

A scientometric mapping of research on leptospirosis diseases

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Abstract

The Study investigation the exploration exercises on Leptospirosis diseases, in light of the aggregate distribution yield. The information is recovered from the CAB Direct Online Database for a long time (1955– 2017). Types of documents, language, rank lists of journals, most productive authors, a ranking of countries based on their publication output are presented.

Keywords: *Leptospirosis, Scientometric, CAB Direct, Diseases, Mean Absolute Deviation.*

1. Introduction

Leptospirosis is a bacterial contamination caused by specific individuals from the class *Leptospira*. A great many people who build up a leptospirosis disease just get mellow side effects, yet more genuine flu like side effects are likewise very normal. In a minority of tainted people, leptospirosis forms into the feared Weill's infection. Weill's illness is a genuine condition that can include liver disappointment, kidney disappointment, meningitis and sepsis. Weill's ailment can be deadly [7].

Weill's infection is caused by *Leptospira interrogans* having a place with the serogroup *Icterohaemorrhagiae* or *Pomona*. A man who builds up Weill's illness will more often than not have experienced flu like side effects of leptospirosis for a week or somewhere in the vicinity, and apparently be well on their approach to recuperation. After a brief time of no side effects or just gentle manifestations, the individual gets sick with side effects of poor liver capacity, poor kidney capacities, meningitis as well as sepsis. The lethality for Weill's sickness is 5% – 10%.

2. Objective of the Study

To analyse the research activities on Leptospirosis diseases based on the total publication output, it's Mean Absolute Deviation, types of publications, top journals publishing papers on Leptospirosis diseases research, most productive authors and ranking of countries based on publication output on Leptospirosis diseases research.

3. Review of Literature

Ranganathan Chandrakasan (2014) examined the Oceanography Research in India as revealed by the scholarly publication indexed in Aquatic Science and Fisheries Abstract (ASFA) data base for a period of fifteen years from 2008 to 2013. It was seen that the analyses included research growth, author productivity, authorship pattern, Geographical distribution of the literature, global publications' share, of international collaborative papers and major collaborative partner countries and patterns of research communication in most productive journals. The study reveals that, most of the researchers preferred to publish their research results in journals; as such 61.78% of articles were published in journals, more numbers of articles were published in the year 2013. It is observed that author productivity is not in agreement with Lotka's law, but productivity distribution data partially fits the law when the value of Chi-square to 199.01. Further this study also identified to analyses coverage growth rates, coverage growth rates, source wise. Degree of collaboration, institutions wise and Geographical wise distribution of the literature.

Chaman Sab M, Dharani Kumar P & Biradar B.S. (2017) studied the India's performance based on its publication output in Oceanography literature during 2011–2015, based on various aspect of the

oceanography research such as growth of papers (year wise), most prolific authors, document types, institutions involved, Sources wise distribution, subject wise distribution of publications and international collaboration linkages. The study reveals that, most of the researchers preferred to publish their research results in journals; as such 1.92% of articles were published in journals, more numbers of articles were published in the year 2015, the study shows that overall average citation per paper was 2.32, all the studies will be helpful for its further development. Further this study also identified to analyses coverage growth rates, coverage growth rates, source wise. Degree of collaboration, institutions wise and Geographical wise distribution of the literature.

Rajendran Lakshmanan (2015) have shown this paper, analyses publication output within the field of elephant analysis as indexed in CAB Direct Online database covering the period (1959-2013). It reports on India's comparative strength in world science and technology output during this field. It is observed a complete of 5,148 publications was published throughout the year (1959-2013) as per CAB Direct Online. The common range of publications published per year was 109 papers. The highest number of 298 papers was published within the year 2013. The study reveals that India is the top country in elephant analysis with its contribution of 838 papers that is sort of (16.27%) of the worldwide research output on elephant analysis followed by Egypt with 480 papers (9.32%). Saudi Arabia ranks third position with 361 papers (7.01%). The foremost well-linked journals by the scientists concerned in elephant analysis were: Journal of Camel Practice and Analysis with 846 papers (16.43%) followed by Assiut Veterinary Medical Journal with 249 papers (4.84%). The study revealed that out of top five most well-linked journals by the elephant researchers, three journals viz., Indian Journal of Animal Sciences 242 papers (4.70%) and Indian Veterinary Journal 198 papers (3.85%) are published from India which clearly indicates that the contribution of India in elephant analysis is important. The highest medium of communication is journal article with 4,552 papers (88.42%) followed by conference papers with 233 papers (4.52%). Miscellaneous ranks third position with 153 (2.97%). It is observed that English is the most preferred language utilized by the researchers for communication of elephant research with 6939 papers (86.66%) followed by French with 244 (4.73%). Wernery, U. is the most prolific author in elephant analysis who has published 132 papers (2.56%) followed by Faye B with 128 papers (2.48%). It is observed that out of the five authors

