International Journal of Research in Library Science (IJRLS)

ISSN: 2455-104X

DOI: 10.26761/IJRLS.12.2.2026.2112

Volume 12, Issue 2 (April-June) 2026, Page: 199-209, Paper ID: IJRLS-2112

Artificial Intelligence in Medical Science: A Scientometric Mapping of Indian Authorship Productivity

Dr. Praveen B. Hulloli[1]; Dr. Naveen Kumar B M[2]; Dr. Savitha[3]

Librarian & HOD, Library and Information Centre, KLS Gogte College of Commerce Belagavi, Karnataka-India[1]; Chief Librarian, Library & Information Centre, Ramaiah College of Law, Bangalore[2]; Chief Librarian & HOD, Central Library, MVJ Medical College & Research, Bangalore, Karnataka, India[3].

praveenbhulloli@yahoo.com; naveenbekal@msrcl.org; savithamonish9@gmail.com

ABSTRACT

This study presents a comprehensive Scientometric analysis of research productivity in Artificial Intelligence (AI) within the Indian medical sector from 2005 to 2024. Utilizing data from the Web of Science (WoS), the study examines 9,774 papers with 123,043 citations in India and a global output of 123,007 papers. The results show a transformative change in the Indian landscape from being a niche area to a high-priority area. Notably, close to 61% of the total productivity occurred between 2021 and 2024, emphasizing on the post-pandemic surge and the effect of improved digital infrastructure. While the total number of authors increased dramatically from 310 to more than 41,000 during two decades, the Authorship per Capita of 0.20 is indicative of a sustainable professional environment for long-term research persistence. Identifies significant contributors like Suri JS, suggesting that the area is developing in terms of high-influence research where the volume of citations is proportionate to its depth. In the end, government initiatives and growing demand for automated clinical solutions are securing India's position as a global hub for AI medical innovation.

KEYWORDS: Artificial Intelligence (AI), Growth Rate, Authorship Per Capita, Author productivity, Quinquennial Period, Scientometric, Web of Science, (WoS), India

1. INTRODUCTION

Scientometrics is an applied field employed to assess the impact of research as well as quantitatively analyze academic literature, such as articles, journals, authors, and institutions. Through the analysis of publication and citation patterns, it helps in understanding of the dynamics, evolution and structure of scientific fields. The quantitative study of science (communication, research methods etc. and its associated regulations) is termed as Scientometrics. It involves the analysis and evaluation of various scientific activity by means of statistical and

mathematical methods (e.g. research trends, citation networks, and publication patterns). The basic idea is to "measure science" and understand the dynamics of science.

Figure-1: Artificial intelligence in healthcare

The application of Scientometric indicators and quantitative techniques in quantifying and analyzing the volume and impact of the scholarly production of a researcher or a group over time is called Scientometric authorship productivity. This approach helps to assess the performance of research, identify trends, assess individual contributions to funding/promotion, and understand patterns of collaboration within a field of science. Artificial intelligence (AI) has been applied to biomedical research since the 1970s, therefore the idea of AI in the medical field is not a novel one. Since then, artificial intelligence-powered applications have grown and evolved to change the medical industry by reducing costs, enhancing patient outcomes, and making the process of medicine more efficient. (Jimma, 2023) The analysis and understanding of complex medical and healthcare data is referred to as the application of artificial intelligence (AI) in the medical field. In some cases, technology can outperform or even improve human abilities by providing faster or more precise ways to diagnose, cure, or prevent disease.

2. METHODOLOGY

In addition to the biological sciences, the medical domains of cardiology, neurology, oncology, ophthalmology, gastroenterology, obstetrics and gynecology (OBG), psychiatry, dermatology (skin and veins), radiology, and disease diagnosis currently employ this state-of-the-art technology. Artificial intelligence is already the basis of many surgical operations in the medical industry. Better results in diagnostics and medical care assistance will be achieved due to the more autonomous treatment approach.

