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Poverty, Family Economy, and Women: An Analysis of Research Trends

Rahul Kumar[1,*]

[1] P.G Department of Commerce, Magadh University Bodh-Gaya, Gaya, Bihar, India

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ABSTRACT

Bihar's socio-economic framework faces enduring challenges, including poverty, gender inequality, and the undervaluation of women's contributions to the family economy. Despite global efforts aligned with the Sustainable Development Goals (SDGs), systemic barriers persist, limiting women's integration into formal economic systems. This study examines these challenges through a bibliometric analysis of research trends, highlighting key patterns and critical gaps in understanding the role of women in Bihar's economic landscape. Using data from Dimensions.ai encompassing 1,547 articles (2007–2025), the study employed VOSviewer 1.6.20 to visualize co-authorship and citation networks. The analysis reveals a sharp increase in publications post-2018, reflecting the heightened academic focus on SDG-related themes. Health sciences dominate the research landscape, yet significant gaps remain in interdisciplinary studies and underexplored SDGs, such as Partnerships for the Goals. Prominent contributors, including Geoffrey T. Fong and Aga Khan University, underscore the global and regional collaboration driving this research. The findings highlight the necessity of bridging academic research with actionable policy through strategies like digital literacy, financial inclusion, and targeted educational programs. Addressing systemic barriers and fostering interdisciplinary collaborations are critical for empowering women, integrating them into economic frameworks, and driving sustainable development in Bihar. This study provides valuable insights for academic and policy stakeholders aiming to promote inclusive growth and gender equity in the region.

1. Introduction

Bihar, a state renowned for its cultural heritage and agrarian economy, is emblematic of the socio-economic challenges faced by rural India [1]. Despite its historical significance, the state grapples with persistent poverty, stark economic inequalities, and deeply entrenched gender disparities. Over 88% of Bihar's population resides in rural areas, where the economy heavily relies on agriculture and informal labor. Women are indispensable in sustaining this economy, engaging in

*Corresponding author.
E-mail address: rahul1996magadhuniversity@gmail.com

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farming, animal husbandry, small-scale enterprises, and household management. However, their contributions remain largely undervalued and under-recognized in formal economic systems [2].

This lack of recognition marginalizes women and restricts the potential for inclusive and sustainable growth. The intersection of patriarchal norms, limited access to education and healthcare, and inadequate infrastructure further exacerbate these challenges. Women's unpaid labor, while forming the backbone of rural livelihoods, is rarely acknowledged or quantified, perpetuating cycles of poverty and socio-economic exclusion.

Global frameworks like the United Nations' Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty) and SDG 5 (Gender Equality), highlight the critical need to integrate women into formal economic systems [3]. For Bihar, this integration is vital not only for achieving equitable development but also for unlocking the untapped potential of its workforce. Despite several state-specific initiatives, such as Self-Help Groups (SHGs) and livelihood enhancement programs, their impact remains inconsistent, and their effectiveness has not been systematically evaluated [4]. Furthermore, academic research often generalizes rural women's experiences across India, overlooking Bihar's unique socio-economic dynamics, such as rural migration, agrarian distress, and deeply ingrained gender hierarchies [5,6].

This study addresses these gaps by conducting a bibliometric analysis to systematically evaluate existing research on women's contributions to Bihar's family economy. By identifying trends, contributors, and critical gaps, the study aims to bridge the divide between academic discourse and practical policymaking [5].

1.2 Research Objectives (RO)

This study aims to perform a bibliometric analysis of research trends on poverty, family economy, and women's contributions in the context of Bihar. Specifically, it seeks to:

RO_1: Examine the scope and focus of existing research on women's roles in Bihar's family economy.
RO_2: Identify this research domain's most active authors, institutions, and journals.
RO_3: Highlight emerging trends and research gaps to inform future studies and policy recommendations.

1.3 Research Questions (RQ)

RQ_1: To what extent has research explored women's roles in Bihar's family economy?
RQ_2: Which authors, institutions, and journals have made significant contributions in this field?
RQ_3: What are the dominant themes and subthemes emerging from the existing body of literature?
RQ_4: What critical research gaps must be addressed to enhance academic understanding and policy formulation?

1.4 Structure of the Article

This article begins by outlining the study's background, objectives, and research questions, followed by a comprehensive literature review that examines prior studies on poverty, family economy, and women's contributions, particularly in Bihar. The methodology section details the tools, data sources, and techniques used for bibliometric analysis. The results section presents key findings, including trends, leading contributors, and thematic insights. The discussion section interprets these findings, emphasizes research gaps, and offers actionable recommendations for academic and policy advancements. Finally, the conclusion summarizes the study's contributions and proposes directions for future exploration.

1.5 Literature Review

The literature review explores the intricate dynamics of family economy, gender roles, and women's contributions to achieving Sustainable Development Goals (SDGs). It highlights key studies (Table 1) that analyze systemic barriers, transformative practices, and the need for policy reforms, emphasizing their relevance to Bihar's socio-economic landscape and women's empowerment.

1.5.1 Family Economy and the Impact of Poverty

The family economy, particularly in rural settings, operates as a dynamic unit where all members, including women, contribute to household sustenance and stability [7]. According to Zunaidi and Maghfiroh [8], women in marginalized communities significantly impact the family economy through unpaid labor, resource management, and micro-enterprises. Their study emphasizes the need to formalize these roles within economic systems to ensure women's contributions are recognized and valued in addressing poverty. This approach could be transformative for Bihar, where poverty remains a deep-rooted challenge. The role of innovative practices in alleviating poverty has been highlighted by Mardiana *et al.,* [9]. Their research on hydroponic urban farming for housewives demonstrates how resource-efficient techniques can empower women by generating additional income and reducing economic vulnerabilities. While their study focuses on urban settings, adapting such techniques in Bihar's rural economy, with proper training and resources, can enable women to diversify their income sources. Imronah and Nginayati [10] analyzed women's contributions to family economies in Kalipurwo village through a social and Islamic economic lens. They identified that women actively participate in agricultural activities, small-scale businesses, and resource management. However, they face systemic barriers such as limited access to financial services and skill development programs. These findings resonate with Bihar's context, where similar challenges hinder women's full participation in economic activities. Historical insights from Medick on pro-industrial family economies reveal how households adapted to economic transitions by relying more on women's labor. In Bihar, which is experiencing a slow shift from agrarian dependence to diversified economic activities, this reliance on women persists, albeit without adequate support mechanisms. Bridging this gap through structured interventions like training programs and financial inclusion could significantly enhance women's economic roles.

1.5.2 Gender Roles and Sociological Perspectives

Gender roles within family economies are shaped by cultural norms and societal expectations, often relegating women to caregiving and household management roles. Mardiana *et al.,* [9] discussed how "invisible labor," predominantly performed by women, remains unrecognized in formal economic evaluations, perpetuating gender inequity. In Bihar, these traditional roles confine women's contributions to informal sectors, where they are excluded from decision-making processes and economic planning. Sulistyaningsih and Muryani [11] explored the transformative potential of integrating women into MSMEs (Micro, Small, and Medium Enterprises). Their study highlights how digital literacy and financial inclusion enable women to take on entrepreneurial roles, improving their family's economic standing. In Bihar, where women's economic activities are predominantly informal, incorporating such strategies can formalize their contributions and provide a pathway to empowerment. Insights from Hollins Martin [12] and Weede [13] about women's roles in 18th-century France parallel modern rural economies where women's labor sustains households during economic hardships [12-13]. In Bihar's agrarian society, women's participation in agriculture, livestock management, and small-scale trade mirrors these historical patterns, demonstrating the systemic undervaluation of their contributions. Hufton [14] and Medick [15] emphasized the transformative role of education in empowering women to transcend traditional roles [14-15]. Their

study showed that educated women are more likely to engage in income-generating activities, make informed decisions, and advocate for their rights. With one of the lowest female literacy rates in India, Bihar must prioritize educational initiatives to unlock women's potential in the family economy. Research by Dutta *et al.,* [16] delved into the concept of family economy as a structural entity, noting that women's inclusion in economic planning strengthens household resilience. Their findings are particularly relevant for Bihar, where socio-economic vulnerabilities are pronounced, and women's potential remains underutilized [16].

