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Ranking of top authors of medical research of India: Quality Vs Quantity

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Abstract

In this study effort is made to analyse the ranking of two top most medical institutes of India. The data is extracted from 'SCOPUS' citation database for the period of five year i.e. 2013-2017. Initially, growth of publications for this period found consistent for both the institutes. Then ranking of top 10 authors of both the institutes is done using quality indicator like Citation, G-Index, H-Index and I-10 Index. It has been found that majority of authors have different ranking according to total production and according to quality indicators. But, few authors have almost same ranking as per TP, TC, G-Index, H-Index and I-10 Index, which proved that they are consistent in their research.

Keywords: SCOPUS, Author Ranking, Medical Publishing.

INTRODUCTION

Today Research has become a fashionable term and emphasis is on the quantity rather than quality. Research means a creative work done to increase the existing knowledge of any and all fields of society, which further helps in the over all development of the same. A broad definition of research is given by Goldwin Colibao, "In the broadest sense of the word, the definition of research includes any gathering of data, information and facts for the advancement of knowledge"[1]. Research is very important for the civilisation because as it brings change and improves the standard of living. Further, medical research is the most important one because it deals with the well being of humans as it provides the latest information for prevention, diagnosis, screening and new treatments for continuously emerging diseases. This study discusses the quality of medical research which is need of the hour. The data of this study is extracted from 'SCOPUS' database. In this study two medical institutes (AIIMS, New Delhi and PGIMER, Chandigarh) are considered as they are two top most institutes according to their production in medical research as per 'SCOPUS' database. The quality of research of top 10 authors of these institutes has been further observed through various quality indicators like total citation received, highest citations, G-Index, H-Index and I-10 Index to find out the ranking as per the total production of their research and as per the quality by using the above indicators.

G-Index: G-Index is the square number of the highest number of citations received by an author for one of his paper out of his total publications. In simple words suppose an author has received highest 400 citations for one of his paper, then his G-Index is 20 (20x20=400).

H-Index: Out of total publications of an author at least 20 publications have received 12 or more citations means the author has H-Index 20.

I-10 Index: The number of publications which receive at least 10 or more citations out of total publications of an author is his I-10 -index.

LITERATURE REVIEW

Few studies have already been conducted to observe various type of rankings like "Scientometric Analysis of the Research output: a study of Government Medical College & Hospital (GMCH), Chandigarh" [2], "Comparative Evaluation of Research output: AIIMS Vs PGIMER" [3], "Ranking of Indian Pharmaceutical Institutions for their Research Performance during 2000-2009" [4], "Collaboration in medical research: A case study" [5] etc. In all these studies various rankings of institutes, authors and subjects have been

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observed and also shown the impact of national and international collaboration on research etc.

This study is different from all these studies because, to observe the difference between quality and quantity of research, multiple indicators/matrix for the same data have been applied.

METHODOLOGY

For this study 'SCOPUS' citation database has been used. Data is extracted on dated 14.03.2018 for the period of 05 years (2013-2017). Top two (02) institutes according to their total contribution of publications in 'SCOPUS' have been selected. Then top ten authors of these two institutes are selected for further analysis of their publications. The ranking as per the quantity and quality of research of top ten authors of these two institutes is observed. Five indicators, used to analyse the data, are Total Publications (TP), Total Citations (TC), highest citations, G-Index, H-Index and I-10 Index. All these indicators are calculated as per the data extracted through 'SCOPUS' data base.

Analysis

As per the data of table 1 below, AIIMS, New Delhi has contributed 8484 publications during 2013-2017. The year wise production shows almost consistent and fast growth except in the year 2015. The least productive year for the research is 2013.

Table 1: Total contribution of AIIMS, New Delhi during 2013-2017

Sr. No.	Year	TP*
1.	2013	1372
2.	2014	1608
3.	2015	1583
4.	2016	1939
5.	2017	1982
	Total	8484

(* Note: TP = Total Publications)

The data in the table 2 below shows that the year wise production of PGIMER, Chandigarh is also consistent except in the year 2015, which is the least productive year for research. The growth of publications of PGIMER is lesser and slower than the growth of AIIMS. The following graph shows the clear picture of their growth of publications for this period.

Table 2: Total contribution of PGIMER, Chandigarh during 2013-2017

Sr. No.	Year	TP*
1.	2013	981
2.	2014	1124
3.	2015	1058
4.	2016	1138
5.	2017	1218
	Total	**5519**

(* Note: TP = Total Publications)

As per the data of table 3 below, top 10 authors of AIIMS, New Delhi contributed 1382 paper during 2013-2017. Average 138.2 publications per author are contributed. As per data only four top authors have contributed more than average publications. Ranking of these authors as per their total contribution is as shown in table below.

