



Measurement of Impact on Research Publications in Pediatric Cardiology

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Abstract

Pediatric Cardiology is the study and treatment of disorders of the heart in children; Measurement of impact on research publications in pediatric cardiology is highly helpful. Scientometrics is the science of measuring and analysing science. Scientometric tools can be used to measure and compare the scientific activities at various levels of aggregation including institutions, sectors, provinces and countries. A study on scientometrics analysis on pediatric cardiology was conducted to identify the geographical wise distribution of Publications in Pediatric Cardiology and to know the Citable documents. All publications on Pediatric Cardiology (Research Areas : "Pediatric Cardiology") in address field were downloaded from Web of Science database. The data were exported and processed in the HistCite to find out the contribution of Authors, Citations in the field of Pediatric Cardiology research during years 1989–2016. Based on the analysis undertaken for the present study found that USA is the most productive Country with 904 (50.10 %) publications followed by Canada with 177 (9.8 %) publications and Germany with 110 (6.1 %) publications. The study found that top 20 positions occupied by USA Institutions except 5 and 6 (Canada). Similarly top ranking source of titles is highly impact factor journals. Journal Circulation ranked first in order with 259 (14.3%) articles (Impact Factor is 14.43) and next to Journal of the American College of Cardiology ranked second with 156 (8.6%) articles (Impact factor is 17.76) during the period of study.

Key words : *Scientometrics, pediatric cardiology, web of science, journal circulation.*

Introduction

In practice, scientometrics is often done using bibliometrics, which is a measurement of the impact of (scientific) publications. Scientometrics means literally "measurement of science". In reality it means the application of statistical indicators (especially bibliometrics indicators) as a mean for the evaluation of scientific productivity. Methods of research include qualitative, quantitative and computational approaches.

Generally quantification of scientific activities is measurable by producing statistics on scientific publications indexed in indicator databases such as SCOPUS and ISI. Scientometric data can be useful to measure research collaborations among scientific environments and to monitor the evolution of special scientific subjects and fields. Scientometric tools can be used to measure and compare the scientific activities at various levels of aggregation including institutions, sectors, provinces and countries. Scientometrics empirically describe the constantly changing relationship between science, technology and the research productivity.

Cardiology is the study and treatment of disorders of the heart; it is a medical specialty which is involved in the care of all things associated with the heart and the arteries.

(1) had examined world publications output on social media research (46354) published during 2001–2014. (2) focused the journal has spacious distribution in India and Global among the genetically experts and other medical scientists from academic institutions, hospitals and other research laboratories. (3) had analysed the growth and development of rare earths research in India based on the publication output as reflected in Web of Science (WoS) during 1987–2013.

Keeping this in view, a study on scientometrics analysis on pediatric cardiology was conducted with the following objectives viz., to identify the geographical wise distribution of publications in pediatric cardiology, to know the citable documents and to find out the highly cited papers

Materials and Methods

All publications on Pediatric Cardiology (Research Areas : "Pediatric Cardiology") in address field were downloaded from *Web of Science database*. The data were exported and processed in the hist cite to find out the contribution of authors, citations in the field of pediatric cardiology research during years 1989–2016. The year of publication, Citations, Self Citations, journals and authors were analyzed and displayed in tables using hist cite. the global citation scores and local citation scores are examined to identify the pattern of research contribution on pediatric cardiology

Table-1 : Geographical wise distribution of publications.

