MAPPING THE STRUCTURE AND EVOLUTION OF EBOLA: A BIBLIOMETRIC STUDY

Ajay Singh* **Parameswaran R. ****

* **Professional Assistant,**
Mahila Mahavidyalaya,
Banaras Hindu University,
Varanasi,
Uttar Pradesh,
India.

** **Assistant Librarian**,
Mahila Mahavidyalaya,
Banaras Hindu University,
Varanasi,
Uttar Pradesh,
India.

QR Code

ABSTRACT: - *Total number of papers published in the term Ebola is 1659 during study period. The data for the study collected from the Web of Science citation database. The highest number of 640 (38.58%) articles published in the year 2014 whereas the lowest 2 (0.12%) articles were published in the year 1989 and 1991 respectively. The average distribution of articles per year is 64. Feldmann H is the most productive author who published 112 (18.76) articles with 4787 citations with first place. Out of 1703 papers 816 (47.92%) were journal articles. United States of America with 763 (51.21%) publications tops. The Journal of virology is published 118 (18.67%) publications with 8019 citations stood in the first place. The papers were published in English, Russian, French Spanish and German languages. English language (95.41 %) dominates in the first place among these five languages.*

INTRODUCTION

Ebola Virus Disease (EVD), a severe and potentially lethal infection, has emerged as a global threat 1. In light of the current epidemic, which has rapidly evolved since March 2014, most of the affected countries such as Guinea, Liberia and Sierra Leone have reported over 21,000 cases with approximately 8300 reported deaths (as of December 2014). Furthermore, spread of imported cases to other nations such as Mali, Nigeria, Senegal, Spain, United Kingdom and United States of America (USA), has generated great concern prompting not only an important steady stream of media coverage 2.

Ebola hemorrhagic fever (EHF) or simply Ebola is a viral hemorrhagic fever of humans and other primates caused by Ebola viruses 3. Signs and symptoms typically start between two days and three weeks after contracting the virus with a

fever, sore throat, muscular pain, and headaches. Then, vomiting, diarrhea and rash usually follow, along with decreased function of the liver and kidneys. The disease has a high risk of death, killing between 25 and 90 percent of those infected, with an average of about 50 percent. This is often due to low blood pressure from fluid loss, and typically follows six to sixteen days after symptoms appear 4. The virus spreads by direct contact with body fluids, such as blood, of infected human or other animals Spread of the disease through the air between primates, including humans, has not been documented in either laboratory or natural conditions. Fruit bats are believed to be the normal carrier in nature, able to spread the virus without being affected by it. Other diseases such as malaria, cholera, typhoid fever, meningitis and other viral hemorrhagic fevers may resemble EVD. Blood samples are tested for viral RNA, viral antibodies or for the virus itself to confirm the diagnosis 5 .

Bibliometrics means literally "book measurement" but the term is used about of written communications and of the nature and course of a discipline (in so far as this is displayed through written communication) by means of counting and analyzing the various facets of written communication Prtichard, A 6. Cruz-caldero´N S, et al. 7, and Muthumathi D and Suresh B 8. examined the literature of Ebola. In keeping in view of the above, an attempt has been made to analysis content of the Ebola. This study attempts to analyze the growth pattern, prolific authors, distribution of articles in different journals and countries etc in Ebola.

OBJECTIVES

- To determine year wise distribution of publication.
- To Examine the Document wise and language distribution of publications.
- To Analysis the prolific authors and journals.
- To identify the Country wise distribution of Publications.

METHODOLOGY

The required data was collected from Web of Science database for the period 1989-2014. It can be seen that nearly 1659 bibliographic records of contribution in field of Ebola over the period of 26 years. The researcher applied the search strings “Ebola” that has used for the data extraction from the database of SCI, SSCI and A&HCI to download the records based on the above strings. A total of 1659 records were downloaded and analyzed by using Web of Science and the data were analyzed as per the objectives of the study. The study aims to analyze the thrust areas of research concentration on Ebola.

The present study attempts to find out the publication pattern in the field of Ebola. The study is based on the references and aims to analyse quantitatively the growth and development of Ebola in world in terms of publication output as reflected in Web of Science database during years, 1989-2014. Web of Science is the largest abstract and citation database of research literature. It's designed to enable not only the researchers for accessing scientific information but provide the information scientists to study the literature for different information analyses purposes. Quick, easy and comprehensive, Web of Science provides superior support of the literature research process.

