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Scientometric Analysis of Quarterly E-journals of Health Science

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Scientometric Analysis of Quarterly E-journals of Health Science

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Abstract:

The main objective of the study is to find out most prolific authors and journals in the health medicine research output during 2001 to 2013. A total of 20724 research papers were examined by growth of contribution by year and volume, authorship pattern. Highest number of contribution i.e. 2335 (11.27%) were published in the year 2011. Issue Number 4 published articles in the maximum 1907 (09.20%) articles, Multi-authored highest articles, Findings of the analysis revealed that the majority of the publications are contributed by multiple author, Highest number of papers was published by more than three authors and it accounts for 9472 with 45.71%; the most language used for communication was English, Journal of Internal Medicine had contributed maximum number of citations.

Keywords:

Scientometric, Scientometric Study, Bibliometric, E-Journal, Authorship Pattern, Citation Analysis.

1. Introduction:

Scientometrics is the quantitative study of the disciplines of science based on published literature and communication. This could include identifying emerging areas of scientific research, examining the development of research over time, or geographic and organizational distributions of research (Glossary of Thompso, 2008). The basic purpose of the present chapter is to analyze the collected data of 10 online quarterly journals in the subject of Health Science. International E-Journals in the subject of medicine are distributed in different volumes and issues which are to be considered for the present study. Time from spam is of 13 years from the year 2001 to 2013. The present study is based on 8871 articles in E-journals of Health Science. For present study data has been collected from 10 Medicine E-Journals during Jan. 2001- Dec. 2013 which are indexed in Health Science consortium Nashik. The data has been analyzed by using various parameters which is presented in tabular and graphical from these table and graphs are presented as per the sequence of objective of the present study.

1. Definitional Analysis:-

1.1.Bibliometrics:

According to **Sengupta**:

“Organization, classification and quantitative evaluation of publication patterns of all macro and micro communication along with their authorships by mathematical and statistical calculus”

1.2.Scientometrics:

A complex of quantitative mathematical and statistical methods used to investigate such aspects as research staff, and to define evolutionary & prospectus of science (Bonitz, 1999). Scientometrics is a very recent term .It is often used synonymously with the term bibliometrics.

1.3.Scientometric analysis:

The main currency for an academician is his reputation just as that for the politician is the politician is the power the commands and that for the business person is the wealth he has accumulated (Becher, 1989).

1.4. E-Journal:

According to, a journal, academic in nature which is published using the World Wide Web, such a journal usually uses internet technology refereeing of papers. Many e- journals pride themselves on rapid refereeing and consequent repaid publication. (Gupta, 1998).

2. Review of literature:-

The number of authors contributing to scholarly publications in terms of authorship pattern is an instructing part of any bibliometric study. A count of number of authors contributing to articles offers some indication to degree of collaboration between authors. Cronin (2001) comment, authorship as” undisputed coin of the real in academic “and” absolutely central to the academic reward system”.

Vimala and Pulla Reddy, V (1996) traced “authorship pattern and collaborative research in zoology with a sample of 19,323 journal citations figured in the theses on zoology accepted for the award of the doctoral degree by Sri Venkateswara University, Tirupati, India” (p. 1). Zafrunnisha and Pulla Reddy (2009) studied the authorship pattern and collaborative research in the field of psychology. Amsaveni and Vasanthi (2013) revealed “the trend in authorship pattern and collaborative research in network security with a sample of 8051 articles downloaded from the database of web of knowledge during 2002 to 2011 (one decade) with 5343 LCS and 44721 TGCS measure” (p. 52). Karisiddappa, Maheswarappa, and Shirol (1990) studied the authorship pattern and collaborative research in psychology, based on the data collected from *Psychological Abstracts* for the year 1988. Pradhan, Panda, and Chandrakar (2011) studied “the trends in authorship pattern and author’s collaborative research in Indian chemistry literature with a sample of 53,977 articles downloaded from SCI-Expanded database in Web of Science during the period 2000-2009” . Mahapatra (1980); carried out study in Further, if the number of articles in a subject doubles during a given period then the difference between the logarithms of numbers at the beginning and at the end of this period must be the logarithm of the number 2. Mahapatra (1985); assessed the Relative Growth Rates (RGR) is a measure to study the increase in number of articles / pages per unit of articles/ pages per unit of time. Teague et al., (1981). Suradkar P.A. and Dr. Dalve Daya (2016) carried out the study presents the trends in authorship pattern and authors collaborative research in Academic Emergency Medicine Journal with a sample of 3586 articles during the period 2001-2013.

