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## Indian Journal of Pediatrics: A Bibliometric Study Based on Scopus Database (1936- 2018)

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# INDIAN JOURNAL OF PEDIATRICS: A BIBLIOMETRIC STUDY BASED ON SCOPUS DATABASE (1936- 2018)

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## **Abstract:**

*This study was to examine the research productivity published in the Indian Journal of Pediatrics. The study was conducted based on the citable documents like articles, conference papers and review published in the journal which is indexed in the Scopus Database. The period of study is from 1936 to 2018 ie 83 years. The yearly distribution of publications with growth analysis, authorship pattern with its nature of collaboration, citation analysis with citations per paper, uncited ratio and top 20 authors ranking were statistically analyzed in this study. Further the study analyzed the geographical distribution of literature, highly cited research outputs, most preferred forms of documents, prolific institutions.*

*A total number of 8732 research productivity has been published in the journal between 1936 and 2018 and collaborated research work dominates during the study period. More than two thirds (66.71%) of the total publications received citations with an average of 6.92 citations per paper. The uncited ratio stood at 0.33. The article on ‘Liver function tests ad their interpretation’ by B. R. Thapa and A.Walia published in the year 2007 is the highest cited paper with 175 citations. The Highest number of publications was contributed by I. C. Verma with 105 publications. S.K. Kabra is the most successful author for his 83 cited publications. The Article form of publications is the most preferable form of publications by the researchers. All India Institute of Medical Sciences, New Delhi is the major contributor among the Institutions and India being the most productive country with 55.88% share of contributions to the journal.*

**Keywords:** *Indian Journal of Pediatrics, Bibliometrics, Scopus Database, Authorship Pattern, Citation Analysis and Ranking of Authors.*

## **1. INTRODUCTION**

### **Indian Journal of Pediatrics**

The Indian Journal of Pediatrics<sup>1</sup> popularly known as IJP is one of the premier medical journal in India, founded in the year 1933. IJP is a monthly Peer-Reviewed Pediatric journal. It has an excellent track record of regular publication for past 87 years and having a magnificent readership. It is published by Dr. K. C. Chaudhuri Foundation Trust. The journal publishes peer

reviewed scientific articles and is extremely popular amongst its readers. For practicing pediatricians, the journal serves as an important source of updating themselves in the state of art practice of medicine. Since it is one of the key journal with a wide spread reach to pediatricians, various pharmaceutical companies find the journal as an appropriate medium to communicate with doctors. It brings to its readers the latest advances in the Pediatric World. It is indexed in “Medline/PubMed, Science Citation Index Expanded (SciSearch), SCOPUS, EMBASE, Google Scholar, Academic OneFile, BIOSIS, CNKI, Current Contents/Clinical Medicine, EBSCO Biomedical Reference Collection, EBSCO CINAHL, Expanded Academic, Health Reference Center Academic, Indian Science Abstracts, MedInd, OCLC, PASCAL, SCImago, Summon by ProQuest”.

### **Bibliometrics**

Bibliometrics is the application of mathematical and statistical methods to publications. Bibliometrics is often used to assess scientific research through quantitative studies on research publications. The term was coined by Alan Pritchard (1969)<sup>2</sup> in his 1969 paper entitled “Statistical Bibliography or Bibliometrics” in which he defined the term as “the application of mathematics and statistical methods to books and other media of communication”.

## **2. REVIEW OF LITERATURE**

The review of related literature is a significant component in any research investigations. It enables to understand the research interest, pattern and impact of research productivity in the field of knowledge. Recently many bibliometric/scientometric studies on single journals have been carried out.

Patil (2010)<sup>3</sup> studied the articles published in Herald of Library Science for authorship pattern, degree of collaboration and geographical distribution of publications. The study found that the majority of publications were single authored.

Rajendran, Jeyshankar and Elango (2011)<sup>4</sup> carried out scientometric analysis of 633 research articles published in Journal of Scientific and Industrial Research during the period 2005- 2009 and the revealed that the author productivity is 0.34 and dominated by the Indian authors.

Aswathy, S and Gopikuttan, A (2012)<sup>5</sup> studied the bibliometric analysis of Journal of Spacecrafts and Rockets during the period 2006-2010. The major finding of the study is that the Universities are the most productive sector and that the most productive country is USA.

Das and Pal (2012)<sup>6</sup> studied 199 peer reviewed articles published in "Sankhya - the Indian Journal of Statistics during the period 2003-2007. It analyzed the authorship pattern, collaboration trend among authors, etc. among the publications.

Das (2013)<sup>7</sup> analyzed 239 research outputs published in the inaugural five volumes of Journal of Informetrics (JOI). The Findings revealed that publications doubles over the study period as there was considerable increase of publications over the period of time. The findings further reveals that (30%) of the total publications were single authored contributions and collaborated research work dominated the area of study with an average authorship of 2.28 authors per publications.

Rekha, Prabhakar and Mallika (2014)<sup>8</sup> studied the research outputs from the Journal of Scientific and Industrial Research during the period 2004-2013. The study reveals that there are 1297 publications during the period, multi authored contribution outnumbered single authored publications.

Nageswara Rao, K., et al (2014)<sup>9</sup> studied the bibliometric analysis of the Journal of Propulsion and Power for the period 1983-2013. The study finds that the highest numbers of articles were produced during the year 1992 with 194 and the lowest in the year 1987 with 81 articles. Out of the total 4047 articles produced, 1330 articles were produced by two authors and 1098 were produced by three authors. It also finds that Purdue University has contributed the highest number of 163 articles. It also found that Fleeter, S from Purdue University has contributed the highest number of 54 articles.

Malathy, S and Kantha, P. (2015)<sup>10</sup> studied the bibliometric analysis of the Journal of Spacecraft Technology during 1991-2012. The study provides the insight and development of the journal towards excellence.

Sujatha and Padmini (2015)<sup>11</sup> studied the bibliometric analysis of the journal of IEEE Transactions on Antennas and Propagation from 2010-2014. The degree of collaboration ranges between 0.92 to 0.96 and its average value is found to be 0.94. Most of the contributions were contributed from USA.

Chaman Sab, M and Dharani Kumar P (2016)<sup>12</sup> has done citation analysis of annals of library and information studies during the period 2007-2010. The study indicates that the 4 volumes have 2562 citations appended to the 140 articles. The average number of citations per

contribution is 18.3. The study observed that the journal articles are the preferred cited sources with the highest percentage of 1811(70.68%).

Zeleznik, Vosner and Kokol (2017)<sup>13</sup> in their study pointed out a positive trend in literature production, although recently, the number of articles published in Journal of Advanced Nursing has slightly decreased. The study further revealed that the most productive institutions are from the United Kingdom.

Tsay and Li (2017)<sup>14</sup> did a bibliometric analysis of the journal literature on women's studies. The results found that most of the document types in the area of women's studies are in the form of research articles, review articles and book reviews. The United States of America and the United Kingdom contribute the largest number of articles. One hundred and seventeen core journals containing 33% of the women's studies journal articles have been identified through the application of Bradford's law on journal distribution.

Vimlesh Patel (2018)<sup>15</sup> studied the Scientometric mapping of papers published in the Journal of Computer Science and Technology during the period 2012 to 2016. The study revealed that the researchers in the field preferred collaborated research work.

Swarnamugi, V., Santhi, J and Loganayaki, R (2019)<sup>16</sup> studied the citation analysis of the Journal of IEEE/ACM Transactions on Networking during 1998-2017. The study revealed that the journal commands great repute in its field and attracts articles pertaining to the high profile of research.

### **3. METHODOLOGY**

The study aims to analyze the publications in Indian Journal of Pediatrics. Scopus database was used to retrieve the data with a time span of 83 years from 1936 to 2018. Even though the journal founded in the year 1933 at the time of downloading the data, it was available from the year 1936 only. We have downloaded only the data of citable documents like Article, Conference Paper and Review during the study period. The common Bibliometric/Scientometric Indicators like Ratio of Growth (RoG), Compound Annual Growth Rate (CAGR), Degree of Collaboration (DC), Collaboration Index (CI), Citation per Paper (CPP) and Cited and Uncited Ratio of the publications were analyzed in the study. For analysis and preparing tables SPSS and Excel software were used in the study. The following search string was used to download the data:

***(SRCTITLE("indian Journal of Pediatrics") AND PUBYEAR < 2019 AND ( LIMIT-TO ( DOCTYPE,"ar" ) OR LIMIT-TO ( DOCTYPE,"re" ) OR LIMIT-TO ( DOCTYPE,"cp" ) ) )***

#### 4. OBJECTIVES OF THE STUDY

- To study the yearly distribution of publication, Ratio of Growth and Compound Annual Growth Rate of publications
- To study the Authorship pattern by using the parameters like Degree of Collaboration (DC), Collaboration Index (CI)
- To study the Citation Analysis on publications like Ratio of Growth of Citation, Citations per paper, Cited and Uncited ratio
- To find out the highly cited publications
- To find out the Top 20 authors and their ranking on total publications, cited rank, uncited rank and uncited ratio rank.
- To identify the most preferred bibliographic form of documents for publishing research outputs
- To find out the geographical distribution of publications during the study period
- To find out the major contributing Institutions to the journal.

