
Author Productivity in the Field Of Gynecology Research Output: A Scientometric Analysis

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Abstract

In this study, we examine the authorship trend and productivity pattern in Gynology research output literature. For this purpose, the required data has been collected from the Web of Science Database published from 1989 to 2020. Scientometric tools co-author, self citation, H index and collaboration index, has been tested. Further, level of collaboration has been observed among the authors. The study reveals that the coauthored papers are dominate and average collaboration rate (0.57) is better collaboration and mean number of authors per joint authored paper is 3.4.

Keywords

Author Productivity; Research Output; Gynecology;
Scientometric Analysis

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1. Introduction

Scientometrics provides an understating of the structure of the scientific activity, subject disciplines being researched, institutions involved, strengths in the scientific groups and their communication/outlet channels. Scientometrics is an application of quantitative methods to the history of science/scientists (Kalyane, 1995). In recent years, we have used scientometric tools in order to assess the quantitative analysis of many scientific research fields such as pheromone biology (Rajagopal et al., 2013), yoga research (Poornima and Surulinathi, 2019), Indian contribution to drugs discovery (Sankaralingam et al., 2020), global research output of COVID-19 (Surulinathi et al., 2020) etc. It is one of the techniques for documenting and collating works of eminent scientists and researchers.

2. Objectives

- To analyze the Author Productivity;
- To analyze the Citations and Publications Impact;
- To identify the year-wise distribution of publications.

3. Methodology

A complete bibliography of his research publications from 1989–2020 has been catalogued and standard bibliometric fields was analyzed by normal count procedure for various domains such as author Citations, Collaboration Institutions, Countries, Authors, Funding Source and Subject domains. The data was downloaded from Web of Science database, with the search string “Gynecology” with author field. The study of author productivity is an important aspect in analyzing the performance of research output. T

4. Analysis and Interpretation

The analysis of author productivity examines the prevailing trend in carrying out research in any discipline of science.

4.1 Author Wise Distribution

Ranking of Authors based on Publications

Table 1 indicates ranking of authors by number of publications. Author Wallwiener D published highest number of articles for the study period with 32 records; next author Khan KS published next highest

number of articles for the study period with 21 records, Beckmann MW published 20 records, Farquhar C published 19 records, Mahmood T published 15 records, Duffy S published 14 records,

Bhattacharya S and Scheele F A published 13 records, David M and Schauf B 12 records and as well as follows.

Table 1: Author wise distribution of the publications

#	Author	Records	Percent	TLCS	TLCS/t	Without self citations	TGCS	TLCR
1	Wallwiener D	32	0.8	16	1.89	3	94	13
2	Khan KS	21	0.5	6	0.46	2	258	22
3	Beckmann MW	20	0.5	15	1.68	4	83	8
4	Farquhar C	19	0.4	1	0.25	1	265	26
5	Mahmood T	15	0.4	4	0.59	1	144	6
6	Duffy S	14	0.3	21	1.13	12	230	11
7	Bhattacharya S	13	0.3	13	0.83	7	408	26
8	Scheele F	13	0.3	10	1.00	4	400	6
9	David M	12	0.3	1	0.04	0	37	3
10	Schauf B	12	0.3	0	0.00	0	0	0
11	Baloch S	11	0.3	0	0.00	0	66	0
12	Jurkovic D	11	0.3	2	0.16	1	405	3
13	Lethaby A	11	0.3	0	0.00	0	252	34
14	Mol BWJ	11	0.3	0	0.00	0	160	1
15	Steeegers EAP	11	0.3	4	0.42	0	291	4
16	Thakar R	11	0.3	0	0.00	0	300	2
17	van Wely M	11	0.3	1	0.20	0	182	3
18	Brown J	10	0.2	0	0.00	0	85	6
19	Creighton SM	10	0.2	8	0.78	5	161	3
20	Greer IA	10	0.2	7	0.27	5	892	2
21	Kaufmann M	10	0.2	1	0.06	0	116	2
22	Kumar A	10	0.2	6	1.35	1	36	8
23	Kunzel W	10	0.2	0	0.00	0	47	0
24	Mettler L	10	0.2	0	0.00	0	75	2
25	Scambia G	10	0.2	1	0.09	1	394	4

It is found from the analysis that LOTKAS law may not be applicable with regard to author productivity in proliferation of research in Scientometric Mapping of Gynaecology Research output as the research papers equally distributed by a large number of authors. It also shows that author Greer IA has got highest 892 global citations against 10 publications, followed by the author Bhattacharya S with 408 global citations against 13 publications and third one is with more citations by Jurkovic D having 405 global citations for 11 publications.

Among the top 25 authors, author Lethaby A has append 34 references for its 11 publications which is followed by the authors Farquhar C and Bhattacharya S with 26 cited references for its 19 and 13 publications and the authors Khan KS with 22 cited references for its 21 publications. There are only one author having more than 800 global citations, only three authors having more than 400 global citations, two authors having more than 200 global citations and five authors having more than 100 global citations and rest as the follows.

