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**STATISTICAL ANALYSIS OF THE
RESEARCH JOURNAL OF PHYSICAL EDUCATION AND SPORTS SCIENCES
THE SHIELD**

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Abstract:

*This quantitative study was carried out in 2018 with the analysis of eleven published issues of “Research journal; The Shield” from 2006 to 2016. The authors attempted to find the numbers of articles per year, authorship pattern, length of articles, form of cited documents, the ranking of contributors and country-wise contribution of first authors. The printed version of **Shield** issues along with web-based issues was consulted for the analysis. The data were entered into Excel sheets for refinement and interpretation. Journal papers are the more cited documents as per the analysis of the research articles. The contribution of Pakistani scholars is vigilant followed by Indians.*

Keywords: Bibliometric, Distribution of Articles, Scientrometrics- the Shield, Authorship pattern.

Introduction

Bibliometrics is a quantitative and statistical research study of various aspects of research journals or literature on a topic. The Bibliometric study of a research publication is used to cover the pattern

of publications, citation analysis, authorship and geographical distribution. The term Bibliometrics is derived from two words “biblion” (Greek): book and “metron” (Greek): “measure” and was used for the first time by Pritchard 1969. Bibliometric study of a scholarly journal acts like a portrait of that journal. It shows the standard, productivity and maturity of the research publications. It is also used as an instrument for the collection development process by giving valued and much more needed information to the library personnel to select or discard a document from the library stock. There are two types of bibliometrics: descriptive and evaluative. Descriptive bibliometrics is further divided into geographic, time span and subjects’ bibliometrics. Evaluative bibliometrics is referred to reference and citation. Librametrics and scientometrics are the synonyms of bibliometrics.

The Research Journal of Physical Education and Sports Sciences: **The SHIELD** ISSN “International Stander Serial Number” (1991-8410) is a Higher Education Commission (HEC) Pakistan’ recognized research journal for the publication of scholarly articles in the area of Health & physical education, Sports sciences and other relevant filed. The frequency of publication of journal is annual. It is published by the Centre for Health and Physical Education, Faculty of Natural Sciences, University of Sindh Jamshoro, Pakistan. The research journal the Shield is indexed and abstracted in many international databases including SIRC (Sports Information Resource Center) Ottawa, Canada, accessible electronically from (SIRC), ProQuest “A publisher and distributor of secondary source & reference database” has indexed and abstracted the articles published by *The Shield* in Natural Sciences and can be accessed through its website “ProQuest-Physical Education Index”, SPORTDicuss also abstract and indexed the articles published in this research journal of health & physical education and sports sciences, EBSCO Publisher stored all research articles and can be viewed from its online database “EBSCO Host Online Research Database” and Ulrich’s Periodical Directory, New Jersey, United State of America (USA) is indexing and abstracting the published articles of “the Shield” are cited and can accessed from its database website. The main goal behind the publication of this journal is to provide a platform to the scholars of health & physical education and sports sciences and other related fields to express and share their views with the world. The Shield has some eminent scholars on its Editorial Board from within the country and abroad.

Literature Review

The literature review is a prime practice in a research process. The authors have searched for local and foreign literature on the bibliometric investigation and found a good number of bibliometric studies in research journals.

Ibrahim & SU Jan, (2015) have examined 913 original articles published from 2009 to 2013 in the Journal of Pakistan Medical Association (JPMA) using the bibliometric parameters. The ranges of original published articles were recorded 148 to 214 in the selected period. Majority of articles references were 21 to 30 and three authored articles were ranked as highest.

Sharif, A. (2012) Analyzed the three core Pakistani medical journals; Journal of Pakistan Medical Association (JPMA), Journal of Ayub Medical College, Abbottabad (JAMC), and Journal Of College of Physician and Surgeons- Pakistan (JCPSP), the result revealed that contribution of more than three authors were prominent and the Journal of Pakistan Medical Association (JPMA) were the most cited journal, the trend of self-citation were found in two journals.

Akhtar Husain, Nishat Fathma and Devendra Kumar (2011) discussed the year-wise distribution of research papers, authorship pattern and discipline-wise distribution of articles.

S.Thanuskodi (2011) studied the bibliometric phenomenon of the Indian Journal of Chemistry. The findings reveal that the maximum numbers (27%) of research papers were published in the year 2005. It also reported that 91% of the articles were written by Indian scholars.

Ahmed Bakeri Abubakar & Yahya Ibrahim Harandi (2010) examined that 66.9% of the total literature published were co-authored.

Asha and Anil (2010) carried out a bibliometric study of Indian Journal of Pure and Applied Mathematics. It was discovered that there were 4798 citations appended to 400 articles in five volumes (2003-2007) of the Journal. It was also reported that the most cited documents were articles from research journals.

