

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Library Philosophy and Practice (e-journal)

Libraries at University of Nebraska-Lincoln

---

Summer 8-10-2021

## An Assessment of Journal Quality Indicators: A Comparative Study of Selected Medical Journals

mamatha v  
vmamatha251993@gmail.com

Dr Keshava  
keshtut@gmail.com

Follow this and additional works at: <https://digitalcommons.unl.edu/libphilprac>



Part of the [Library and Information Science Commons](#)

---

v, mamatha and Keshava, Dr, "An Assessment of Journal Quality Indicators: A Comparative Study of Selected Medical Journals" (2021). *Library Philosophy and Practice (e-journal)*. 6143.  
<https://digitalcommons.unl.edu/libphilprac/6143>

# An Assessment of Journal Quality Indicators: A Comparative Study of Selected Medical Journals

Mamatha V<sup>#,\*</sup> and Keshava

<sup>#</sup> Dept. of Studies and Research in Library and Information Science,  
Tumkur University, Tumakuru – 572 103, India

\*Email: vmamatha251993@gmail.com

## ABSTRACT

The purpose of the study was to assess correlation between four bibliometric indicators (Impact Factor-IF, Eigenfactor Score-ES, SCImago Journal Rank-SJR and H5 index) of typical online medical journals were selected from medical group. Findings from the study evident that, in accordance with Pearson's (r) statistical correlation there is a high significant between four indicators and as per Spearman's rho statistical correlation there is an association between the three indicators i.e. JIF, SJR and H5. Above-mentioned indicators are correlated with one another and it is chiefly true for medical journals when used as communal indicators to estimate the impact or reputation of medical journals or journals of other groups.

**Keywords:** Medical Journals; Indicators; Comparative Study; Impact Factor; Eigenfactor Score; SCImago Journal Rank; H5 index

## 1. INTRODUCTION

Evaluation of scientific work is one of the merit to various academic laypersons, institutions, funding agencies, research scholars, scientists, etc. and there are several scientometric or bibliometrics indicators i.e. Impact Factor, Eigen Factor, SCImago Journal Rank, H-index, H5 Index, Source-Normalised Impact Per Paper, Artificial Influence Score etc. The present study attempts to review the four scientific indices or indicators (Journal Impact Factor (JIF), Eigen Factor Score (ES), SCImago Journal Rank (SJR) and H5 Index of significance of medical journals. Journal Impact factor (JIF) is foremost scientific indicator of importance of scientific journals perceived by Garfield at 1955, also known as citation rate measure. The IF is generally defined as the "Recorded number of citations within a certain year (for example, 2014) to the items published in the journal during the two preceding years (2012 and 2013), divided by the number of such items (this would be the equivalent of the average citation rate of an item during the first and second calendar year after the year of publication)".(Cantín, 2015). According to Garfield (2006) "IF is calculated annually by Institute for Scientific Information (ISI) and by definition in any given year is the ratio of the number of articles cited all citable documents published in the two previous years to all citable documents in the same period of time". Basically Eigenfactor Score (ES) reveals the number of citations and the prestige of citation source by measuring journal impact. However, Kianifar says "Eigenfactor score (ES) is a new bibliometric indicator, designed to rank the journals by a similar algorithm as Google's Page Rank does, using the WoS indexed journals for quality assessment and reflects not only the number of citations but also the prestige of citation source". SCImago Journal Rank (SJR) is one of the scientometric quality indicator of Scopus indexed journals . It was conceived by SCImago research laboratory at 2007, which help to assess the quality of journals and applying the PageRank algorithm on the Scopus database also considers 3 years citations in Scopus database. It is more complex compare to the Journal Impact Factor (Ramin, 2012). H index is an actual and precise indicator to evaluate scientific output of individual's. It is a qualitative criteria in author level,

empirically observed that the evolution tends to be roughly linear. The H5-index is h-index in Author-level Metrics, created by Google Scholar. It is the largest number h such that h articles published (in the past 5 years) have at least h citations each". (<https://subjectguides.library.american.edu/c.php?g=175335&p=1154177>)

Waris and others (2017) listed an overall guidance for significant journal quality indicators in below table