Data Analysis:

In the present study of 5 E-Journals in during Jan. 2001- Dec. 2013 which are indexed in Health Science consortium Nashik. The analysis was done as per the parameters laid down in objectives of the study.

The present study is based on 13364 articles on 5 E-Journals.

3. Objectives of the studies:-

The main Objectives of the present study is

- Year Wise Distribution of Publications
- Issue Wise Distribution of Publications.
- Authorship Pattern of Journals.
- Language Wise Distribution.
- Distribution of Citations.
- Geographical Distribution of Publication.

3.1. Year-Wise Distribution of Publications:

The year wise distribution of contribution of various authors in 10 online monthly journals in the subject of Health Science International E-Journals in medicine journals distributed in different volumes and issues which is considered for the present study time from span is of 13 years from the year 2001 to 2013 has been taken in to consideration.

Table No. 3.1: Year-Wise Distribution of Publications

Sr. No.	Journal Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total	Percentage %
1	AEM	222	254	250	269	273	285	270	295	347	341	288	263	229	3586	17.30
2	JME	274	285	311	296	209	247	260	276	278	267	248	271	257	3479	16.79
3	NM	122	156	137	158	172	177	162	181	186	172	173	148	194	2138	10.32
4	JUM	173	168	142	173	183	152	146	179	181	120	127	196	176	2116	10.21
5	IMJ	114	136	159	157	112	167	192	187	182	169	152	160	158	2045	9.87
6	BMJEMJ	95	89	100	104	140	200	166	175	136	165	171	168	193	1902	9.18
7	JIM	146	154	137	161	145	153	125	134	121	118	151	136	111	1792	8.65
8	BMCCAM	12	13	8	19	22	41	44	66	53	82	138	764	375	1637	7.90
9	EMM	49	65	77	76	76	86	90	80	101	86	78	82	86	1032	4.98
10	EBC AM	49	52	59	40	56	57	57	62	62	57	110	147	189	997	4.81
	Total	1256	1372	1380	1453	1388	1565	1512	1635	1647	1577	1636	2335	1968	20724	100.00
	Per.(%)	6.06	6.62	6.66	7.01	6.70	7.55	7.30	7.89	7.95	7.61	7.89	11.27	9.50	100	