1.5.3 SDGs and Women's Contributions in Bihar

The SDGs, especially SDG 1 and SDG 5, emphasize the critical role of women in achieving sustainable development. Singh *et al.,* [17] argued that gender-sensitive policies are essential to address poverty in Bihar. Women's participation in SHGs and livelihood programs has shown potential, but systemic barriers such as limited access to markets and financial resources impede progress. Sulistyaningsih and Muryani [11] demonstrated how digital inclusion can bridge these gaps by providing women with access to markets, financial services, and training. Digital tools can enable women in Bihar to scale their entrepreneurial ventures, formalize their contributions, and participate more actively in the state's economy [18,19]. Dandona *et al.,* [18] and Daly and Lewis [20] identified healthcare and education as critical enablers of women's economic participation. Inadequate maternal healthcare and limited access to quality education restrict women's productivity and economic potential in Bihar. Addressing these systemic deficiencies is essential for creating an enabling environment where women can thrive economically. Studies like Hufton [14] and Medick [15] provide historical perspectives on women's labor supporting societal transitions. These findings underscore the importance of formalizing women's contributions in Bihar's evolving economy to achieve SDG targets. Dandona *et al.,* [18] reiterate the importance of education, arguing that educated women can better navigate socio-economic challenges, advocate for their rights, and contribute meaningfully to the family economy. For Bihar, increasing female literacy and skill development opportunities is paramount. Innovative practices, such as those explored by Mardiana *et al.,* [9] and Imronah and Nginayati [10], highlight the need for skill-building initiatives and community-driven enterprises. These approaches align with SDG priorities and can be tailored to Bihar's socio-economic landscape to empower women effectively.

Table 1
Review of literature

Author(s)	Year	Title	Key Findings	Relevance to Bihar's Context
Zunaidi and Maghfiroh [8]	2021	The Role of Women in Improving the Family Economy	Women's contributions in marginalized households are critical but often unrecognized in formal economic systems.	Highlights the need to formalize women's labor in Bihar's family economy for poverty alleviation.
Mardiana *et al.,* [9]	2024	Independence of Housewives Through Hydroponic Urban Farming as an Effort to Improve Family Economy	Innovative farming techniques can empower women by providing additional income and economic independence.	Suggests the adoption of resource-efficient agricultural practices in Bihar's rural settings.
Imronah and Nginayati [10]	2024	The Role of Women in Family Economy in Kalipurwo Village: A Social and Islamic Economic Analysis	Women actively contribute to agriculture and small-scale industries but face systemic barriers like lack of financial access.	Demonstrates how community-driven initiatives can be adapted for Bihar to enhance women's economic roles.

Table 1
Continued

Author(s)	Year	Title	Key Findings	Relevance to Bihar's Context
Sulistyaningsih and Muryani [11]	2024	Women and Strengthening the Family Economy in the Digital Era in the Development of MSMEs in Yogyakarta	Digital literacy and access to financial services empower women in entrepreneurial roles, enhancing family economy.	Emphasizes the potential of digital tools to formalize women's contributions in Bihar's economy.
Hollins Martin [12]	2012	The importance of education in preparing women for childbirth. Nurse Education in Practice	Education equips women to participate in economic activities, make decisions, and improve family livelihoods.	Highlights the critical need for increasing female literacy in Bihar to boost women's socio-economic roles.
Weede [13]	1992	Governing the commons — the evolution of institutions for collective action. European Journal of Political Economy	Women's unpaid labor in caregiving and household management is crucial but excluded from formal economic evaluations.	Reflects the invisibility of women's unpaid labor in Bihar's rural economy.
Hufton [14]	1975	Women and the Family Economy in Eighteenth-Century France	Women's labor sustained households during economic transitions.	Draws parallels to Bihar's reliance on women in agriculture and informal labor
Medick [15]	1976	The Proto-Industrial Family Economy	Family structures adapted by intensifying women's labor to sustain livelihoods.	Relevant to Bihar's ongoing economic transitions, showing the importance of investing in women's labor.
Dutta *et al.,* [16]	1995	Right to Work? Assessing India's Employment Guarantee Scheme in Bihar	Gender-specific interventions are essential for addressing poverty and integrating women into economic planning.	Highlights gaps in Bihar's current policies and the need for tailored interventions.
Singh *et al.,* [17]	2011	Dimensions of Poverty in Bihar	Highlighted the multi-dimensional impacts of poverty on rural households in Bihar, particularly on women's roles in economic activities.	Stressed the importance of integrating women's contributions into poverty reduction strategies.
Dandona *et al.,* [18]	2024	Poor Coverage of Quality-Adjusted Antenatal Care Services: A Population-Level Assessment	Poor access to healthcare negatively impacts women's productivity and economic participation.	Indicates the importance of improving healthcare services to enable women's economic empowerment in Bihar.
Venkat *et al.,* [19]	2024	Prevalence of Elevated Blood Lead Levels and Factors Contributing to the Risk of Lead Poisoning among 1-5-year-old Children: A Cross-sectional Study	Limited access to education and health services restricts women's productivity and potential contributions to the family economy.	Urges for systemic improvements in education and health infrastructure for sustainable development in Bihar.
Daly and Lewis [20]	2007	The concept of social care and the analysis of contemporary welfare states. The British Journal of Sociology	Women's inclusion in economic planning strengthens household resilience and supports.	Supports the integration of women's economic roles into Bihar's policy frameworks.

2. Bibliometric Analysis Methods

Bibliometric analysis methods systematically evaluate academic research to uncover trends, collaborations, and knowledge gaps [7]. These methods provide insights into thematic patterns and impactful studies, guiding evidence-based research decisions. Using Dimensions AI, (Figure 1), a query combining keywords such as "Family Economy" AND "Women Bihar" AND "Poverty" and "SDG Bihar" can refine searches within the publication years 2007–2025. Filters are applied to include only articles from the UGC Journal List Group II. The retrieved data, which includes 1,547 articles encompassing titles, abstracts, and keywords, is exported for analysis. VOSviewer 1.6.20 is then used to visualize networks of co-authorship and citation links, enabling a detailed understanding of the research landscape.

