

RESEARCH OUTPUT OF SWINE FLU RESEARCH DURING 2005-2014: A SCIENTOMETRIC ANALYSIS

R. Vijayakumar¹, Dr. M. Palaniappan²

¹Librarian, AVS College of Arts and Science, Salem-106

²Assistant Professor, Department of Library and Information Science, Periyar University, Salem-11

Abstract - This study examined Swine Flu research performance during 2005 to 2014 by conducting scientometric analysis of collected data have been downloaded from Web of Science database. The information used for this research included number of papers, author productive, pattern, source journals and also collaboration with different countries. The information was coded and tabulated with the help of various scientometric techniques. The results showed that there was a significant growth in quantity of papers from 2005 to 2014. In general, recent papers had averaged more authors, more domestic collaboration, more international collaboration, and more citations received than earlier papers.

Key Words: Scientometric Anaysis, Swine Flu Research, Author Productivity.

1.INTRODUCTION

Scientific productivity in the form of intellectual contributions and communicated in written form is commonly considered to be of fundamental importance to scientific career advancement. In the last two decades there has been an unprecedented growth of scientometric studies in different fields, mainly because of the government and private organizations that invest large amount of money for research activities need accountability.

2.OBJECTIVES OF THE STUDY

The major objectives are framed with the exclusive notion of the present study as mentioned below:

1. To find out the year wise distribution of publications.
2. To ascertain the authorship pattern.
3. To identify the geographical wise distribution of publications.
4. To examine the author wise distribution of publications.
5. To study journal wise distribution of publications.
6. To identify word wise distribution of publications.

3.METHODOLOGY

The present study data were collected from Web of Science database for the period 2005-2014. It can be seen that nearly 932 bibliographic records of contribution in the field of swine research over the period of 10 years. The researcher applied the search strings Swine Flu research of that has used for the data extraction from the database of Web of Science to download the records based on the above strings. A total of 932 records were downloaded and analysis by using the Histcite software applications as per the objectives of the study.

Table 1: Shows Year wise Distribution

S. No	Publication Year	Records	Percent	TLCS	TGCS
1	2005	1	0.1	0	2
2	2006	5	0.5	19	182
3	2007	4	0.4	5	45
4	2008	6	0.6	17	227
5	2009	270	29	318	3781
6	2010	243	26.1	134	2615
7	2011	187	20.1	50	1383
8	2012	100	10.7	14	394
9	2013	72	7.7	7	151
10	2014	44	4.8	0	33
Total		932	100	564	8813

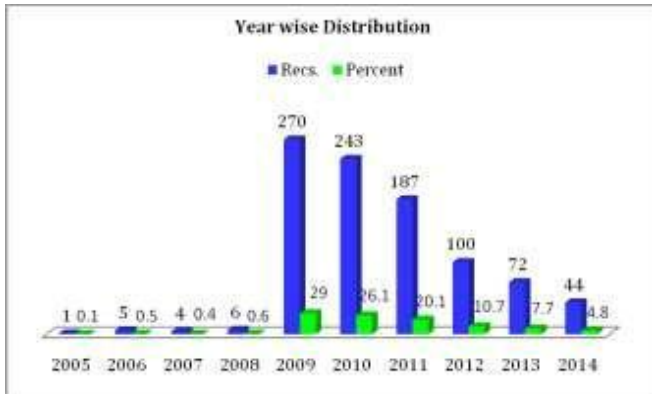


Table 1 shows year wise article output from 2005 to 2014. 932 articles were published within ten years. Highest percentage of articles were published in the year 2009 constituting 29.00% respectively. It could be deduced from the above discussion that, among the study period the publication trend is increasing and decreasing. Highest percent of articles published in 2009 and the lowest percent of articles published in the year 2005.