Figure No 3.1. Year-Wise Distribution of Publications

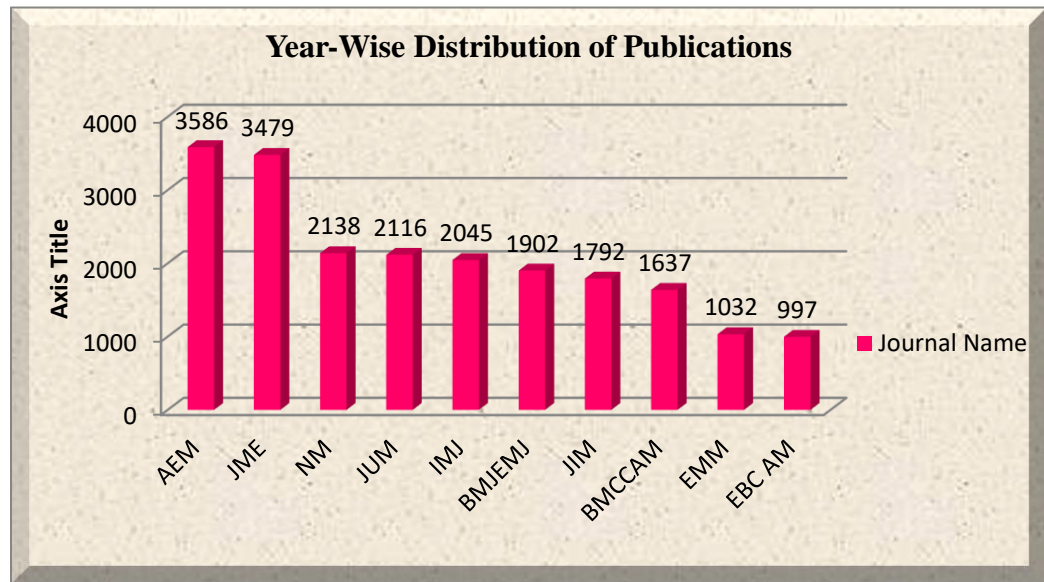


Table no.3.1 and Figure No. 3.1 shows that the average number of article publications is 20724 articles per year. In the study, the contribution of earlier 13 years (2001-2013) out of 20724 articles 2335 (11.27%) articles were published in 2012 and 1256 (06.06%) articles were in 2001, which are highest and lowest in ten years respectively. A notable attribute of the study is that the year 2012 shows the maximum number of contributions.

Among the different journals Academic Emergency Medicine is contributed Maximum number of articles 3586 (17.30%) and Evidence-based Complementary and Alternative Medicine is contributed minimum number of articles 997 (4.81%).

3.2.Issue wise distribution of Publications:

The issue wise distribution of contribution in the 10 Online monthly journals in the subject of medicine international e-journal written by the various researchers were distributed in 12 volumes per year and 12 issue per volume, which were considered for the study from the year 2000 to 2013. The spans of 13 years were taken consideration which is shows in the table.

Table No.3.2. Issue wise distribution of Publications

Issues / Journals	AEM	JME	NM	JU M	IMJ	BMJ E MJ	JIM	BM CC AM	EM M	EB C AM	Total	Percent age %
Issue 1	299	315	149	187	127	197	155	176	136	64	1763	8.51
Issue2	282	304	181	182	150	193	163	183	131	67	1765	8.52
Issue 3	302	293	189	156	172	181	146	173	141	74	1813	8.75
Issue 4	331	330	202	187	167	190	170	172	143	55	1907	9.20
Issue 5	275	228	173	196	125	195	154	157	132	71	1664	8.03
Issue 6	278	266	165	165	181	181	162	196	139	72	1773	8.56
Issue 7	296	279	157	160	205	121	134	167	33	72	1582	7.63
Issue 8	272	295	168	193	201	135	143	179	35	87	1667	8.04
Issue 9	265	297	171	205	195	126	130	201	34	76	1658	8.00
Issue 10	295	289	189	134	183	132	127	159	33	72	1596	7.70
Issue 11	358	267	180	141	165	133	160	196	39	125	1685	8.13
Issue 12	333	316	214	210	174	118	148	183	36	162	1851	8.93
Total	3586	3479	2138	2116	2045	1902	1792	2142	1032	997	20724	100.00