#### 5. DATA ANALYSIS AND RESULTS

##### 5.1 Yearly Distribution and Growth of Publications in Indian Journal of Pediatrics

There are two common measurements to study the yearly growth of publications in bibliometric study. Yearwise growth ratio of publications (RoG) is calculated by using the prior year publications as a base for expressing percentage change from one year to the next consecutive year. (Ratio of Growth = Number of Publications of Present Year/Number of Publications of Prior Year.) The other measurement is Compound Annual Growth Rate (CAGR) which can be calculated by using the formula:

$$CAGR = \left( \frac{\text{Ending Value}}{\text{Beginning Value}} \right)^{\left( \frac{1}{\# \text{ of years}} \right)} - 1$$

**Table 1- Yearly Distribution and Growth of Publications in Indian Journal of Pediatrics**

S.No.	Year	TP	TP(%)	Cum.	Cum.(%)	RoG	Descending	CAGR
1	1936	34	0.39	34	0.39		83	0.07
2	1937	27	0.31	61	0.70	0.79	82	0.07
3	1938	29	0.33	90	1.03	1.07	81	0.07
4	1939	40	0.46	130	1.49	1.38	80	0.07
5	1940	18	0.21	148	1.69	0.45	79	0.08
6	1941	18	0.21	166	1.90	1.00	78	0.08
7	1942	22	0.25	188	2.15	1.22	77	0.08
8	1943	19	0.22	207	2.37	0.86	76	0.08
9	1944	13	0.15	220	2.52	0.68	75	0.09
10	1945	12	0.14	232	2.66	0.92	74	0.09

11	1946	16	0.18	248	2.84	1.33	73	0.09
12	1947	13	0.15	261	2.99	0.81	72	0.09
13	1948	15	0.17	276	3.16	1.15	71	0.09
14	1949	18	0.21	294	3.37	1.20	70	0.09
15	1950	21	0.24	315	3.61	1.17	69	0.09
16	1951	24	0.27	339	3.88	1.14	68	0.09
17	1952	21	0.24	360	4.12	0.88	67	0.09
18	1953	37	0.42	397	4.55	1.76	66	0.09
19	1954	42	0.48	439	5.03	1.14	65	0.09
20	1955	33	0.38	472	5.41	0.79	64	0.09
21	1956	69	0.79	541	6.20	2.09	63	0.08
22	1957	49	0.56	590	6.76	0.71	62	0.09
23	1958	74	0.85	664	7.60	1.51	61	0.08
24	1959	42	0.48	706	8.09	0.57	60	0.09
25	1960	43	0.49	749	8.58	1.02	59	0.09
26	1961	43	0.49	792	9.07	1.00	58	0.10
27	1962	44	0.50	836	9.57	1.02	57	0.10
28	1963	62	0.71	898	10.28	1.41	56	0.09
29	1964	73	0.84	971	11.12	1.18	55	0.09
30	1965	80	0.92	1051	12.04	1.10	54	0.09
31	1966	93	1.07	1144	13.10	1.16	53	0.09
32	1967	111	1.27	1255	14.37	1.19	52	0.09
33	1968	107	1.23	1362	15.60	0.96	51	0.09
34	1969	96	1.10	1458	16.70	0.90	50	0.09
35	1970	124	1.42	1582	18.12	1.29	49	0.09
36	1971	94	1.08	1676	19.19	0.76	48	0.10
37	1972	82	0.94	1758	20.13	0.87	47	0.10
38	1973	101	1.16	1859	21.29	1.23	46	0.10
39	1974	88	1.01	1947	22.30	0.87	45	0.11
40	1975	67	0.77	2014	23.06	0.76	44	0.12
41	1976	64	0.73	2078	23.80	0.96	43	0.12
42	1977	72	0.82	2150	24.62	1.13	42	0.12
43	1978	70	0.80	2220	25.42	0.97	41	0.12
44	1979	94	1.08	2314	26.50	1.34	40	0.12
45	1980	94	1.08	2408	27.58	1.00	39	0.12
46	1981	131	1.50	2539	29.08	1.39	38	0.12
47	1982	134	1.53	2673	30.61	1.02	37	0.12
48	1983	119	1.36	2792	31.97	0.89	36	0.13
49	1984	134	1.53	2926	33.51	1.13	35	0.13

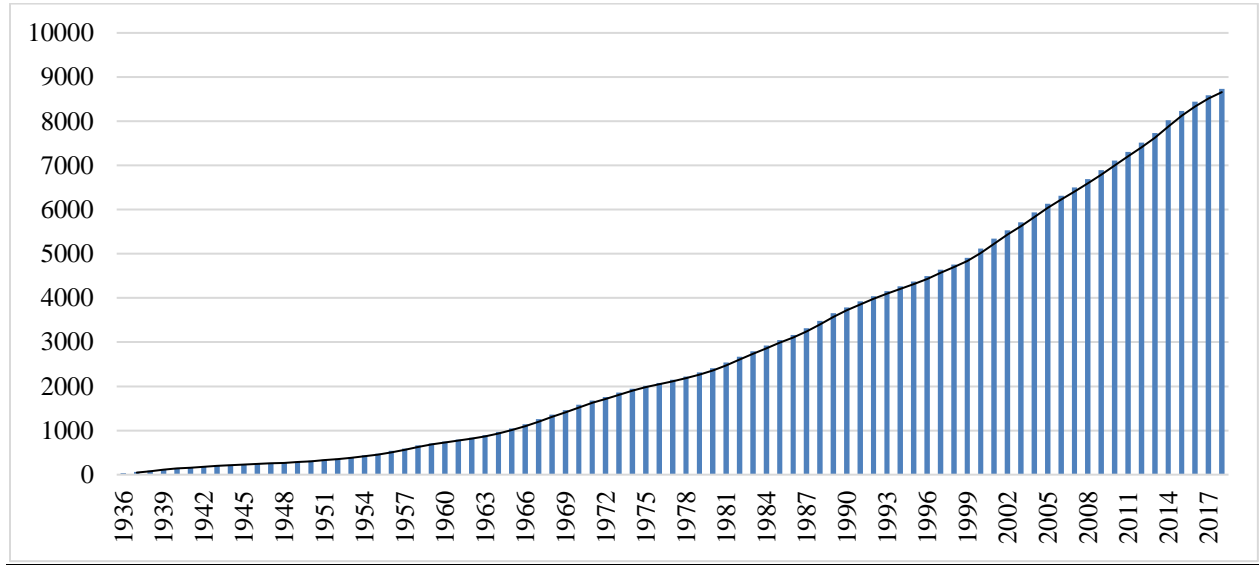
50	1985	121	1.39	3047	34.89	0.90	34	0.13
51	1986	118	1.35	3165	36.25	0.98	33	0.14
52	1987	151	1.73	3316	37.98	1.28	32	0.14
53	1988	166	1.90	3482	39.88	1.10	31	0.14
54	1989	176	2.02	3658	41.89	1.06	30	0.14
55	1990	126	1.44	3784	43.33	0.72	29	0.16
56	1991	138	1.58	3922	44.92	1.10	28	0.16
57	1992	118	1.35	4040	46.27	0.86	27	0.17
58	1993	115	1.32	4155	47.58	0.97	26	0.18
59	1994	109	1.25	4264	48.83	0.95	25	0.19
60	1995	106	1.21	4370	50.05	0.97	24	0.20
61	1996	127	1.45	4497	51.50	1.20	23	0.20
62	1997	141	1.61	4638	53.11	1.11	22	0.21
63	1998	122	1.40	4760	54.51	0.87	21	0.23
64	1999	152	1.74	4912	56.25	1.25	20	0.22
65	2000	206	2.36	5118	58.61	1.36	19	0.22
66	2001	223	2.55	5341	61.17	1.08	18	0.23
67	2002	192	2.20	5533	63.36	0.86	17	0.25
68	2003	182	2.08	5715	65.45	0.95	16	0.27
69	2004	221	2.53	5936	67.98	1.21	15	0.28
70	2005	199	2.28	6135	70.26	0.90	14	0.31
71	2006	180	2.06	6315	72.32	0.90	13	0.35
72	2007	185	2.12	6500	74.44	1.03	12	0.38
73	2008	192	2.20	6692	76.64	1.04	11	0.41
74	2009	204	2.34	6896	78.97	1.06	10	0.46
75	2010	212	2.43	7108	81.40	1.04	9	0.51
76	2011	197	2.26	7305	83.66	0.93	8	0.61
77	2012	208	2.38	7513	86.04	1.06	7	0.71
78	2013	223	2.55	7736	88.59	1.07	6	0.84
79	2014	289	3.31	8025	91.90	1.30	5	0.98
80	2015	205	2.35	8230	94.25	0.71	4	1.55
81	2016	212	2.43	8442	96.68	1.03	3	2.45
82	2017	144	1.65	8586	98.33	0.68	2	6.79
83	2018	146	1.67	8732	100.00	1.01	1	-
	<b>Total</b>	<b>8732</b>	<b>100.00</b>					

TP: Total Publications; Cum: Cumulative Number of Publications Cum. (%): Cumulative Number of Publications;  
RoG: Ratio of Growth; CAGR: Compound Annual Growth Rate

