

Trends in the Study of Gender Issues in Central Asian Countries: A Comparative Bibliometric Analysis Using the Scopus Database

Stalifa Bektursyn,[†] Sholpan Abdreyeva,[‡] Imanaly Akbar,[‡] Alexandr Artemyev,[‡] Bauyrzhan Pazykhaiyr^{†*} and Inkar Kartanova[¥]

Abstract

Recently, noteworthy progress has been made in the transition to gender equality, and the actions of several governments worldwide have been described as steps towards finding positive solutions to this issue. Ensuring gender equality is crucial in achieving sustainable development and effective economic growth at both the national and regional levels. Various articles on gender studies in the Central Asian (CA) region were retrieved using Scopus, one of the most popular databases. VOSviewer Version 1.6.20 was employed to analyse different metrics such as co-citation networks, co-occurrences, and author keywords. A total of 132 articles were extracted from the Scopus database and analysed through five bibliometric analysis units: evolution of scientific production, analysis of authors, analysis of sources/journals, analysis of countries and institutions, and analysis of author keywords. The main findings of this study can be summarised in the following three key points: (i) The scientific output of articles addressing gender issues in the societies of CA countries remains insufficient, and the commitment to achieving gender equality does not align with international and regional interests; (ii) Kazakhstan, Kyrgyzstan, and Uzbekistan are recognised as countries that devote considerable attention to scientific research related to gender in the CA region. In contrast, Turkmenistan is identified as a country that does not engage in gender research at the international level, primarily due to a lack of materials in the Scopus database; (iii) Overall, it can be concluded that the implementation of gender equality in the Central Asian region still lacks substantial support from the state, as research related to gender issues in this area has predominantly been conducted and supported by democratic and well-developed countries such as the United States, the United Kingdom, and Germany.

Keywords: Bibliometric Analysis; Gender Issues; Central Asia; Scopus Database; VOSviewer; Sustainability

[†] Doctoral Student, Department of Recreational Geography and Tourism, Faculty of Geography and Environmental Sciences, Al-Farabi Kazakh National University, Almaty, Kazakhstan

[‡] Lecturer, Department of Recreational Geography and Tourism, Faculty of Geography and Environmental Sciences, Al-Farabi Kazakh National University, Almaty, Kazakhstan

[‡] Acting Associate Professor, Department of Recreational Geography and Tourism, Faculty of Geography and Environmental Sciences, Al-Farabi Kazakh National University, Almaty, Kazakhstan

[‡] Associate Professor, Department of Recreational Geography and Tourism, Faculty of Geography and Environmental Sciences, Al-Farabi Kazakh National University, Almaty, Kazakhstan

[‡] Lecturer, Department of Recreational Geography and Tourism, Faculty of Geography and Environmental Sciences, Al-Farabi Kazakh National University, Almaty, Kazakhstan

*Corresponding Author Email: bauyrzhan.pazykhaiyr@gmail.com

[¥] Master Student, Department of Recreational Geography and Tourism, Faculty of Geography and Environmental Sciences, Al-Farabi Kazakh National University, Almaty, Kazakhstan

Introduction

In the past 40 years, the rapid development of the feminist movement and academia worldwide has led to profound changes in gender studies, ranging from the disciplinary framework to academic theory. To achieve growth and sustainable development, gender equality and women's empowerment are essential; without them, half of humanity would be deprived of rights and opportunities (Cf, 2015). Gender equality is identified as the fifth priority in the Sustainable Development Goals (SDGs), which the United Nations (UN) recognises as a crucial issue for growth and development. Studying gender issues in Central Asian countries has gained prominence in academic circles, reflecting global concerns regarding gender equality and women's empowerment. This study will conduct a comparative bibliometric analysis of literature on this topic, utilising the Scopus database as the primary data source. Bibliometric analysis is a powerful method for uncovering emerging trends in scholarly production, authorship dynamics, and the geographical distribution of research activities (Rasyid et al., 2022). Central Asia, which includes Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan, has a unique sociocultural landscape in which gender issues manifest differently due to the region's specific historical and sociopolitical contexts (Wang et al., 2019). Historically, the lack of comprehensive data has hindered a thorough understanding of gender differences within these countries (Widanti, 2023). The use of extensive databases like Scopus, which provides a robust foundation for indexing academic articles, is essential for gathering a wide range of gender-related research (Hernández-de-Menéndez et al., 2022). Previous studies have demonstrated that bibliometric techniques can be employed not only to quantify published research but also to establish connections between different themes and identify gaps in the literature (Ellegaard & Wallin, 2015; Ramadhan et al., 2024). Specifically, using software tools such as VOSviewer and NVivo

enhances the analysis by mapping connections between study themes related to gender issues, thereby facilitating the exploration of broader academic trends (Rasyid et al., 2022).

Furthermore, investigating trends in publishing and authorship may reveal significant disparities in the opportunities available to female academics, a phenomenon referred to as the "gender equality paradox" in academia (Thelwall & Mas-Bleda, 2020). This paradox illustrates that, despite an increase in female authorship, systemic barriers persist, highlighting the complex interplay of cultural norms and institutional regulations that influence gender representation in research (Bendels et al., 2018). Consequently, this paper's bibliometric study must not only catalogue the number of research outputs but also critically assess the quality of these contributions and their implications for gender policy and practice in Central Asia (Kataria et al., 2021). By employing a rigorous bibliometric approach, this study will significantly enhance our understanding of gender issues in Central Asian contexts, illuminating both the progress achieved and the challenges that remain in attaining gender parity within the academic environment and beyond. Our findings will reveal existing research patterns, emphasising areas where further investigation could strengthen gender-focused initiatives and policies throughout the region.

Literature Review

Gender Issues in Central Asian Countries

Gender concerns in Central Asian countries have garnered increased attention in academic circles over the past few decades. Following the dissolution of the Soviet Union, Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan, and Tajikistan experienced a range of sociopolitical developments that significantly influenced gender roles, equality, and women's rights. This literature review summarises previous studies on gender issues in Central Asia, focusing on legislative frameworks, cultural practices, economic participation, and political representation.