S. No.	Country	Records	%	TLCS	TGCS
1	USA	904	50.1	732	11530
2	Canada	177	9.8	193	3404
3	Germany	110	6.1	63	1790
4	UK	91	5.0	84	1714
5	Japan	58	3.2	32	916
6	Spain	54	3.0	80	1099
7	Turkey	52	2.9	22	222
8	Italy	51	2.8	35	901
9	France	45	2.5	23	1084
10	Netherlands	41	2.3	28	798
11	Australia	33	1.8	25	1012
12	Belgium	33	1.8	47	637
13	Austria	31	1.7	12	710
14	Brazil	28	1.6	18	811
15	Switzerland	27	1.5	16	553
16	Poland	21	1.2	9	134
17	Denmark	14	0.8	3	58
18	India	14	0.8	6	566
19	Peoples R China	12	0.7	2	25
20	Saudi Arabia	12	0.7	1	67
21	Chile	11	0.6	15	54
22	Israel	10	0.6	12	187
23	Portugal	10	0.6	5	64
24	Sweden	10	0.6	2	116
25	Iran	9	0.5	0	18
26	Finland	8	0.4	2	129
27	Greece	8	0.4	8	204
28	Norway	8	0.4	3	111
29	Hungary	7	0.4	1	58
30	Mexico	7	0.4	1	25
31	Russia	7	0.4	0	2
32	Colombia	5	0.3	4	23
33	Egypt	5	0.3	0	58
34	Qatar	5	0.3	7	41
35	Czech Republic	4	0.2	4	197
36	Romania	4	0.2	0	49
37	Serbia	4	0.2	0	4
38	South Korea	4	0.2	1	38
39	Taiwan	4	0.2	1	27
40	Argentina	3	0.2	0	20
41	Cuba	3	0.2	0	0
42	Ireland	3	0.2	0	2
43	Kuwait	3	0.2	0	41
44	Pakistan	3	0.2	0	40
45	Slovenia	3	0.2	0	63
46	Thailand	3	0.2	0	62
47	FRG	2	0.1	3	31
48	Lebanon	2	0.1	0	43
49	Malta	2	0.1	0	5
50	Morocco	2	0.1	0	42
51	Oman	2	0.1	1	8

Table-1 : Contd....

S. No.	Country	Records	%	TLCS	TGCS
52	Uruguay	2	0.1	5	10
53	Vietnam	2	0.1	0	3
54	Algeria	1	0.1	0	40
55	Angola	1	0.1	0	1
56	Armenia	1	0.1	0	40
57	Azerbaijan	1	0.1	1	4
58	Bolivia	1	0.1	0	0
59	Bosnia and Herceg	1	0.1	0	40
60	Bulgaria	1	0.1	0	40
61	Burkina Faso	1	0.1	0	0
62	Cambodia	1	0.1	0	4
63	Cote Ivoire	1	0.1	0	0
64	Croatia	1	0.1	0	40
65	Grenada	1	0.1	0	1
66	Guatemala	1	0.1	0	3
67	Guyana	1	0.1	1	14
68	HONG KONG	1	0.1	0	0
69	Iceland	1	0.1	0	2
70	Indonesia	1	0.1	0	0
71	Iraq	1	0.1	0	0
72	Jordan	1	0.1	0	0
73	Kenya	1	0.1	0	40
74	Latvia	1	0.1	0	4
75	Lithuania	1	0.1	0	40
76	Malaysia	1	0.1	0	4
77	Moldova	1	0.1	0	40
78	New Zealand	1	0.1	0	7
79	Peru	1	0.1	0	0
80	Slovakia	1	0.1	0	1
81	Sri Lanka	1	0.1	0	0
82	Sudan	1	0.1	0	40
83	Syria	1	0.1	0	40
84	Tajikistan	1	0.1	0	40
85	U Arab Emirates	1	0.1	0	40
86	United Kingdom	1	0.1	1	6
87	Uzbekistan	1	0.1	0	0
88	Venezuela	1	0.1	0	0
89	Yugoslavia	1	0.1	0	0
90	Others	190	10.5	114	1793

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Table-1 : Contd.....

Table-2 : Source title wise distribution of publications.