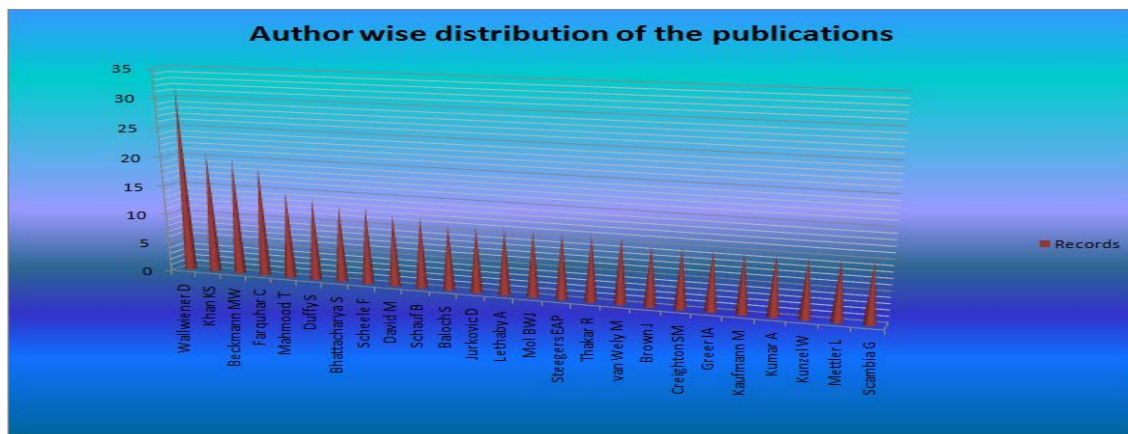


Fig. 1. Author wise distributions of the publications

This figure shows that the Author wise distributions of the publications is divided into two parts, one is x axis mention the Name of the authors and another one

is Y axis mention the number of records. The cone figure clearly mention highest to lowest number of publications or rank wise published articles in author wise distribution of the publications.

Table 2: Author wise distribution of the publications with citations

#	Author	Records	Co-authors	Self-citations	Without self-citations	h-index
1	Wallwiener D	32	187	13	3	6
2	Khan KS	21	138	4	2	9
3	Beckmann MW	20	141	11	4	6
4	Farquhar C	19	87	0	1	8
5	Mahmood T	15	93	3	1	5
6	Duffy S	14	39	9	12	7
7	Bhattacharya S	13	118	6	7	7
8	Scheele F	13	72	6	4	8
9	David M	12	35	1	0	3
10	Schauf B	12	22	0	0	0
11	Baloch S	11	30	0	0	5
12	Jurkovic D	11	79	1	1	9
13	Lethaby A	11	44	0	0	6
14	Mol BWJ	11	119	0	0	8
15	Steegers EAP	11	85	4	0	7
16	Thakar R	11	45	0	0	4
17	van Wely M	11	89	1	0	7
18	Brown J	10	43	0	0	5
19	Creighton SM	10	41	3	5	7
20	Greer IA	10	45	2	5	8
21	Kaufmann M	10	66	1	0	3
22	Kumar A	10	64	5	1	4
23	Kunzel W	10	24	0	0	2
24	Mettler L	10	38	0	0	6
25	Scambia G	10	408	0	1	7

Table 2 shows that author wise self-citations of the publications. The author Wallwiener D in the highest number of the Self Citations 13 out of 16 citations, Beckmann MW in the second rank of the self-citations with 11 and citations 15, Duffy S in the third highest number of the self-citations 9 and citations 21 and it shows strength and continuity of research in the particular domain.

Table 11 also shows that the authorship and H-Index distribution of the publications. It also shows that author Khan KS and Jurkovic D has got highest 9 H-

Index against 21 and 11 publications, followed by the author Farquhar C, Scheele F, Mol BWJ and Greer IA with 8 H-index against 19, 13, 11 and 10 publications, the author Duffy S, Bhattacharya S, Steegers EAP, van Wely M, Creighton SM and Scambia G with 7 H-index against 14,13,11 and 10 records of publications.

Among the top 25 authors, author Duffy S has append 12 without self citation for its 14 publications which is followed by the authors Bhattacharya S with 7 without self citation for its 13 publications.