Primary data sources have been collected and investigated in this study from the Web of Science (*WoS*). Numerous places in India and many other countries help to develop the artificial intelligence research in the medical industry. The study, which was conducted from 2005 to 2024 in a twenty-year span, is available in the database. Using the "*Histcite*" software tool and tab-delimited in "*Micro Soft Excel*" 9774 papers with 123043 citations from India and 123007 papers for the world were downloaded and analyzed according to the goals in the study.

3. OBJECTIVES OF THE STUDY

- Year-wise Growth Rate in Research Papers publication
- Research Productivity Top 25 Individual Authors Ranking
- Authorship Per Capita Analysis
- Author productivity Artificial Intelligence in healthcare
- Quinquennial period wise distribution of authors

4. RESULTS AND DISCUSSION

4.1 Year-wise Growth Rate in Research Papers publication

Between 2005 to 2024 the field generated a total of 9,774 publications, reflecting India growing focus on integrating computational intelligence into medical sciences. The data highlights a clear modern boom phase. While the study period spans nearly two decades, the volume peaked dramatically in 2023 with 2,104 publications, suggesting that nearly a quarter of the total output occurred in that single year. The momentum was most aggressive during the immediate post-pandemic period the highest growth rate of 6.90% was recorded in 2022, followed closely by 4.94% in 2021.

Table-1: Year-wise Growth Rate in Research Papers on AI

Year	No. of Papers	% No. of Papers	Growth Rate	% of Growth Rate
2005	11	0.11	-	-
2006	8	0.08	-3	-0.03
2007	12	0.12	4	0.04
2008	25	0.26	13	0.13
2009	26	0.27	1	0.01
2010	25	0.26	-1	-0.01
2011	24	0.25	-1	-0.01
2012	40	0.41	16	0.16
2013	78	0.80	38	0.39
2014	79	0.81	1	0.01
2015	154	1.58	75	0.77
2016	204	2.09	50	0.51
2017	246	2.52	42	0.43
2018	361	3.69	115	1.18
2019	526	5.38	165	1.69
2020	826	8.45	300	3.07
2021	1309	13.39	483	4.94
2022	1983	20.29	674	6.90
2023	2104	21.53	121	1.24
2024	1733	17.73	-371	-3.80
Total	**9774**			

However, table-1 and figure-2 showing this progression hasn't been strictly linear. The research output experienced several ups and downs in growth speed during the year 2009, 2014, 2016, 2017 and 2023.

Most notably, Years like 2006, 2010, 2011, and 2024 stood out because fewer papers came out than before. During those times, growth dipped below zero, showing a drop instead of progress. That slowdown marked clear moments when output shrank. Each instance broke the pattern of steady increase. So, things didn't just slow - they actually reversed

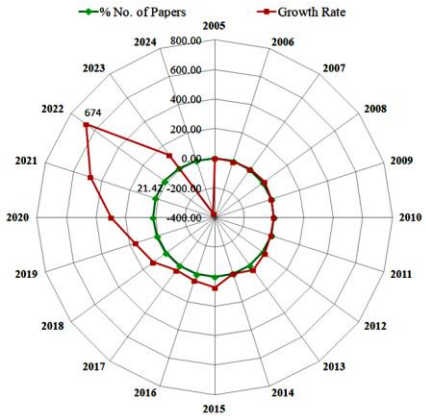


Figure-2: Year-wise Growth Rate in Research Papers on AI

4.2 Research Productivity Top 25 Individual Authors Ranking

This Scientometric analysis looks at how artificial intelligence research has grown within India's healthcare system between 2005 to 2024. From a broad base of 27,837 authors involved, it highlights twenty-five high contributors whose work stands out due to frequent publishing and strong influence measured by citations.