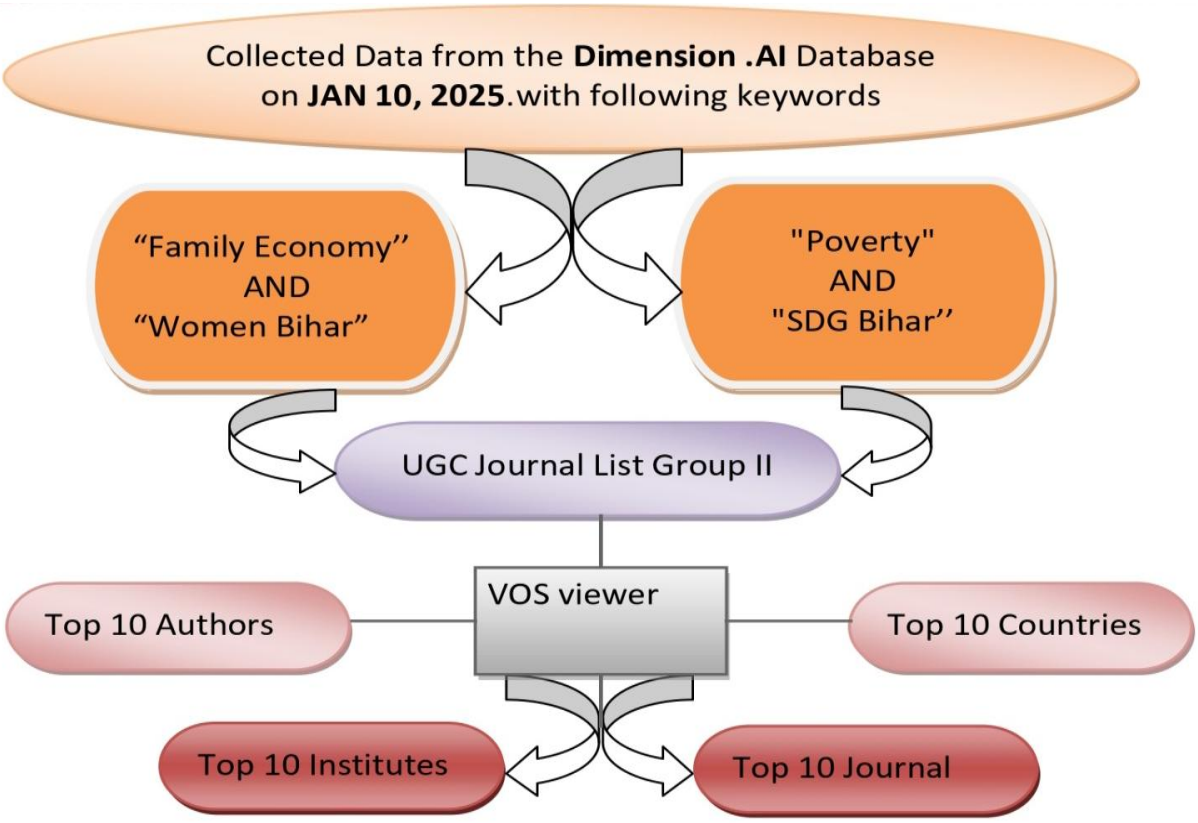

Fig. 1. Flowchart of bibliometric analysis

3. Results and Discussion

3.1 Trend Analysis

The trend analysis of publications retrieved using the criteria "Family Economy," "Women Bihar," "Poverty," and "SDG Bihar" from 2007 to 2025 reveals critical insights into research priorities and emerging gaps. Among Sustainable Development Goals (SDGs), Good Health and Well-Being leads with 1,016 publications (Figure 2), indicating a predominant focus on health-related challenges in Bihar, consistent with global trends prioritizing healthcare access and outcomes. Other well-researched areas include Zero Hunger and Gender Equality (65 publications each), highlighting efforts to address food security and reduce gender disparities. Research on Reduced Inequalities (60 publications) and Quality Education (48 publications) reflects ongoing work to mitigate social inequities and improve education. However, limited publications in areas such as Partnerships for the Goals (1 publication) and Life below Water (2 publications) suggest significant research gaps,

emphasizing the need for broader engagement in these domains to ensure comprehensive SDG progress.

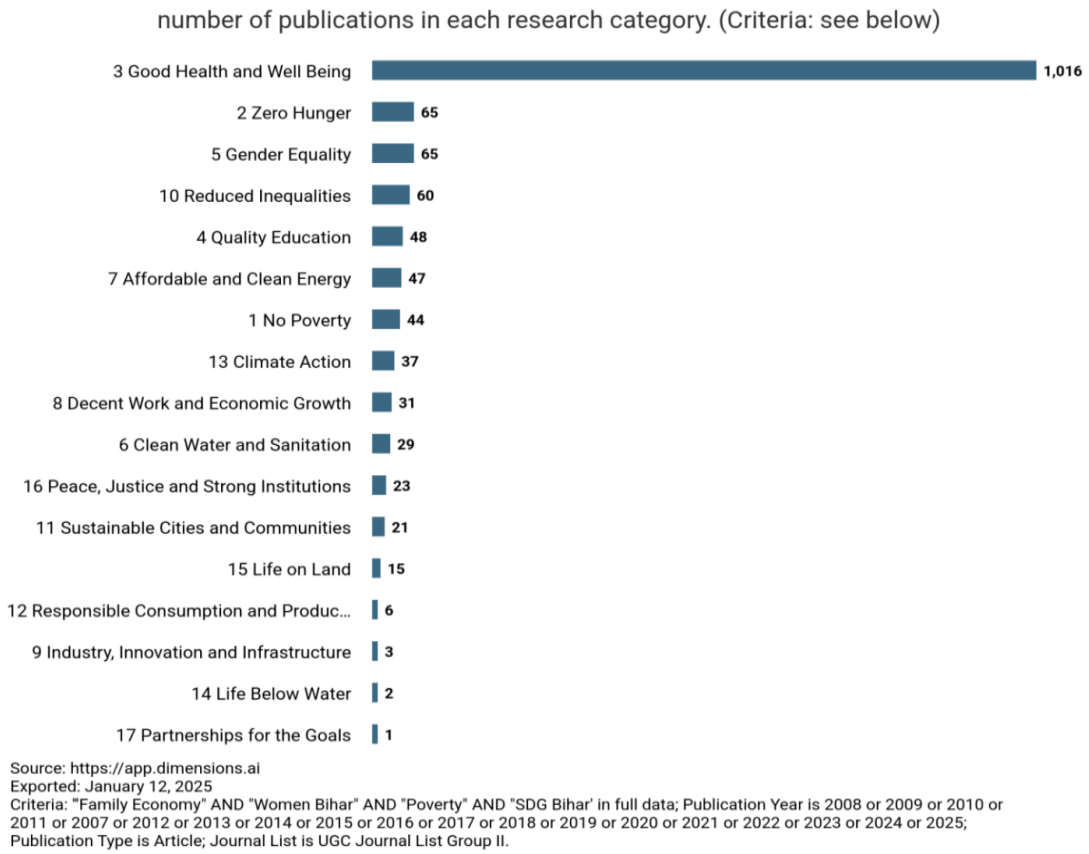

Fig. 2. Number of publication in each research category

In research categories (Figure 3), Health Sciences dominates with 1,158 publications, reinforcing the importance of health studies in addressing socio-economic issues like poverty and family economy. Human Society (252 publications) demonstrates robust interest in societal challenges, while Environmental Sciences (38 publications) and Economics (36 publications) indicate growing attention to sustainability and economic development. Emerging areas such as Commerce, Management, Tourism, and Services (37 publications) reflect evolving economic strategies in the regional context. On the other hand, underrepresentation in fields like Philosophy and Religious Studies, Information and Computing Sciences, and Mathematical Sciences (2–3 publications each) highlights opportunities for interdisciplinary approaches and innovative solutions.

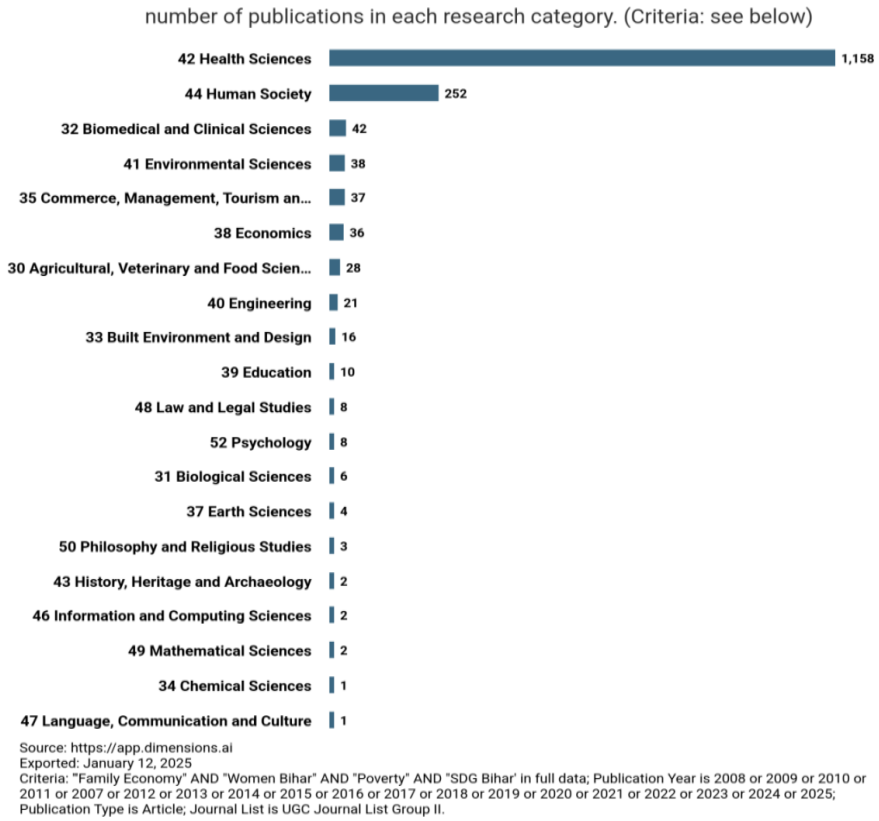

Fig. 3. Number of publication in each research category

The publication trends from 2007 to 2025 (Figure 4) demonstrate a dynamic evolution in academic interest in topics initially. There was negligible activity, with no publications recorded from 2007 to 2012. This could indicate a lack of research focus or funding in these areas during that period. The first publication appeared in 2013, marking the start of academic engagement, with a gradual increase seen through 2017, when 19 publications were recorded. This steady rise reflects the growing awareness and recognition of the socio-economic issues in Bihar, aligning with the increasing global emphasis on sustainable development. A significant milestone was achieved in 2018 with a dramatic surge to 1,102 publications, accounting for most of the dataset. This spike coincides with global efforts following the adoption of the SDGs in 2015, suggesting a concerted push by researchers and institutions to address SDG-related challenges. It also highlights a period of intensified funding, collaborations, and policy-driven research initiatives.