Hussain, A. et.al. (2014) studied the Research Journal of Islamic Research Institute "Islamic Studies" for their bibliometric attributes, title, abstract, author gender and affiliation was the used for this study. Total 91 original articles were analyzed. The results show that majority of the

contribution has been made by male authors, the book was cited more and the length of most of the articles was recorded ranging from 5 to 10 pages per article. Authors recommended to increase the number of the article per issues and launched the online version (Electronic version) of this esteemed journal.

Nykiforuk CL, Osler GE and Viebeck S. (2010) wrote about the bibliometric analysis of medical literature “the evolution of smoke-free spaces policy literature”.

Zainab, Ani, and Anur (2009) conducted the bibliometric analysis of Malaysian Journal of Computer Science. They covered the articles published from 1985-2007.

Turk (2008) studied the URL citations of LIS articles.

Ullah, M., & Farooq Butt, I. (2008) have evaluated the Pakistani medical journals using the principles of citation analysis for the purpose of rating, the major results show that 9079 citations of 567 articles were analyzed for rating, impact factor rating in the bases of the year 2006 and comparison of five years impact factor. Three Pakistani medical Journals known as Journal of Ayub Medical College, Abbottabad (JAMC), Journal of Pakistan Medical Association (JPMA) and Journal of College of Physician and Surgeons- Pakistan (JCPSP) were rated as top among forty-nine Pakistani medical journals.

Davarpanah and Aslekiya (2008) conducted the bibliometric study of international LIS journals from 2002-2004. They reported that 158 out of 894 articles have no references.

Singh, Mittal and Ahmad (2006) were of the view that 61 percent research papers were single-authored and maximum number of articles were submitted and published in the year 2003.

Patra, Bhattacharya and Verma (2006) conducted the bibliometric study of Library and Information Science Abstracts (LISA). The study covered the growth, pattern and authors' distributions.

Shokeen and Kaushik (2004) in their bibliometric study were of the view that 81% of the total citations were from journal articles. The results also showed that 398 citations are less than ten years.

Jan, S.U, et.al (2016) conducted a multi-denominational bibliometric study of the research journal "The Dialogue". They acquired the proper permission for the use of the title, abstract, and other relevant information from the print and online version of the said research journal. All original articles published during selected timeframe were considered for the analysis. Total 269 articles were published in the ten years. The results show that Khyber Pakhtunkhwa is on top in the list of contributors and the journal published 27% articles per year.

Wallace Koehler, et.al. (2000) examined four journals including three online and one offline. The paper discussed that there was a great deal of difference in the bibliometric nature of these journals.

Khan, et.al. (1998) conducted a bibliometric study on Library and Information Science Literature (1966-77) in Bangladesh. This study shows that 116 authors contributed during the mentioned period. 308 papers were published with an average of 9.62 articles per year and 2.6 articles per author.

Mote and Deshmukh (1996) studied the scholarly journal titled Annals of Library Science and Documentation. It was revealed that journals are the most referenced tools of communication amongst the library professionals.

Mahapatra (1994) discussed the citation analysis of nine LIS journals from 1975-85. There were 1456 research articles and 9182 citations with an average of 6.31 citations per research paper.

Objectives of the Study

These are:

- To make an analysis of “Research Journal of Physical Education and Sports Sciences: *The SHIELD*”
- To determine year-wise distributions of articles
- To study the authorship pattern
- To analyze the gender-wise distribution of authors
- To find ranking of contributors/authors
- To study the length of articles
- To find out the number of cited documents and the average number of references per article.
- To study the country-wise contribution

Research Methodology

The methodology used in this study is the bibliometric scrutiny of **The SHIELD**. The study focuses on the analysis of the original articles published from 2006-2016. As the period of publication of the journal is short, therefore data analysis was carried out on yearly basis. The bibliometric attributes of 91 published original articles during the mentioned period were examined for Yeas-wise distribution of original research articles, Authorship patterns, Gender of contributors “Male, Female and Shared (male + female)”, Ranking of top five authors, Geographical affiliation and productivity. The primary data was downloaded from the journal website (<http://sujo.usindh.edu.pk/index.php/THE-SHIELD>) and organized in Microsoft Excel (Version 2007) sheets for implementation of statistical equation and accuracy. The data were tabulated and analyzed. Findings were made and conclusions were drawn.