Compared to Tajikistan and Turkmenistan, the political situation in Kazakhstan, Kyrgyzstan, and Uzbekistan is relatively stable, and the socio-economic conditions in these countries are improving each year (Akbar et al., 2024). Post-Soviet legal reforms in Central Asia have varied significantly, with some countries adopting progressive gender legislation while others reinforce traditional patriarchal norms. For instance, Kazakhstan and Kyrgyzstan have ratified international agreements on gender equality; however, the implementation of these agreements remains weak (Turkhanova & Lagutkina, 2023). In contrast, Turkmenistan and Uzbekistan have faced criticism for their lack of transparency in addressing gender discrimination (Watch, 2024). Meanwhile, Tajikistan grapples with substantial socio-economic challenges and struggles to enforce laws promoting women's rights (Tabaeva et al., 2021). In these societies, women are often expected to prioritise domestic responsibilities over education and career aspirations (Women, 2021), which is similar to many South Asian societies. For example, in countries such as India, Pakistan, Bangladesh, and Nepal, patriarchal culture, early marriages, and limited participation of women in the labour market hinder women's opportunities. As a result, political representation in these countries is often symbolic (Chaudhuri, 2010). Another fact that complements our thoughts is that in many countries in the region (e.g., Pakistan, Nepal), the lack of childcare, nursing homes, and health facilities forces women to shoulder all the caregiving responsibilities alone. This inequality prevents women from getting an education, finding successful employment, and actively participating in public life (Tripathi et al., 2022). Women's participation in the labour market varies across these Central Asian countries, often constrained by cultural norms and economic systems. In Uzbekistan and Turkmenistan, state-controlled economies offer some employment opportunities for women, particularly in the public sector; however, wage disparities and limited career advancement remain significant issues (Elagin, 2022). In Kyrgyzstan and Tajikistan, labour migration

considerably impacts women, as men leave for work, resulting in increased household responsibilities for women but limited economic options (Critelli et al., 2021). In Kazakhstan, women predominantly work in lower-paying sectors such as education and healthcare. At the same time, men are more likely to occupy higher-paying positions in industries like oil, gas, and construction (Khitarihvili, 2019). Additionally, the informal sector heavily relies on female labour, often under exploitative conditions in these countries. Women entrepreneurs face legal and financial obstacles that restrict their economic opportunities.

Women's political participation in Central Asia varies significantly by country. In Kyrgyzstan, a quota system has increased female representation in parliament; however, women continue to face discrimination in political leadership roles (Maralbaeva, 2021). Kazakhstan has made some progress, with women holding approximately 27% of legislative seats as of 2022 (Amirzhanova et al., 2022). In contrast, Tajikistan, Turkmenistan, and Uzbekistan exhibit low levels of female political representation, as restrictive political systems limit women's leadership opportunities (House, 2024). For instance, these countries have markedly lower levels of female political participation, as strong authoritarian regimes hinder civil society's influence on gender-related legislation. Among them, Turkmenistan has also been criticised for restricting women's activism and suppressing independent feminist initiatives (Bohr, 2016).

According to our analysis of research on gender issues in Central Asia, women's labour force participation remains disproportionately low compared to that of men in the region, primarily due to traditional expectations surrounding domestic roles. These studies also emphasise the significance of gender stereotypes, indicating that women in Central Asia face greater social constraints than their counterparts in other countries. For instance, the region's historical Islamic traditions continue to influence gender dynamics, often contributing to the prevalence of gender-based violence and the underrepresentation of women in governance

and decision-making processes (Peshkova & Thibault, 2022). Furthermore, economic issues play a significant role in perpetuating gender inequality. Research has demonstrated that gender disparity negatively impacts economic growth in Asia, confirming that gaps in education, employment, and health outcomes are closely linked to overall development metrics (Atiq & Qadri, 2021; Mansha et al., 2022). While women's economic engagement is critical for long-term prosperity, it is often hindered by entrenched gender norms that favour male dominance in both the family and the workplace. Addressing these discrepancies is not merely an academic concern; it is essential for shaping policies to enhance women's skills and economic contributions (Kireyeva et al., 2021). Recent efforts to reform gender policies in Central Asia have shown promise, yet many researchers argue that implementation remains inadequate due to a lack of institutional support and persistent cultural resistance (Kireyeva et al., 2021; Yerimpasheva et al., 2023). In this context, calls to action emphasise the importance of both qualitative and quantitative research in guiding and informing policy changes that seek to eliminate systemic gender inequality and foster equitable environments (Kataeva et al., 2023). In summary, studying gender issues in Central Asian countries reveals a complex interplay of historical, cultural, and economic factors that define and challenge gender relations. Continued research in this area is crucial for understanding the intricacies of gender dynamics and developing effective strategies to promote gender equality and women's empowerment throughout the region.

The discourse on gender issues in Central Asian countries has changed dramatically due to the sociopolitical shifts that occurred following the fall of the Soviet Union. These countries—Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan—each present unique situations where traditional gender roles intersect with modern influences, reshaping the lived experiences of both men and women. A review of the existing literature highlights the complexities of these issues, including the interplay of cultural, economic, and political

factors that affect gender equality and women's rights today. According to the literature, despite advancements in educational attainment across gender lines, traditional attitudes and inequalities continue to persist in many aspects of life in Central Asia.

Bibliometric Methods

The bibliometric analysis provides a robust framework for assessing academic research's evolution and current state, particularly in the context of gender studies in Central Asia—a region characterised by diverse cultures and sociopolitical landscapes (Mokhtari et al., 2020). This method employs both quantitative and qualitative analyses of scholarly publications to yield insights into research trends, notable works, and the significance of specific studies within a given field (Xie et al., 2020). Scopus, widely recognised as a comprehensive resource for bibliometric analysis, facilitates the exploration of research outputs across various disciplines (Suhaimi et al., 2022). Visualisation tools, such as VOSviewer, enhance analysis by mapping author networks, countries, journals, and keywords, thereby revealing the interconnectedness of research activities (Modak et al., 2020; Suhaimi et al., 2022). Applying bibliometric tools allows for a systematic and thorough examination of the scholarly landscape (Xie et al., 2020).

Today, several tools significantly simplify the process of generating research reports. This includes databases such as Web of Science (WoS), Scopus, and Google Scholar (Li et al., 2010), which have integrated reference management functionalities. Both SciVal and InCites are advanced analytical tools provided commercially by major database providers. Various indicators and questions related to standardisation procedures can be quantitatively addressed using more specialised software, such as Gephi, HistCite, "Publish or Perish, Scholarometer (Pellegrino, 2011). Indeed, to conduct analyses based on citation data, it is crucial to standardise procedures to enable comparisons across different groups. Several alternative metrics have been proposed to account for variations in field size, publishing,

and citation practices (Kaur et al., 2013). These standardised indicators can enhance the field's credibility, particularly when bibliometric methods are applied to analyse diverse disciplines. Collectively, these tools facilitate a higher-level analysis of research trends, productivity across various fields, and patterns of scientific connections based on bibliometric methods in an ever-expanding array of articles and reports.

This study aimed to utilise VOSviewer software to conduct a bibliometric analysis of published research on gender issues in countries within the Central Asian region. It seeks to analyse the developmental trends of gender-related issues in the region by examining publication outputs, co-authorships among authors and their affiliated countries, and the co-occurrence of author keywords. Additionally, the study intends to present the key concepts necessary for advancing gender equality. It also aims to identify publication patterns and authorship trends while highlighting the latest research developments in this field. This analysis is supported by the evolution of feminist paradigms and the introduction of new potential research methods and project designs from a gender perspective. The conceptual framework established in this study is designed to enhance the theoretical foundation for gender research in Central Asia.