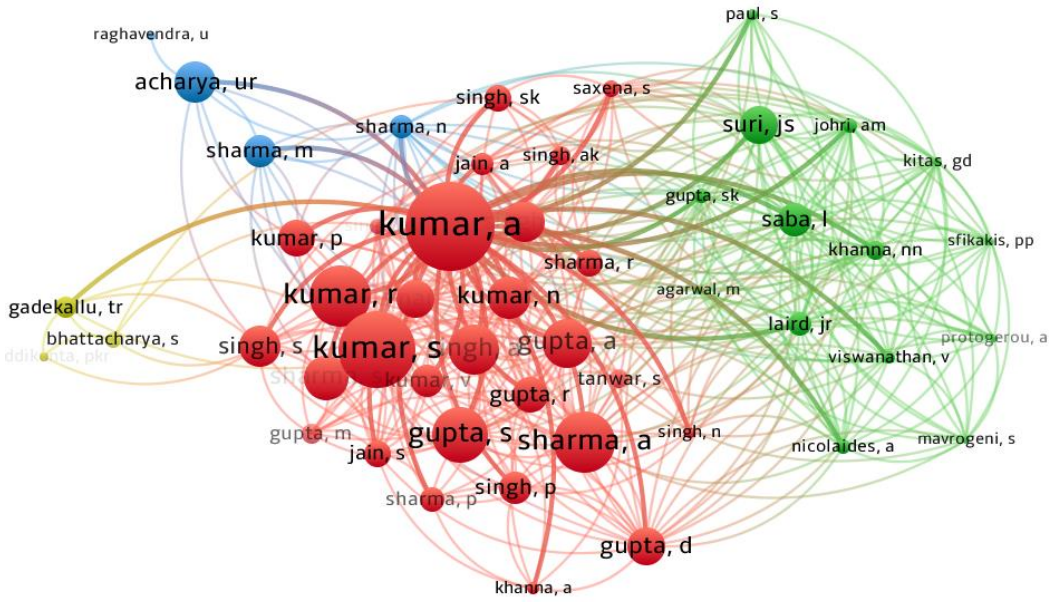
Table-2: Research Productivity of Individual Authors

SL. No.	Name of the Authors	Papers	Citations
1	Kumar A	193	2604
2	Kumar S	159	1777
3	Sharma A	150	2568
4	Kumar R	123	2850
5	Gupta S	120	2325
6	Singh A	103	1267
7	Gupta A	102	1769
8	Suri JS	96	3519
9	Sharma S	94	1785
10	Kumar N	87	1866
11	Saba L	85	3089
12	Singh S	84	1435
13	Acharya UR	83	2640
14	Singh R	80	893

15	Gupta D	76	2659
16	Kumar M	76	553
17	Kumar P	74	775
18	Gupta R	70	1086
19	Kumar V	66	1034
20	Laird JR	65	2200
21	Sharma M	65	1194
22	Singh P	64	807
23	Das S	58	576
24	Khanna NN	56	2013
25	Singh SK	56	1155
26	Others Authors (26-27837)	7489	78604
		9774	**123043**

The findings highlight a strong correlation between consistency and leadership. Kumar A comes out as the most prolific researcher with 1st rank with 192 papers and 2604 citations. Coming close on the heels is Kumar S and Sharma A who occupy the 2nd and 3rd positions with 159 and 150 publications of the authors, respectively.

Figure-3: Research Productivity of Individual Authors Mapping



Even if the numbers show high publication counts, the analysis reveals something deeper about impact - take Suri JS, who sits eighth with 94 papers but leads with 3,519 citations. That kind of recognition suggests his contributions anchor much of what follows in AI-driven health studies across India, as seen in figure-3.

4.3 Authorship Per Capita Analysis

One of the most telling metrics in this field is Authorship Per Capita (APC), Looking at this area, one clear measure pops up: Authorship Per Capita. It shows how many writers on average take part compared to total papers published.

Across almost twenty years, that rate holds steady at 0.20. That value helps sketch out who does what in science work. Still, each year swings quite widely - dipping as low as 0.14 or climbing up to 0.42.