Following 2018, the publication output stabilized, with consistent contributions between 32 and 92 publications annually from 2019 to 2023. This period represents sustained academic engagement, focusing on deeper exploration and addressing specific aspects of the socio-economic landscape. However, 2024 shows a decline to 6 publications, which may be due to incomplete data for recent years or a shift in research priorities. Overall, the trends indicate that 2018 was a turning point, with sustained momentum in subsequent years. The recent decline suggests the need for renewed focus and expanded efforts to maintain research interest, especially in underexplored areas of the Sustainable Development Goals. This trajectory underscores the importance of continued academic and policy-driven research to comprehensively address Bihar's socio-economic challenges.

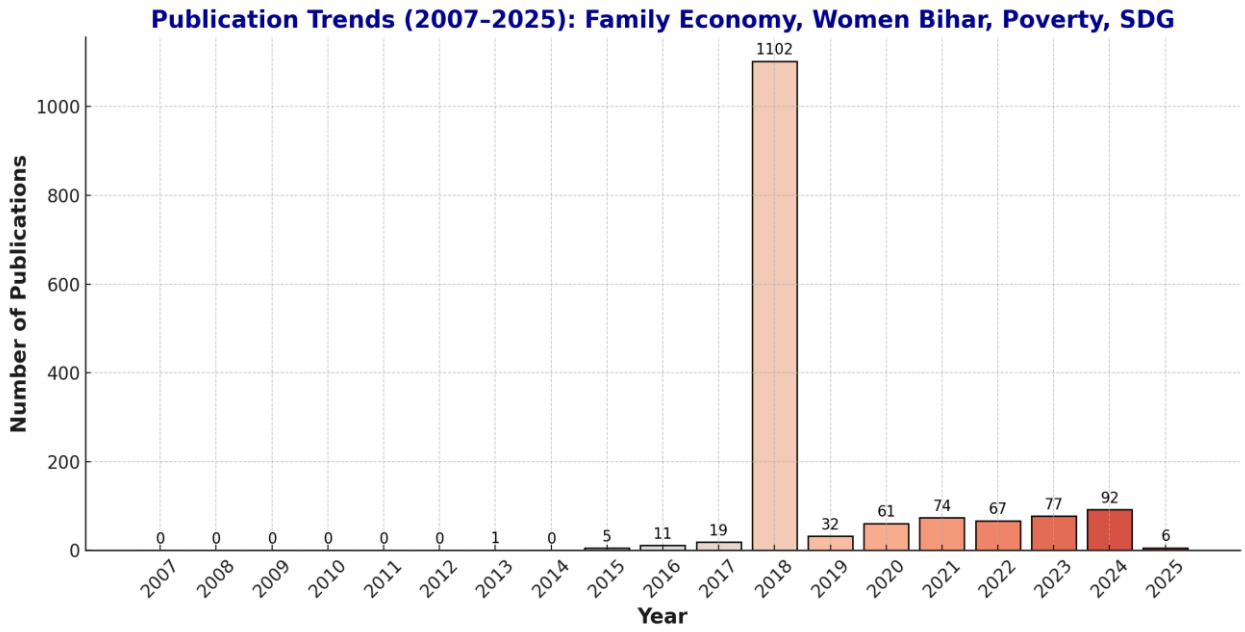

Fig. 4. Publications from 2007 to 2025 based on Dimension.ai Database

The citation trends reflect (Figure 5) the growing academic recognition of research over the years, a total of 12,654 citations demonstrates the increasing influence of these studies. From 2007 to 2013, no citations were recorded, consistent with minimal research outputs during that time. The first citation appeared in 2014, with just one instance, followed by modest growth to 5 citations in 2015 and 60 in 2016, indicating the early stages of academic engagement with this field.

A dramatic shift occurred in 2018 when citations surged to 313, driven by a sharp increase in publications. This marked the beginning of exponential growth, with 509 citations in 2019, 977 in 2020, and a peak of 1,696 in 2021. These figures highlight the significant impact of research conducted during this period, which resonated strongly with academic and policy-related work globally. Citations continued to rise steadily, reaching 2,867 in 2023 and increasing to 3,550 in 2024, demonstrating sustained relevance and widespread application. In 2025, with the year still ongoing, 172 citations have been recorded so far. This lower figure reflects the typical time lag in citation accrual for recent publications, as newly published studies often take time to gain traction in academic and research communities. The trends underscore the pivotal role of 2018 as a turning point for this field and the sustained growth in citations through 2024. The data highlights the need to address citation lags for newer works and continue fostering interdisciplinary collaborations to maintain momentum. As 2025 progresses, the citation count is expected to grow further, continuing to solidify the influence of this research area.

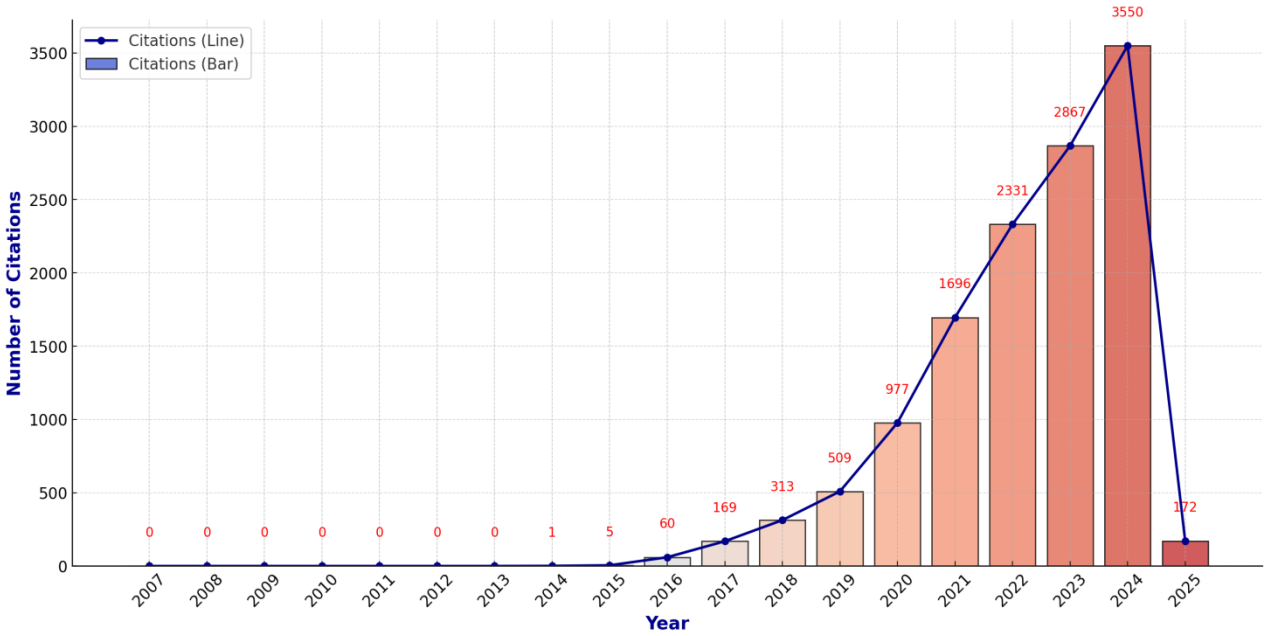

Fig. 5. Citations Trends from 2007 to 2025 based on Dimension AI Database

The percentage of publications (Figure 6) with at least one citation from 2007 to 2024 highlights fluctuating academic engagement and visibility patterns. Early years from 2007 to 2011 saw no citations, reflecting either limited research activity or low visibility. In 2012, all publications achieved at least one citation, marking a breakthrough. However, this success was followed by a sharp decline in 2013, with no cited publications recorded. Recovery began in 2014, with 100% of publications cited, and from 2015 to 2017, citation rates stabilized at high levels, exceeding 90%.

A notable drop occurred in 2018 when only 23.68% of publications were cited, likely due to the significant increase in output that diluted the impact. The years 2019 through 2023 displayed remarkable consistency, with citation rates consistently above 94%, demonstrating the sustained relevance and quality of research during this period. In 2024, a steep decline to 39.13% reflects the typical time lag for recent publications to gain academic recognition. While fluctuations are evident, periods of strong performance underscore the impact of focused and well-disseminated research. Addressing challenges like citation lags and ensuring effective visibility for new publications will be crucial for maintaining high academic engagement in the future.