Affecting factor & criterion	JIF	SJR	ES	H5
Calculation		Compute journal Prestige SJR (PSJR), a size dependent measure Normalize PSJR to a size independent measure, the SJR indicator.	Algorithm similar to Google Page Rank	H=largest, # that gives: At least h-articles were cited At least h-citations per article
Journal influence		✓	✓	
# citations	✓	✓	✓	
Prestige of citation source		✓	✓	
Base of source journal		Elsevier, Scopus database	Web of Science	Wide range
Journal self-citation		✓		
Free access				✓

## 2. LITERATURE REVIEW

**Cantín et al. (2006)** made an attempt to compare the three mentioned quality metrics in the mainstream Anatomy and Morphology journals, based in the journals indexed in Web of Science and JCR in 2014, to determine what should be considered when deciding the publication and scientific reading in the morphology field. The study indicated that the lower citations were obtained by Folia Morphologica. Advances in Anatomy Embryology and Cell Biology showed the highest impact and the first position whereas the Eigen factor score the journal Developmental Dynamics obtains the first place in the ranking while Advances in Anatomy and Cell Biology Embryology the last position. Similarly journals that publish a lot of articles have higher ES than those that publish very few articles if the average quality of the published articles is similar between these journals. Further **Ahmad et al. (2017)** examined correlation between the prominent and reliable journals (for ranking) in the field of Environmental Engineering based on bibliometric indicators i.e. Journal Impact Factor, SCimago Journal Rank indicator, Eigenfactor Score and H5-index recognised in scientific and academic groups. With respect to Spearsman's rho statistical correlation a high correlation appeared between JIF and each of H5 and SJR indicators, and a nearly similar correlation between JIF and ES rankings. As a result of Pearson's (r) statistical correlation, a high correlation occurred between JIF, H5 and SJR. H5 may possibly more accurate than other quality indices. **Kianifar et al. (2014)** inspected comparison between impact factor, eigenfactor metrics, and scimago journal rank indicator of pediatric neurology journals. IFs, ESs and AISs were obtained from Journal Citation Report through ISI. Relevant information was extracted from their source databases including: influence

of self-citations, citations to non-citable items, citations to review articles and their influence on 2011 IFs were assessed. However the researchers should be cautious about factors that 2011 Articles Influence Score/rank, total citation, rank articles in SCImago, self-citations and citations to review articles of 2009 and 2010. In other words journals with low number of articles are likely to have lower ES. Low number of citable items for Journal of Neurodevelopmental Disorders is the possible reason of its first place in IF ranking despite ranking 10<sup>th</sup> by ES. ISI consider 2 types of articles as the only citable items which are counted in the denominator of IF fraction. The study considered only journals, seminar papers and review articles in Paediatric Neurology. None of the evaluated journal quality metrics are taken into account the type of the cited articles in the study. **Waris et al. (2017)** have identified and examined thirty-nine (39) United Arab Emirates Research Journals were recorded and their associated data records and information documents retrieved from their primary locations, in Web of Science (WoS) and Scopus, in relating JIF, SJR, ES and H5 quality indicators for ranking purposes and rationales. The study indicated a high correlation appeared between JIF and each of SJR and ES indicators for journals in public health. The study is highly applicable in understanding the importance and application of various-vide an insight towards determining the correlations between the indicators in determining global ranking of public health journals. A high Pearson's (r) statistical correlation occurred between JIF and SJR indicators for journals in this category ( $r = 0.892$ ) and between JIF and H5 indices ( $r = 0.769$ ), while it is rather moderate between JIF and ES values ( $r = 0.690$ ). Spearsman's rho statistical correlation indicated an acceptable and identical correlation appeared between JIF and SJR indicators, JIF and ES rankings and between JIF and H5 for journals in Sports science (coefficient value = 0.905, 0.845 and 0.818, respectively). **Motamedi & Ramezani (2015)** condensed subject Library and Information Science and their journals indexed in Scopus and Thompson Reuters databases analysed in the bibliometric study by using quality indicators. According to the findings, there was a positive correlation among values of IF and SJR . SJR indicator might be more precise quality indicator for the journals. **Ahmad et al.(2017)** have investigated the possibility of advocating usage of SCImago Journal Rank (SJR), Eigen factor Score and H5 index indicators as alternative to the Journal Impact Factor (JIF) for quality assessment in the field of mechanical engineering. Quality indicators of mechanical engineering journals obtained from Journal Citation Report and the SJR and H5 index from the SCImago Journal and Country Rank website. Various research articles of different research groups have been discussed in this article and attempts were made to compare the reputation of journals in terms of JIF, ES, SJR and H5 indicators. International Journal of Machine Tools and Manufacture Journal and Wind Energy Journal presented the leading discrepancies among this group of tested journals. They suggested Researchers and librarians concerns of methods of scientific journal ranking regarding publication language, analysis time and self-citation impact amongst other factors are addressed through suggested alternatives. **Ahmad et al. (2018)** examined the scientific journal quality indices that included Journal Impact Factor, Eigen factor Score, SCImago Journal Rank indicator and H5 index. Sixty one construction and building technology journals were selected for this work and their related data records and information documents rerrieved from their primary sites in relating designated quality indicators. designated quality indicators. Pearson's and Spearman's statistical correlations apply to find out the Correlations between indicators with the usage of SPSS software. The study clearly shows that high Pearson's (r) statistical correlation between SJR and JIF indicators ( $r = 0.752$  and  $0.716$ , respectively) and this correlation is lowest between JIF and ES values ( $r = 0.545$ ). The study also found that the high Spearman's rho statistical correlation among JIF and each of SJR and H5 indicators whereas a low correlation between JIF and ES rankings for selected journals (coefficient values of 0.848 and 0.799, respectively).