Table-3: Authorship Per Capita Analysis

SL. No.	PY	TA	TP	Per Capita
1	2005	26	11	0.42
2	2006	27	8	0.30
3	2007	50	12	0.24
4	2008	101	25	0.25
5	2009	106	26	0.25
6	2010	100	25	0.25
7	2011	80	24	0.30
8	2012	165	40	0.24
9	2013	275	78	0.28
10	2014	255	79	0.31
11	2015	549	154	0.28
12	2016	759	204	0.27
13	2017	909	246	0.27
14	2018	2609	361	0.14
15	2019	2340	526	0.22
16	2020	3894	826	0.21
17	2021	6912	1309	0.19
18	2022	10659	1983	0.19
19	2023	10539	2104	0.20
20	2024	9073	1733	0.19
	Total	**49428**	**9774**	0.20
PY-Publication Year, TA-Total Authorship, TP-Total Publication				

Per Capital Authorship=Number of Publication/Number of Authors

= 49428/9774

= 0.197742

= 0.20

Per Capita Authorship is 0.20

These variations suggest that the field has undergone periods of both intense collaborative expansion and phases of more concentrated authorship. The peak of 0.42 indicates moments of high efficiency or perhaps the entry of highly prolific research clusters.

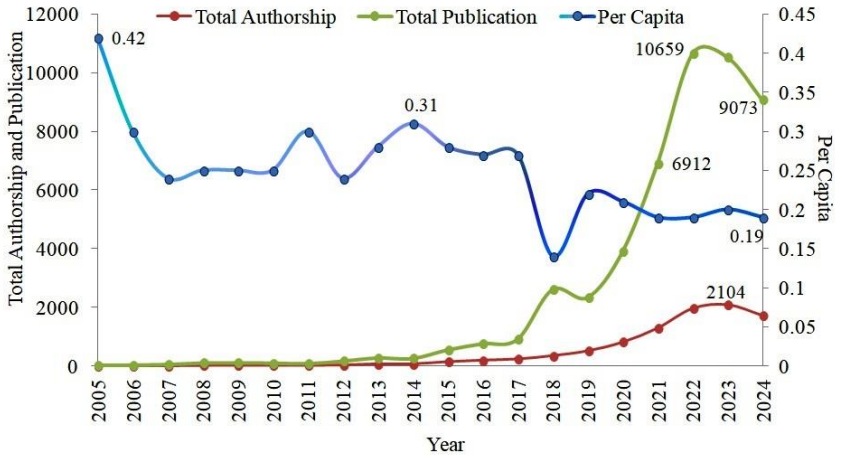


Figure-4: Authorship Per Capita Analysis

4.4 Author productivity Artificial Intelligence in Healthcare

Author productivity defined as the volume of research outputs such as journal articles, conference proceedings, and preprints serves as a vital indicator of the field's momentum. Between 2005 and 2024, the field witnessed a massive surge, totaling 9,774 papers contributed by a collective of 49,428 authors.

Table-4: Author productivity Artificial Intelligence

Year	Authors (X)	%	Articles (Y)	X^2	Y^2	XY
2005	26	0.05	11	676	121	286
2006	27	0.05	8	729	64	216
2007	50	0.10	12	2500	144	600
2008	101	0.20	25	10201	625	2525
2009	106	0.21	26	11236	676	2756
2010	100	0.20	25	10000	625	2500
2011	80	0.16	24	6400	576	1920
2012	165	0.33	40	27225	1600	6600
2013	275	0.56	78	75625	6084	21450
2014	255	0.52	79	65025	6241	20145
2015	549	1.11	154	301401	23716	84546
2016	759	1.54	204	576081	41616	154836
2017	909	1.84	246	826281	60516	223614
2018	2609	5.28	361	6806881	130321	941849
2019	2340	4.73	526	5475600	276676	1230840
2020	3894	7.88	826	15163236	682276	3216444
2021	6912	13.98	1309	47775744	1713481	9047808
2022	10659	21.56	1983	113614281	3932289	21136797
2023	10539	21.32	2104	111070521	4426816	22174056
2024	9073	18.36	1733	82319329	3003289	15723509
Total	**49428**	**100%**	**9774**	**384138972**	**14307752**	**73993297**