Table 3: TP of top 10 authors of AIIMS, New Delhi during 2013-2017

Sr. No.	Author	TP*
1.	Kumar, R.	190
2.	Bal, C.	172
3.	Sharma, M.C.	145
4.	Bakhshi, S.	144
5.	Lodha, R.	133
6.	Kabra, S.K.	129
7.	Sharma, B.S.	129
8.	Sreenivas, V.	117
9.	Tripathi, M.	113
10.	Pandey, R.M.	110
	Total	1382
	Average	138.2

(*Note: TP =Total publications)

Table 4 below shows that top ten authors of PGIMER- Chandigarh, have contributed 1357 publications during 2013-2017 and average comes around 135.7 publications per author. Only three top authors have contributed more than average publications during this period. The ranking of these authors as per their total contribution is as shown table below.

Table 4: TP of top 10 authors of PGIMER, Chandigarh during 2013-2017

Sr. No.	Author	TP*
1.	Grover, S.	189
2.	Khandelwal, N.	184
3.	Agarwal, R.	168
4.	Mittal, B.R.	123
5.	Jha, B.	122
6.	Sharma, A.	121
7.	Behera, D.	116
8.	Malhotra, P.	112
9.	Bhansali, A.	111
10.	Rana, S.S.	111
	Total	**1357**
	Average	**135.7**

(*Note: TP =Total publications)

Further to check the ranking of these authors for the quality of their research, five (05) indicators like, Total Citations received, highest citations, G-Index, H-Index and I-10 Index have been applied in the following tables.

Table 5: All India Institute of Medical Sciences (AIIMS), New Delhi

Sr. No.	Author	TP*	Not Cited	TC*	H-Index	I-10 Index	G-Index	Highest citation
1.	Kumar, R.	190	52	657	12	22	25	30
2.	Bal, C.	172	38	808	15	32	28	66
3.	Sharma, M.C.	145	36	405	09	07	20	34
4.	Bakhshi, S.	144	39	390	11	13	20	23
5.	Lodha, R.	133	38	478	11	12	22	48
6.	Kabra, S.K.	129	45	323	08	06	18	23
7.	Sharma, B.S.	129	29	721	11	13	27	290
8.	Sreenivas, V.	117	23	619	13	25	24	27
9.	Tripathi, M.	113	28	1003	12	18	31	290
10.	Pandey, R.M.	110	27	540	12	12	23	56

(* Note: TP = Total Publications; TC = Total Citations)

Above able explains the performance of top ten authors of AIIMS, New Delhi for 2013-2017. Kumar, R. is at 1st rank for his total contribution only, where as Tripathi, M. who is at rank 9th for his TP, has achieved maximum 1003 citations and highest G-Index (31), so he is at top rank for 2 indicators. Sharma, B.S. is at 7th rank for TP and is also at 3rd rank for G-Index (27) with 721 TC at 3rd rank. This difference in rank has been noticed because of one paper in which Sharma, B.S. and Tripathi, M. are co-authors, which proves that collaboration plays an important role in improving the quality of research. Bal, C. is at 2nd rank for his total contribution, 2nd for TC, 1st for H-Index and 1st for I-10 Index and 2nd for G-Index, which shows the consistency and status of the quality of his research at all the indicators used.

Table 6: Postgraduate Institute of Medical Education & Research (PGIMER), Chandigarh

Sr. No.	Author	TP*	Not cited	TC*	H-Index	I-10 Index	G-Index	Highest citation
1.	Grover, S.	189	53	765	12	24	27	31
2.	Khandelwal, N.	184	63	713	12	15	26	80
3.	Agarwal, R.	168	42	1235	17	29	35	184
4.	Mittal, B.R.	123	40	347	10	09	18	32
5.	Jha, B.	122	29	8458	21	34	92	1905
6.	Sharma, A.	121	22	517	10	13	23	35
7.	Behera, D.	116	26	491	13	16	22	29
8.	Malhotra, P.	112	49	187	06	02	13	20
9.	Bhansali, A.	111	37	1464	20	28	38	299
10.	Rana, S.S.	111	46	372	09	09	19	54

(* Note: TP = Total Publications; TC = Total Citations)

In PGIMER, Chandigarh almost same pattern has been observed. Grover, S. is at top rank for his TP only. Then Jha, B. is at rank 05 for TP only and he is at top for H-Index (21), I-10 Index (34) and G-Index (92) and also for receiving highest citations (1905). Same is with Bhansali, A., who is at rank 9th for TP but at 2nd for TC (1464), H-Index (20), and also G-Index (38), which shows the consistency and status of the quality of his research at all the indicators used. In PGIMER, Dr. Bhansali, A., and Jha, B. is co author in same paper which got higher citations. So it is again proved that collaboration is important for quality research.

CONCLUSION

The conclusion of this study is that the organisations like (NAAC) which are doing ranking of various institutes should consider the quality as an important factor while doing the same. In this study that ranking done as per total contribution and as per quality indicators has been found different but at the same time few authors are found consistent at most of the parameters like TP, TC, G-Index, H-Index and I-10 Index. So, this study proved that while analysing the ranking, maximum indicators should be considered to get the accurate and consistent ranking.

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