YEAR WISE DISTRIBUTION OF PUBLICATIONS

Total number of papers published in the term Ebola is 1659 during study period. The highest number of 640 (38.58%) articles published in the year 2014 whereas the lowest 2 (0.12%) articles are published in the year 1989 and 1991 respectively. Thought the period the there is a fluctuation in the distribution of articles in this subject. The highest number of 4007 (9.05) received citations for 69 articles in the year 2003 whereas the 73 (0.16%) citations received in the year 2014. The average distribution of articles per year is 64.

Table -1 : Year Wise Distribution of Publications.

S. No.	Year	Records	Percentage	Citations	Percentage	h-index
1.	1989	2	0.12	73	0.16	2
2.	1990	3	0.18	274	0.62	3
3.	1991	2	0.12	53	0.12	2
4.	1992	7	0.42	488	1.10	6
5.	1993	8	0.48	266	0.60	5
6.	1994	5	0.30	71	0.16	3
7.	1995	36	2.17	827	1.87	9
8.	1996	33	1.99	1005	2.27	11
9.	1997	23	1.39	684	1.55	9
10.	1998	34	2.05	2081	4.70	16
11.	1999	74	4.46	4418	9.98	39
12.	2000	46	2.77	3069	6.94	23
13.	2001	49	2.95	2380	5.38	24
14.	2002	49	2.95	2871	6.49	23
15.	2003	69	4.16	4007	9.05	33

16.	2004	50	3.01	1625	3.67	21
17.	2005	50	3.01	2695	6.09	25
18.	2006	60	3.62	2651	5.99	29
19.	2007	75	4.52	2822	6.38	32
20.	2008	43	2.59	1418	3.20	20
21.	2009	51	3.07	1460	3.30	20
22.	2010	53	3.19	1538	3.48	26
23.	2011	73	4.40	1881	4.25	22
24.	2012	65	3.92	1012	2.29	19
25.	2013	59	3.56	734	1.66	17
26.	2014	640	38.58	3849	8.70	29
Total		**1659**	**100**	**44252**	**100**	**468**

PROFLIFC AUTHORS

The table 2 shows that the profile authors of Ebola. Feldmann H is the most productive author who published 112 (18.76) articles with 4787 citations with first place. Geisbert T W with 58 (9.72%) articles comes in second place,. Rollin P E with 20 (9.55) and 4424 citations comes third place. Rest of the authors contributed below 51 articles.