Figure No. 3.2 Issue wise distribution of Publications

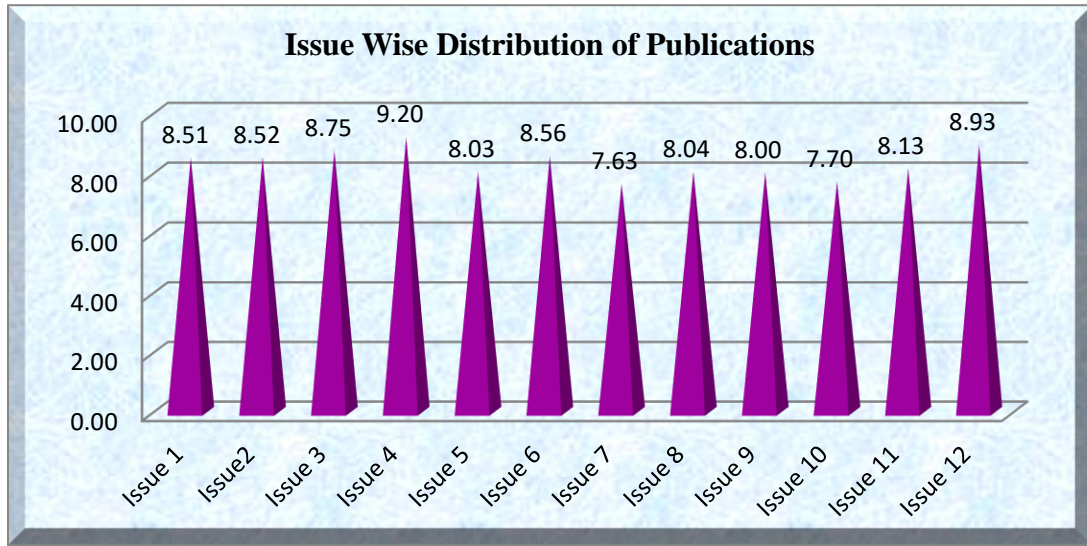


Table No. 3.2. & Figure No. 3.2 shows that the subject of Medicine international e-journal of “Issue Number 4” published articles in the maximum 1907 (09.20%) articles and least number of articles 1582 (7.63%) in the “Issue number 7”.

3.3. Authorship Pattern of Journal.

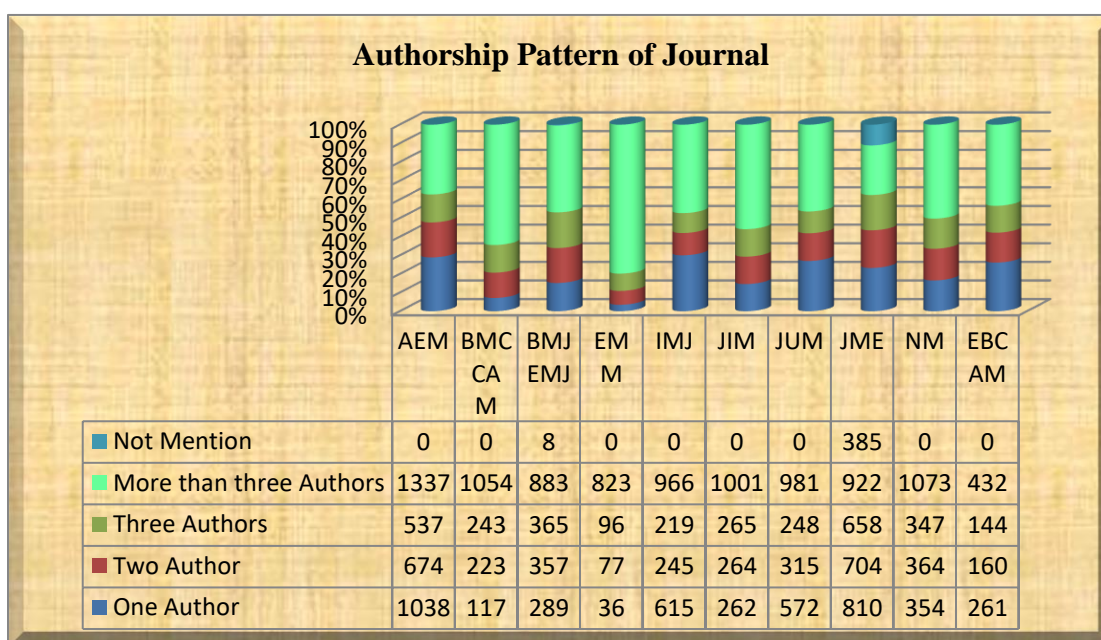
For studying the authorship pattern, the publications are arranged as single, double, triple, multi-authored and other categories. Publications under each category are counted and their percentage is calculated for showing the trends of research as solo or team research in a particular field.

Table No.3.3: Authorship Pattern of Journal

Sr. No.	Name of Journals	One Author	Two Author	Three Authors	More than three Authors	Not Mention	Total
1	AEM	1038	674	537	1337	0	3586
2	BMCCAM	117	223	243	1054	0	1637
3	BMJEMJ	289	357	365	883	8	1902
4	EMM	36	77	96	823	0	1032

5	IMJ	615	245	219	966	0	2045
6	JIM	262	264	265	1001	0	1792
7	JUM	572	315	248	981	0	2116
8	JME	810	704	658	922	385	3479
9	NM	354	364	347	1073	0	2138
10	EBC AM	261	160	144	432	0	997
	Total	4354	3383	3122	9472	393	20724
	Percentage	21.01	16.32	15.06	45.71	1.90	100.00
	%						

Figure No. 3.3. Authorship Pattern of Journal



It is observed from the Table 3.3 about 78.99% of papers were contributed by multi authors. Out of 20724 papers, the highest number of papers was published by more than three authors and it accounts for 9472 with 45.71% followed by single authored articles account for 4354 with 21.01%. 3383 with 16.32% of articles were published by double authors. 3122 with 15.06 % of articles were published by three authors. 393 with 1.90% of articles were published by unknown authors.