who contributed a lot of papers in elephant analysis, three are Indians viz., Wernery, U. 132 papers (2.56%), Sahani, M.S. 96 papers (1.86%) and Khanna, N.D. 77 Papers (1.46%).

Singh, V. K., Banshal, S. K., & Uddin, K. S. (2015) reported that the scientometric analysis of research work done on the emerging area of 'Big Data' during the recent years. Research on 'Big Data' started during last few years and within a short span of time has gained tremendous momentum. It is now considered one of the most important emerging areas of research in computational sciences and related disciplines. We have analyzed the research output data on 'Big Data' during 2010--2014 indexed in both, the Web of Knowledge and Scopus. The analysis maps comprehensively the parameters of total output, growth of output, authorship and country-level collaboration patterns, major contributors (countries, institutions and individuals), top publication sources, thematic trends and emerging themes in the field. The paper presents an elaborate and one of its kind scientometric mapping of research on 'Bid Data'.

Garg K.C, & H.K, Tripathi. (2018) the result showed that contents of the published articles in terms of various disciplines or sub-disciplines and the bibliometric aspects discussed in these articles. The analysis of 902 papers published by Indian Scholars during 1995-2014 indicates that the main focus of bibliometrics/scientometrics is one assessment of science and technology in India in different sub-disciplines including contributions by Indian States and other individual countries followed by bibliometric analysis of individual journals. Papers dealing with bibliometric laws received a low priority as compared to other sub-disciplines of bibliometrics/scientometrics. The analysis of data indicates that the share of theoretical studies using mathematical and statically techniques which were missing in the earlier period (1970-1994) has increased during 1995-2014. The field of medicine as a discipline received the highest attention as compared to other disciplines.

Nirmala Biradar & P.G Tadasad. (2015) in the study identifies the pattern of authorship and the collaboration in the field of Economics. Discusses the types of collaboration and describes measures of collaboration. The study gives the actual impact of collaboration intensity on the performance of scientific productivity in terms of Collaborative Index (which comes out to be 2.06), Degree of Collaboration (0.58), and Collaboration Co-efficient (0.30). The paper concludes that the

results are of significance for the policy makers in economics research.

4. Materials and Methods

The investigation depends on the production information on Leptospirosis diseases inquire about, recovered from the CAB Direct Online database for a long time (1955-2017). Coverage includes leading bibliographic database CAB abstracts and global health, and databases from internet resources and abstract journals [3]. CAB Direct provides access to:

- Over 11.5 million bibliographic records
- Over 350,000 full text articles hosted by CABI and
- Many other authoritative reviews, news articles and reports

CAB Direct has a spotless, basic plan and a Google like inquiry usefulness to empower the clients to discover what is required rapidly and effortlessly. The Advanced Search facility of CAB Direct Online database was utilized for this examination. The tag 'Leptospirosis' has been utilized in article tile field and the pursuit was performed.

5. Results and Analysis

5.1 Calculate Mean Absolute Deviation (M.A.D) of Research Output

It is observed from the study that the number of papers has been increased gradually i.e. 97 to 316 papers were published in 2002-2014; because of the research out has been changed in this study. A study of the Leptospirosis research output is a calculate mean absolute deviation (M.A.D) of overall analyzing the research and development in the field [2]. Table-1 shows that the Leptospirosis research output, it is clear that the period has 1955 (1) has less publication in that period, particularly that year was started in research outgrowth in an area, but slowly increasing trend value of that particular period on 1969-1974. Where \sum is a total number of publications: data value obtained from mean divided by number of values. The M.A.D value for the period 1955-2017 is worked out to 54.31.