Sl.No.	Journal	Recods	%	TLCS	TGCS	TLCR
1	Circulation - (IF14.13)	259	14.3	104	2186	56
2	Journal of the American College of Cardiology - (IF17.76)	156	8.6	208	5616	78
3	Pediatric Cardiology (IF: 1.45)	140	7.8	108	996	116
4	Congenital Heart Disease – 1.21	59	3.3	64	286	76
5	Cardiology in the Young – 0.86	54	3.0	53	308	58
6	Pediatrics – 4.47	47	2.6	129	1283	45
7	Revista Espanola De Cardiologia – 3.79	34	1.9	53	313	74
8	Catheterization and Cardiovascular Interventions – 2.18	27	1.5	18	231	27
9	Canadian Journal of Cardiology – 3.11	26	1.4	29	284	22
10	Current Opinion in Pediatrics – 2.20	26	1.4	10	189	32
11	Journal of the American Society of Echocardiography	26	1.4	17	205	23
12	Current Opinion in Cardiology	23	1.3	5	83	12
13	International Journal of Cardiology	23	1.3	7	235	16
14	Archives Des Maladies Du Coeur Et Des Vaisseaux	21	1.2	2	8	2
15	Journal of Pediatrics	21	1.2	26	305	15
16	Monatsschrift Kinderheilkunde	20	1.1	7	17	13
17	Progress in Pediatric Cardiology	18	1.0	6	25	5
18	Clinical Pediatrics	15	0.8	22	121	23
19	Archives De Pediatrie	13	0.7	1	40	9
20	Pace-Pacing and Clinical Electrophysiology	13	0.7	18	389	17
21	Zeitschrift Fur Kardiologie	13	0.7	4	71	1
22	American Journal of Cardiology	11	0.6	9	243	8
23	Archives of Pediatrics and Adolescent Medicine	11	0.6	36	277	6
24	JACC-Cardiovascular Interventions	11	0.6	9	95	14
25	Echocardiography-A Journal of Cardiovascular Ultrasound and Allied Techniques	10	0.6	5	73	4
26	Journal of Cardiovascular Medicine	10	0.6	2	60	7
27	Pediatric Clinics of North America	10	0.6	4	92	14
28	Pediatric Critical Care Medicine	10	0.6	1	175	7
29	European Journal of Pediatrics	9	0.5	8	97	11
30	Pediatric Radiology	9	0.5	15	124	7
31	Texas Heart Institute Journal	9	0.5	1	11	1
32	Journal of Heart and Lung Transplantation	8	0.4	2	65	17
33	Pediatrics International	8	0.4	3	31	3
34	Saudi Medical Journal	8	0.4	0	30	8
35	American Journal of Medical Genetics Part A	7	0.4	2	80	3
36	Journal of Cardiology	7	0.4	1	41	5
37	Journal of Interventional Cardiology	7	0.4	3	37	1
38	Medical Physics	7	0.4	5	167	11
39	Pediatric Research	7	0.4	8	26	1
40	Thoracic and Cardiovascular Surgeon	7	0.4	1	2	1
41	Ultrasound in Obstetrics and Gynecology	7	0.4	5	155	2
42	Annals of Thoracic Surgery	6	0.3	1	45	2
43	Circulation Journal	6	0.3	0	33	2
44	Heart Rhythm	6	0.3	6	108	19
45	Journal of Pediatric Psychology	6	0.3	5	21	15
46	Journal of Thoracic and Cardiovascular Surgery	6	0.3	2	88	4
47	Pediatric Nephrology	6	0.3	0	22	0
48	Revista Portuguesa De Cardiologia	6	0.3	4	16	4
49	Telemedicine and E-Health	6	0.3	5	29	19
50	American Journal of Diseases of Children	5	0.3	4	78	0
51	Anadolu Kardiyoloji Dergisi-the Anatolian Journal of Cardiology	5	0.3	2	9	2
52	Fetal Diagnosis and Therapy	5	0.3	0	16	0
53	International Journal of Cardiovascular Imaging	5	0.3	1	18	2

Table-2 : Contd.....