But the trend of the author pattern in the journal shows that the team size was more than three authors.

3.4. Language Wise Distribution.

Language is media for communication author articles different types of document for writing. The total number of 20724 articles in 10 journals is distributed among seven different languages as shown in Table No.3.4. & figure no.3.4.

Table No.3.4: Language Wise Distribution

Sr. No.	Journals	English	Italian	Portugu ese	German	Spanish	French	Turkish	Total
1	AEM	3586	0	0	0	0	0	0	3586
2	JME	3187	0	215	0	20	57	0	3479
3	NM	2061	0	46	0	0	31	0	2138
4	JUM	1830	69	102	16	47	52	0	2116
5	IMJ	1728	62	48	61	56	68	22	2045
6	BMJEMJ	1328	62	137	88	94	74	119	1902
7	JIM	1679	27	54	0	13	19	0	1792
8	BMCCAM	1284	37	103	35	85	93	0	1637
9	EMM	971	11	31	8	5	6	0	1032
10	EBC AM	807	21	53	46	24	36	10	997
	Total	18461	289	789	254	344	436	151	20724
	Percentage	89.08	1.39	3.81	1.23	1.66	2.10	0.73	100.00

Figure No. 3.4. Language Wise Distribution

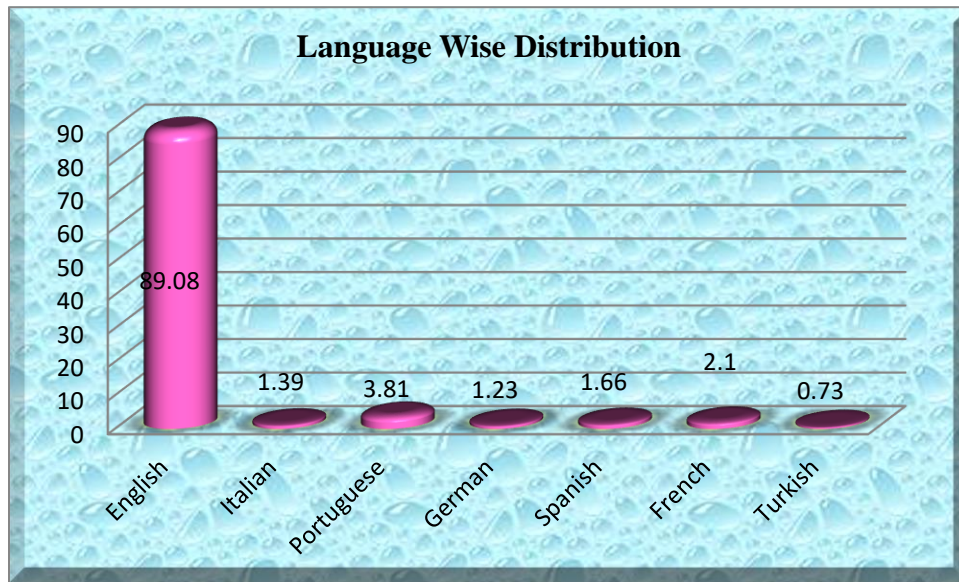


Table No.3.4 & figure no.3.4. Shows that Language wise distribution of contributions. The importance of language related to a specific field of ostentation change from time to time. English (89.08%) is most important language found during the study undertaken. The other languages Italian, Portuguese, German, Spanish, French, and Turkish etc. are found (10.02%). Attempts were made to analyses journals covering the articles on the subject under the study according to their language of publication as shown in table Since English speaking countries and maximum journals covering the articles on the subject under the study are published in English language. It means that English language dominates the others language for article publication in the journals.