Table1. Mean Absolute Deviation of Overall Research Output

Year	No. Of Articles (Σ)	Data Value – Mean
1955	1	139.62
1969	4	136.62
1970	12	128.62
1971	74	66.62
1972	122	18.62
1973	133	7.62
1974	162	21.38
1975	135	5.62
1976	158	17.38
1977	119	21.62
1978	88	52.62
1979	128	12.62
1980	137	3.62
1981	116	24.62
1982	130	10.62
1983	155	14.38
1984	157	16.38
1985	141	0.38
1986	163	22.38
1987	146	5.38
1988	153	12.38
1989	119	21.62
1990	103	37.62
1991	105	35.62
1992	99	41.62
1993	94	46.62
1994	83	57.62
1995	53	87.62
1996	77	63.62
1997	88	52.62
1998	66	74.62
1999	97	43.62
2000	96	44.62
2001	99	41.62
2002	97	43.62
2003	116	24.62
2004	129	11.62
2005	148	7.38
2006	156	15.38
2007	186	45.38
2008	196	55.38
2009	210	69.38
2010	227	86.38
2011	238	97.38
2012	287	146.38
2013	286	145.38
2014	316	175.38
2015	282	141.38
2016	273	132.38
2017	271	130.38
	7031	2715.96

The Mean Absolute Deviation (MAD) of a set of data is the average distance between each data value and the mean. While we could work through each of these steps on the calculator's home screen,

let's instead, try to utilize the calculator's features to minimize our work. We will look at two different approaches to find the population MAD.

$$M.A.D = \frac{\sum \text{data value} - \text{mean}}{\text{Number of Values}}$$

$$M.A.D = \frac{2715.96}{50} = 54.31$$

5.2. Rank-wise Indian States Distribution of Publications

The study reveals that Brazil is the top country in Leptospirosis research, with its contribution of 672 papers which is nearly (9.55%) of the global research output of diseases followed by the specific country are in USA, with 375 papers (5.33%) ranks second position, India contributed with 353 papers (5.02%) in is a third position, very particularly the diseases has affected in rural areas [1]. It covers India is a top level in the field of Leptospirosis research, Tamil Nadu 75 paper has been published in that southern state (1.06%). The top 10 Country based on number of publications is furnished in Table -2.

Table – 2. Ranking Country in India of Leptospirosis Analysis

Name of the States	No. of Publications	Percentage	Rank
Brazil	672	9.55	1
USA	375	5.33	2
India	353	5.02	3
UK	254	3.61	4
New Zealand	178	2.53	5
Germany	163	2.31	6
Australia	154	2.19	7
South Africa	149	2.11	8
USSR	137	1.94	9
Argentina	124	1.76	10

5.3. Preferred Journals

The most popular journals by the scientists concerned with the Leptospirosis diseases analysis were: Veterinary Record with 152 papers (2.16%) followed by New Zealand Veterinary Journal with 119 papers (1.69%). The study revealed that out of high five most popular journals by the Leptospirosis diseases [4], three journals viz.,

Journal of Wild life Diseases 89 papers (1.26%) and American Journal of Veterinary Research 79 papers (1.12%), Indian Veterinary Journal 79 papers (1.12%) and also India has published a journal of ranking which clearly indicates that the contribution of India in Leptospirosis analysis is major role it indicates the ranking fifth position in the global ranking. The highest 10 most popular journals are listed in Table- 3 with the amount of papers revealed.

Table – 3. Preferred Journals by Leptospirosis Analysis

Sl.No.	Journal Name	No. Of Papers	Percentage
1.	Veterinary Record	152	2.16
2.	New Zealand Veterinary Journal	119	1.69
3.	Journal of Wild life Diseases	89	1.26
4.	American Journal of Veterinary Research	79	1.12
5.	Indian Veterinary Journal	79	1.12
6.	Journal of the American Veterinary Medical Association	79	1.12
7.	American Journal of Tropical Medicine and Hygiene	77	1.09
8.	Australian Veterinary Journal	74	1.05
9.	Arquivos do instituto Biologico (Saopaulo)	62	0.88
10.	PLOS Neglected tropical Diseases	60	0.85

5.4. Leading format of Publication

The study reveals that the main source of publications coated by CAB Direct Online database for Leptospirosis analysis is Journal articles with 6,121 papers (87.04%) followed by Conference papers with 418 papers (5.94%). Miscellaneous third position with 132 (1.87%), Book chapter and Correspondence are within the fourth and fifth places with 111 (1.57%) and 72 (1.02%) various. The highest ten varieties of publications are furnished in Table -4.