Table 2: Shows Year wise Authorship Pattern

Authorship Pattern	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	Mean	SD	CV
Single	1	1	0	3	166	76	25	11	10	7	300	30	52.95	1.77
Two	0	1	2	0	33	31	23	20	10	6	126	12.6	13.05	1.036
Three	0	1	1	0	29	28	26	14	16	3	118	11.8	12.35	1.045
Four	0	0	0	0	10	28	18	12	9	10	87	8.7	9.29	1.067
Five	0	0	1	2	12	23	23	12	11	5	89	8.9	8.85	0.99
Six	0	1	0	0	3	12	17	10	7	4	54	5.4	5.93	1.10
Seven	0	1	0	0	4	12	11	9	3	2	42	4.2	4.71	1.12
Eight	0	0	0	0	1	7	12	3	2	3	28	2.8	3.92	1.40
Nine	0	0	0	0	1	4	9	3	0	3	20	2	2.91	1.45
Ten & above	0	0	0	0	11	22	23	6	4	1	68	6.7	9.06	1.35
Total	1	5	4	6	270	243	187	100	72	44	932	93.2	103.95	1.11
DC	1.00	0.80	1.00	1.00	0.39	0.69	0.87	0.89	0.86	0.84	0.69			

Table 2 show of year wise authorship pattern of papers published between 2005 and 2014. In this table, all the publications were divided into ten categories. It is observed that out of 932 contributions, a total of 300 publications have been contributed by Single author, second position two author 126 publication and three authors 118 publication. Swine flu research during the period of ten years from 2005 to 2014 it is observed that the Degree of Collaboration (DC) is 0.97 (nearly equals to 1) that means there are few/negligible contributions by single authors.

The formula given by K. Subramanyam is useful for determining the degree of collaboration in quantitative terms. The extent of collaboration in research can be measured with the help of the formula:

$$DC = \frac{N_M}{N_M + N_S}$$

Where, DC= Degree of Collaboration

NM = Number of multiple authors
NS = Number of single authors

It is found from the table 2 that the average degree of collaboration is 1 which is the high degree of collaborative research.

Table 3: Shows Author Wise Distribution Articles and Citations

S.No	Author	Records	TLCS	TGCS
1	Wiwanitkit V	34	9	27
2	[Anonymous]	26	0	0
3	O'Dowd A	10	0	14
4	Mackenzie D	9	0	0

5	Goodwin R	8	5	84
6	Cohen J	7	40	153
7	Enserink M	6	28	102
8	Layton D	6	0	10
9	MacDonald TM	6	0	10
10	Mackenzie IS	6	0	10
11	Rubin GJ	6	14	249
12	Siva N	6	0	4
13	Zarocostas J	6	0	5
14	Michie S	5	26	187
15	Rawat G	5	4	16
16	Saxena RK	5	4	16
17	Seale H	5	27	182
18	Zhang LZ	5	0	96
19	Blood RW	4	2	29
20	Chen CYC	4	8	100
Total		169	167	1294

Table 3 shows the individual author wise distribution of the articles, The data covered over the study period in Web of Science is taken for analyses were identified among the top 20 authors. Published by the top 20, Wiwanitkit V occupied the first position with 34 articles, White [Anonymous] are in the second position with 26 articles and O'Dowd A thread position with 10 articles. Nearly ten authors they have published more than 5 articles among the top 20 authors.

Table 4: Shows Journals Wise Distribution Articles

S.No	Journal	Records	Percent	TLCS	TLCS/t	TGCS	TGCS/t	TLCR
1	British Medical Journal	63	6.8	0	0	323	54.47	0
2	Plos One	27	2.9	0	0	511	120.13	41
3	Vaccine	19	2	26	5.95	347	87.98	30
4	Science	17	1.8	65	11.23	578	105.5	2
5	Influenza and other Respiratory Viruses	16	1.7	2	0.58	69	19.55	32
6	New Scientist	15	1.6	0	0	0	0	0
7	BMC Public Health	14	1.5	0	0	160	37.45	21
8	BMC Infectious Diseases	11	1.2	0	0	210	45.95	17
9	Indian Pediatrics	10	1.1	0	0	2	0.45	0
10	Medical Journal of Australia	9	1	57	9.6	110	19.07	11
11	Health Technology Assessment	8	0.9	13	2.6	95	19	6
12	Indian Journal of Microbiology	8	0.9	3	0.5	7	1.17	5
13	Journal of Infectious Diseases	7	0.8	19	3.19	180	30.84	13
14	American Journal of Infection Control	6	0.6	6	1.3	28	5.8	4
15	Biosecurity and Bioterrorism- Biodefense Strategy Practice and Science	6	0.6	7	1.17	44	7.5	1
16	Canadian Medical Association Journal	6	0.6	2	0.33	5	0.83	0
17	Clinical Infectious Diseases	6	0.6	13	2.43	189	34.05	5
18	Health & Place	6	0.6	2	0.67	16	5.07	5
19	Indian Journal of Pediatrics	6	0.6	4	0.82	8	1.52	2
20	Journal of Infection in Developing Countries	6	0.6	2	0.5	6	1.75	6