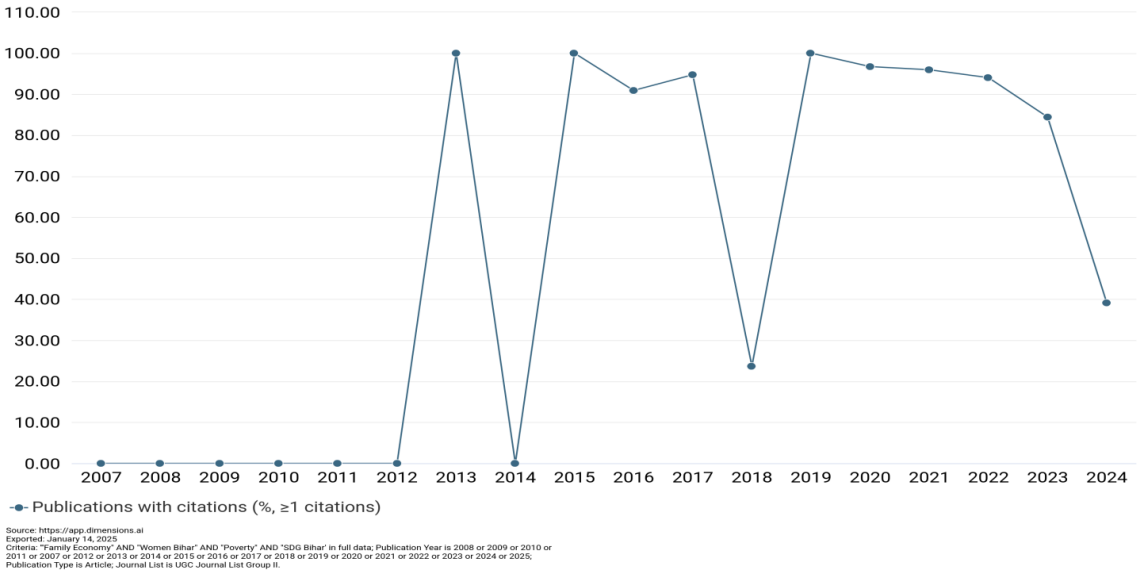

Fig. 6. Publication with Citations from 2007 to 2024 based on Dimension.ai Database

3.2 Co-authorship Analysis

Co-authorship analysis examines collaboration among researchers by analyzing jointly authored articles. Using VOSviewer, networks are visualized where nodes represent authors and edges represent collaborative relationships. This approach identifies influential researchers, uncovers collaboration patterns, and forms clusters, enabling a deeper understanding of research dynamics and fostering academic partnerships [7].

i. Authors: This investigation identifies 3855 authors after removing texts with a maximum of 25 authors apiece. Of these, only 45 authors match the criteria of having at least four documents and a minimum of four citations. Figure 7 demonstrates that among the 45 authors, 21 researchers had the highest number of linked works.

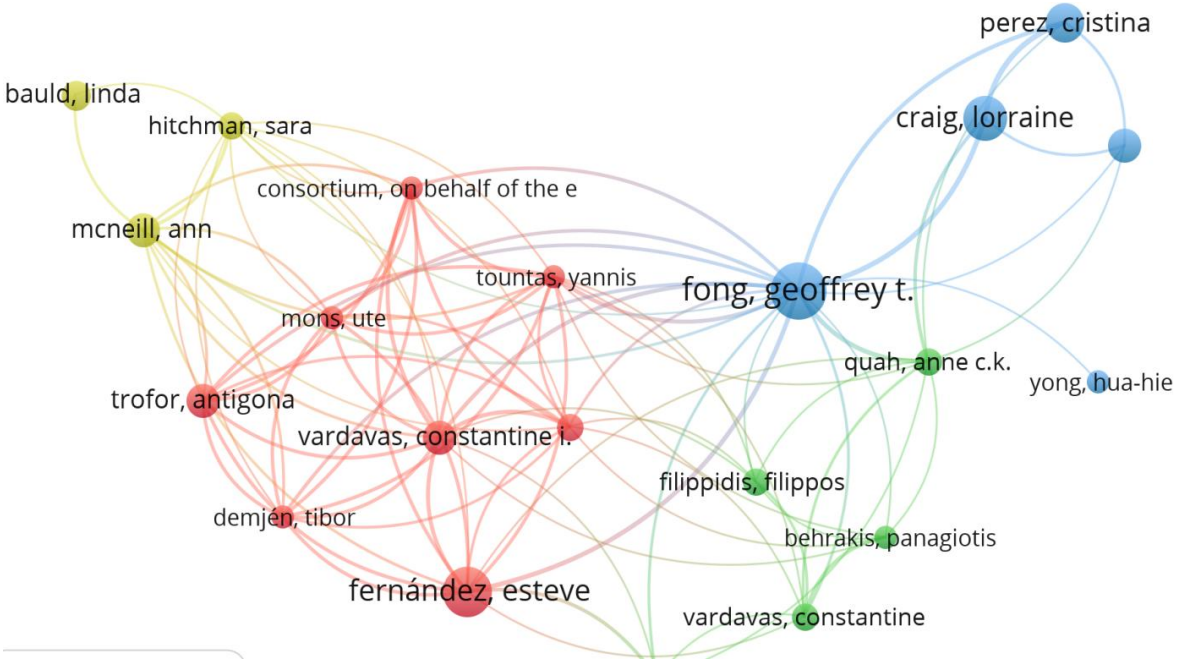

Fig. 7. Bibliometric map on co-authorship with Network visualization mode

The analysis (Table 2) highlights a combination of productivity and academic influence. Fong, Geoffrey T. emerges as the leading contributor with 16 publications and an impressive average of 53 citations per article, showcasing both prolific output and significant impact [21]. Similarly, Rahut, Dil Bahadur stands out with the highest total citations (58) from just four publications, reflecting exceptional influence per article. Authors like Fernández, Esteve, Vardavas, and Constantine I. maintain consistent academic relevance, with 13 and 7 publications and an average of 34 citations per article each.

Contributors such as Smith, Katherine, McNeill, and Ann balance productivity and quality, with Smith producing 11 publications and an average of 22 citations and McNeill achieving 30 citations across seven publications. Despite fewer publications, Kumar, Amit, Girvalaki, and Charis demonstrate significant impact, with average citations per article of 13 and 24, respectively. The diversity in contributions across these authors underscores the importance of high-quality research and widespread dissemination for academic recognition. Overall, this analysis reveals a dynamic blend of prolific authors and those with fewer but highly impactful works, emphasizing varied pathways to scholarly influence.

Table 2
Top 10 Authors publications, citations, and average citation per article

Rank	Author Name	Publications	Citations	Average Citations per Article
1	Fong, Geoffrey t.	16	28	53
2	Vardavas, Constantine i.	7	18	34
3	Fernández, Esteve	13	16	34
4	Kumar, Amit	4	52	13
5	Rahut, Dil Bahadur	4	58	14
6	Mcneill, Ann	7	30	22
7	Bauld, Linda	6	21	3
8	Hitchman, Sara	5	21	13
9	Smith, Katherine	11	11	22
10	Girvalaki, Charis	5	9	24

i. Organizations (Affiliations): VOSviewer also enables the analysis of organizations or affiliations that authors are associated with, in addition to examining individual authors. By restricting the analysis to a maximum of 25 organizations per document, a total of 850 organizations were found. After removing documents, only 70 organizations, each having at least three documents and three citations, fit the criteria. Figure 8 demonstrates that out of these 70 organizations, 56 have the maximum number of linked works.