$= \Sigma xy / \sqrt{(\Sigma x2 \Sigma y2)}$

1212785859/√(3559184460*414193966)

0.9980734

The data reveals a modern gold rush in Artificial Intelligence in healthcare research. The year 2022 stands as the historic peak, accounting for the total output 1983 papers with 10,659 (21.56%) author productive contributions. This was closely followed by 2023, which maintained high momentum out 2104 papers with 10,539 author's contributions (21.32%). Even with 1,733 publications, the third-highest period recorded a substantial 9,093 authors contributions, representing (18.36%) of the total.

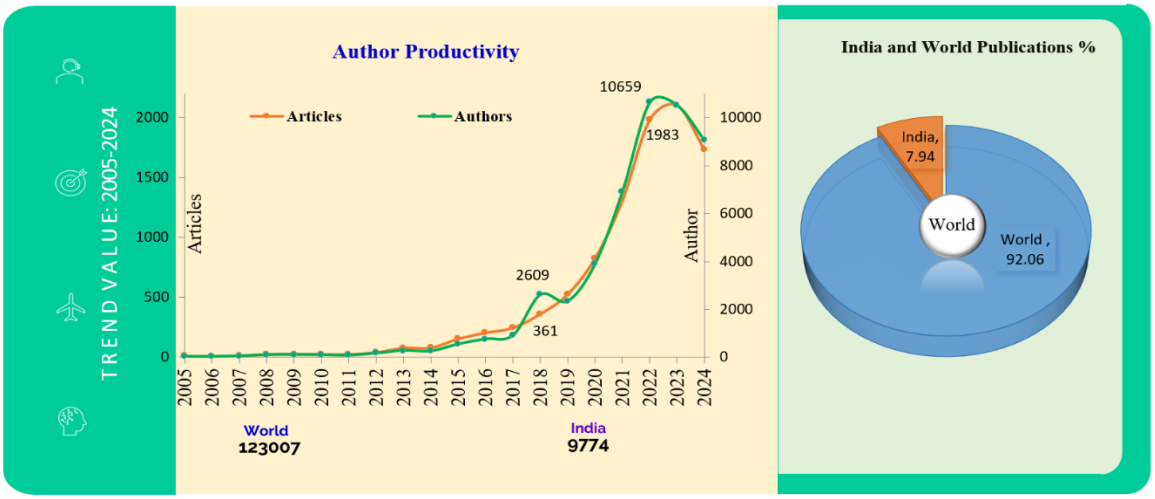


Figure-5: Author productivity Artificial Intelligence

Despite this recent explosion, the data highlights extreme annual fluctuations. Productivity values ranged from a negligible 0.05 in the early years to the 21.56 peak, illustrating the transition of Artificial Intelligence from a niche academic interest to a dominant pillar of modern medical science.

4.5 Quinquennial period wise distribution of authors

The study, spanning 2005 to 2024, tracks a remarkable expansion in scholarly output and author participation.

Table-5: Quinquennial period wise distribution of authors during 2005 to 2024

Year	Authors	Quinquennial%	Growth Rate
2005-2009	310	0.63	-
2010-2014	875	1.77	1.14
2015-2019	7166	14.50	12.73
2020-2024	41077	83.10	68.61
Total	**49428**		

During the initial decade, the field saw minimal traction. From 2005 to 2009, only 310 authors were active, representing a mere 0.63% of the total output. The subsequent quinquennial period (2010–2014) showed slight improvement with 875 papers (1.77% share), yet growth remained sluggish at a rate of only 1.14%.