3.5. Distribution of Citations.

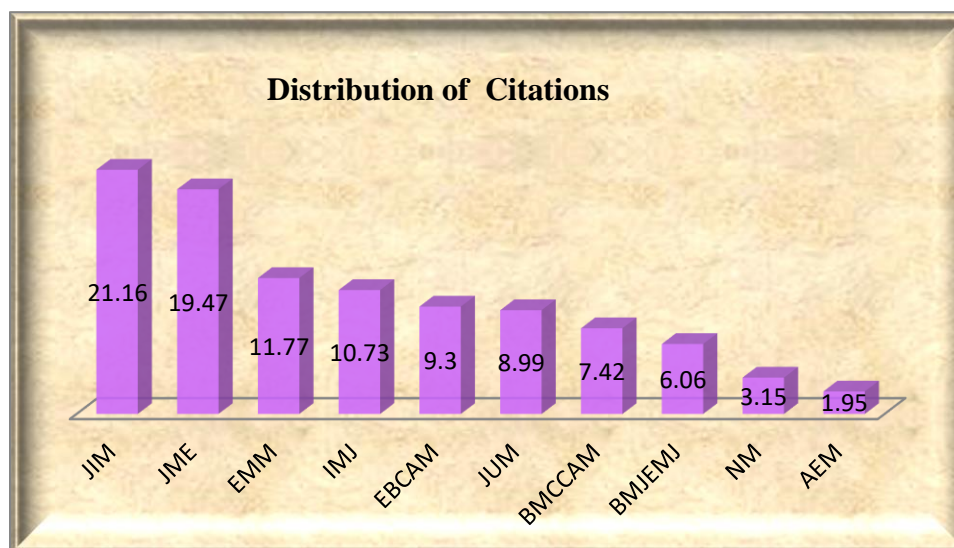
To find out the growth of citations during different years, it is better to scan individual primary journal. The number of citations provided in different journals during a particular year is to be collected.

Table No: 3.5.Distribution of Citations

Journals	Citations	Percentage (%)	Cumulative Percentage %

JIM	58043	21.16	21.16
JME	53419	19.47	40.63
EMM	32276	11.77	52.40
IMJ	29430	10.73	63.13
EBCAM	25510	9.30	72.43
JUM	24655	8.99	81.42
BMCCAM	20363	7.42	88.84
BMJEMJ	16614	6.06	94.90
NM	8649	3.15	98.05
AEM	5337	1.95	100.00
Total	274296	100.00	

Figure No. 3.5 Distribution of Citations



It is evident from the table no.3.5 & figure no 3.5 shows that distribution of contribution citation, among the different journals Journal of Internal Medicine had contributed maximum number of citations 58043 (21.16%) followed by Journal of Medical Education

43419 (19.47%) citations and Experimental and Molecular Medicine 32276 (11.77%) in that order. Academic Emergency Medicine had contributed minimum number of citation 5337 (1.95%). It can be noticed that more than 60% of the total citations are contributed by the first four journals.

Conclusion:

- Academic Emergency Medicine is contributed Maximum number of articles 3586 (17.30%), 2335 (11.27%) highest articles were published in 2012 and 1256 (06.06%) lowest articles were in 2001.
- “Issue Number 4” published articles in the maximum 1907 (09.20%) articles and least number of articles 1582 (7.63%) in the “Issue number 7”.
- Highest number of papers was published by more than three authors and it accounts for 9472 with 45.71%.
- English (89.08%) is most important language found during the study undertaken.
- Journal of Internal Medicine had contributed maximum number of citations 58043 (21.16%).

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Appendix-I

List of Journals and Full form of Abbrivations

AEM	Academic Emergency Medicine
BMCC&AM	BMC Complementary and Alternative Medicine
BMJEMJ	BMJ Emergency Medicine Journal
EBC&AM	Evidence-based Complementary and Alternative Medicine
E&MM	Experimental and Molecular Medicine
IMJ	Internal Medicine Journal
JIM	Journal of Internal Medicine
JUM	Journal of Ultrasound in Medicine
ME	Medical Education
NM	Nature Medicine