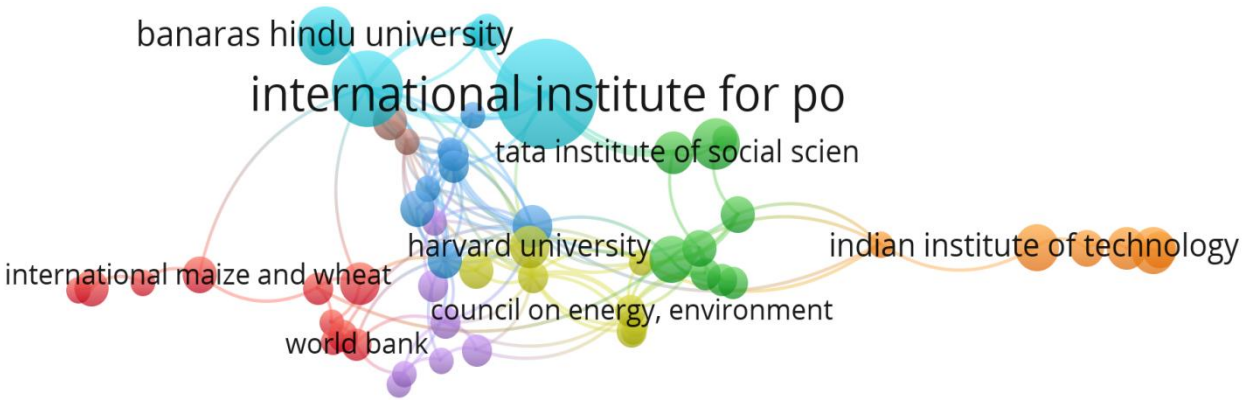

Fig. 8. Bibliometric map on Organization with Network visualization mode

The top 10 organizations by publications, citations, and average citations per article showcase (Table 3) significant contributions to academic research and influence. The Aga Khan University leads with 3,375 total citations from just five publications, achieving an impressive average of 675 citations per article, demonstrating exceptional academic impact. Similarly, Columbia University and the World Health Organization maintain high citation averages of 695.5 and 648, respectively, with impactful outputs of 4 publications each. The London School of Hygiene & Tropical Medicine stands out with 2,853 citations from six publications, reflecting its significant role in global health research.

On the productivity front, Jawaharlal Nehru University emerges as the most prolific institution, producing 15 publications and accumulating 2,764 citations, though with a relatively modest average of 184.27 citations per article. Institutions such as the University of Toronto and the University of Melbourne achieve the highest average citations per article, with 866.67 and 880.67, respectively, despite having only three publications each, emphasizing their concentrated academic impact. The Public Health Foundation of India and University College London also showcase consistently high averages of 855.67, underscoring their influence in their respective fields.

This analysis highlights a diverse range of institutional strengths, from high productivity by institutions like Jawaharlal Nehru University to exceptional citation impact from organizations such as the University of Melbourne and Aga Khan University. The performance of global entities like the World Health Organization and the United Nations Children's Fund further underscores the importance of focused, high-quality research in achieving significant academic influence and societal contributions.

Table 3
Top 10 Organizations publications, citations, and average citations per article

Rank	Organization Name	Publications	Citations	Average Citations per Article
1	Aga Khan University	5	3,375	675.00
2	Columbia University	4	2,782	695.50
3	London School of Hygiene & Tropical Medicine	6	2,853	475.50
4	Jawaharlal Nehru University	15	2,764	184.27
5	World Health Organization	4	2,592	648.00
6	University of Toronto	3	2,600	866.67
7	United Nations Children's Fund	4	2,575	643.75
8	University of Melbourne	3	2,642	880.67
9	Public Health Foundation of India	3	2,567	855.67
10	University College London	3	2,567	855.67

i. Countries: VOSviewer supports the analysis of nations inside co-authorship networks, enabling a full understanding of collaborative patterns [7]. This study identified 74 nations by eliminating articles that involved a maximum of 25 countries each. As indicated in Figure 9, only 35 countries match the necessary criteria, which include having a minimum of 3 published papers and significant country-level citations.

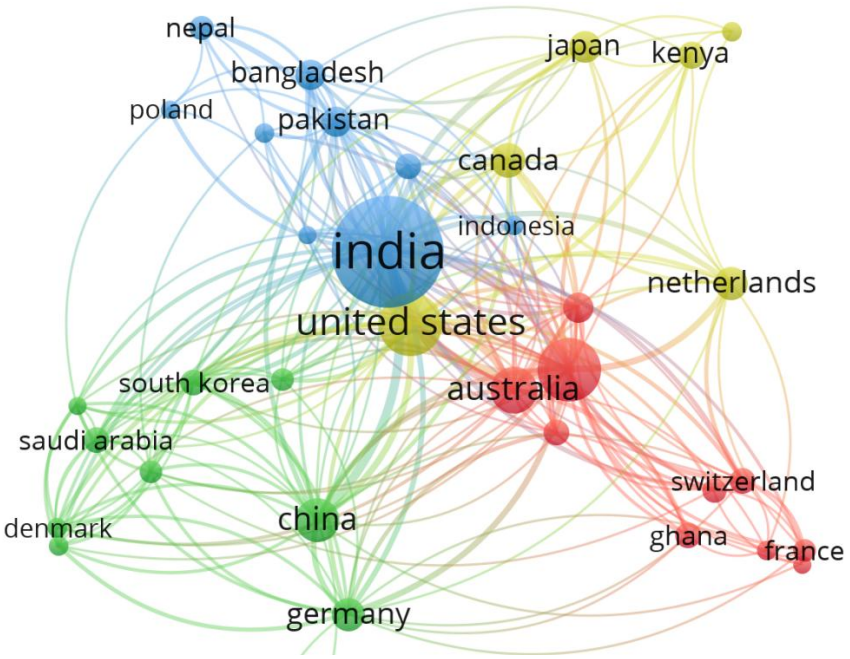

Fig. 9. Bibliometric map of Country with Network visualization mode

The analysis (Table 4) reveals significant global research contributions and varying levels of impact. India leads in research volume with 263 publications and 7,138 citations, although its average citations per article (27.14) suggest a moderate per-article influence. Lebanon demonstrates exceptional research quality, achieving the highest average citations per article at 892.00 from just three publications. Similarly, Nigeria and Switzerland exhibit high influence, with 375.57 and 374.71 citations per article, respectively.

Countries like the United States and the United Kingdom balance high publication output (67 and 64 articles) with strong average citations per article (69.16 and 65.63), reflecting both productivity and consistent impact. Canada and Australia contribute fewer publications but maintain notable average citations, indicating a focus on impactful research. Emerging contributors such as Pakistan and China show growing academic influence, with averages of 327.09 and 144.23 citations per article, respectively.

This data underscores the diversity in global research dynamics, where some countries prioritize volume while others achieve exceptional influence through fewer but higher-quality outputs. The findings highlight the importance of research productivity and its impact in shaping global academic contributions.

Table 4
Top 10 countries based on publications, citations, and average citations per article

Rank	Country	Publications	Citations	Average Citations per Article
1	India	263	7,138	27.14
2	United States	67	4,634	69.16
3	United Kingdom	64	4,200	65.63
4	China	26	3,750	144.23
5	Australia	32	3,731	116.59
6	Canada	15	3,130	208.67
7	Pakistan	11	3,598	327.09
8	Switzerland	7	2,623	374.71
9	Nigeria	7	2,629	375.57
10	Lebanon	3	2,676	892.00

3.3 Citation Analysis

VOSviewer, a known tool for bibliometric analysis, permits researchers to look into citation relationships across numerous units, including documents and sources [7]. Each element performs a different function in enriching citation analysis, delivering precise insights into intellectual linkages and research trends.

Documents: Citation analysis typically focuses on individual academic works, including journal articles, conference papers, books, and patents [22]. Using VOSviewer, researchers can investigate citation links among these papers, discover influential publications, trace the history of ideas, and grasp the intellectual structure of a certain field of study. [7] There are 1429 documents found in this analysis. Merely 363 documents satisfy the criterion with a minimum of 3 citations each. Figure 10 illustrates that, of the 363 documents, 29 papers had the greatest number of related things.