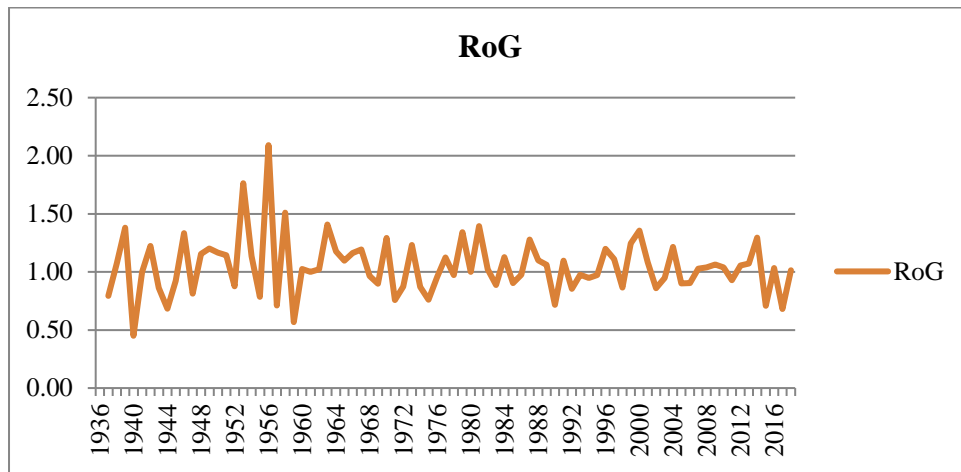
From the above table it is observed that there are 8732 research productivity have been published during a span of 83 years from 1936 to 2018 in the journal. Highest number of publications was reported in the year 2014 with 289 publications followed by 2013 with 223



publications and an equal number of 212 publications were reported in the year 2016, 2010 and 2004. The lowest number of publications was reported in the year 1945 with 12 publications. An average of 105.2 publications per year was reported during the study period 1936 to 2018.



**Figure -1: Cumulative Growth of Publications**



**Figure 2- Growth Rate of Publications**

The Figure 1 represents the cumulative publications over the period of time shows an exponential growth trend. The Ratio of Growth (RoG) ranged between 0.45 and 2.09 during the study period and it is mostly remained between 0.5 and 1.5 during the study period. The Figure 2 shows the fluctuated trend in the Growth Ratios of publications. The Compound Annual Growth Rate (CAGR) ranged between 0.07 and 6.79 and it is gradually increases from 0.07 in the beginning to 0.98 in 2014. Then it increases rapidly in the last three years and attains a peak value of 6.79 at the end of the study period. The Figure 3 represents the yearly distribution of

CAGR of publications which appears to be a parabolic trend. The figure 4 represents both RoG and CAGR of publications in a single graphical representation.

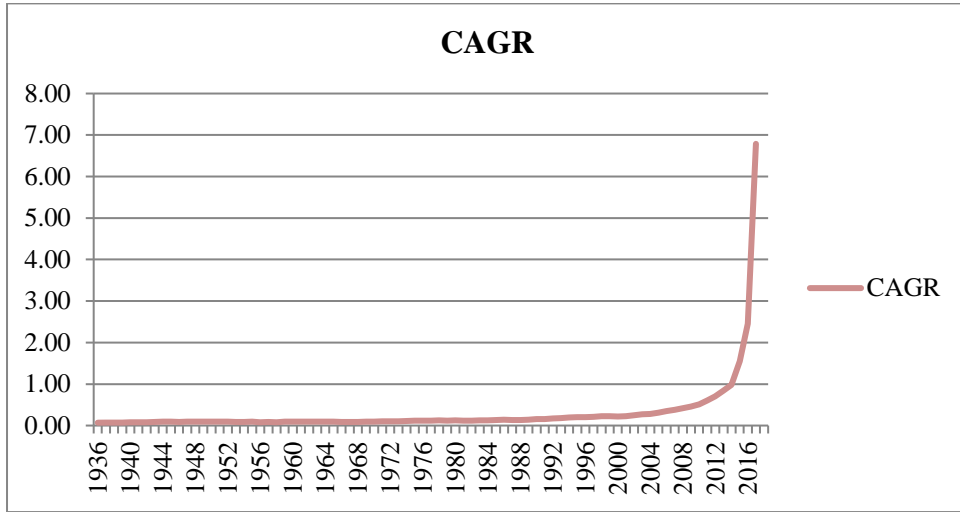


Figure 3- Compound Annual Growth Rate of Publications

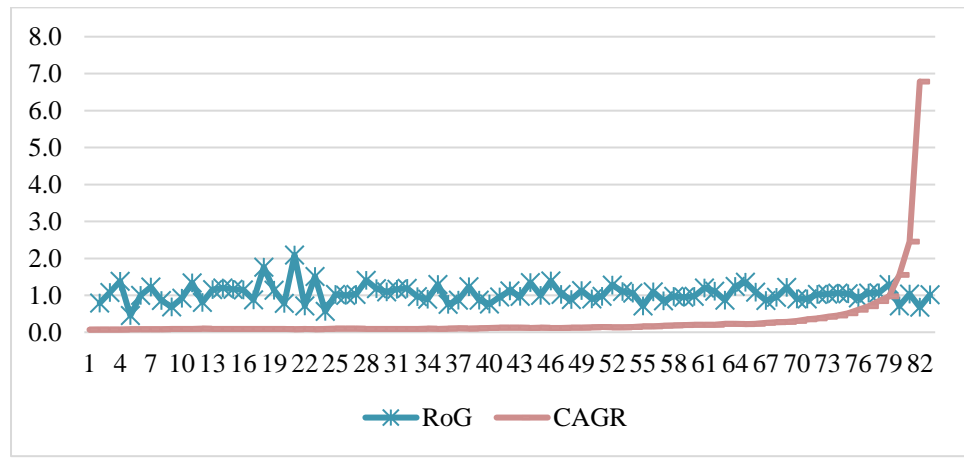


Figure 4 – RoG and CAGR of Publications

## 5.2 Authorship Pattern in Indian Journal of Pediatrics

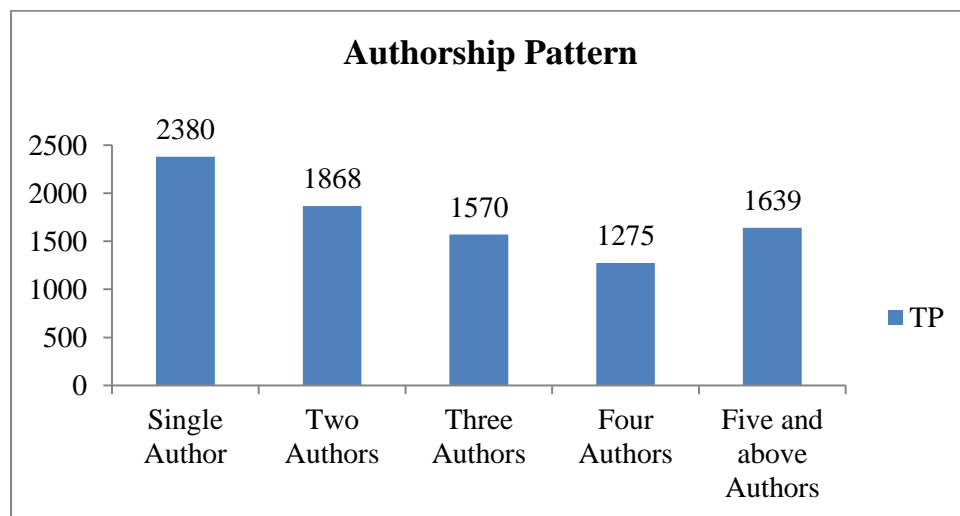
Table 2 represents the authorship pattern of the published literature in the Indian Journal of Pediatrics. The publications during the study period 1936 – 2018 were categorized as single authored publications and multi authored publications viz., two authors, three authors, four authors and five and above authors (the publications which contributed by five and more than five authors are categorized as a single entity). The average number of authors per publications was calculated by total number of authors/total number of publications and average number of publications per author was calculated by total number of publications/total number of authors and the same has been tabulated.

**Table 2- Authorship Pattern of Published Literature in Indian Journal of Pediatrics**

S.No.	Number of Authors	TP	TP(%)	Total No. of Authors
1	Single Author	2380	27.3	2380
2	Two Authors	1868	21.3	3736
3	Three Authors	1570	18.0	4710
4	Four Authors	1275	14.6	5100
5	Five and above Authors	1639	18.8	8195
	<b>Total</b>	<b>8732</b>	<b>100.0</b>	<b>24121</b>
<b>Average Number of Authors per publication = 2.76</b>				
<b>Average Number of publication per Author = 0.36</b>				

TP: Total Publications; TP(%): Total Publications Percentage

It is observed from the above table that there are 2380 (27.3%) single authored publications contribute to the published literature. The co-authored productivity comprises of 1868 (21.3%) two authored publications followed by 1639 (18.8%) five and above authors contributions, 1570 (18%) three authored publications and the least number of contributions by the four authors category with 1275 (14.6%) publications. We can further observe that the single authored contributions are 27.3% of the total published literature while the co-authored publications contributes to the remaining 72.7% of the published literature shows the dominance of co-authored publications over the single authored contributions. It clearly shows the researchers contributed to this journal are more interested in collaborative research work rather than the solo one. The average number of authors per publication is 2.76 and the average number of publications per author is 0.36. Fig. 5 shows the Authorship pattern of the published literature.