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Sl.No.	Journal	Recods	%	TLCS	TGCS	TLCR
54	Journal of Adolescent Health	5	0.3	6	70	7
55	Klinische Padiatrie	5	0.3	0	11	6
56	American Heart Journal	4	0.2	1	29	6
57	Annals of Pediatric Cardiology	4	0.2	0	1	2
58	Archives of Cardiovascular Diseases	4	0.2	0	10	2
59	Arquivos Brasileiros De Cardiologia	4	0.2	1	12	4
60	Birth Defects Research Part A-Clinical and Molecular Teratology	4	0.2	1	52	6
61	British Heart Journal	4	0.2	4	78	0
62	Clinical Research In Cardiology	4	0.2	0	7	0
63	European Heart Journal	4	0.2	2	32	2
64	European Journal of Cardio-Thoracic Surgery	4	0.2	2	69	1
65	Heart	4	0.2	8	268	15
66	Iranian Journal of Pediatrics	4	0.2	0	6	0
67	Journal of Telemedicine and Telecare	4	0.2	5	22	9
68	Journal of Ultrasound in Medicine	4	0.2	2	19	4
69	Pediatric Anesthesia	4	0.2	6	93	3
70	Pediatric Annals	4	0.2	0	1	7
71	Pediatric Emergency Care	4	0.2	0	30	5
72	Revista Brasileira De Cirurgia Cardiovascular	4	0.2	0	2	0
73	American Journal of Transplantation	3	0.2	0	3	0
74	Archives of Disease in Childhood	3	0.2	1	22	5
75	Bulletin De L Academie Nationale De Medecine	3	0.2	0	0	1
76	Cardiology Clinics	3	0.2	2	25	3
77	Catheterization and Cardiovascular Diagnosis	3	0.2	6	31	1
78	Circulation-Cardiovascular Imaging	3	0.2	0	10	3
79	Clinics in Perinatology	3	0.2	0	15	2
80	Critical Care Medicine	3	0.2	5	102	1
81	Emergency Medicine Clinics of North America	3	0.2	0	4	4
82	European Heart Journal Supplements	3	0.2	1	1	0
83	Indian Pediatrics	3	0.2	1	4	2
84	Intensive Care Medicine	3	0.2	1	112	0
85	JACC-Heart Failure	3	0.2	0	12	3
86	JAMA-Journal of the American Medical Association	3	0.2	17	346	3
87	Journal of Cardiac Failure	3	0.2	3	42	2
88	Journal of Cardiovascular Electrophysiology	3	0.2	1	9	4
89	Journal of Cardiovascular Magnetic Resonance	3	0.2	1	17	3
90	Journal of Emergency Medicine	3	0.2	7	17	3
91	Journal of Paediatrics and Child Health	3	0.2	0	5	0
92	Journal of the American Heart Association	3	0.2	0	3	10
93	Journal of the American Medical Informatics Association	3	0.2	0	7	3
94	Rofo-Fortschritte Auf Dem Gebiet Der Rontgenstrahlen Und Der Bildgebenden Verfahren	3	0.2	3	35	5
95	Stroke	3	0.2	0	0	0
96	World Journal of Pediatrics	3	0.2	0	7	0
97	academic medicine	2	0.1	0	21	0
98	Acta Paediatrica	2	0.1	0	63	1
99	Acta Radiologica	2	0.1	0	1	3
100	American Journal of Obstetrics and Gynecology	2	0.1	0	27	0

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Results and Discussion

Geographical wise distribution of publications : Table-1 highlights the number of literature on pediatric cardiology from 90 countries during 1989–2016. It was observed that USA is the most productive Country with 904 (50.10 %) publications and received 11530 citations followed by Canada with 177 (9.8 %) publications and 3404 citations and Germany with 110 (6.1 %) publications and 1790 citations. India ranked 18th position in the world with 14 Publication and received 566 Citations. Nearly 90 countries are contributed the total of 1805 publications.

Source title wise distribution of publications : Table-2 shows that top 100 ranking of journals according to their productivity with minimum of 2 Publications. Journal Circulation ranked first in order with 259 (14.3%) articles (Impact Factor is 14.43) and next to Journal of the American College of Cardiology ranked second with 156 (8.6%) articles (Impact factor is 17.76) during the period of study. Pediatric Cardiology ranked third in order published 140 (7.8%) articles (Impact Factor is 1.45 and the remaining journals are ranked in the below table according to their publications, Citations and Cited references. During the study period researchers have published 1805 articles in 413 source titles.

Conclusions

The study found that USA is the most productive Country with 904 (50.10 %) publications followed by Canada with 177 (9.8 %) publications and Germany with 110 (6.1 %) publications.

The study found that top 20 positions occupied by USA Institutions except 5 and 6 (Canada).

The study found that top ranking source of titles is highly impact factor journals. Journal Circulation ranked first in order with 259 (14.3%) articles (Impact Factor is 14.43) and next to Journal of the American College of Cardiology ranked second with 156 (8.6%) articles (Impact factor is 17.76) during the period of study. Pediatric Cardiology ranked third in order published 140 (7.8%) articles (Impact Factor is 1).

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