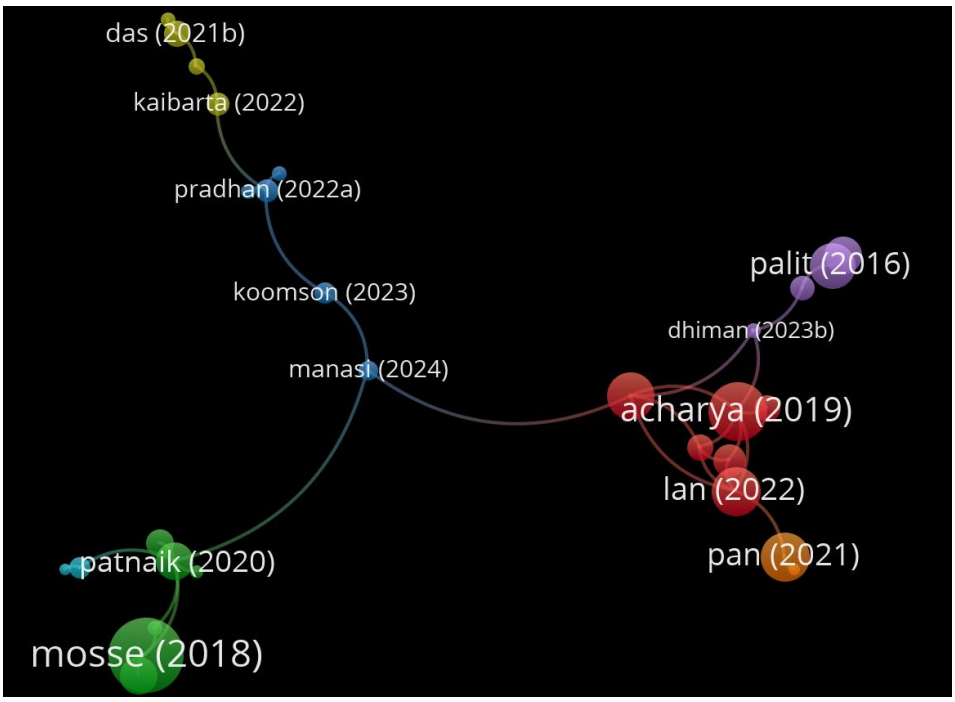

Fig. 10. Bibliometric map on co-citation with Network visualization mode based on documents

The analysis of the top 10 documents by citations and links highlights significant academic contributions and varying levels of network integration. Laha and Kuri [23] lead with an impressive 2,559 citations, showcasing substantial influence in academic discussions, although its network presence is limited to two links [23]. Similarly, the India State-Level Disease Burden Initiative Air Pollution Collaborators (2020) ranks second with 434 citations and two links, reflecting its relevance to health and environmental research in India. Other high-impact works, such as Wilson [24] with 292 citations and Sarin *et al.,* [25] with 424 citations, demonstrate strong academic engagement despite the absence of collaborative links [24-25]. Documents like Heidkamp *et al.,* [26], with 150 citations, reflect notable academic influence but limited connectivity within co-authorship networks [26]. Emerging works, such as Aryal *et al.,* [27] and Khalid *et al.,* [28], have lower citation counts but exhibit higher link strengths, suggesting their growing importance in collaborative frameworks [27-28]. The balance between citations and links is exemplified by documents like Sinha *et al.,* [29] and the India State-Level Disease Burden Initiative, which combines high academic recognition with collaborative engagement. These documents illustrate a spectrum of influence, from highly cited works with limited network integration to emerging research with strong collaborative potential [29].

i. Sources: Journals and conference proceedings are major examples of sources in academic publishing [30]. With VOSviewer, scholars may evaluate citation patterns across multiple sources, discover frequently co-cited publications and understand their contributions to the knowledge base of a certain topic or study area [7]. There are 263 sources in this analysis. Merely 72 sources satisfy the required minimum of two documents and source citations. Figure 11 illustrates that of the 30 sources, 72 have the greatest collection of related items.

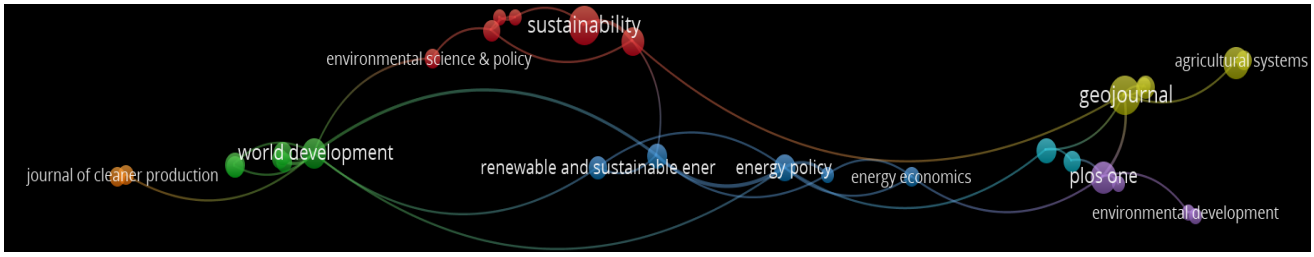

Fig. 11. Bibliometric map on co-citation with Network visualization mode based on sources

Analyzing the top 10 most productive sources with the most cited articles (Table 5) highlights their academic impact and significance across various research disciplines. The Lancet is the most influential source, achieving 3,079 citations from just four documents. Despite a relatively lower number of publications and limited link strength, it underscores its prominence in academic research. World Development balances productivity and impact, with nine documents garnering 496 citations and the highest total link strength (11), reflecting its strong academic and collaborative connections.

Sources like Sustainability and Geojournal lead in productivity, publishing 17 documents each, though their citation counts (296 and 98, respectively) indicate moderate impact compared to others. Meanwhile, Energy Policy and Renewable and Sustainable Energy Reviews demonstrate significant engagement in energy and sustainability, achieving 370 and 356 citations, respectively, with fewer documents. Niche-focused journals such as The Indian Journal of Labour Economics and Development in Practice contribute meaningfully, with 10 and 6 publications showing notable citation impact in specialized areas.

Overall, this analysis underscores a mix of highly influential and productive sources. *The Lancet* dominates citation impact, while World Development exemplifies strong connectivity and productivity. The data highlights these journals' diverse roles in shaping academic discourse, with some focusing on broad influence and others excelling in niche research areas.

Table 5
Top 10 sources based on documents, citations, and total link strength

Rank	Source	Documents	Citations	Total Link Strength
1	The Lancet	4	3,079	2
2	World Development	9	496	11
3	Sustainability	17	296	4
4	The Indian Journal of Labour Economics	10	218	2
5	Renewable and Sustainable Energy Reviews	5	356	3
6	Energy Policy	7	370	9
7	International Journal for Equity in Health	3	188	0
8	Development in Practice	6	156	2
9	Geojournal	17	98	7
10	Plos One	10	110	6

4. Discussion

The discussion underscores the evolving landscape of academic research on family economy, women, and poverty, with a particular focus on Bihar. The bibliometric analysis reveals a significant surge in research activity starting in 2018, aligning with global priorities following the adoption of the SDGs. This period reflects an increased academic focus on addressing socio-economic challenges, with health sciences emerging as a dominant research area. The exponential growth in citations highlights the relevance and impact of these studies; however, a decline in publication output and citation percentages in 2024 suggests the need for enhanced dissemination strategies and a renewed focus to maintain momentum.

Prominent contributors include authors like Geoffrey T. Fong and Dil Bahadur Rahut and institutions such as the Aga Khan University, Columbia University, and the World Health Organization, which demonstrate leadership in producing impactful research. India is the most productive country, with major contributions from institutions like Jawaharlal Nehru University. In contrast, countries like Lebanon and Nigeria demonstrate that high-quality research can achieve significant impact even with fewer publications. Thematic analysis reveals a strong focus on health, gender equality, and economic development but also highlights gaps in areas such as interdisciplinary research and underexplored SDGs like Partnerships for the Goals and Life below Water.

The findings emphasize the need to bridge academic research with policymaking by fostering interdisciplinary studies, strengthening institutional collaborations, and addressing citation lags for newer publications. Promoting digital literacy, financial inclusion, and education is critical for empowering women in Bihar and enhancing their economic participation. Stakeholders can enable inclusive development and drive sustainable growth by addressing systemic barriers and integrating women into formal economic systems. While progress has been made, persistent gaps demand innovative approaches and sustained efforts to maximize the impact of research on Bihar's family economy.

5. Conclusion

The study on family economy, women, and poverty in Bihar highlights significant progress in academic research, particularly since 2018, spurred by global priorities like the SDGs. The findings reveal substantial advancements in health, gender equality, and economic development, yet critical gaps persist in interdisciplinary approaches and underexplored SDGs, such as Partnerships for the Goals. Bridging research with policy through strategies like financial inclusion, digital literacy, and education is essential to address these challenges. These efforts can empower women, dismantle systemic barriers, and drive sustainable, inclusive development in Bihar.