**Figure - 5 Authorship Pattern on Publications**

Table 3 represents the yearly distribution of Authorship pattern of the published literature in the Indian Journal of Pediatrics. In the bibliometric study, the authorship collaboration in publications during a specific time period can be calculated using the Degree of Collaboration (DC) indicator (Subramanyam, 1983)<sup>17</sup>. The Degree of Collaboration (DC) among authors is the ratio of the number of collaborative publications versus the total number of publications published in a discipline during certain period of time and the same can be calculated using the formula  $DC = N_m/(N_m+N_s)$ ; where,  $N_m$  = Number of multiple authors publications during a specific period in a discipline and  $N_s$ = Number of single authored publications in the discipline during the given period of time. The Collaborative Index (CI) (Lawani, 1986)<sup>18</sup> is interpreted as mean number of authors per paper. CI can be calculated using the following formula  $CI = \text{Number of authors in the multi-authored publications} / \text{Number of multi authored publications}$ .

**Table 3- Yearly Distribution of Authorship Patten in Indian Journal of Paediatrics**

S.No.	Year	Number of Authors					TP	DC	CI
		Single	Two	Three	Four	≥Five			
1	1936	24	10	0	0	0	34	0.29	1.29
2	1937	25	2	0	0	0	27	0.07	1.07
3	1938	24	4	1	0	0	29	0.17	1.21
4	1939	32	5	3	0	0	40	0.20	1.28
5	1940	17	1	0	0	0	18	0.06	1.06
6	1941	15	2	1	0	0	18	0.17	1.22
7	1942	17	5	0	0	0	22	0.23	1.23
8	1943	16	3	0	0	0	19	0.16	1.16
9	1944	11	1	1	0	0	13	0.15	1.23
10	1945	11	1	0	0	0	12	0.08	1.08
11	1946	12	4	0	0	0	16	0.25	1.25
12	1947	11	2	0	0	0	13	0.15	1.15
13	1948	15	0	0	0	0	15	0	1
14	1949	17	1	0	0	0	18	0.06	1.06
15	1950	20	1	0	0	0	21	0.05	1.05

16	1951	21	2	1	0	0	24	0.13	1.17
17	1952	17	2	1	1	0	21	0.19	1.33
18	1953	29	6	2	0	0	37	0.22	1.27
19	1954	35	6	1	0	0	42	0.17	1.19
20	1955	25	7	0	0	1	33	0.24	1.33
21	1956	58	7	2	0	2	69	0.16	1.28
22	1957	37	7	2	2	1	49	0.24	1.43
23	1958	51	16	5	1	1	74	0.31	1.45
24	1959	22	14	4	1	1	42	0.48	1.69
25	1960	23	12	4	2	2	43	0.47	1.79
26	1961	20	10	6	2	5	43	0.53	2.12
27	1962	25	10	5	1	3	44	0.43	1.80
28	1963	29	19	4	4	6	62	0.53	2.02
29	1964	50	13	7	3	0	73	0.32	1.49
30	1965	48	15	12	5	0	80	0.40	1.68
31	1966	60	15	14	3	1	93	0.35	1.60
32	1967	67	19	14	9	2	111	0.40	1.74
33	1968	49	30	19	8	1	107	0.54	1.90
34	1969	28	40	14	10	4	96	0.71	2.19
35	1970	36	31	37	13	7	124	0.71	2.39
36	1971	27	26	24	16	1	94	0.71	2.34
37	1972	27	19	22	12	2	82	0.67	2.30
38	1973	33	22	24	15	7	101	0.67	2.42
39	1974	34	17	24	6	7	88	0.61	2.23
40	1975	21	10	20	8	8	67	0.69	2.58
41	1976	11	16	19	15	3	64	0.83	2.73

42	1977	23	21	18	8	2	72	0.68	2.24
43	1978	18	17	20	10	5	70	0.74	2.53
44	1979	16	33	27	13	5	94	0.83	2.55
45	1980	25	31	22	10	6	94	0.73	2.37
46	1981	52	32	20	11	16	131	0.60	2.29
47	1982	43	40	27	14	10	134	0.70	2.31
48	1983	29	23	26	26	15	119	0.76	2.79
49	1984	21	37	30	24	22	134	0.84	2.92
50	1985	46	26	13	20	16	121	0.62	2.45
51	1986	52	30	16	10	10	118	0.56	2.12
52	1987	66	33	20	13	19	151	0.56	2.25
53	1988	62	42	24	23	15	166	0.63	2.32
54	1989	60	32	24	27	33	176	0.66	2.66
55	1990	38	34	27	15	12	126	0.70	2.44
56	1991	43	35	21	22	17	138	0.69	2.53
57	1992	38	20	16	20	24	118	0.68	2.76
58	1993	28	20	28	18	21	115	0.76	2.86
59	1994	19	16	25	17	32	109	0.83	3.25
60	1995	19	25	25	17	20	106	0.82	2.94
61	1996	24	28	25	26	24	127	0.81	2.98
62	1997	35	41	18	15	32	141	0.75	2.77
63	1998	30	29	17	19	27	122	0.76	2.87
64	1999	37	32	29	23	31	152	0.76	2.86
65	2000	49	55	35	29	38	206	0.76	2.77
66	2001	34	54	40	56	39	223	0.85	3.05
67	2002	41	44	38	28	41	192	0.79	2.92

68	2003	26	41	44	40	31	182	0.86	3.05
69	2004	18	48	43	52	60	221	0.92	3.40
70	2005	38	43	37	39	42	199	0.81	3.02
71	2006	12	41	40	40	47	180	0.93	3.38
72	2007	3	33	57	38	54	185	0.98	3.58
73	2008	11	38	42	33	68	192	0.94	3.57
74	2009	13	27	55	41	68	204	0.94	3.61
75	2010	8	31	40	56	77	212	0.96	3.77
76	2011	14	32	37	39	75	197	0.93	3.65
77	2012	8	36	40	45	79	208	0.96	3.73
78	2013	16	42	39	41	85	223	0.93	3.61
79	2014	21	47	50	51	120	289	0.93	3.70
80	2015	36	40	33	36	60	205	0.82	3.21
81	2016	25	39	40	26	82	212	0.88	3.48
82	2017	20	32	20	24	48	144	0.86	3.33
83	2018	13	35	29	23	46	146	0.91	3.37
	<b>Total</b>	<b>2380</b>	<b>1868</b>	<b>1570</b>	<b>1275</b>	<b>1639</b>	<b>8732</b>	<b>0.73</b>	<b>2.76</b>

TP: Total Publications; DC: Degree of Collaboration; CI: Co-Authorship Index

From the above table it is observed that the Degree of Collaboration (DC) ranged between zero and 0.98 and the average value of DC stands at 0.73 during the study period. The Degree of collaboration stands between zero and 0.5 till the year 1967 with minimal fluctuations in between shows that the single authored publications shows dominance over co-authored publications during the period. After the year 1967 and till the end of the study period, the co-authored publications shows dominance over single authored publications. The Collaboration Index (CI) ranged between 1 and 3.77 with an average value of 2.76. The figure 6 represents the Degree of Collaboration (DC) and Collaboration Index (CI) of the published literature in the Journal of Indian Pediatrics. It is clearly observed that both DC and CI show increase in trend

over the period of time and dominance of coauthored research work and increase in collaboration among authors.

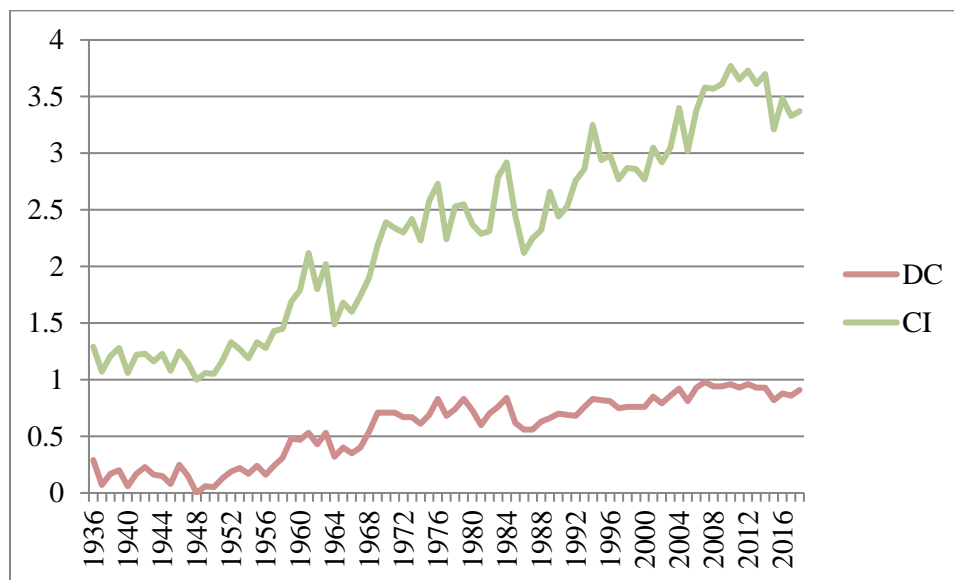


Figure 6 – DC and CI of Publications

### 5.3 Citation Analysis of Indian Journal of Pediatrics

#### 5.3.1 Cited Publications

Citation is an important factor for any research output, which is being used to measure its quality. The number of citations to a particular research works shows the impact among the scientific community like authors/scientists/researchers. Similar to the publications Growth ratio, the citations growth ratio can also calculated by using the citations yielded by the prior year publications as a base for expressing change from one year to the citations yielded by the publications of the next consecutive year. Citations per paper (CPP) can be calculated by using the formula:  $CPP = \frac{\text{Total number of Citations for a Country or an Institution}}{\text{Total number of Quality Publications}}$ .