Materials and Methods

Currently, there are various methods for conducting literature reviews; however, bibliometric analysis has been selected as the primary research method for this article. Despite the advantages of systematic literature reviews (SLRs) and other meta-analytic methodologies, this study relies on bibliometric analysis for three key reasons. First, the issue of Central Asia is still a significant area of research, and the statistical findings from bibliometric analysis can provide more reliable and relevant insights into the future academic trajectory of this topic. Second, bibliometric analysis aligns well with the purpose of this article, which is to assess the extent to which the gender perspective is addressed at the academic level in the Central Asian region

without necessitating an analysis of the deeper content of the selected articles. Third, while many literature review articles employ a combination of SLR and bibliometric analysis, some evidence suggests that using two analytical methods within a single study can create confusion for the reader (Khoo-Lattimore et al., 2019). Snyder (2019) notes that combining different review methods (such as systematic and bibliometric) requires clarity of purpose and methodological coherence. Without this, readers may find it difficult to follow the logic or interpret findings consistently. Donthu et al. (2021) emphasise that bibliometric analysis is quantitative and trend-focused, while SLR is qualitative and content-driven. Combining them without clear integration can confuse readers regarding the review's intent, contribution, and scope.

Various computer programs and tools, such as BibExcel, Biblioshiny, Bibliometrix, BiblioMaps, CiteSpace, CitNetExplorer, SciMAT, Sci2 Tool, and VOSviewer, are employed to conduct bibliometric analysis (Moral-Muñoz et al., 2020). Although numerous bibliometric analysis software options are available, they typically do not offer the same functionality. Each of these programs possesses unique strengths; some are designed to provide statistical descriptions of bibliographic data, while others specialise in visualising conceptual and intellectual networks. Consequently, this study utilises a combination of two tools for bibliometric analysis: Bibliometrix and VOSviewer. Bibliometrix is an open-source package for the R programming language, featuring an intuitive web interface known as "Bib-Lioshiny". It is frequently used as a foundational tool in many bibliometric analysis studies, offering detailed statistical algorithms for describing bibliographic data (Aria & Cuccurullo, 2017). Additionally, VOSviewer is employed to enhance visual collaboration and co-citation networks.

Data Source and Search Strategy

Several popular databases worldwide exist, including Scopus, Web of Science, Google Scholar, and Scimago. These databases encompass a wide range of publications. Among

them, Scopus is one of the largest databases for analysis. We identified 922 publications using the keywords (gender AND "Central Asia" OR Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, AND Turkmenistan) in the initial search. Each

publication contains author, country, citations, documents, and sources. After a thorough screening, we utilised this information for analysis (see Table 1).

Table 1: Identification of Research Papers through the Database		
Identification	Records identified from the Scopus Database Search Queries:	TITLE-ABS-KEY (gender AND "Central Asia" OR Kazakhstan OR Kyrgyzstan OR Uzbekistan OR Tajikistan OR Turkmenistan) AND (LIMIT-TO (DOCTYPE, "article")) AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (EXACTKEYWORD, "Women's Status" OR "Gender Role" OR "Gender Issue" OR "Gender Equality" OR "Gender-based Violence" OR "Gender Disparity" OR "Women" OR "Feminism" OR "Women's Employment" OR "Women's Rights" OR "Sexual Violence" OR "Islamism" OR "Empowerment" OR "Sustainable Development" OR "Cultural Tradition"))
Screening	Initial Scopus Records: - Scopus (n= 922)	Data reprocesses: - Document type (only research articles)
	Records after Processing: - Scopus (n = 761)	Including criteria: - Publication stage (only final) - Publication language (only English)
	Records screened: - Scopus (n= 663)	Documents concerned only with the following keywords: - "Women's Status", "Gender Role", "Gender Issue", "Gender Equality", "Gender-based Violence", "Gender Disparity", "Women", "Feminism", "Women's Employment", "Women's Rights", "Sexual Violence", "Islamism", "Empowerment", "Sustainable Development", "Cultural Tradition"
Included		Final records suitable for bibliometric analysis: - Scopus (n= 132)
Source: http://www.scopus.com (assessed on 30th November 2023)		

The process of collecting data for conducting bibliometric analysis involved three main stages. The first step was to select the optimal database that aligns with our research area and objectives. Consequently, Scopus was chosen as the primary database to obtain the necessary dataset for bibliometric analysis. The selection of Scopus was based on several factors: (i) it encompasses a wide range of published articles, (ii) it includes journals and publications with higher impact factors than other databases (e.g., Google Scholar), and (iii) it is more efficient for metric analysis, as it provides comprehensive information on all bibliometric analysis units, including authors, sources, and citations (Pranckutė, 2021). The second step is to identify academic work following the research objectives and scientific direction. The authors of this study

initially selected 922 published research papers from the Scopus core collection. In the first screening step, we excluded inappropriate publications for criteria such as books, book chapters, conference papers and reviews, retaining only research articles; as a result, 761 scientific articles were selected. These articles were then refined by publication stage (only final versions) and document language (only English), resulting in 663 articles. The authors conducted extensive research on word processing. The third step involved identifying publications that align with the scope and purpose of this research. It was determined that the selected articles should be where gender issues in Central Asia intersect. Thus, we selected articles that considered gender as the main demographic dimension in Central Asian countries. Only 132 articles were

selected according to the following 15 keywords in Table 1, and they were discussed in our research paper.

Bibliometric Maps and Analysis Levels

The citation, bibliographical, and author keyword information for 132 articles was exported to VOSviewer (version 1.6.20, Centre for Science and Technology Studies, Leiden University, The Netherlands), a software tool designed for constructing and visualising bibliometric maps. Maps created using VOSviewer, which include items such as the authors' keywords and co-citation networks. Any pair of items may have a link between them, representing a connection or relationship. A positive numerical value represents the strength of each link. The stronger the relationship, the higher the value. In a co-authorship analysis, the link strength between two associated nations reflects the number of publications they have co-authored. In contrast, the overall link strength indicates the total number of publications co-authored by all affiliated countries. Like co-occurrence analysis, the frequency of publications in which two keywords appear together is represented by the strength of the connections between author keywords. The user manual for VOSviewer provides detailed information on all its functions (Van Eck & Waltman, 2010).

The results of this study are organized into six units of bibliometric analysis. First, we identify and analyse the evolution of scientific findings in key research themes. Second, we examine the literature and articles based on their citation counts. Third, we discuss the contributions of various authors. Fourth, we analyse the primary sources and journals. Fifth, we identify the institutions and countries involved in producing this body of literature. Finally, we determine future research directions by analysing the authors' keywords.

