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Special Paper

A Bibliometric Portrait of Pakistan Journal of Scientific and Industrial Research (PJSIR) During the Period of 1958-2007

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Abstract. Pakistan Journal of Science and Industrial Research (PJSIR) had celebrated its sixtieth anniversary in 2017. Inspired by this occasion, this observational study presents a bibliometric review on the quantity of all published materials under the caption of Physical, Biological and Technological Sciences with Short Communications during the period of 1958-2007 in Pakistan. The data of 340 issues of PJSIR was downloaded and collected to tabulate from the website of electronic journal: (http: www.pjsir.org/arc.php) during January-July, 2018. This study expressed that n=4929; 14.4% articles were published in 340 issues of PJSIR during the period of 1958-2007. Total 4417 (1790; 36.3%, 1651; 33.5%, and 976; 19.8%) articles published under the caption of Physical, Biological, and Technology out of 4929 articles. Remaining 512; 10.3% articles were short communications. Maximum articles n=1375; 28% were published in the fourth decade and n=694; 14% articles in the first decade as a minimum. The short communications n=208; 4.2% related to biological science take a position with the slight margin to other disciplines. PJSIR published regularly from 1958 to this day. It is counted a teamwork of the management of Journal and supported by Pakistan Council of Scientific and Industrial Research (PCSIR) Government-owned body. There are few examples in the world to publish a scientific journal which covers three major disciplines of science.

Keywords: bibliometrics, PJSIR, PCSIR, Ministry of Science and Technology, Pakistan

Introduction

Pakistan Journal of Scientific and Industrial Research (PJSIR) regularly published from 1958 under the Pakistan Council of Scientific and Industrial Research (PCSIR) Government-owned body. It covers the research in basic and applied sciences of physical, biological and technological sciences with their sub-specialties. Bibliometric is the branch which measures the information regarded to the book, an article or a text. This application handles the information mathematically and statistically of a written article published as a text in the book or another format (Wilson, 2014). A journal plays a vital role in disseminating the knowledge to update the researchers, institutes, and countries around the world journals (Mohan and Raigoly, 2017). Publishing articles in journals is a powerful method and provides the help to institutes for more attention in progress of individual talent and funding from the donors (Rawat and Meena, 2014).

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Literature review. A quantitative study was carried out to estimate IEEE scientific journals on the Google Scholar, Web of Science and Scopus databases by traditions about the value of citations, the reliability of search engine statistics and the similarity. This study found 250,000 authors which published their research in 110 IEEE journals. This study also provides bibliometric as a methodological tool for monitoring a large number of scientific journals (Canavero *et al*., 2014). Computers and Industrial Engineering (CIE) is a leading international journal in the field of industrial engineering published research regularly from 1976 to-date. With the help of Web of Science (WoS) database, a study was conducted to know the prominent participators in this journal. The United States of America (USA) was most productive country followed by the People Republic of China (PRC) publishing in CIE (Cansino *et al*., 2017). A research was examined to discover critical themes with collaboration in international construction, the patterns of development and active institutes. Only 87 articles were published in six journals in this field from

2003-2013. The risk management, measuring performance, competencies and foreign market were top trends in industrial research. The National University of Singapore, the Hong Kong Polytechnic University, and Middle East Technical University, Turkey were top in publications (Li *et al*., 2018; Gundes and Aydogan 2016) conducted bibliometric investigations based on the literature covering terms of solid waste reuse and recycling published in Web of Science and its sub-databases; Science Citation Index (SCI), Social Sciences Citation Index (SSCI), Conference Proceedings Citation Index-Science (CPCI-S) and Conference Proceedings Citation Index-Social science & Humanities (CPCI-SSH) during the period of 1992-2016. Study finds 6289 articles published in 1402 journals. Department of Computer Science and Engineering, University of Bohemia, Czech Republic conducted an interested study on the title of computer science with artificial intelligence, interdisciplinary applications, hardware and architecture with software engineering as sub-titles and it reveals that 1,922,652 (1.9 million) articles published all-around the world from 1945-2014 and available on Web of Science (Fiala and Tutoky, 2017). A comparative study was carried out on the journals of Pakistan Heart Journal (PHJ) and Journal of Saudi Heart Association (JSHJ), it was revealed that 393 (207; 906% by PHJ and 186; 10.7% by JSHA) articles were published during the year 2012-2016 with the contribution of 1840 researchers (Baladi and Satti, 2018).