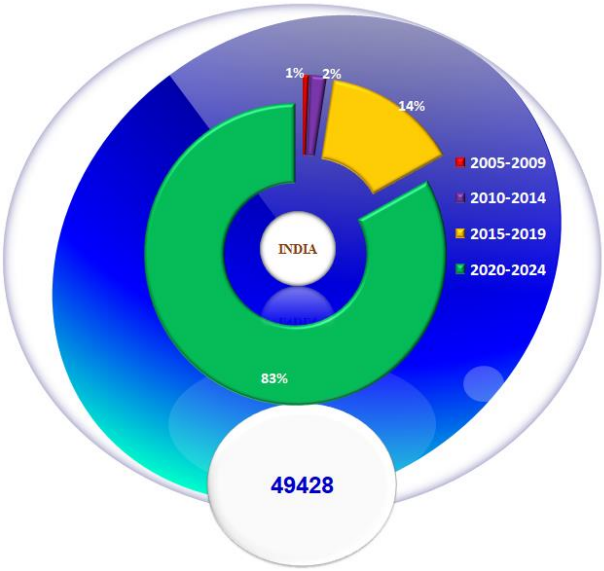


Figure-6: Quinquennial period wise distribution of authors during 2005 to 2024

The landscape transformed between 2015 and 2019, with 7,166 papers published, elevating the quinquennial share to 14.50%. However, the most explosive growth occurred in the final block (2020–2024). This period saw a staggering 41,077 authors contributing to the field, capturing 83.10% of the total research output for the entire 20-year study. This era was characterized by an average growth rate of 12.71%, peaking with a remarkable localized surge of 68.61%.

CONCLUSION

The Scientometric profile of Artificial Intelligence (AI) in Indian healthcare reflects a field that has been democratized from being an exploration with a niche to being a high priority research field. Despite some occasional fluctuations, the enormous influx in the early 2020 where almost (61%) of all productivity happened in just three years highlights a strong, changing ecosystem. This pattern suggests that India is becoming a significant worldwide force in AI-powered medical advancement. Prolific writers author like “Suri JS” have demonstrated that the quality and depth of citations are becoming just as significant as volume in the maturing condition that has been observed between 2005 and 2024. India’s position as a global center was solidified by the fact that the number of authors increased from 310 to over 41,000 in just 20 years. This shift is likely driven by enhanced digital infrastructure, government initiatives, and the post pandemic demand for automated health solutions. The overall Authorship Per Capita of 0.20 highlights a sustainable professional environment where researchers persist in the field. Conclusively, evolution of machine learning and data science in clinical research ultimately, and India’s top researchers are pivotal in transitioning the nation from a high-volume contributor to a high-influence leader in medical Artificial Intelligence.

REFERENCE

[1] Barik, N., & Jena, P. (2018). Authorship Distribution and Collaboration in LIS Open Access Journals: A Scopus based analysis during 2001 to 2015. *Library Philosophy and Practice (e-journal). 2033.*, 1-25.

[2] Biradar, N., & Tadasad, P. G. (2015). Authorship Patterns and Collaborative Research in Economics. *Journal of Indian Library Association, 51*(4), 21–29.

[3] Gupta, B. M., Dhawan, M. S., Gupta, R., & Jalana, M. (2015). Facebook Research: A Scientometric Assessment of Global Publications, 2005-14. *Library Philosophy and Practice (e-journal)*, 1-17.

[4] Gupta, B. M., Dhawan, S. M., & Gupta, R. (2017). World Mobile Research: A Scientometric Assessment of Research Publications Output during 2007-16. *Library Philosophy and Practice (e-journal)*, 1551.

[5] Hulloli, P. B. (2021). Authorship Patterns and Collaborative Measures of Psychology in India: A Scientometric Study. In *Electronic Library Adminstration in Scientific Epoch* (pp. 25-37). New Delhi: Bharti Publications.