Results and Discussion

Evolution of Scientific Production

According to the records, the first structured research article addressing gender, ethnicity, and nationalism in Central Asia was published in

1996. From that point until 2015, the scientific output in this area remained relatively stable, producing between 1 and 5 articles per year. However, the number of published articles increased annually for the next three years, from 2 articles in 2015 to 16 articles in 2018, with an annual growth rate of approximately 25%. This upward trend was interrupted by a significant decline in the number of published articles, particularly in 2019 when only seven articles were published.

After 2020, the number of published articles increased again, although the growth rate was initially very slow. For instance, only nine and 12 articles were published in 2020 and 2021, respectively, largely due to the ongoing COVID-19 pandemic. As illustrated in Figure 1, the number of articles published in 2022 reached a record high for these years, totalling 25 publications.

Although the number of articles published in 2023 is lower, we cannot consider this the final statistic, as articles published at the end of the year may be included in the Scopus database at the beginning of the following year. Figure 1 displays the range of articles published in the Central Asian countries that focused on gender issues based on selected keywords.

It is important to note that during the text editing process for the dataset, the authors identified several subtopics related to gender issues in countries within the Central Asian region (see Figure 2). For instance, the primary focus areas in Kazakhstan are gender equality, gender-based violence, women's rights, gender policy, and sustainable development. In Kyrgyzstan, core subtopics in gender-related articles encompass gender-based violence, employment vulnerability, women's empowerment, and the practice of kidnapping for marriage. In Uzbekistan, research has concentrated on child gender bias and social change, while studies in Tajikistan have primarily addressed the feminisation of various sectors.

Table 2 presents the ten most cited articles on gender issues that employed structured research methods. With a total of 154 citations, the article titled *International Marriage and the State in South Korea: Focusing on Governmental*

Policy, authored by Lee, H.-K. (2008), ranks at the top of this list. This article highlights that Korean men are increasingly marrying women from Central Asian countries, which has led to specific social challenges in both regions.

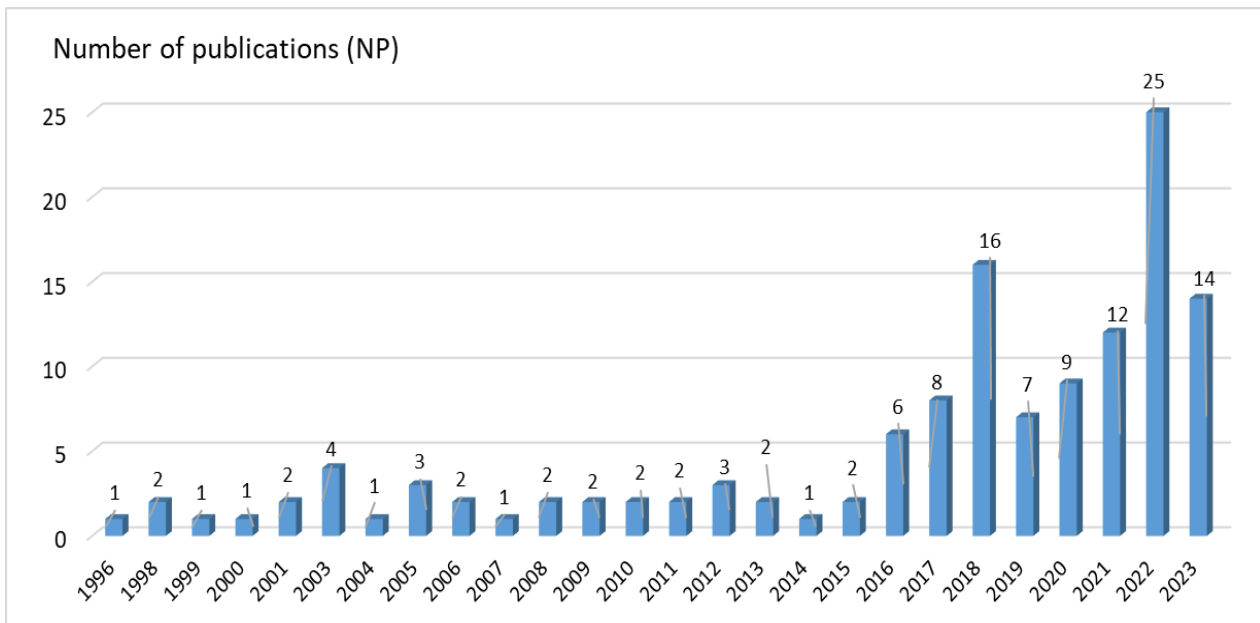


Figure 1: The Number of Annual Publications on Gender Issues in Central Asian countries
 Source: <http://www.scopus.com> (assessed on 30th November 2023)