Table – 2 Ranking of Prolific Authors

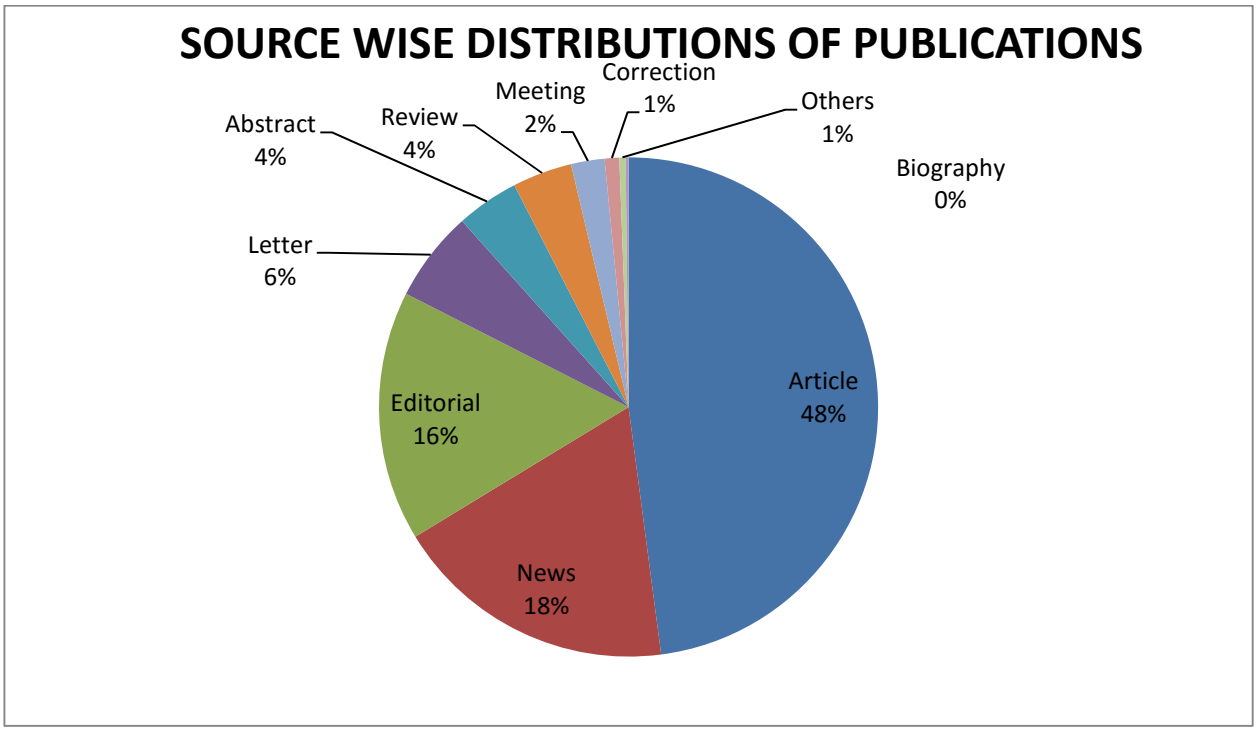
S. No.	Authors	Records	Percentage	Citations	Percentage	Average Citations	Citing Article	h-index
1.	Anonymous	114	19.10	3	0.01	0.03	3	1
2.	Feldmann, H	112	18.76	4787	14.35	42.74	2089	42
3.	Geisbert, TW	58	9.72	5215	15.63	89.91	2173	38
4.	Rollin, PE	57	9.55	4424	13.26	77.61	2082	36
5.	Kawaoka, Y	51	8.54	2487	7.45	48.76	1290	28

6.	Jahrling, PB	50	8.38	4258	12.76	85.16	1784	33
7.	Peters, CJ	42	7.04	3328	9.97	79.24	1563	31
8.	Ksiazek, TG	40	6.70	2843	8.52	71.07	1313	30
9.	Singh A	39	6.53	4307	12.91	110.44	2162	31
10.	Ray S K	34	5.70	1715	5.14	50.44	1024	21

SOURCE WISE DISTRIBUTIONS OF PUBLICATIONS

The following figure presents the distribution of publications according to document type. Out of 1703 papers 816 (47.92%) were periodical articles followed by 313 (18.38%) news. Editorials 276 (16.21%) publications Letter 100 (5.87%), Abstract 69 (4.055%).

Figure – 1 Source wise distribution of publications



GEOGRAPHICAL DISTRIBUTIONS OF PUBLICATIONS

Table 3 presents the distribution of publications according to document type. Out of 1703 papers 816 (47.92%) were periodical articles followed by 313 (18.38%) news. Editorials 276 (16.21%) publications Letter 100 (5.87%), Abstract 69 (4.055%).

Table- 3 Geographical distribution of publications

S. No.	Country	Records	Percentage	Citations	Percentage	Average Citations	Citing Article	h-index
1.	USA	763	51.21	32623	52.78	42.76	9270	93
2.	Canada	132	8.86	5097	8.25	38.61	2369	42
3.	Germany	125	8.39	6828	11.05	54.62	3202	47
4.	France	113	7.58	5221	8.45	46.20	2533	38
5.	Japan	87	5.84	2980	4.82	34.25	1591	32
6.	England	86	5.77	1787	2.89	20.78	1322	22
7.	Switzerland	50	3.36	1985	3.21	39.70	1266	20
8.	Russia	49	3.29	921	1.49	18.80	569	14
9.	Belgium	43	2.89	1482	2.40	34.47	901	20
10.	Gabon	42	2.82	2883	4.66	68.64	1490	26

JOURNAL WISE DISTRIBUTION OF PUBLICATIONS

The table 4 shows that distribution of literature in top ten scholarly journals in the subject Ebola. The Journal of virology is published 118 (18.67%) publications with 8019 citations stood in the first place. Journal of infectious diseases published 107 (16.93%) papers and secured second place. The Lancet published 86 (13.61%) papers and secured third place.