Materials and Methods

This retrospective study started with the aim to evaluate the number of published articles under the title of physical, biological and technological sciences with short communications, volume, decade, and year-wise. The data of all research items published during 1958 to 2007 in the form of abstracts was downloaded and collected from the website of an electronic journal: (http://www.pjsir.org/arc.php) during January to July, 2018 in the library of College of Applied Medical Sciences King Saud bin Abdulaziz University of Health Affairs, Riyadh Kingdome of Saudi Arabia. Microsoft Excel 2010 spreadsheet had been prepared for data analysis.

The objectives were set to examination:

(a) To identify the year, volume and issue wise distribution of publications;
(b) To calculate the share of disciplines:
    (i) Physical, biological, technological sciences;
    (ii) Short communications wise;
(c) To recognize the decade wise publications.

Results and Discussion

Figure 1 and Table 1 reveals the results of this study it shows the results that PJSIR published 4929 articles in 340 issues and 50 volumes with an average of 14.4% articles per issue and 98.5% articles per volume. PJSIR published 156; 45.8% issues as bi-monthly followed by 132; 38.8% issues as monthly and 52; 15.2% issues as on quarterly basis.

Figure 2 and Table 2-3 summarized the position of distribution of publications in PJSIR during the studied period, it reveals that research on physical sciences shows influences with n=1790; 36.3% articles followed by biological science n=1651; 33.5% articles and Table 2 elaborate the picture of publications decade wise from 1958-2007. The fourth decade (1988-1997) published 1375; 28% articles out of 4929 articles followed (1968-1977) by 1005; 20.3% as maximum.

Figure 3 and Tables 4-8 explained the decade and year wise breakdown of PJSIR publishing research during the period of 1958-2007. Maximum n=238; 4.8% articles were published in the year 1987 followed by n=235; 4.7% articles in the year 1989. The minimum n=29; 0.5% articles published in the year 1997 and followed by n=36; 0.7% in the year 1959.

Table 1. Nomenclature of PJSIR 1958 - 2007

PJSIR volumes	Total issues
1 to 13 (Quarterly)	52 (1.05%)
14 to 29 (Bi-Monthly)	96 (1.95%)
30 to 40 (Monthly)	132 (2.68%)
41 - 50 (Bi-Monthly)	60 (1.22%)
Total volumes	50 (98.5 articles published per volume
Total issues	340 (14.4 articles published per issue)
Total articles	4929