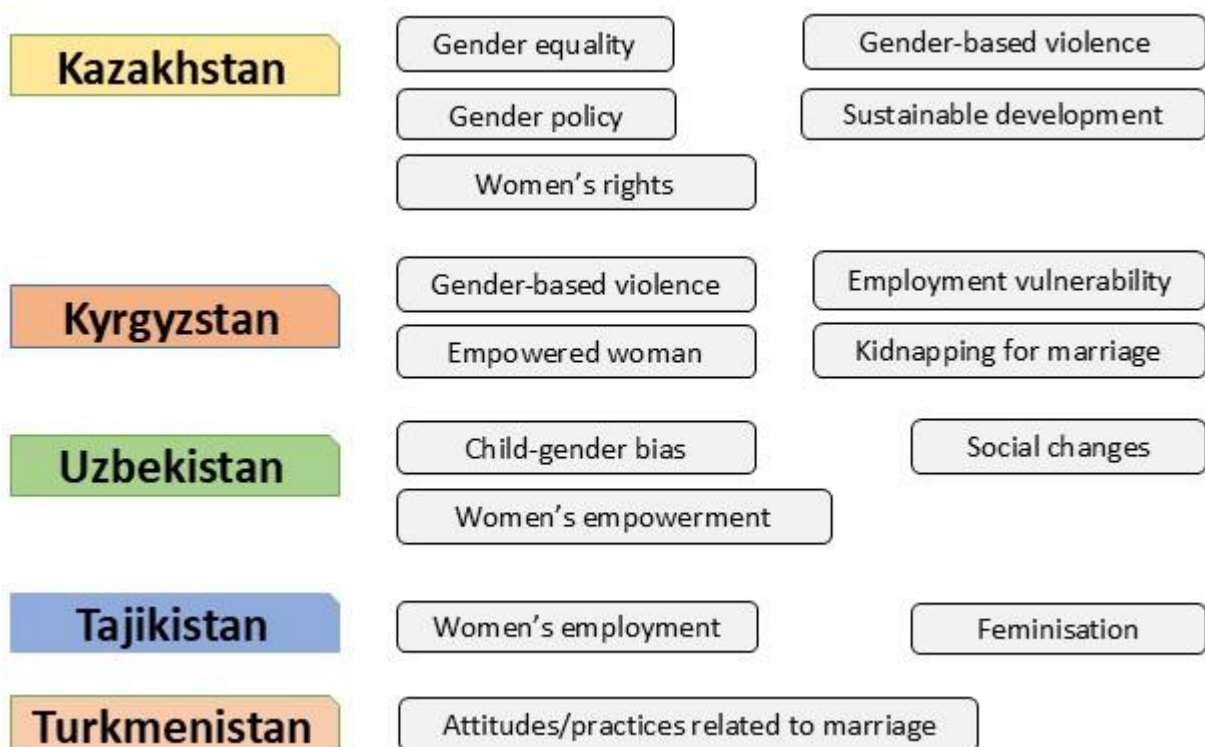


Figure 2. Subtopics of Gender Issues in Countries within the Central Asian Region
 Source: <http://www.scopus.com> (assessed on 30th November 2023)

Table 2: Top 10 Most Cited Articles					
R	Journal	Title of the article	Authors	Year	TC
1	Citizenship Studies	International marriage and the state in South Korea: Focusing on governmental policy	Lee, H.-K.	2008	154
2	Central Asian Survey	The politics of gender and the Soviet paradox: Neither colonized, nor modern?	Kandiyoti, D.	2007	112
3	Environment and Planning	Educational mobility and the gendered geography of cultural capital: The case of international student flows between Central Asia and the UK	Holloway, S.L., O'Hara, S.L., Pimlott-Wilson, H.	2012	88
4	Journal of Cleaner Production	Green governance and sustainability reporting in Kazakhstan's oil, gas, and mining sector: Evidence from a former USSR emerging economy	Mahmood, M., Orazalin, N.	2017	67
5	Central Asian Survey	Rural livelihoods and social networks in Uzbekistan: Perspectives from Andijan	Kandiyoti, D.	1998	54
6	Journal of Agrarian Change	The cry for land: Agrarian reform, gender and land rights in Uzbekistan	Kandiyoti, D.	2003	51
7	Central Asian Survey	Kidnapping for marriage (ala kachuu) in a Kyrgyz village	Kleinbach, R., Ablezova, M.K., Aitieva, M.D.	2005	45
8	Energy Economics	Empowering the powerless: Does access to energy improve income inequality?	Acheampong, A.O., Dzator, J., Shahbaz, M.	2021	41
9	Science of the Total Environment,	Circular economy for phosphorus supply chain and its impact on social sustainable development goals	El Wali, M., Golroudbary, S.R., Kraslawski, A.	2021	40
10	Central Asian Survey	From pioneers to entrepreneurs: young women, consumerism, and the 'world picture' in Kyrgyzstan	Kuehnast, K.	1998	35

Source: <http://www.scopus.com> (assessed on 30th November 2023)**Note:** Rank (R) and Total Citation (TC)

Kandiyoti, D. (2007) ranks second with a total of 112 citations and examines academic debates that interpret Soviet policies aimed at emancipating women in Central Asia as instances of colonial domination. The article by Holloway, S.L., O'Hara, S.L., and Pimlott-Wilson, H. (2012) ranks third with 88 citations. The works of Mahmood, M. and Orazalin, N. (2017) and Kandiyoti, D. (1998) are ranked fourth (67 citations) and fifth (54 citations), respectively. A general analysis of Table 2 reveals two main observations. First, nearly half ($n = 4$) of the most-cited articles were published in the journal *Central Asian Survey*. Second, approximately one-third ($n = 3$) of the top ten cited articles in the table are authored by Kandiyoti, D., who primarily addresses gender issues in rural areas of Uzbekistan.

Analysis of Authors

As part of the central bibliometric analysis, the examination of authors aims to address four primary questions: (i) which authors are the most influential in a specific research area (measured by publications per author), (ii) which authors are recognised as experts in this scientific field (assessed by the number of citations per author), (iii) how the authors' work is structured over time, and (iv) who are the core, peripheral, or connected researchers in the field (Zupic & Čater, 2015). Additionally, the authors' analyses may reflect the general interest of academic researchers in subtopics related to gender when writing research articles on gender issues. To address these questions, this study employed various analyses utilising different methodologies.

Table 3 presents the most prominent authors in gender research, ranked by the number of publications (NP) and total citations (TC). The top five authors based on publications are Primbetova, S. (NP = 5), Terlikbayeva, A. (NP = 5), Kim, E. (NP = 5), Mergenova, G. (NP = 4), and Nikitin, D. (NP = 3). The authors with the highest citation counts are Kandiyoti, D. (217 citations), Lee, H.-K. (154 citations), Holloway, S.L. (88 citations), Mahmood, M. (67 citations), and Kleinbach, R. (45 citations). These authors are

recognised as experts in research addressing gender-based issues, and their studies were conducted using a structured research methodology in the Central Asian region. Furthermore, by correlating the most prolific authors in terms of publications with their respective countries, we find that Kazakhstan and Kyrgyzstan are the leading nations represented in this list from the Central Asian region.

Table 3: The Top 10 Most Prolific Authors Ranked by the Number of Publications and Total Citations

Rank	Author/Affiliation Country	Number of Publications	Rank	Author/Affiliation Country	Total Citations
1	Primbetova, S./United States	5	1	Kandiyoti, D./United Kingdom	217
2	Terlikbayeva, A./United States	5	2	Lee, H.-K./United Kingdom	154
3	Kim, E./Kyrgyzstan	5	3	Holloway, S.L./United Kingdom	88
4	Mergenova, G./Kazakhstan	4	4	Mahmood, M./Kazakhstan	67
5	Nikitin, D./Kyrgyzstan	3	5	Kleinbach, R./United States	45
6	McCrimmon, T./United States	3	6	Acheampong, A.O./Australia	41
7	Kandiyoti, D./United Kingdom	3	7	El Wali, M./Finland	40
8	Hant T./United States	3	8	Kuehnast, K./United States	35
9	Gilbert, L./United States	3	9	Kutsa, O./United States	33
10	El-Bassel, N./United States	3	10	Mukhamedova, N./Germany	32

Source: <http://www.scopus.com> (assessed on 30th November 2023)

According to the co-citation analysis conducted using VOSviewer software, 132 authors were identified who met the threshold of a minimum

of 10 citations. These authors are represented in the network illustrated in Figure 3.