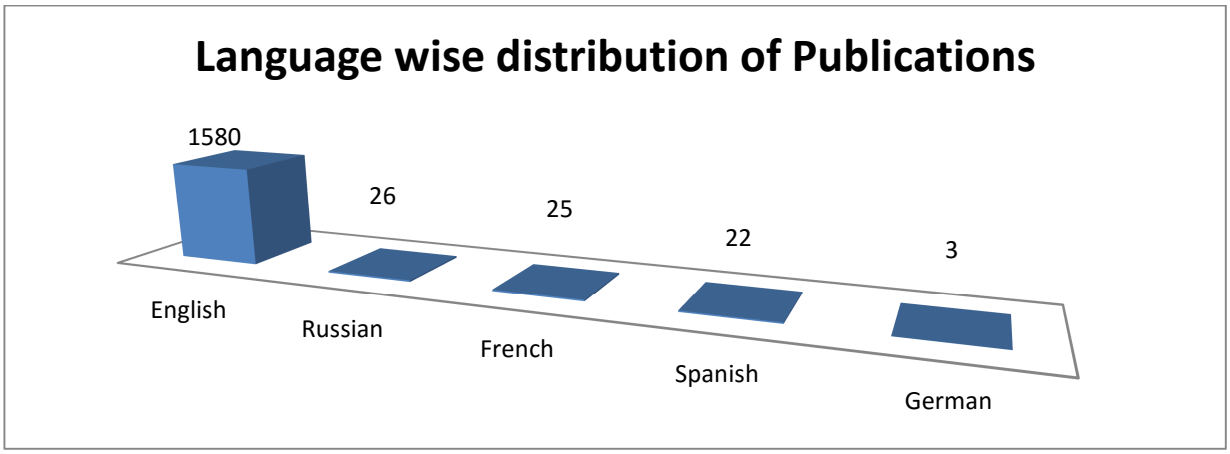
Table- 4 Journal wise distribution of publications

S. No.	Country	Records	Percentage	Citations	Percentage	Average Citations	Citing Article	h-index
1.	Journal of Virology	118	18.67	8019	34.74	67.96	3111	57
2.	Journal of Infectious Diseases	107	16.93	5283	22.88	49.37	2040	42
3.	Lancet	86	13.61	1872	8.11	21.77	1256	16
4.	British Medical Journal	85	13.45	203	0.88	2.39	153	7
5.	Science	55	8.70	1741	7.54	31.65	1413	12
6.	Virology	47	7.44	2255	9.77	47.98	1299	27
7.	Nature	40	6.33	2068	8.96	51.70	1513	10
8.	Journal of the American Medical Association	34	5.38	125	0.54	3.68	112	7
9.	Morbidity and Mortality Weekly Report	31	4.91	258	1.12	8.32	181	9
10.	New England Journal of Medicine	29	4.59	1261	5.46	43.48	698	18

LANGUAGE WISE DISTRIBUTION OF PUBLICATIONS

Language wise publication of research output in any discipline is a key factor of communication of research information. The researchers throughout the world do not know all languages. Generally English is the medium of research communication as it is generally accepted all over the world. However, few research papers have been published in other languages regional languages. The table 5 presents data of five types (English, Russian, French Spanish and German) of languages based articles in the subject Ebola. In the percentage analysis, English language (95.41 %) dominates in the first place among these five languages; remaining (4.59%) percent of articles were in their regional languages. English language articles scored the highest strength of citation scores. It could be noted that the English language is dominant language for publication at worldwide.

Figure- 2 Language wise distributions of publications



CONCLUSION

Total number of papers published in the term Ebola is 1659 during study period. The highest number of 640 (38.58%) articles published in the year 2014 whereas the lowest 2 (0.12%) articles are published in the year 1989 and 1991 respectively. The average distribution of articles per year is 64. Feldmann H is the most productive author who published 112 (18.76) articles with 4787 citations with first place. Out of 1703 papers 816 (47.92%) were periodical articles. United States of America with 763 (51.21%) publications tops. The Journal of virology is published 118 (18.67%) publications with 8019 citations stood in the first place. Five types (English, Russian, French Spanish and German) of languages based articles in the subject Ebola. In this analysis, English language (95.41 %) dominates in the first place among these five languages.

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