Table 4 – Cited Publications in Indian Journal of Pediatrics

S.No.	Year	TP	CTP	Citations	Citation (%)	RoG	CPP
1	1936	34	2	3	0.01	-	1.50
2	1937	27	2	3	0.01	1.00	1.50
3	1938	29	4	14	0.03	2.00	3.50
4	1939	40	5	9	0.02	0.64	1.80
5	1940	18	1	6	0.01	0.20	6.00
6	1941	18	3	6	0.01	1.00	2.00
7	1942	22	0	0	0.00	0.00	0.00



8	1943	19	1	1	0.00	-	1.00
9	1944	13	3	7	0.02	3.00	2.33
10	1945	12	1	2	0.00	0.29	2.00
11	1946	16	0	0	0.00	0.00	0.00
12	1947	13	1	2	0.00	-	2.00
13	1948	15	1	1	0.00	1.00	1.00
14	1949	18	1	1	0.00	1.00	1.00
15	1950	21	0	0	0.00	0.00	0.00
16	1951	24	2	2	0.00	-	1.00
17	1952	21	2	3	0.01	1.00	1.50
18	1953	37	8	12	0.03	4.00	1.50
19	1954	42	1	2	0.00	0.13	2.00
20	1955	33	3	9	0.02	4.50	3.00
21	1956	69	9	25	0.06	3.00	2.78
22	1957	49	5	11	0.03	0.44	2.20
23	1958	74	15	22	0.05	3.00	1.47
24	1959	42	13	41	0.10	1.86	3.15
25	1960	43	16	45	0.11	1.23	2.81
26	1961	43	16	41	0.10	0.91	2.56
27	1962	44	8	27	0.07	0.50	3.38
28	1963	62	8	15	0.04	0.56	1.88
29	1964	73	12	26	0.06	1.50	2.17
30	1965	80	24	49	0.12	1.88	2.04
31	1966	93	25	60	0.15	1.04	2.40
32	1967	111	18	50	0.12	0.83	2.78
33	1968	107	49	165	0.41	2.72	3.37
34	1969	96	44	126	0.31	0.76	2.86
35	1970	124	55	162	0.40	1.25	2.95
36	1971	94	41	106	0.26	0.65	2.59
37	1972	82	40	99	0.25	0.98	2.48
38	1973	101	43	93	0.23	0.94	2.16
39	1974	88	32	105	0.26	0.74	3.28
40	1975	67	25	82	0.20	0.78	3.28
41	1976	64	31	81	0.20	0.99	2.61
42	1977	72	32	92	0.23	1.03	2.88
43	1978	70	27	65	0.16	0.71	2.41
44	1979	94	42	106	0.26	1.56	2.52
45	1980	94	64	208	0.52	1.96	3.25
46	1981	131	64	240	0.60	1.00	3.75

47	1982	134	70	241	0.60	1.00	3.44
48	1983	119	64	212	0.53	0.91	3.31
49	1984	134	89	258	0.64	1.22	2.90
50	1985	121	73	259	0.64	0.82	3.55
51	1986	118	68	318	0.79	1.23	4.68
52	1987	151	84	311	0.77	1.24	3.70
53	1988	166	97	392	0.97	1.26	4.04
54	1989	176	95	430	1.07	0.98	4.53
55	1990	126	82	409	1.02	0.95	4.99
56	1991	138	95	761	1.89	1.16	8.01
57	1992	118	83	500	1.24	0.66	6.02
58	1993	115	81	497	1.23	0.98	6.14
59	1994	109	79	674	1.67	1.36	8.53
60	1995	106	86	606	1.50	1.09	7.05
61	1996	127	107	755	1.87	1.25	7.06
62	1997	141	119	913	2.27	1.11	7.67
63	1998	122	108	951	2.36	1.04	8.81
64	1999	152	136	1114	2.77	1.26	8.19
65	2000	206	184	1589	3.94	1.43	8.64
66	2001	223	198	1793	4.45	1.08	9.06
67	2002	192	181	1698	4.21	0.95	9.38
68	2003	182	163	1500	3.72	0.90	9.20
69	2004	221	212	2510	6.23	1.67	11.84
70	2005	199	188	2629	6.53	0.89	13.98
71	2006	180	175	2171	5.39	0.83	12.41
72	2007	185	181	2528	6.28	1.03	13.97
73	2008	192	172	1844	4.58	0.73	10.72
74	2009	204	192	1765	4.38	1.12	9.19
75	2010	212	199	1664	4.13	0.94	8.36
76	2011	197	184	1427	3.54	0.92	7.76
77	2012	208	196	1271	3.16	0.89	6.48
78	2013	223	205	1221	3.03	1.05	5.96
79	2014	289	239	1036	2.57	0.85	4.33
80	2015	205	162	716	1.78	0.69	4.42
81	2016	212	166	585	1.45	1.02	3.52
82	2017	144	107	292	0.72	0.50	2.73
83	2018	146	106	220	0.55	0.99	2.08
	<b>Total</b>	<b>8732</b>	<b>5825</b>	<b>40285</b>			<b>6.92</b>

TP: Total Publications; CP: Cited Publications; RoG: Ratio of Growth; CPP: Citations per Publications