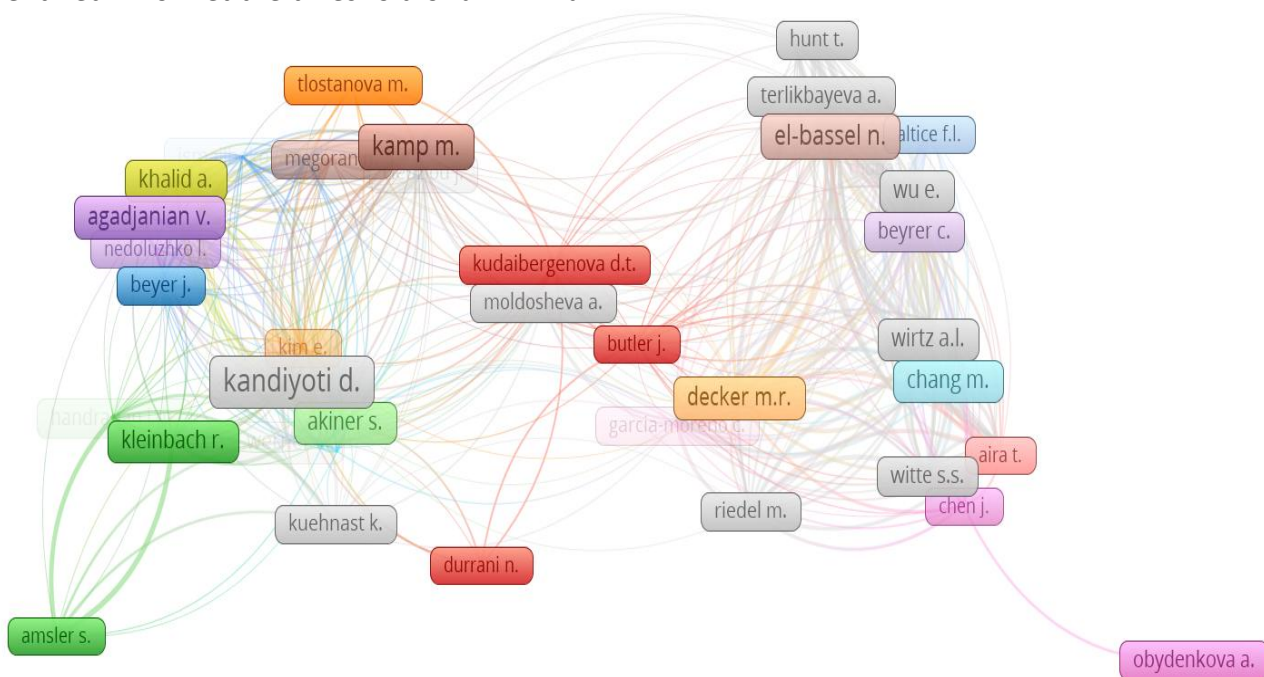


Figure 3. Author Co-Citation Network
Source: Created by the Authors using VOSviewer

This network is divided into four main clusters. The first cluster comprises 22 authors, led by Kandiyoti D., with 52 citations, the highest citation counts among all authors across the different clusters. The following most cited authors in this cluster are Kamp M. with 32 citations and Agadjanian V. with 26 citations. The primary focus of these authors is on the politics of gender and gender issues in the labour market. The second cluster consists of 15 members, with the top three authors being El-Bassel N. (34 citations), Gilbert I. (26 citations), and Decker M.R. (25 citations). The main theme of the publications in this cluster is gender-based violence. The third cluster includes eight authors, led by Chang M. with 21 citations, followed by Obydenkova A. with 16 citations and Riedel M. with 15 citations. This cluster addresses women’s leadership and gender issues in post-communist economies. Finally, the fourth cluster consists of four authors, with Kleinbach R. (22 citations) and Handrahan L.M.

(16 citations) occupying the first and second positions, respectively. This cluster focuses on gender and ethnicity in transitional democracies.

Analysis of Sources/Journals

Source analysis aimed to identify the top-ranked journals that contributed to the publication of 132 articles based on the number of published articles and total citations. Ninety-one journals published scientific works that examined gender issues as a significant variable in the Central Asian region. To mitigate discrepancies in ranking due to variations in publication numbers and total citations from various sources, the impact factor (IF) was adopted as the primary ranking criterion for this study. The bibliometric impact factor serves as a key indicator of a journal’s influence, and it typically impacts processes ranging from selecting journal subscriptions to determining research funding (Althouse et al., 2009).

Table 4: Top 10 Most Influential Sources Ranked by the Number of Publications (NP)

Rank	Sources/Journals	Impact Factor (IF) by 2022-2023	Number of Publications (NP)	Total Citations (TC)
1	Journal of Rural Studies	5.157	2	37
2	Sustainability	4.39	2	3
3	Geoforum	3.99	2	23
4	Violence Against Women	2.63	3	22
5	Journal of Development Studies	2.519	2	0
6	Gender, Place and Culture	2.57	2	35
7	Post-Soviet Affairs	2.23	2	27
8	Women and Therapy	2.22	2	4
9	Women's Studies International Forum	1.60	4	22
10	Central Asian Survey	1.27	23	463

Source: <http://www.scopus.com> (assessed on 30th November 2023)

Table 4 presents the impact of various sources, with the Journal of Rural Studies ranking first, achieving an Impact Factor (IF) of 5.157 based on a total citation count (TC) of 37 and a publication number (NP) of 2. Sustainability occupies the second position, with an IF value of 4.39. The third most prominent source is Geoforum, which has an IF value of 3.99. The subsequent publications, with IF values ranging from 2 to 3, account for 50% of the sample: Violence Against Women (2.63), Journal of Development Studies (2.519), Gender, Place and Culture (2.57), Post-

Soviet Affairs (2.23), and Women and Therapy (2.22). The Women’s Studies International Forum and Central Asian Survey are the final two journals in the list of the top 10 sources, with IF values of 1.60 and 1.27, respectively, as shown in Table 4. Notably, while the Central Asian Survey has the highest number of cited articles related to our study area, it ranks at the bottom of the top 10 sources in terms of impact factor.

Analysis of Countries and Institutions

Although various methods of bibliometric analysis are employed in our research, examining countries and institutions is a significant aspect of this study. This is particularly relevant as we conduct bibliometric analysis within a specific geographical area, namely the Central Asian region. Consequently, this unit of bibliometric analysis can yield valuable insights in this context.

Figure 4(a) illustrates the leading countries regarding the number of published articles. Kazakhstan and Kyrgyzstan emerged as the top two countries in the Central Asian region, contributing 25 and 14 articles on our research

topic, respectively. The Scopus database revealed no scientific articles related to our research topic from Turkmenistan, resulting in a publication count of zero for this country. One of the primary reasons for this absence is that Turkmenistan is classified as one of the most restricted countries globally, and very few international studies have been conducted on its social and political issues. Regarding the institutions with the highest number of gender-related scientific research articles, Figure 4(b) illustrates the 15 most productive institutions based on the total number of published articles. The extracted datasets were selected from a pool of 160 institutions and universities.