Table 4 presents a list of top 20 sources titles with their publication where the swine research during 2005-2014. The following results were founded by the researcher; British Medical Journal has produced number of records 63(6.8%) with 0 TLCS and 323 TGCS with first position in producing articles. The journal of Plos One has produced 27(2.9%) of records with 0 TLCS and 511 TGCS with the

second rank position in producing articles of swine flu research output. Remaining journals were produced 221 articles in the area of swine flu research.

Table 5: Shows Word Wise Distribution

S.No	Word	Records	Percent	TLCS	TGCS
1	Swine	488	52.4	330	3854
2	Flu	438	47	260	1868
3	Influenza	385	41.3	335	6301
4	H1N1	337	36.2	262	5276
5	Pandemic	233	25	192	2687
6	Virus	135	14.5	75	1713
7	Infection	57	6.1	20	319
8	Vaccine	56	6	43	803
9	Health	50	5.4	18	210
10	Patients	49	5.3	11	401
11	Outbreak	48	5.2	64	687
12	Vaccination	46	4.9	42	518
13	Novel	39	4.2	30	398
14	Origin	37	4	29	1315
15	New	36	3.9	8	201
16	Public	31	3.3	55	688
17	Viruses	30	3.2	41	656
18	Care	27	2.9	2	132
19	Disease	27	2.9	34	595
20	Risk	27	2.9	11	207

The table 5 represents the keyword wise distribution of research output of swine flu. The keyword of swine was found the prime keyword and it has shown highest occurrence word. It had occurred 488(52.4%) times in the research output, 330 TLCS and 3854 TGCS. The second most occurred word is Flu which is accounted to 438(47%) times in the research publications, 260 TLCS and 1868 TGCS and followed by Influenza, H1N1, and Pandemic. While analyzing the authors have represented the word wise distribution of research output of swine.

Table 6: Shows Document Type Wise Distribution

S.No	Document Type	Records	Percent	TLCS	TGCS
1	Article	524	56.23	349	6754
2	News Item	128	13.73	65	336
3	Editorial Material	84	9.01	55	424
4	Letter	80	8.59	14	73
5	Review	66	7.08	65	994
6	Meeting Abstract	33	3.55	0	5
7	Article; Proceedings Paper	10	1.07	5	32
8	Review; Book Chapter	3	0.32	11	174
9	Article; Book Chapter	2	0.21	0	21
10	Correction	2	0.21	0	0
Total		932	100	564	8813

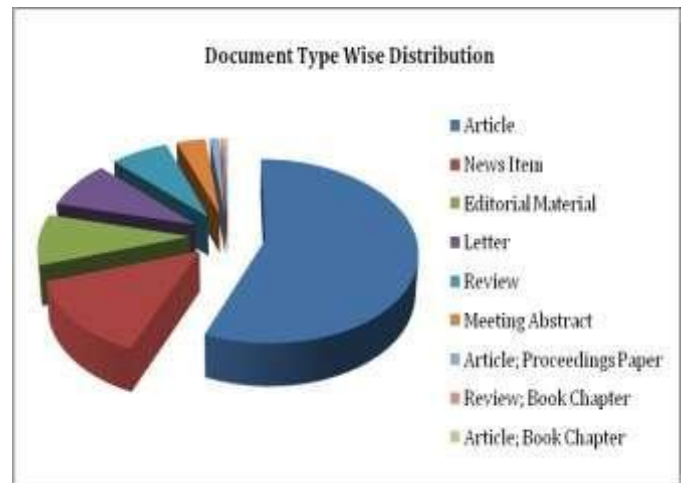


Table 6 discloses that the major source of publications covered by web of science on swine flu research productivity. Article has 524 (56.23) of total records, it has 349 TLCS and 6754 TGCS. News Item has 128 records with 13.73 Percentage. Editorial Material has 84 (9.01) records with 55 TLCS and 424 TGCS scaled. Letter had 80 with 8.59 percentage of publication and Review has 66 (7.08) percent of records were produced. Remaining formats were produced below 40 records in the field of Swine Flu.