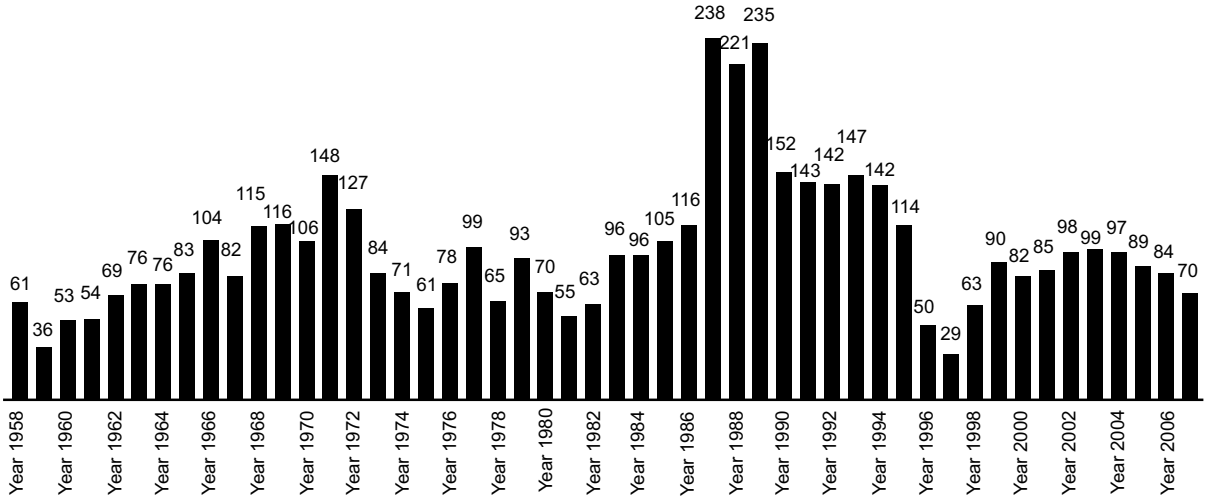

Fig. 1. Resarch Published in PJSIR during the period of 1958 - 2007

Table 2. Decade wise distribution of articles from 1958 - 2007

Decades	1958-1967	1968-1977	1978-1987	1988-1997	1998-2007	Total	PDA*	%
Physical Sciences	284	297	358	509	342	1790	358	36.3%
Short Communications	13	51	34	38	50	186	37.2	3.7%
Biological Sciences	234	295	316	473	333	1651	330.2	33.5%
Short Communications	12	49	26	75	46	208	41.6	4.2%
Technological Sciences	147	261	246	248	74	976	195.2	19.8%
Short Communications	4	52	17	32	13	118	23.6	2.3%
Total (It include 17 Special Articles and 18 Review Papers)	694 14%	1005 20.3%	997 20.2%	1375 28%	858 14.4%	4929		

* PDA: per decade average.

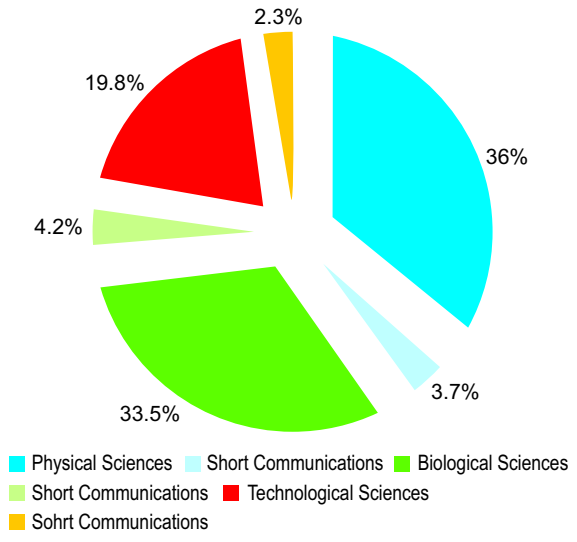

Fig. 2. Resarch articles published in PJSIR from 1958 - 2007.

Table 3. Special Articles/Review Papers published in PJSIR during 1958 - 2007

PJSIR	Phys. Sci.	Biol. Sci.	Tech. Sci.	Total
Special Articles	5	4	8	17
Review Papers	1	1	16	18
Total	6	5	24	35

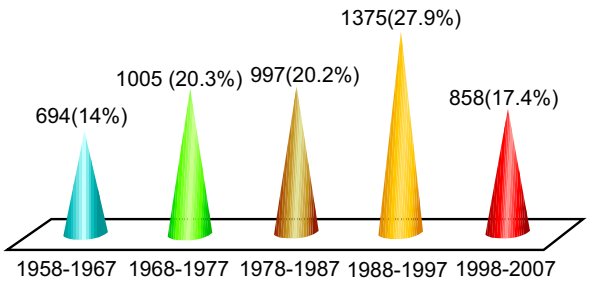

Fig. 3. Resarch published in fifty years of PJSIR (1958 - 2007).