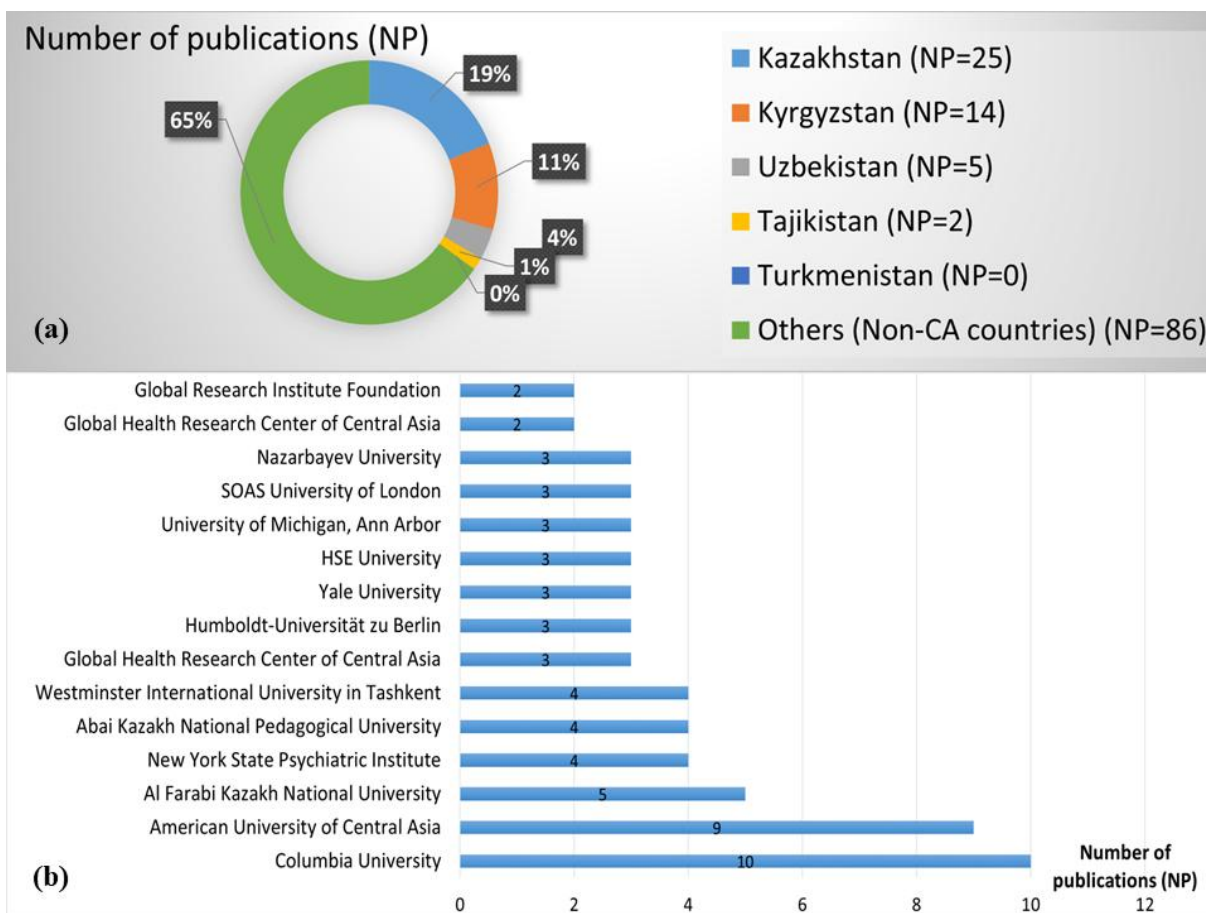


Figure 4: Analysis of Countries and Institutions: (a) Countries According to the Number of Publications (NP); (b) Top 15 Most Prolific Institutions According to the Number of Publications (NP)

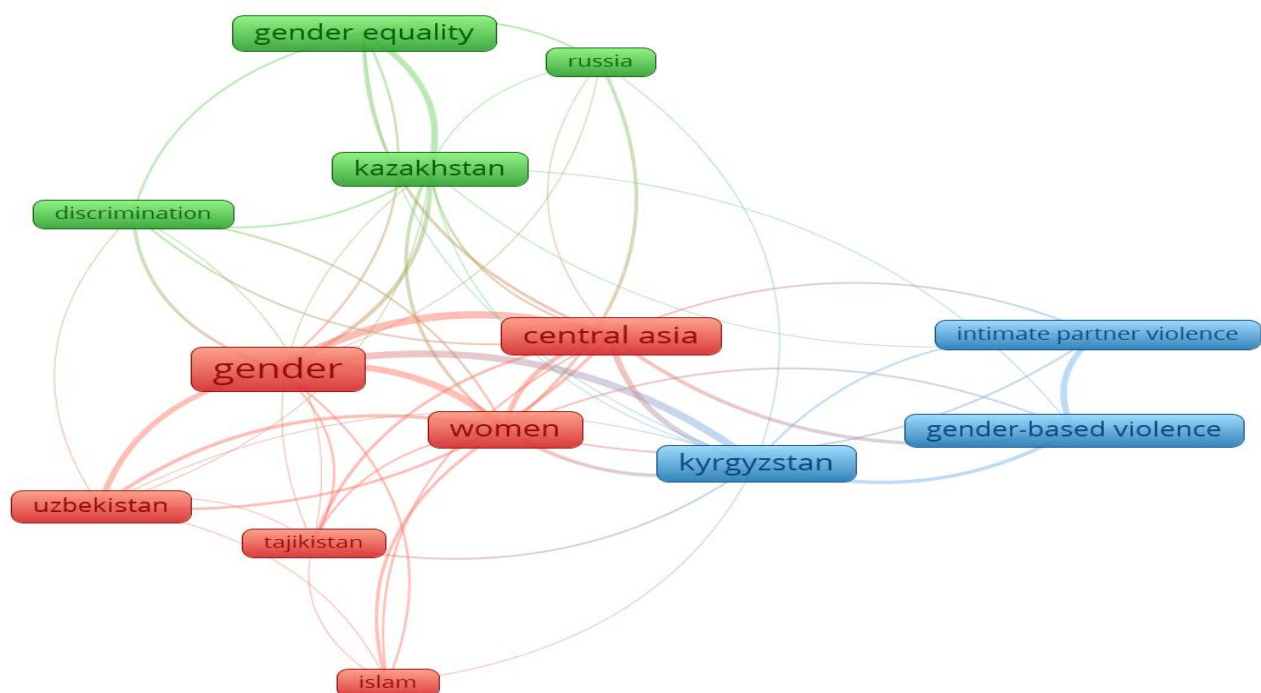
Source: <http://www.scopus.com> (assessed on 30th November 2023)