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Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Kumar, R. (2025). Global Trends and Research Patterns in Financial Literacy and Behavior: A Bibliometric Analysis. Management Science Advances, 2(1), 1-18.https://doi.org/10.31181/msa2120256

[2] Kumar, R., & Pal, K. K. (2024). Artificial Intelligence (AI)-driven Transformation: Sustainable Development of Agro-based Industries in Bihar. International Journal for Multidisciplinary Research, 6(2).https://doi.org/10.36948/ijfmr.2024.v06i02.15935

[3] Kumar, R., & Kumari, K. (2024). Enhancing Economic Development through Inventory Management Optimization in Agro-based Industries in Bihar: A Comparative Study of EOQ and EPQ Models. International Journal for Multidisciplinary Research, 6(2).https://doi.org/10.36948/ijfmr.2024.v06i02.16892
[4] Kumar, R. (2024). A Comprehensive Review of MCDM Methods, Applications, and Emerging Trends. Decision Making Advances, 3(1), 185–199. https://doi.org/10.31181/dma31202569
[5] Kumar, R., & Sahoo, S. K. (2024). A Bibliometric Analysis of Agro-Based Industries: Trends and Challenges in Supply Chain Management. Decision Making Advances, 3(1), 200–215. https://doi.org/10.31181/dma31202568
[6] Kumar, R. (2024). Multi-Criteria Decision-Making Applications in Agro-based Industries for Economic Development: An Overview of Global Trends, Collaborative Patterns, and Research Gaps. Spectrum of Engineering and Management Sciences,2(1), 247–262. https://doi.org/10.31181/sems21202431k
[7] Kumar, R. (2025). Bibliometric Analysis: Comprehensive Insights into Tools, Techniques, Applications, and Solutions for Research Excellence. Spectrum of Engineering and Management Sciences, 3(1), 45–62. https://doi.org/10.31181/sems31202535k
[8] Zunaidi, A., &Maghfiroh, F. L. (2021). The Role Of Women In Improving The Family Economy. Dinar: Jurnal Ekonomi Dan Keuangan Islam, 8(1), 61-79.https://doi.org/10.21107/dinar.v8i1.10581
[9] Mardiana, A., Supatminingsih, T., & Hasan, M. (2024). Independence of housewives through hydroponic urban farming as an effort to improve family economy. Journal of Agrosociology and Sustainability, 2(1), 30-44.https://doi.org/10.61511/jassu.v2i1.2024.782
[10] Imronah, A., &Nginayati, E. (2024). The Role of Women in Family Economy in Kalipurwo Village: A Social and Islamic Economic Analysis. JEKSYAH: Islamic Economics Journal, 4(02), 136-146.https://doi.org/10.54045/jeksyah.v4i02.1825
[11] Sulistyaningsih, S., &Muryani, T. (2024). Women and Strengthening the Family Economy in the Digital Era in the Development of MSMEs in Yogyakarta. TEMALI: Jurnal Pembangunan Sosial, 7(1), 39-46.https://doi.org/10.15575/jt.v7i1.30109
[12] Hollins Martin, C. J. (2012). The importance of education in preparing women for childbirth. Nurse Education in Practice, 12(5), 240–241. https://doi.org/10.1016/j.nepr.2012.05.012
[13] Weede, E. (1992). Governing the commons — the evolution of institutions for collective action. European Journal of Political Economy, 8(2), 344–347. https://doi.org/10.1016/0176-2680(92)90034-e
[14] Hufton, O. (1975). Women and the Family Economy in Eighteenth-Century France. French Historical Studies, 9(1), 1. https://doi.org/10.2307/286002
[15] Medick, H. (1976). The pro to-industrial family economy: The structural function of household and family during the transition from peasant society to industrial capitalism. Social history, 1(3), 291-315.https://doi.org/10.1080/03071027608567380
[16] Dutta, P., Murgai, R., Ravallion, M., & Van de Walle, D. (2014). Right to work?: assessing India's employment guarantee scheme in Bihar. World Bank Publications. https://doi.org/10.1596/978-1-4648-0130-3
[17] Singh, K. M., Meena, M. S., Singh, R. K. P., & Kumar, A. (2011). Dimensions of Poverty in Bihar. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2017506
[18] Dandona, R., Kumar, G. A., Majumder, M., Akbar, M., Dora, S. S. P., & Dandona, L. (2024). Poor coverage of quality-adjusted antenatal care services: a population-level assessment by visit and source of antenatal care services in Bihar state of India. The Lancet Regional Health-Southeast Asia, 25.https://doi.org/10.1016/j.lansea.2023.100332
[19] Venkat, P., Unnati Achanta, Gayathri Priyadharshini Balamurli, Balaji Chinnasami, & Sundar, S. (2024). Prevalence of Elevated Blood Lead Levels and Factors Contributing to the Risk of Lead Poisoning among 1-5-year-old Children: A Cross-sectional Study. Journal of clinical and diagnostic research, 18(8), SC06 - SC10. https://doi.org/10.7860/jcdr/2024/69742.19790
[20] Daly, M., & Lewis, J. (2000). The concept of social care and the analysis of contemporary welfare states. The British Journal of Sociology, 51(2), 281–298. https://doi.org/10.1111/j.1468-4446.2000.00281
[21] Adhikari, K., Pednekar, M., Puntambekar, N., Quah, A. C. K., Fong, G. T., Driezen, P., & Gupta, P. C. (2018). Factors associated with intention to quit among tobacco users in India: findings from TCP India survey - Wave 1 and Wave 2. Tobacco Induced Diseases, 16(1). https://doi.org/10.18332/tid/83913
[22] Feliu, A., Joossens, L., Filippidis, F. T., Fong, G. T., Vardavas, C. I., Castellano, Y., Martinez, C., & Fernández, E. (2018). Impact of tobacco control policies on smoking prevalence and quit ratios in 27 European Union countries from 2006 - 2014. Tobacco Induced Diseases, 16(1). https://doi.org/10.18332/tid/83951
[23] Laha, A., & Kuri, P. K. (2014). Measuring the Impact of Microfinance on Women Empowerment: A Cross Country Analysis with Special Reference to India. International Journal of Public Administration, 37(7), 397–408. https://doi.org/10.1080/01900692.2013.858354

[24] Wilson, R. J., Paterson, P., Jarrett, C., & Larson, H. J. (2015). Understanding factors influencing vaccination acceptance during pregnancy globally: A literature review. Vaccine, 33(47), 6420–6429. https://doi.org/10.1016/j.vaccine.2015.08.046

[25] Sarin, S. K., Kumar, M., Eslam, M., George, J., Al Mahtab, M., Akbar, S. M. F., Jia, J., Tian, Q., Aggarwal, R., Muljono, D. H., Omata, M., Ooka, Y., Han, K.-H., Lee, H. W., Jafri, W., Butt, A. S., Chong, C. H., Lim, S. G., Pwu, R.-F., & Chen, D.-S. (2020). Liver diseases in the Asia-Pacific region: a Lancet Gastroenterology & Hepatology Commission. The Lancet. Gastroenterology & Hepatology, 5(2), 167–228. https://doi.org/10.1016/S2468-1253(19)30342-

[26] Heidkamp, R. A., Piwoz, E., Gillespie, S., Keats, E. C., D'Alimonte, M. R., Menon, P., Das, J. K., Flory, A., Clift, J. W., Ruel, M. T., Vosti, S., Akuoku, J. K., & Bhutta, Z. A. (2021). Mobilising evidence, data, and resources to achieve global maternal and child undernutrition targets and the Sustainable Development Goals: an agenda for action. The Lancet, 397(10282), 1400–1418. https://doi.org/10.1016/s0140-6736(21)00568-7

[27] Aryal, J. P., Rahut, D. B., Thapa, G., & Simtowe, F. (2021). Mechanisation of small-scale farms in South Asia: Empirical evidence derived from farm households survey. Technology in Society, 65, 101591. https://doi.org/10.1016/j.techsoc.2021.101591

[28] Khalid, A. M., Sharma, S., & Dubey, A. K. (2020). Concerns of developing countries and the sustainable development goals: case for India. International Journal of Sustainable Development & World Ecology, 28(4), 1–13. https://doi.org/10.1080/13504509.2020.1795744

[29] Sinha, M., Sendhil, R., Chandel, B. S., Malhotra, R., Singh, A., Jha, S. K., & Sankhala, G. (2021). Are Multidimensional Poor more Vulnerable to Climate change? Evidence from Rural Bihar, India. Social Indicators Research. https://doi.org/10.1007/s11205-021-02827-z

[30] Pradhan, I., Kandapan, B., & Pradhan, J. (2022). Uneven burden of multidimensional poverty in India: A caste based analysis. PLOS ONE, 17(7), e0271806. https://doi.org/10.1371/journal.pone.0271806