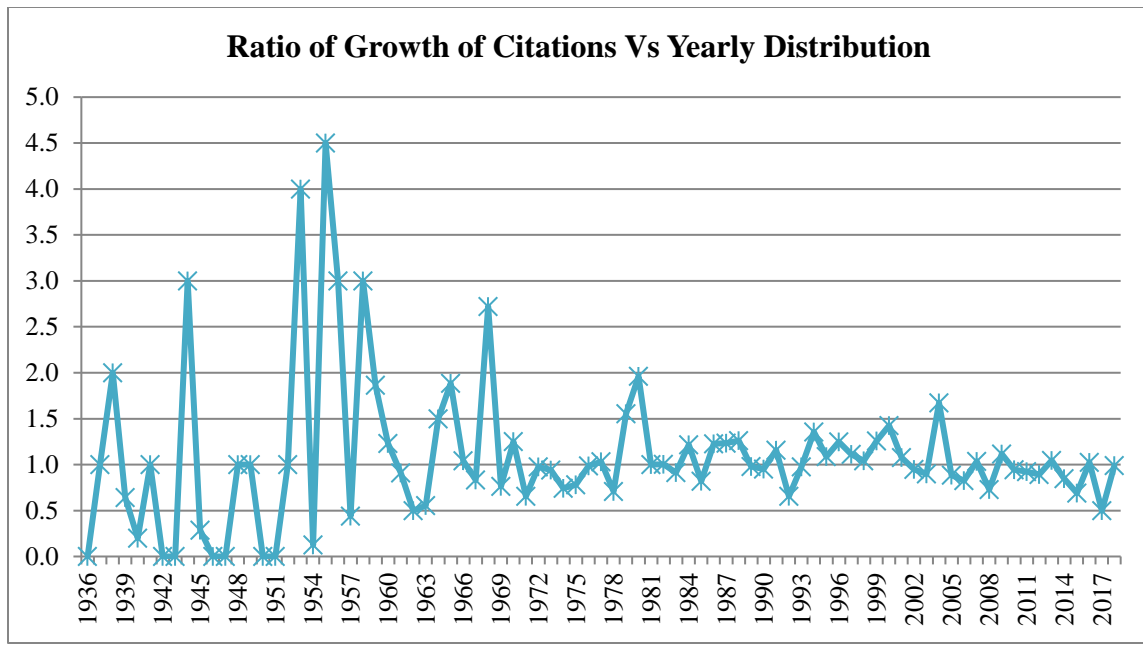


Fig -7 Yearly Distribution of RoG of Citations

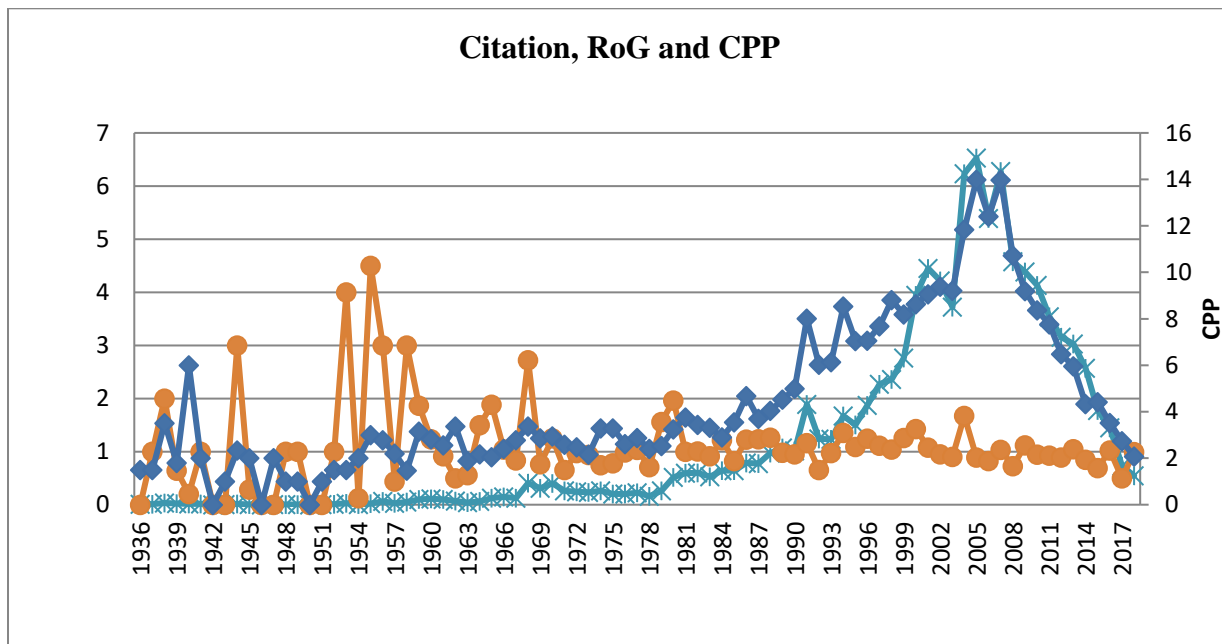


Figure 8 – Yearly Distribution of Citations, RoG and CPP

During the study period, out of the 8732 total publications 5825 (66.71%) publications were cited at the time of downloading the data and the cited publications yielded 40285 citations with an average of 6.92 citations per cited publication. From the table it is observed that a maximum of 2629 citations were received for 186 cited publications out of the 199 published literatures with an average of 13.98 citations per cited publication in the year 2005 followed by 2528 citations for 181 cited publications with an average of 13.97 citations were reported in the

year 2007. It is further observed that the citations growth ratio mostly remained between 0.5 and 2.0 throughout the study period with few minimal exceptions. It attained its peak value of 4.5 in the year 1954. Figure 7 represents the yearly distribution of growth ratios of citations. It shows that the ratio of growth of citations is in fluctuated trend with lot of rise and fall during the study period and not follows a steady growth pattern. Similar to the citations growth ratios the Citations per paper also shows a fluctuated trend over the period of time. It shows a remarkable increase in trend between the period 1985 and 2005 even though there was some fall in between period of time in CPP during the period. The CPP trend goes downfall in recent years that is from the year 2009. The figure 8 shows citations received by the publications, its growth ratio and citation per paper in a single graphical representation. Overall two third of the total productivity were received citations shows that the journal publish quality research productivity in the area of Pediatrics.

### 5.3.2 Uncited Publications in Indian Journal of Pediatrics

The publications which were yet to be cited are termed as uncited publications. The Uncited Publications Ratio (UCR) can be calculated by using the formula:  $UCR = \frac{\text{Uncited Publications}}{\text{Total Publications}}$ .

**Table 5 – Uncited Publications in Indian Journal of Pediatrics**

S.No.	Year	TP	UCP	UCP(%)	Cum. UCP	Cum. UCP (%)	RoG	UCR
1	1936	34	32	1.10	32	1.10	-	0.94
2	1937	27	25	0.86	57	1.96	0.78	0.93
3	1938	29	25	0.86	82	2.82	1.00	0.86
4	1939	40	35	1.20	117	4.02	1.40	0.88
5	1940	18	17	0.58	134	4.61	0.49	0.94
6	1941	18	15	0.52	149	5.13	0.88	0.83
7	1942	22	22	0.76	171	5.88	1.47	1.00
8	1943	19	18	0.62	189	6.50	0.82	0.95
9	1944	13	10	0.34	199	6.85	0.56	0.77
10	1945	12	11	0.38	210	7.22	1.10	0.92
11	1946	16	16	0.55	226	7.77	1.45	1.00
12	1947	13	12	0.41	238	8.19	0.75	0.92
13	1948	15	14	0.48	252	8.67	1.17	0.93
14	1949	18	17	0.58	269	9.25	1.21	0.94
15	1950	21	21	0.72	290	9.98	1.24	1.00
16	1951	24	22	0.76	312	10.73	1.05	0.92

17	1952	21	19	0.65	331	11.39	0.86	0.90
18	1953	37	29	1.00	360	12.38	1.53	0.78
19	1954	42	41	1.41	401	13.79	1.41	0.98
20	1955	33	30	1.03	431	14.83	0.73	0.91
21	1956	69	60	2.06	491	16.89	2.00	0.87
22	1957	49	44	1.51	535	18.40	0.73	0.90
23	1958	74	59	2.03	594	20.43	1.34	0.80
24	1959	42	29	1.00	623	21.43	0.49	0.69
25	1960	43	27	0.93	650	22.36	0.93	0.63
26	1961	43	27	0.93	677	23.29	1.00	0.63
27	1962	44	36	1.24	713	24.53	1.33	0.82
28	1963	62	54	1.86	767	26.38	1.50	0.87
29	1964	73	61	2.10	828	28.48	1.13	0.84
30	1965	80	56	1.93	884	30.41	0.92	0.70
31	1966	93	68	2.34	952	32.75	1.21	0.73
32	1967	111	93	3.20	1045	35.95	1.37	0.84
33	1968	107	58	2.00	1103	37.94	0.62	0.54
34	1969	96	52	1.79	1155	39.73	0.90	0.54
35	1970	124	69	2.37	1224	42.11	1.33	0.56
36	1971	94	53	1.82	1277	43.93	0.77	0.56
37	1972	82	42	1.44	1319	45.37	0.79	0.51
38	1973	101	58	2.00	1377	47.37	1.38	0.57
39	1974	88	56	1.93	1433	49.29	0.97	0.64
40	1975	67	42	1.44	1475	50.74	0.75	0.63
41	1976	64	33	1.14	1508	51.87	0.79	0.52
42	1977	72	40	1.38	1548	53.25	1.21	0.56
43	1978	70	43	1.48	1591	54.73	1.08	0.61
44	1979	94	52	1.79	1643	56.52	1.21	0.55
45	1980	94	30	1.03	1673	57.55	0.58	0.32
46	1981	131	67	2.30	1740	59.86	2.23	0.51
47	1982	134	64	2.20	1804	62.06	0.96	0.48
48	1983	119	55	1.89	1859	63.95	0.86	0.46
49	1984	134	45	1.55	1904	65.50	0.82	0.34
50	1985	121	48	1.65	1952	67.15	1.07	0.40
51	1986	118	50	1.72	2002	68.87	1.04	0.42
52	1987	151	67	2.30	2069	71.17	1.34	0.44
53	1988	166	69	2.37	2138	73.55	1.03	0.42
54	1989	176	81	2.79	2219	76.33	1.17	0.46
55	1990	126	44	1.51	2263	77.85	0.54	0.35

56	1991	138	43	1.48	2306	79.33	0.98	0.31
57	1992	118	35	1.20	2341	80.53	0.81	0.30
58	1993	115	34	1.17	2375	81.70	0.97	0.30
59	1994	109	30	1.03	2405	82.73	0.88	0.28
60	1995	106	20	0.69	2425	83.42	0.67	0.19
61	1996	127	20	0.69	2445	84.11	1.00	0.16
62	1997	141	22	0.76	2467	84.86	1.10	0.16
63	1998	122	14	0.48	2481	85.35	0.64	0.11
64	1999	152	16	0.55	2497	85.90	1.14	0.11
65	2000	206	22	0.76	2519	86.65	1.38	0.11
66	2001	223	25	0.86	2544	87.51	1.14	0.11
67	2002	192	11	0.38	2555	87.89	0.44	0.06
68	2003	182	19	0.65	2574	88.54	1.73	0.10
69	2004	221	9	0.31	2583	88.85	0.47	0.04
70	2005	199	11	0.38	2594	89.23	1.22	0.06
71	2006	180	5	0.17	2599	89.40	0.45	0.03
72	2007	185	4	0.14	2603	89.54	0.80	0.02
73	2008	192	20	0.69	2623	90.23	5.00	0.10
74	2009	204	12	0.41	2635	90.64	0.60	0.06
75	2010	212	13	0.45	2648	91.09	1.08	0.06
76	2011	197	13	0.45	2661	91.54	1.00	0.07
77	2012	208	12	0.41	2673	91.95	0.92	0.06
78	2013	223	18	0.62	2691	92.57	1.50	0.08
79	2014	289	50	1.72	2741	94.29	2.78	0.17
80	2015	205	43	1.48	2784	95.77	0.86	0.21
81	2016	212	46	1.58	2830	97.35	1.07	0.22
82	2017	144	37	1.27	2867	98.62	0.80	0.26
83	2018	146	40	1.38	2907	100.00	1.08	0.27
	<b>Total</b>	<b>8732</b>	<b>2907</b>	<b>100.00</b>				<b>0.33</b>

TP: Total Publications; UCP: Uncited Publications; RoG: Ratio of Growth; UCR: Uncited Ratio

During the study period, out of the 8732 total publications 2907 (33.29%) publications were yet to receive its citations. The ratio of growth of uncited publications is ranged between 0.45 and 5.0 during the study period. The cumulative growth of uncited publications was shown in figure 9 which closely follows linear growth. The Uncited Ratio (UCR) is ranged between 0.02 and to the maximum value 1.00 during the study period since all the research productivity published in the years 1942, 1946 and 1950 were went uncited. The figure 10 represents growth ratios of uncited publications and uncited ratio were shown in a single graphical representation.