Table 4. Distribution of articles during the period of 1958 - 1967

Years	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	Total	PDA*
Physical Sciences	26	17	19	21	23	36	32	33	42	35	284	28.4
Short Communications			0	2	0	2	1	2	3	3	13	1.62
Biological Sciences	21	13	21	24	23	19	25	27	34	27	234	23.4
Short Communications			4	1	1	1	3	1	1	0	12	1.5
Technological Sciences	14	6	9	6	20	17	15	19	24	17	147	14.7
Short Communications			0	0	2	1	0	1	0	0	4	0.5
Total	61	36	53	54	69	76	76	83	104	82	694	69.4

* PDA: per decade average.

Table 5. Distribution of articles during the period of 1968 - 1977

Years	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	Total	PDA*
Physical Sciences	38	44	27	39	28	26	24	19	26	26	297	29.7
Short Communications	6	7	2	5	9	4	3	6	7	2	51	5.1
Biological Sciences	34	31	45	64	33	20	14	17	16	21	295	29.5
Short Communications	7	6	2	7	9	8	1	3	3	3	49	4.9
Technological Sciences	21	22	30	23	37	23	29	14	22	40	261	26.1
Short Communications	9	6	0	10	11	3	0	2	4	7	52	5.2
Total	115	116	106	148	127	84	71	61	78	99	1005	

Table 6. Distribution of articles during the period of 1978 - 1987

Years	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	Total	PDA*
Physical Sciences	21	24	27	22	29	41	36	37	38	83	358	35.8
Short Communications	4	5	1	4	4	6	2	0	5	3	34	3.4
Biological Sciences	13	9	15	10	12	19	38	52	46	102	316	31.6
Short Communications	0	3	1	3	1	5	1	1	4	7	26	2.6
Technological Sciences	23	46	25	14	17	24	17	15	23	42	246	24.6
Short Communications	4	6	1	2	0	1	2	0	0	1	17	1.7
Total	65	93	70	55	63	96	96	105	116	238	997	99.7

Table 7. Distribution of articles during the period of 1988 – 1997

Years	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total	PDA*
Physical Sciences	74	69	68	57	59	45	57	46	18	16	509	50.9
Short Communications	6	6	7	2	10	4	1	0	2	0	38	3.8
Biological Sciences	81	101	42	40	30	61	49	39	22	8	473	47.3
Short Communications	10	11	6	16	13	11	8	0	0	0	75	7.5
Technological Sciences	47	47	28	26	29	25	19	17	6	4	248	24.8
Short Communications	3	1	1	2	1	1	8	12	2	1	32	3.2
Total	221	235	152	143	142	147	142	114	50	29	1375	37.5

*PDA = per decade average.

Table 8. Distribution of articles during the period of 1998 – 2007

Years	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total	PDA*
Physical Sciences	30	35	39	32	29	36	32	39	40	30	342	34.2
Short Communications	2	4	3	6	11	6	5	4	4	5	50	5
Biological Sciences	24	33	28	38	43	46	46	27	23	25	333	33.3
Short Communications	1	5	4	2	5	5	6	8	6	4	46	4.6
Technological Sciences	6	11	8	6	9	6	7	7	8	6	74	7.4
Short Communications	0	2		2	1	0	1	4	3	0	13	1.4
Total	63	90	82	86	98	99	97	89	84	70	858	85.8

*PDA = per decade average.

Conclusion

Interesting results were found in this study that there are three hundred forty issues were published in 50 volumes with an average of 6.8 per issue. Total 4417 (1790; 40.5%, 1651; 37.3% and 976; 22%) articles published under the caption of Physical, Biological, and Technology out of 4929 articles. Remaining 512; 10.3% articles were short communications. There is a difference of 311; 6.3% articles published in the first decade to the second decade, instead of 517; 10.4 articles between fourth to fifth decades out of 4929 articles published in five decades. Short communications reflect the new ideas and opinions of researchers in a concise way about any discipline of study. A publisher plays a significant role to encourage researcher for contributing their knowledge, ideas, and experiments in the form of articles, to get the value that supports teaching and learning. This study found that short communication in technology gets the minimum attention of researchers, except the fourth decade 75; 51.7% out of 145 short communications in biological science during the period 1988-1997 as a maximum. The management of Pakistan Journal of Science and Industrial Research (PJSIR) try to engage and facilitate to researcher through its challenging policies.

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