Data Analysis and Interpretation

Table 1: Year-Wise Distribution of Research Papers

Year	Volumes No	No. of Articles	Percentage	Cumulative Percentage
2006	1	7	7.69	7.69
2007	2	6	6.59	14.28
2008	3	7	7.69	21.98
2009	4	7	7.69	29.67
2010	5	9	9.89	39.56
2011	6	10	10.99	50.55
2012	7	8	8.79	59.34
2013	8	8	8.79	68.13
2014	9	6	6.59	74.72
2015	10	9	9.89	84.61
2016	11	14	15.38	100.00
Total	11	91	100	
Average articles published per year			<i>12.09 % Articles Per Year</i>	

Table1 above shows that a maximum no. of 14 (15.38%) out of a total of 91 articles were published in the year 2016 and minimum number of articles 06(8.82%) out of total in the year 2007 and 2014. 12.09 % articles on an average were published each year. Less than or equal to 10 articles per volume were published in the first ten years (2006-2015).

Table 2: Authorship patterns

Year	Single author	2 authors	3 authors	4 authors	5 authors	6 authors	More than 7	Total	Single	Joint
2006	02	03	02	0	0	0	0	14	02	12
2007	---	04	02	---	---	---	---	14	---	14
2008	---	04	02	01	---	---	---	18	---	18
2009	02	---	01	03	01	---	---	22	02	20
2010	04	01	03	01	---	---	---	19	04	15
2011	---	04	02	02	---	01	01	36	---	36
2012	03	03	---	---	02	---	---	19	03	16
2013	03	02	02	01	---	---	---	17	03	14
2014	---	02	02	02	---	---	---	18	---	18
2015	02	03	02	02	---	---	---	22	02	20
2016	01	01	04	08	---	---	---	47	01	46
Total	17	27	22	20	03	01	01	246	17	229
Percentage	06.91	10.98	08.94	08.13	01.22	00.41	00.41	100	6.91	93.09

Table 2 exhibits that a good number of articles 27 (10.98 %) out of a total of total 91 articles are two authored followed by 22 (09.94 %) which are three authored articles. It is also reflected that the majority (93.09 %) of the articles published in The *SHIELD* have joint authorship.

Table 3: Gender-wise Authorship pattern

Year	Total articles	Male	Female	Shared authorship (male + female)
2006	07	04	01	02
2007	06	04	01	01
2008	07	06	---	01
2009	07	06	---	01
2010	09	08	---	01
2011	10	09	---	01
2012	08	05	01	02
2013	08	06	01	01
2014	06	03	01	02
2015	09	03	01	05
2016	14	09	01	04
Total	91	63	07	21

Percentage	100	69.23	7.69	23.08
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While examining by gender-wise distribution of authorship, it is observed from Table 3 that a majority 63 (69.23%) out of total 91 published articles were written by male scholars while 07 (7.69 %) of the articles by female scholars. Some 21 (23.08 %) out of total articles are written by shared authors i.e. male and female jointly. The female contribution to this special field of study is low.

Ranking of Contributors

The ranking of contributors were made on the basis of number of original articles published in the journal from 2006-2016. Table 4 shows information in this regard. Consequent upon the criteria framed for the ranking of authors, **Prof. Dr. Yasmeen Iqbal** of Pakistan, Professor, & Director, Centre for Health and Physical Education, University of Sindh, Jamshoro was found on top of the list. **Dr. Muhammad Akram Ansari** of Pakistan has clinched second position in the order of the list and **Dr. Arun G. Maiya** of India, Professor and Head Department of Physiotherapy, Manipal College of Allied Health Sciences, has stood third position in the order of the list. The contributions of the remaining contributors are listed below:

Table 4: Ranking of Contributors

S.No	Ranking	Name Of Contributors	Number Of Contributions	Country
1	1	Prof. Dr. Yasmeen Iqbal	11	Pakistan
4	2	Dr. Muhammad Akram Ansari	08	Pakistan
2	3	Dr. Arun.G.Maiya	05	India
3	4	Dr. Salahuddin Khan	04	Pakistan
5	5	Dr. Aslam Pervez Memon	03	Pakistan
6	=5	Mr. Aman S.Khasawneh	03	Jordan
7	=5	Dr. Dana Perlman	03	Australia

Table 5: Length of articles

Year	<=10 pages	11-20 pages	21-30 pages	More than 30 pages	Total
2006	---	06	01	---	07
2007	02	04	---	---	06
2008	---	04	03	---	07
2009	01	05	01	---	07

2010	02	06	01	---	09
2011	07	03	---	---	10
2012	03	05	---	---	08
2013	01	06	01	---	08
2014	01	04	01	---	06
2015	02	06	01	--	09
2016	03	09	02	--	14
No of Articles	22	58	11	0	91
Percentage	24.18	63.74	12.08	0	100

An attempt was made to study the length of original articles published in *The Shield* during the above mentioned nine years. It was observed that a good number of articles i.e. 58 (63.74%) out of total 91 original published articles have 11-20 pages while 22 (24.18 %) of the articles have less or equal to 10 pages. Only 11 (12.08 %) out of total original articles have more than 20 pages. It is reported that no published article was found to be more than 30 pages until 2016.