The uncited ratio of the publications shows some downfall in trend till 2007 with some increase in fluctuations in between but finally it shows some increase in trend from 2008 till the end of the study period.

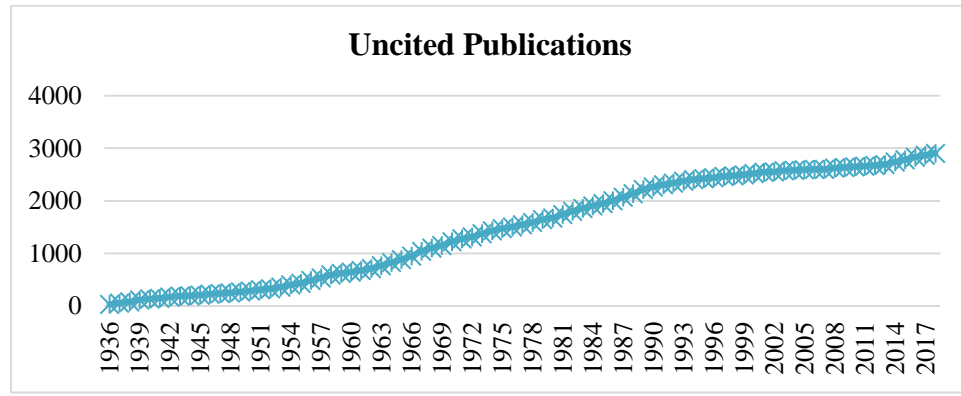


Figure 9 – Growth of Uncited Publications

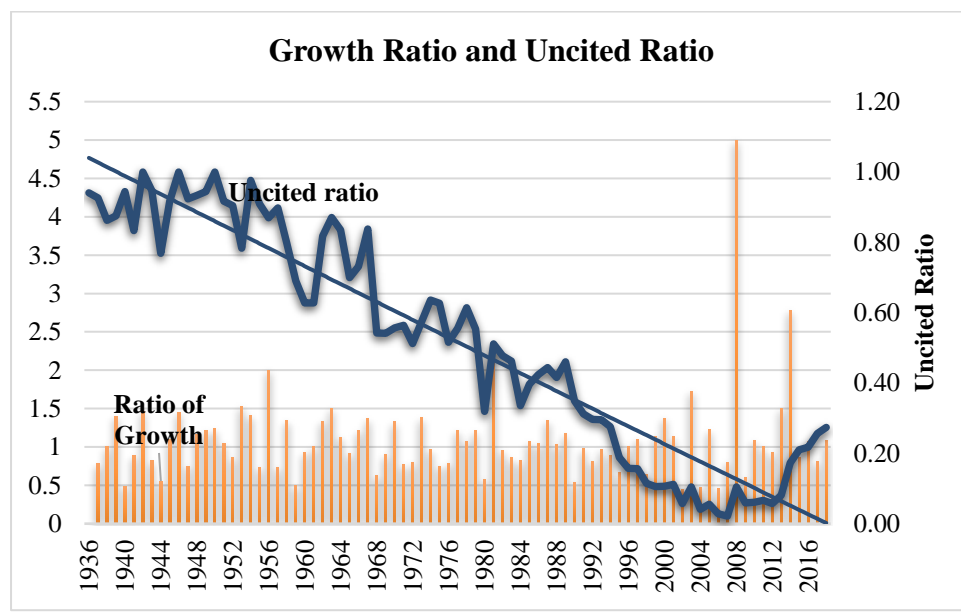


Figure 10 – Growth of Uncited Publications and Uncited Ratio

#### 5.4 Highly Cited Papers in Indian Journal of Pediatrics

The following table represents the top 25 highly cited articles published in the journal from the year 1936 to 2018. The article on “Liver function tests ad their interpretation’ by B. R. Thapa and A.Walia published in the year 2007 has got 175 citations followed by the Article on Essential fatty acids, DHA human brain by M. Singh published in the year 2005 got 133 citations. The top 25 highly cited publications received 2014 (5%) citations out of the total 40285 citations.

**Table 6 - Top 25 Highly Cited Publications in Indian Journal of Pediatrics**

Authors	Title	Year	Citations
Thapa B.R., Walia A.	Liver function tests and their interpretation	2007	175
Singh M.	Essential fatty acids, DHA human brain	2005	133
Pathak P., et al.,	Prevalence of multiple micronutrient deficiencies amongst pregnant women in a rural area of Haryana	2004	97
Sankar C., Mundkur N.	Cerebral palsy-definition, classification, etiology and early diagnosis	2005	97
Ramanathan K., et al.,	Kangaroo mother care in very low birth weight infants	2001	87
Singh S., et al.,	Mother-to-child transmission of hepatitis E virus infection	2003	86
Kumar D., Goel N.K., Mittal P.C., Misra P.	Influence of infant-feeding practices on nutritional status of under-five children	2006	85
Pathak P., Kapil U.	Role of trace elements zinc, copper and magnesium during pregnancy and its outcome	2004	84
Kamath S.R., Ranjit S.	Clinical features, complications and atypical manifestations of children with severe forms of dengue hemorrhagic fever in South India.	2006	82
Sankar M.J., Agarwal R., Deorari A.K., Paul V.K.	Sepsis in the newborn	2008	79
Verma I.C.	Burden of genetic disorders in India	2000	76
Paramesh H.	Epidemiology of asthma in India	2002	73
Singh M.	Role of Micronutrients for Physical Growth and Mental Development	2004	73
Singh A.K., Maheshwari A., Sharma N., Anand K.	Lifestyle associated risk factors in adolescents.	2006	72
Saxena A.	Congenital heart disease in India: A status report	2005	70
Proos L.A., Hofvander Y., Tuvemo T.	Menarcheal age and growth pattern of Indian girls adopted in Sweden. II. Catch-up growth and final height	1991	67
Kabilan L., et al.,	Japanese encephalitis in India: An overview	2004	67
Teotia M., Teotia S.P.S., Singh K.P.	Endemic Chronic Fluoride Toxicity and Dietary Calcium Deficiency Interaction Syndromes of Metabolic Bone Disease and Deformities in India : Year 2000	1998	66
Rama Devi A.R., Naushad S.M.	Newborn Screening in India	2004	66
Chacko B., Sohi I.	Early onset neonatal sepsis	2005	66
Mathur N.B., Agarwal H.S., Maria A.	Acute renal failure in neonatal sepsis	2006	65
Jain V., Parashar U.D., Glass R.I., Bhan M.K.	Epidemiology of rotavirus in India	2001	63
Karande S., Sankhe P., Kulkarni M.	Patterns of prescription and drug dispensing	2005	63



Tallur S.S., Kasturi A.V., Nadgir S.D., Krishna B.V.S.	Clinico-bacteriological study of neonatal septicemia in Hubli	2000	61
Joshi S.G., Ghole V.S., Niphadkar K.B.	Neonatal gram-negative bacteremia	2000	61
<b>Total Citations received by the top 25 publications</b>			<b>2014</b>

### 5.5 Ranking of Top 20 Authors on Cited and Uncited Publications in Indian Journal of Pediatrics

The following table represents the ranking of top 20 author's research productivity to this journal from the year 1936 to 2018.

**Table 7 – Ranking of Top 20 Authors on Cited and Uncited Publications**

S.No.	Author	TP	TPR	CP	CPR	UCP	UCPR	UCR	UCRR
1	Verma, I.C.	105	1	77	2	28	3	0.02	3
2	Chandra, R.K.	100	2	21	19	79	1	0.19	1
3	Kabra, S.K.	94	3	83	1	11	7	0.01	7
4	Lodha, R.	85	4	77	2	8	9	0.02	9
5	Chaudhuri, K.C.	67	5	19	20	48	2	0.30	2
6	Paul, V.K.	67	5	64	4	3	16	0.06	16
7	Deorari, A.K.	64	7	60	5	4	14	0.08	14
8	Choudhry, V.P.	62	8	47	8	15	4	0.13	4
9	Singh, M.	56	9	42	11	14	5	0.20	5
10	Kalra, V.	53	10	47	8	6	11	0.15	11
11	Nair, M.K.C.	52	11	48	7	4	14	0.13	14
12	Agarwal, R.	49	12	49	6	0	20	0.12	20
13	Ghai, O.P.	48	13	35	17	13	6	0.35	6
14	Marwaha, R.K.	48	13	43	10	5	13	0.21	13
15	Singhi, S.	48	13	42	11	6	11	0.23	11
16	Gulati, S.	47	16	40	15	7	10	0.32	10
17	Russell, P.S.S.	45	17	42	11	3	16	0.24	16
18	Singhi, P.	45	17	34	18	11	7	0.40	7
19	George, B.	42	19	41	14	1	19	0.33	19
20	Aneja, S.	41	20	38	16	3	16	0.39	16

TP: Total Publications; TPR: Total Publications Rank; CP: Cited Publications; CPR: Cited Publication Rank; UCP: Uncited Publications; UCPR; Uncited Publications Rank; UCRR: Uncited Ratio Rank

The Highest number of publications was contributed by I. C. Verma with 105 publications and obtained first rank in terms of publications and the second rank goes to R. K. Chandra for his contribution of 100 publications and third rank to S.K. Kabra for his contribution of 94 publications. In the case of cited publications ranking, the top rank goes to S.K. Kabra for his 83 cited publications out of the total 94 contributions. The second rank in that category was shared by I. C. Verma and R. Lodha for their contribution of 77 cited publications each. R.K.