Among the top 15, six are in the United States, three in Kazakhstan, two in Kyrgyzstan, and one each in Uzbekistan, Germany, the United Kingdom, and Russia. Institutions in the United States are particularly dominant, with 25

publications. Columbia University and the American University of Central Asia lead this list, with 10 and 9 published articles, respectively. Two universities from Kazakhstan, Al-Farabi Kazakh National University (5 articles) and Abai

Kazakh National Pedagogical University (4 articles), ranked third and fourth, respectively. Although Westminster International University in Tashkent is the only institution from Uzbekistan in the top 15, it contributed significantly with four articles. Humboldt-Universität Zu Berlin, SOAS University of London, and HSE University in Russia each contributed three articles. One thing to note is that some of the productive institutions in Central Asia, shown in Figure 4(b), are located in developed countries such as the US and UK (notably the American University of Central Asia and Westminster International University in Tashkent), which has had a positive impact on the publication of their scientific research works. However, since most of these institutions employ local staff, we determined that it would be more appropriate to calculate the number of publications based on the country in which they are located. In our view, the absence of universities from Tajikistan and Turkmenistan in the top 15 rankings can be attributed to two main factors: first, these countries offer limited support for scientific research; and second, open discussions on social and political issues in these nations may be more restricted compared to other countries in the Central Asian region.

Analysis of Author Keywords



Keyword analysis is one of the most concrete bibliometric analyses that reveals research trends and illustrates current and future research patterns within a specific scientific field (Kabil et al., 2021; Zupic & Čater, 2015). A total of 408 author keywords were recorded, of which 357 (87.5%) were used only once, 56 (13.7%) were used twice, and 28 (6.9%) were used three times. After relabelling synonymous single words and related phrases, 13 keywords met the minimum threshold of five occurrences for mapping in VOSviewer.

The keyword network created using VOSviewer software comprises 189 nodes and 292 links. In this context, nodes represent keywords, while links illustrate the relationships between keywords that are mentioned in an article. Our findings indicate that the most frequently encountered keyword appears 36 times and links to 47 other keywords (see Figure 5). We also identified several general terms, including 'Central Asia' (23 occurrences, 43 links), 'women' (21 occurrences, 38 links), 'Kyrgyzstan' (21 occurrences, 32 links), 'gender equality' (18 occurrences, 16 links), 'Kazakhstan' (17 occurrences, 23 links), 'gender-based violence' (14 occurrences, 17 links) and 'Uzbekistan' (11 occurrences, 18 links).

Figure 5: A Screenshot of the Bibliometric Map Created based on Author Keyword Co-occurrence with Overlay Visualisation Mode (Created by the Authors using VOSviewer)
Source: <http://www.scopus.com> (assessed on 30th November 2023)

Our results also revealed that the most frequently used secondary keywords in our research were "women", "gender equality, and "gender-based violence, with 21, 18, and 14 occurrences, respectively. Our findings indicate that women's status and gender equality are among the most significant research directions in the study of gender issues. These topics are considered highly relevant today and contribute to implementing sustainable development concepts.

Conclusion

In recent years, gender, particularly gender equality, has emerged as a significant demographic variable attracting considerable attention across various economic sectors and activities on both global and regional stages (Kabil et al., 2022). Furthermore, scientific findings on any research topic accurately reflect the relevance of the issues raised in our daily lives. This study aims to identify and analyse the results of scientific studies that assess gender issues as a key demographic variable in Central Asian countries. In this research, bibliometric analysis was employed as the primary method for literature review. The results of our analysis of gender studies in the Central Asian region, particularly the number of publications in high-ranking journals from 1996 to 2023, indicate that researchers have only begun to show interest in this topic over the past eight years (2016-2023). To explore the specific directions authors have pursued in researching this topic, we analysed the main keywords used in the search for scientific articles in this field. To comprehensively address gender issues in the Central Asian region, as outlined in the methods section of the article, we selected articles with the title "gender AND Central Asia OR Kazakhstan OR Kyrgyzstan OR Uzbekistan OR Tajikistan OR Turkmenistan" for our search. We then categorised the number of publications based on the 15 keywords most relevant to the topic, which include "Women's Status, "Gender

Role, "Gender Issue, "Gender Equality, "Gender-based Violence, "Gender Disparity, "Women's Employment, "Women's Rights, "Sexual Violence, "Sustainable Development, and "Cultural Tradition. Using different methods of bibliometric analysis, this study revealed that the intensity of scientific production on gender issues in the Central Asian region is quite low, with only a slight increase observed over the past five years. Nevertheless, among the top five Central Asian countries, some, such as Kazakhstan, Kyrgyzstan, and Uzbekistan, demonstrate a greater concern for gender issues than others. Additionally, it is important to note that these countries in the Central Asian region possess a unique perspective on the pursuit of gender equality, emphasising the importance of reducing gender-based violence and empowering women. Furthermore, it can be stated that various authors, sources, and institutions have contributed to this scientific research, with no single element dominating the findings.

In addition to the findings from this study, several limitations can be viewed as opportunities for future research to enhance scientific contributions in this field. These limitations arise primarily from the decision to use bibliometric analysis as the main methodological approach. The first limitation is that the data collected for this study were sourced exclusively from the Scopus database. In contrast, some researchers employ various resources, such as the Web of Science (WoS) and Google Scholar databases, or a combination of multiple authoritative databases. The second limitation is the absence of reference analysis, which is widely regarded as one of the most significant components of bibliometric analysis. The third limitation pertains to the search queries and exclusion criteria; altering the keywords used could result in a completely different dataset, which would inevitably yield different outcomes. If these criteria were

modified, the study's results might differ significantly.

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Ethical Approval

Since the study only used information freely available in the public domain (newspaper reports, online articles, online interviews), it does not require ethical review.

Conflict of Interests

We declare that there is no conflict of interest, financial or non-financial, related to the manuscript submitted to the Journal Space and Culture, India. We also declare that the manuscript is not AI-generated.

Authors' Contribution

Stalifa Bektursyn: Methodology, writing initial drafts, results and discussion, proofreading, and finalising the draft

Sholpan Abdreyeva: Methodology, writing initial drafts, results and discussion

Imanaly Akbar: Methodology, writing initial drafts, proofreading, finalising the draft, results and discussion

Alexandr Artemyev: Methodology, review of literature, results and discussion

Bauyrzhan Pazylkhaiyr (Corresponding Author): Review of Literature, proofreading, finalising the draft, Results and discussion

Inkar Kartanova: Methodology, Review of Literature, Results and Discussion

Informed Consent

We declare that we have taken all the required permission (where necessary) before submitting

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Data Availability Statement

We confirm that the data supporting the findings of this study are available within the article.

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