Table – 4. Leading format of Publication

Sl.No.	Kinds of Document	No. Of Papers	Percentage
1.	Journal article	6121	87.05
2.	Conference paper	418	5.94
3.	Miscellaneous	132	1.87
4.	Book chapter	111	1.57
5.	Correspondence	72	1.02
6.	Thesis	60	0.85
7.	Abstract Only	52	0.73
8.	Annual report	49	0.69
9.	Bulletin	15	0.21
10.	Standard	1	0.01

5.5. Most Productive Authors

The study reveals that Vasconcellos S.A, is that the most ranking authors of Leptospirosis analysis who revealed 111 papers (1.57%) followed by Ellis, W.A with 92 papers (1.30%). It's observed that out of the highest five authors who contributed a lot of papers in Leptospirosis diseases, there are world ranking author contributed a paper [5] level of 111 to 41 viz., UK CAB International, Lilenbaum W 90 papers (1.28%),and Langoni H, 63 papers (0.89%), are published articles and Adler B 49 Papers (0.69%). Table – 5 lists the highest 10 ranking authors within the field of Leptospirosis analysis.

Table –5. Most Productive Authors in Leptospirosis Analysis

Sl.No.	Name of Author	No. Of Papers	Percentage
1.	Vasconcellos S.A	111	1.57
2.	Ellis W.A	92	1.30
3.	Lilenbaum W	90	1.28
4.	Langoni H	63	0.89
5.	Adler B	49	0.69
6.	Picardeau M	44	0.62
7.	Srivastava S.K	43	0.61
8.	Bolin C.A	42	0.59
9.	Marshall R.B	42	0.59
10.	Hanson L.E	41	0.58

5.6. Language Distribution

It is observed that English is the most predominant language used by the researchers for communication in the Leptospirosis analysis with 4680 papers (66.56%) followed by Portuguese with 502 (7.13) and Spanish with 359 (5.10%). The top 10 predominant languages are furnished in Table - 6.

Table –6. Language Distribution of Leptospirosis Analysis

Sl.No.	Language	No. of Papers	Percentage
1.	English	4680	66.56
2.	Portuguese	502	7.13
3.	Spanish	359	5.10
4.	German	269	3.82
5.	French	242	3.44
6.	Russian	221	3.14
7.	Chinese	114	1.62
8.	Italian	113	1.60
9.	Serbo-Croatian	75	1.06
10.	Polish	69	0.98

6. Findings

These are the findings of the Scientometric study and it is hoped this finding is likely to be helpful for the stakeholders of Leptospirosis analysis knowledge managers in these areas:

- Indian contribution to global diseases research based on CAB Direct Online database revealed that India has published 353 papers in various fields of Leptospirosis analysis.
- Vasconcellos S.A is that the most ranking authors of Leptospirosis diseases analysis who revealed 111 papers (1.57%) followed by Ellis W.A with 92 papers (1.30%).
- Most preferred journals are: Veterinary Record with 152 papers (2.16%) followed by New Zealand Veterinary Journal with 119 papers (1.69%).
- Journal articles with 6,121 papers (87.04%) followed by Conference papers with 418 papers (5.94%). Miscellaneous third position with 132 (1.87%), Book chapter and Correspondence are within the

fourth and fifth places with 111 (1.57%) and 72 (1.02%) several of ranking which clearly indicates that the contribution of India in Leptospirosis analysis is major role.

- Brazil is the top country in Leptospirosis research, with its contribution of 672 papers which is nearly (9.55%) of the global research output of diseases followed by the specific country are in USA, with 375 papers (5.33%) ranks second position, India contributed with 353 papers (5.02%) in is a third position, very particularly the diseases has affected in rural areas.

7. Conclusions

All through Sixty two years, of time length worldwide commitment in distributions is altogether expanded in the field of Leptospirosis observe. An investigation of the Leptospirosis diseases inquire about yield is a count of Mean Absolute Deviation (MAD) by and large dissecting the innovative work in the field [6]. The Leptospirosis inquire about give up, observably the period has 1955 (1) has less distribution in that period; especially that year was begun in look into outgrowth in a territory, however gradually expanding pattern estimation of that specific period on 1969-1974. Where \sum is an aggregate number of productions: information esteem acquired from mean partitioned by number of esteems. The M.A.D esteem for the period 1955-2017 is worked out to 54.31. An Indian analyst should be the Leptospirosis so the commitment of India in this examination territory could be essentially expanded and it's adequate for this investigation.

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