Table 3: Author wise distributions of the publications

Publication Year	1	2	3	4	5	6	7	8	9	10	>10	Records
1989	5	1	0	0	0	0	0	0	0	0	0	6
1990	3	0	1	2	0	1	0	0	0	0	0	7
1991	9	13	15	10	9	8	1	0	0	0	1	66
1992	11	8	14	12	7	4	1	2	0	0	1	60
1993	10	7	10	13	15	6	1	3	0	0	1	66
1994	6	12	10	7	12	6	3	1	2	0	1	60
1995	7	9	12	21	8	9	3	2	0	2	0	73
1996	21	10	24	17	8	8	7	4	1	1	0	101
1997	21	13	16	18	11	10	5	1	1	0	0	96
1998	21	15	18	20	17	11	6	5	4	0	0	117
1999	29	27	20	24	12	9	6	7	5	0	5	144
2000	18	16	15	15	14	13	5	1	1	5	2	105
2001	23	16	22	10	9	13	4	4	3	1	2	107
2002	38	23	22	9	13	7	7	2	0	1	2	124
2003	15	11	16	19	9	15	4	3	1	1	2	96
2004	17	12	10	10	18	16	8	2	3	2	5	103
2005	15	18	17	14	6	13	3	2	2	0	2	92
2006	21	18	14	15	7	14	3	3	5	1	4	105
2007	21	23	24	20	15	13	12	6	2	3	5	144
2008	20	21	36	29	18	17	8	7	2	1	2	161
2009	36	31	31	34	27	18	9	7	3	1	7	204
2010	34	36	39	31	26	18	12	7	3	2	6	214
2011	30	26	34	32	13	20	17	8	5	1	8	194
2012	21	18	29	27	17	18	10	11	2	4	10	167
2013	22	46	37	37	29	26	18	8	4	3	11	241
2014	15	29	31	35	27	24	5	14	6	3	6	195
2015	17	29	30	30	30	23	9	8	6	4	10	196
2016	18	15	30	28	41	23	18	14	9	3	22	221
2017	12	18	42	34	46	29	24	10	11	1	10	237
2018	26	35	34	47	41	30	15	16	6	2	18	270
2019	18	29	37	47	44	28	16	12	14	12	20	277
	580	585	690	667	549	450	240	170	101	54	163	4249

Table 3 shows that the highest number of the publications on 690 records in three author productivity, the next followed by the four author's productivity with 667, the two author's productivity with 585 and the single author's productivity with 580 records of the publications respectively and followed by other patterns.

Table 4: shows that Authorship pattern of Gynaecology Research output

Authorship Pattern	No. of Contribution	Percentage of Authors	Cumulative Percentage
1	580	13.65	13.65
2	585	13.77	27.42
3	690	16.24	43.66
4	667	15.70	59.35
5	549	12.92	72.28
6	450	10.59	82.87
7	240	5.65	88.51
8	170	4.00	92.52
9	101	2.38	94.89
10	54	1.27	96.16
>10	163	3.84	100.00
	4249	100.00	

The authorship pattern shows that the collaboration trend is dominant as only 13.65 percent are contributed by single authors. The highest productivity of publications output (16.24%) from three authors. This is followed by four authors' contribution (15.70%).

Table 5: Showing single vs. multiple author research output

Year	Single Authors		Multiple Authors		Total
	No. of Output	Percentage	No. of Output	Percentage	
1989	5	0.12	1	0.02	6
1990	3	0.07	4	0.09	7
1991	9	0.21	57	1.34	66
1992	11	0.26	49	1.15	60
1993	10	0.24	56	1.32	66
1994	6	0.14	54	1.27	60
1995	7	0.16	66	1.55	73
1996	21	0.49	80	1.88	101
1997	21	0.49	75	1.77	96
1998	21	0.49	96	2.26	117
1999	29	0.68	115	2.71	144
2000	18	0.42	87	2.05	105

2001	23	0.54	84	1.98	107
2002	38	0.89	86	2.02	124
2003	15	0.35	81	1.91	96
2004	17	0.40	86	2.02	103
2005	15	0.35	77	1.81	92
2006	21	0.49	84	1.98	105
2007	21	0.49	123	2.89	144
2008	20	0.47	141	3.32	161
2009	36	0.85	168	3.95	204
2010	34	0.80	180	4.24	214
2011	30	0.71	164	3.86	194
2012	21	0.49	146	3.44	167
2013	22	0.52	219	5.15	241
2014	15	0.35	180	4.24	195
2015	17	0.40	179	4.21	196
2016	18	0.42	203	4.78	221
2017	12	0.28	225	5.30	237
2018	26	0.61	244	5.74	270
2019	18	0.42	259	6.10	277
	580	13.65	3669	86.35	4249

The table shows that single vs. Multiple authors research output, the highest publications was single author output of 38 records in the year 2012, 36 records in the year 2009, 34 records in the year 2010, 30 records in the year 2011 and 29 records in the year 1999. As soon as 259 records in the 2019, 244 records in the year 2018, 225 records in the year 2017, 219 records in the year 2013, 203 records in the year 2016, 180 records in the year 2010 and 2014, 179 records in the year 2015, 168 records in the year 2009, 164 records in the year 2011, 146 records in the year 2012, 141 records in the year 2008 and 123 records in the year 2007 of the multiple authors output of the publications of distributions.

CONCLUSION

We conclude that scientometrics plays an important role in the dissemination of a particular scientist whose interest lies in the number of important papers published. During 31 years period (1989 –2020) contributions in terms of number of publications is significant. A comparison of authors output in relation to the world output may help in understanding the contribution in a better angle. Though the records available in the Web of Science database reveal a small number, it is important that the Web of Science covers only the peer-reviewed journals. If a broader coverage database is available,

it may provide a reasonable number of papers. Researcher suggest for tracking citation record of papers so that the impact of publications in Gynecology may be visible.

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