Table 7 shows that the distribution of research output of different countries in the field of swine during 2005-2014. This table reveals that 186 (19.62%) of the total articles were contributed by the authors from USA, followed by Unknown 179 (18.88%), UK 139(14.66%), India 68 (7.17%) and Peoples R China 56 (5.91%). India 68 (7.17%) of the articles were contributed by authors in India ranking 4th among top 20 countries. Generally speaking, the study indicates that the field has evolved considerably in different regions of the world

Table 7: Shows Geographical Wise Distribution

S.No	Country	Recs	%	Cum.	Cum. %	TLCS	TGCS	Rank
1	USA	186	19.62			182	3647	I
2	Unknown	179	18.88	365	38.05	75	397	II
3	UK	139	14.66	504	53.16	88	1319	III
4	India	68	7.17	572	60.33	16	146	IV
5	Peoples R China	56	5.91	628	66.24	46	737	V
6	Australia	54	5.7	682	71.94	77	490	VI
7	Germany	40	4.21	722	76.15	22	310	VII
8	Canada	34	3.59	756	79.74	12	483	VIII
9	Thailand	33	3.48	789	83.22	12	123	IX
10	Spain	22	2.32	811	85.54	7	116	X
11	Italy	19	2	830	87.54	12	148	XI
12	France	18	1.9	848	89.44	13	137	XII
13	Israel	14	1.48	862	90.92	2	96	XIII
14	Switzerland	14	1.48	876	92.4	3	80	XIII
15	Sweden	13	1.37	889	93.77	9	185	XV
16	Turkey	13	1.37	902	95.14	6	36	XV
17	Brazil	12	1.27	914	96.41	4	42	XVII
18	Japan	12	1.27	926	97.68	0	92	XVII
19	Taiwan	12	1.27	938	98.95	11	240	XVII
20	Mexico	10	1.05	948	100	30	1176	XIX
	Total	948	100			627	10000	

4.CONCLUSION

This study analyzed Swine flu research performance during 2010 to 2014 by conducting scientometric analysis. Swine flu research 932 bibliographic records of contribution in the field of swine flu research. Analysis of authorship pattern, Co-authorship pattern also indicates that author is willing to work with co-author. Collaboration index is 6.07 for the study period which reveals that there exists a high level. He trends towards swine flu research are gaining currency day-by-day. Every work of researchers depends purely on the library because it contains more source information. The researchers have become an important entity where in more and more researchers help to make it innovative.

REFERENCE

- [1] Baskaran, C. (2013). Research Growth Trend and Author Collaboration of Alagappa University in India during 1999-2011. *International Journal of Library and Information Studies*, 3(1), 57-64.
- [2] Fuyuki, Y et al. (2009). An analysis of the connection between researchers productivity and their co-authors' past attributions, including the importance in collaboration networks. *Scientometric*, 79 (2), 435-449.
- [3] Garg, K C and Padhi, P. (1999). Scientometrics of Laser Research Literature as viewed through the *Journal of Current Laser Abstracts*. *Scientometrics*, 45(2), 251- 268.
- [4] Goyal, V., Gupta, G.K. and Kumar, A. (2013). Authorship patterns and collaborative research trends in the field of chemical sciences. *International Journal of Information Dissemination and Technology*, 3(3), 184- 186.

-
- [5] Ranganathan, A. and Balasubramani, R. (2014). Scientometric Profile of Research Activities on Green Energy: An Indian Perspective. *International Journal of Research in Applied, Natural and Social Sciences*, Vol. 2 No. 1, pp. 23-30.
- [6] Jeyshankar, R, Ramesh Babu, B and Gopalakrishnan, S. (2009). Research Output in "Current Science": A Bibliometric Study. *Indian Journal of Library and Information Science*, 3 (3), 173-182.
- [7] Meena. M and Nagarajan. M (2013). Indian Research Output on Malaria: A Bibliometric Study using Scopus Data Base. *Journal of Advances in Library and Information Science*, 2(4), 192-196.
- [8] Vijayakumar, R and Palaniappan, M. (2015). Mapping on Research productivity of Periyar University and Bharathiar University: A Scienometric Study. *International Journal of Library Science and Information Management*, 2(1), 27-37.
- [9] Web of Science (n.d.), <http://apps.webofknowledge.com>.