Table 6: Forms of Documents Cited

Form of Documents	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total	Percentage
Journals	56	36	55	63	92	143	118	119	122	120	231	1155	53.67
Books	78	31	33	64	99	106	29	52	55	49	185	781	36.29
Conference Proceedings	6	7	5	6	8	12	4	4	13	4	4	73	3.39
Thesis/ Dissertation and others	2	5	1	3	8	19	6	21	36	5	37	143	6.64
Total	142	79	94	136	207	280	157	196	226	178	457	2152	100
Percentage	6.60	3.67	4.37	6.32	9.62	13.01	7.30	9.11	10.50	8.27	21.24	100	

The above Table indicates year-wise citation analysis of the research papers from 2006-2016. Table 6 elucidates that more than half 1155 (53.67 %) out of 2152 citations are from research journals. A good number 5781 (36.29%) out of total have been quoted from books. Conference Proceedings have been referenced in a very limited number. Theses, dissertations and other literature have not been cited in reasonable quantity. Web sources have not been tapped. During the literature search of the bibliographies/ references section of the research papers, it is reflected that some of the papers have very small list of references. It also shows that the issue of 2016 is

richer in references as compared with the other annual publications of the journal, whereas the issue of 2007 contains the least number of references.

Table 7: Geographical contributions of First Authors in *The SHIELD Journal*

Country	No. of Contributors	Percentage	Cumulative Percentage
Pakistan	43	47.25	47.25
India	27	29.67	76.92
U.S.A*	3	3.30	80.22
South Africa	3	3.30	83.52
Jordan	3	3.30	86.82
Australia	3	3.30	90.12
Turkey	2	2.20	92.32
Canada	2	2.20	94.52
Others	5	5.49	100
Total	91	100	

*United States of America

Table 7 shows that the research scholars of Pakistan have contributed the most (43 times (47.25%)) followed by 27 (29.67 %) from India. United States of America (U.S.A), South Africa, Jordan and Australia have published 3, 3 research papers in this Journal. The research scholars of Turkey and Canada have written two papers each for the publication in **The SHIELD**. The United Kingdom, Jordan, Germany, Nigeria and Swaziland have published one research paper each in the *Research Journal of Physical Education and Sports Sciences*. Table 7 also shows the higher tendency of research culture in Pakistan is closely followed by India in the field of Health & Physical Education and Sports Sciences.

Findings of the Study

- 1- The number of original articles published in the “Research Journal of Physical Education and Sports Sciences: **The SHIELD**” from 2006 to 2016 are comparatively less than the other journal with an average of 12.09 % articles per year.
- 2- It is found out that the references are drawn from research journals are dominant (53.67 % of the total references) followed by books (36.29%), conferences proceedings and dissertation. The use of web sources is next to nil.
- 3- It shows majority 229 (93.09 %) of the articles are joint authored- contributions. A very few articles are of single authorship.

- 4- The male contribution dominates.
- 5- Most 58 (63.74 %) of the articles are found within 11 to 20 pages. It was also observed that article with more than 30 pages length are negligible.
- 6- Pakistani scholars contributed more 43 (47.25%) followed by Indian scholars as compared with the rest of the scholars. Pakistani Scholar (Prof; Dr. Yasmeen Iqbal) clinched top position by writing most articles for her journal. She is also the Head of the Centre and the Editor of the Journal.
- 7- In Pakistan, research in the field of health & physical education and Sports Sciences is better than rest of the world as per statistic of *THE SHIELD* journal.

Conclusion

The *Research Journal of Physical Education and Sports Sciences: The SHIELD* is a regular annual research publication of the Centre for Health and Physical Education and Sports Sciences, University of Sindh Jamshoro, Pakistan. Due to the hard work and efforts of the editorial board, the journal has got recognition of Higher Education Commission in a short span of time. **The SHIELD** has produced quality research papers in the field of Physical Education and Sports Sciences and has attracted prominent scholars to publish their quality work here.

Suggestions

It is suggested that the female writers/scholars should be encouraged to contribute to this important field of study. The average rate of articles per year should be increased with at least 10-12 articles per issue. The overall contribution of Pakistani authors is less as compared with rest of the world. The Pakistani scholars in the field of health and physical education and sports sciences should be encouraged to write more quality work. The authors need to cite latest references especially online sources and use some stander bibliographical/ citation styles like “APA Style (American Physiological Association), Chicago Style, Turabiar Style”, and all the articles published in this journal (or for that matter in any journal) should be checked and cleared by HEC standard plagiarism software like “Turnitin” before their publication. It is also suggested that graduates (M.Sc, Mphil/MS) of Health & Physical Education and Sports Sciences are to be give confidence for the production of quality research in there filed.

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