[6] Hulloli, P. B. (2022). Research on Funding Agencies in the Field of Mechatronics in Global Scenario. *Asian Journal of Information Science and Technology, 12*(2), 8-14. doi:DOI: https://doi.org/10.51983/ajist-2022.12.2.3166

[7] Hulloli, P. B. (2025). Research on Artificial Intelligence of Medical Realm:A Scientometric Study. *Asian Journal of Information Science and Technology, 15*(2), 20-25. doi: https://doi.org/10.70112/ajist-2025.15.2.4338

[8] Hulloli, P. B., & Hulloli, M. P. (2024). Mechatronics Research Output: A Comparative Study of Global and G5 Contributions (2001-2020). *Asian Journal of Information Science and Technology, 14*(2), 41-49. doi:https://doi.org/10.70112/ajist-2024.14.2.4274

[9] Hulloli, P. B., & Mani, C. (2021). Research on Electric Vehicles in India and USA: A Scientometric Study. *Asian Journal of Information Science and Technology, 11*(1), 50-54.

[10] Jimma, B. L. (2023). Artificial intelligence in healthcare: A bibliometric analysis. *Telematics and Informatics Reports, 9*, 1-8. doi:https://doi.org/10.1016/j.teler.2023.100041

[11] Kavitha, E. S. (2017). Authorship Pattern and Collaboration of Physics during the year 2012-2016: A Scientometric Study. *International Journal of Library & Information Science (IJLIS), 6*(5), 122–128.

[12] Mahadeva, S., Shashikiran, M., & KariGowda, D. (2017). Scientometric Analysis of Research Publications of Indian Institute of Technology kharagpur: A study based on Indian Citation Index (2004 -2016). *International Journal for Innovative Research In Multidisciplinary Field , 3*(2), 160-164.

[13] Manimegalai, D., & Ravi, S. (2014). Fashion Technology Research: A Scientometric Analysis. *Asian Journal of Information Science and Technology, 4*(1), 54 - 62.

[14] Melin, G., & Persson, O. (1996). Studying research collaboration using co-authorships. *Scientometrics, 36*(3), 363–377.

[15] Narzary, R., & Murugan, C. (2017). Authorship Pattern & Collaboration In Etri Journal: A Scientometric Study. *International Journal of Research - GRANTHAALAYAH, 5*(7), 608-622.

[16] Ramalingam, J., & Elangovan, N. (2018). Measuring Co- authorship Pattern in Research Output of Chromosome Anomalies. *Library Philosophy and Practice (e-journal) 1730.*, 1-21.

[17] Ranganathan, C., & Balasubramani, R. (2014). Scientometric Dimension of Digital Architecture Research Output Based on Web of Science Database: A Global Perspective. *Asian Journal of Information Science and Technology, 4*(1), 16-25.

[18] Rubinandhini, A., & Gomathi, P. (2015). Authorship Pattern on Annals of Library and Information Studies Output During 2005–2014: A Bibliometric Study. *International Journal of Engineering Sciences and Management Research, 2*(9), 141-151.

[19] Savanur, K. P. (2019). Application of Bradford's Law of Scattering to the Economics Literature of India and China: A Comparative Study. *Asian Journal of Information Science and Technology, 9*(1), 1-7.

[20] Sindagi, S. P., & Anandhalli, G. B. (2018). Authorship Trend and Collaborative Research in Lung Cancer: A Time Series Analysis Study. *Library Philosophy and Practice (e-journal) 1622.*, 1-21.

[21] Sudhier, P. K. (2012). Lotka's Law and Pattern of Author Productivity in the Area of Physics Research. *DESIDOC Journal of Library & Information Technology, 33*(6), 457-464.

[22] Velmurugan, C., & Radhakrishnan, N. (2015). *Authorship trends and collaborative research work on Library Herald: a Scientometric analysis.* Delhi: Information Science and Digital Libraries, International Research Publication House.

[23] Yadav, S. K., Singh, S. N., & Verma, M. K. (2019). Authorship and Collaboration Pattern in SRELS Authorship and Collaboration Pattern in SRELS 2008-2017: An Evaluation. *Library Philosophy and Practice (e-journal) 2119.*, 1-15.
