were started after the adoption of the Sustainable Development Goals. Public associations and communities have little influence on the formation and establishment of quality researchers, therefore it can be concluded that the measures taken are not sufficient. Therefore, we have developed an optimal model of financial support for women scientists, which can significantly influence the research and development of women scientists. This model will allow the government to more effectively influence the trend of development and support of women researchers in Kazakhstan.

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МЕРЫ ПОДДЕРЖКИ ЖЕНЩИН-УЧЕНЫХ В КАЗАХСТАНЕ

Исследование посвящено проблеме гендерного неравенства в сфере науки в условиях устойчивого развития. Целью статьи является анализ мер поддержки женщин-ученых в цифровом пространстве Казахстана. В исследовании использованы методы иллюстративного анализа и контент-анализа. Результаты иллюстративного анализа показывают, что в науке существует гендерное равенство, а именно существует неравенство в инженерных и технологических науках. Результаты контент-анализа показывают, что с 2017 года вопрос о поддержке женщин-ученых в различных видах деятельности поднимается редко, но конкретной финансовой, материальной и моральной поддержки не наблюдается. Поэтому была разработана оптимальная модель финансовой поддержки женщин-ученых для улучшения социальной жизни и качества разработок и исследований. Теоретическая значимость данной статьи заключается в устранении пробела в научной проблеме гендерного неравенства. Практическая значимость может быть отражена в программах, стратегиях и проектах государственных и частных учреждений.

Ключевые слова: гендер, наука, женщины-ученые, неравенство, финансовая поддержка

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ҚАЗАҚСТАНДАҒЫ ӘЙЕЛ ҒАЛЫМДАРДЫ ҚОЛДАУ ШАРАЛАРЫ

Зерттеу тұрақты даму жағдайындағы ғылым саласындағы гендерлік теңсіздік мәселесіне бағытталған. Мақаланың мақсаты Қазақстанның цифрлық кеңістігінде әйел ғалымдарды қолдау шараларын талдау болып табылады. Зерттеуде иллюстрациялық талдау және контент талдау әдістері қолданылды. Иллюстрациялық

талдау нәтижелері ғылымда гендерлік теңдік бар екенін көрсетеді, атап айтқанда инженерлік және технологиялық ғылымдарда теңсіздік бар. Мазмұнды контент талдау нәтижелері 2017 жылдан бастап әртүрлі қызмет түрлерінде әйел ғалымдарды қолдау мәселесі сирек көтерілетінін көрсетеді, бірақ нақты қаржылық, материалдық және моральдық қолдау байқалмайды. Сондықтан әлеуметтік өмірді және әзірлемелер мен зерттеулердің сапасын жақсарту үшін әйел ғалымдарды қаржылық қолдаудың оңтайлы моделі жасалды. Бұл мақаланың теориялық маңыздылығы гендерлік теңсіздіктің ғылыми мәселесіндегі олқылықты жою болып табылады. Практикалық маңыздылығы мемлекеттік және жеке мекемелердің бағдарламаларында, стратегияларында және жобаларында көрінуі мүмкін.

Кілтті сөздер: гендер, ғылым, әйел ғалымдар, теңсіздік, қаржылық қолдау

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5,04 Мб RAM

Шартты баспа табағы 17,4

Таралымы 300 дана. Бағасы келісім бойынша.

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