Chandra's 79 out of 100 publications are yet to receive a citation followed by K. C. Chaudhuri's 48 out of 69 publications and I. C. Verma's 28 out of 105 publications are yet to receive citations. It is observed from the table that the Uncited Ratio of the top 20 author's contributions is ranged between 0.01 and 0.40. The Uncited Ratio Rank of the top 20 authors are exactly the same that of the Uncited Publications Ratio for their contribution of research productivity to the journal. The figure 11 represents the Top 20 authors ranking on publications count, cited publications, uncited publications and uncited ratio.

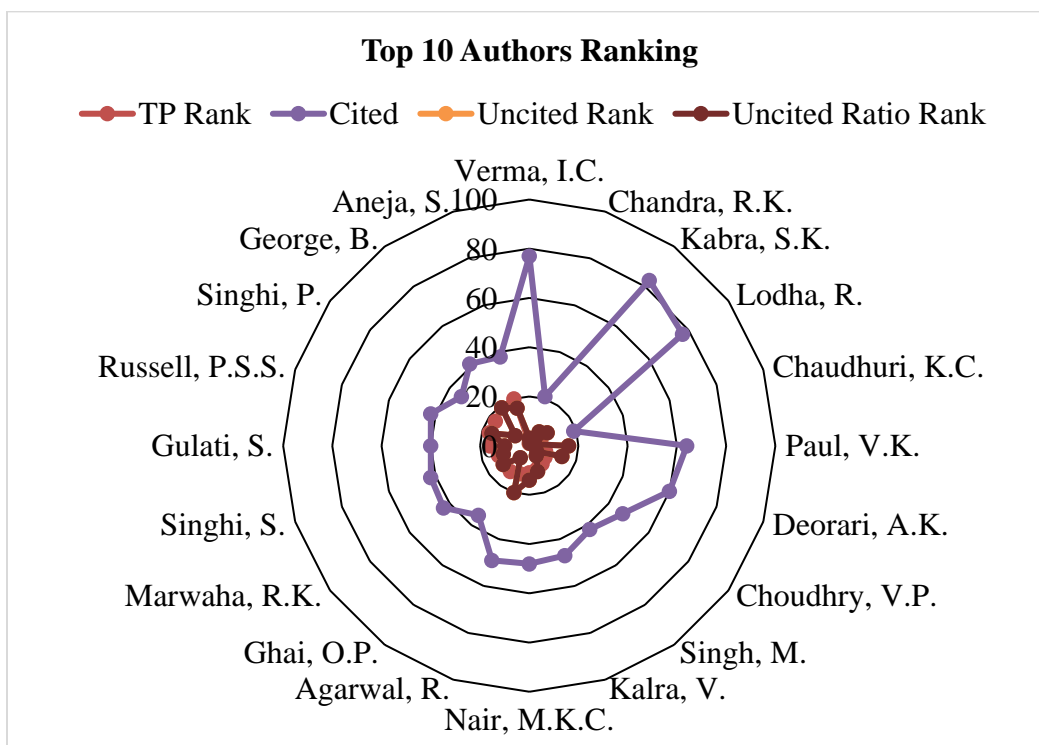


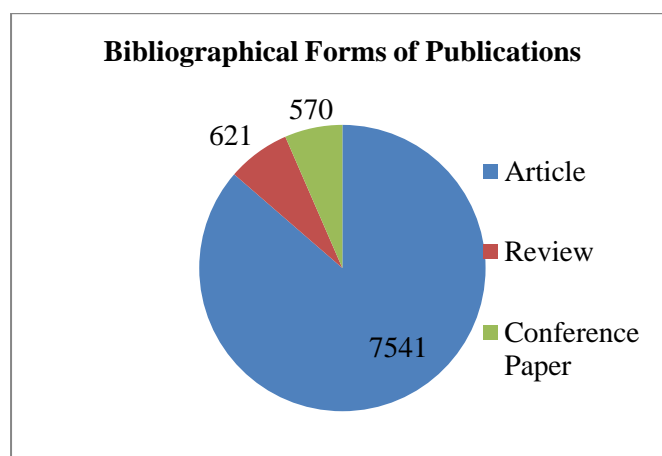
Figure 11 - Ranking of Top 20 Authors on Cited and Uncited Publications

### 5.6 Bibliographical forms of Publications in Indian Journal of Pediatrics

In this study we have taken into account only citable documents like Articles, Conference Papers and Review Articles which we have downloaded for the study.

Table 8 - Bibliographical Forms of Publications in Indian Journal of Pediatrics

S.No.	Type of the Document	Publications	Share of Publications (%)
1	Article	7541	86.36
2	Review	621	7.11
3	Conference Paper	570	6.53
	<b>Total Publications</b>	<b>8732</b>	<b>100.00</b>



**Figure 12 – Bibliographical Form of Publications**

It is observed from the above table that the articles form of publications contributes to 86.36% of the total publications followed by review articles with 7.11% and Conference paper with 6.53% of the total publications. Figure 12 represents the bibliographic forms of publications in Indian Journal of Pediatrics.

### 5.7 Prolific Institutions

**Table 9 – Prolific Institution’s contribution to publications in Indian Journal of Pediatrics**

S.No.	Affiliation	TP	STP (%)
1	All India Institute of Medical Sciences, New Delhi	1013	11.60
2	Postgraduate Institute of Medical Education & Research, Chandigarh	468	5.36
3	Lady Hardinge Medical College	181	2.07
4	Kalawati Saran Children's Hospital	144	1.65
5	Maulana Azad Medical College	130	1.49
6	Jawaharlal Institute of Postgraduate Medical Education and Research	120	1.38
7	Christian Medical College, Vellore	119	1.36
8	Indian Council of Medical Research	108	1.23
9	King Edward Memorial Hospital India	90	1.03
10	Pt. B.D. Sharma PGIMS, Rohtak	89	1.02
	Other Institutions	6270	71.81
	<b>Total Publications</b>	<b>8732</b>	<b>100</b>

TP: Publications; STP (%): Share of Publications (%)

All India Institute of Medical Sciences, New Delhi is the highest contributor among the Institutions which contributed 1013 (11.6%) publications followed by Postgraduate Institute of Medical Education & Research, Chandigarh with 468 (5.36%) and Lady Hardinge Medical

College with 181 (2.07%) publications. The top ten Institutions have contributed 2462 (28.19%) publications to Indian Journal of Pediatrics during the study period.

### 5.8 Geographical Distribution

**Table 10 - Geographical Distribution of Publications in Indian Journal of Pediatrics**

S.No.	Country	TP	STP(%)
1	India	4879	55.88
2	United States of America	707	8.1
3	Turkey	221	2.53
4	United Kingdom	171	1.96
5	Iran	85	0.97
6	Canada	82	0.94
7	Australia	76	0.87
8	China	55	0.63
9	Saudi Arabia	44	0.50
10	Japan	40	0.46
	Others	2372	27.16
	<b>Total</b>	<b>8732</b>	<b>100</b>

TP: Publications; STP (%): Share of Publications (%)

From the above table it is observed that India has contributed more than half of the total publications and ranked top with 4879 (55.88%) publications followed by United States of America with 707 (8.1%) and Turkey with 221 (2.53%) publications. Overall the top ten countries contributed 6360 (72.84%) publications to the Indian Journal of Pediatrics during the study period.

### 6. FINDINGS AND CONCLUSION

Indian Journal of Pediatrics is the oldest journal in the area of Pediatrics published from South East India with very high reputations. The study highlighted quantitatively the contributions made to the journal by the researchers from all over the World during the period 1936 to 2018. A total number of 8732 publications were reported during the study period to the Journal. The growth ratio of the research productivity shows a fluctuated trend over the period of time. The yearly cumulative growth of publications shows an exponential trend. The average number of authors per publication is 2.76 and the average number of publications per author is 0.36. From the beginning of the study period to 1967, single authored contribution showed some dominance over the coauthored publications. But beyond that period, the Coauthored publications outnumbered single authored contributions. The average Degree of Collaboration during the study period is 0.73. Nearly two third of the total publications got cited during the study period. Out of the 8732 total publications 5825 publications got cited and yielded 40285

citations with an average of 6.92 citations per cited publications. Even though one third of the total publications are yet to receive its citations hopes are there for them to get cited due to the high reputation for the journal among the pediatricians across the globe. The article on “Liver function tests and their interpretation” by B. R. Thapa and A. Walia published in the year 2007 has got 175 citations is the highest cited paper published in the journal. The Highest number of publications was contributed by I. C. Verma with 105 publications. S.K. Kabra is the most successful author for his 83 cited publications out of the total 94 contributions. It is observed from the table that the Uncited Ratio of the top 20 author’s contributions is ranged between 0.01 and 0.40. The Uncited Ratio Rank of the top 20 authors are exactly the same that of the Uncited Publications Ratio for their contribution of research productivity to the journal. The figure 11 represents the Top 20 authors ranking on publications count, cited publications, uncited publications and uncited ratio. The most preferable form of publications by the researchers in this field is article form of publication with 86.36% of the total research productivity has been published in this category. All India Institute of Medical Sciences, New Delhi is the major contributor among the Institutions with 11.60% of the total publications. India being the most productive country with 55.88% share of contributions to the journal during the study period. The research productivity published in the journal has made lot of progress in health care among Children in India.

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