### 3. SCOPE AND METHODOLOGY

Twenty two online medical journals (Impact Factor = >10) were identified for the study. All selected journals were indexed in different databases together with rankings of the medical journals according to four bibliometrics indicators i.e. Journal Impact Factor (IF), Eigen factor Score (ES), SCImago Journal Rank (SJR) and H5-Index and have the highest standard of quality. Related information was collected from their source databases as derived from the journal ranking section of SCImago journal and country ranking website, provided by the Google Scholar Citations (GSC) metrics under the category of “Medical”. Journals with JIFs and ESs were tabulated and information regarding their ranking in the SJR indicator list was retrieved. Similarly, journals with the SJR indicators also were listed and their ranking was detected in the record of journal JIFs. The ranks of each journal according to each metric were also provided and compared statistically. The correlations between the indicators were evaluated using Pearson’s and Spearman’s rho correlation coefficients. . All analysis was conducted using Statistical Package for the Social Sciences (SPSS) 21.0 version.

### 4. OBJECTIVES

In this paper, the quality metrics and indicators of each of the selected online medical journals were listed then compared in relation to the others. Medical journals were deliberate for any links or inconsistencies between their bibliometric factors as directed by their respective JIF, ES, SJR and H5 index. The main objective of the study was to analyse the comparison between bibliometric factors of the journals.

### 5. ANALYSIS AND INTERPRETATION OF DATA

**Table 1 Comparison of rankings and values of medical journals between four indicators (JIF, ES, SJR and H5)**

Sl no	Journal	Journal Impact Factor		Eigen factor Score		SCImago Journal Rank		H5-Index	
		Value	Rank	Value	Rank	Value	Rank	Value	Rank
1	Journal of Pain and Symptom Management (Netherlands), bimonthly	60.392	1	0.396	3	14.55	5	301	3
2	Nature Medicine (United Kingdom), Monthly	45.54	2	0.261	5	5.91	20	220	5
3	Journal of Clinical Oncology (United States), published three times per month	40.595	3	0.068	17	9.24	12	70	22
4	The Lancet (United Kingdom), Weekly	38.637	4	0.577	2	24.7	1	269	4
5	Cell (United States), Biweekly	36.13	5	0.162	10	15.81	3	173	9
6	Proceedings of the National Academy of Sciences (United States),	34.34	6	0.258	6	15.65	4	183	7

	Weekly								
7	JAMA-Journal of the American Medical Association (United States), 48/year	32.956	7	0.325	4	10.05	8	202	6
8	Nature Genetics (United Kingdom), Monthly	30.223	8	0.132	12	2.05	22	150	13
9	PLoS One (United States), Upon acceptance	27.603	9	1.533	1	19.8	2	180	8
10	Circulation (United States), Weekly	23.603	10	0.213	8	7.45	14	166	10
11	Journal of the American College of Cardiology (Netherlands), Weekly	21.522	11	0.114	14	11.98	6	137	15
12	Neuron(United States), Biweekly	21.317	12	0.055	18	4.74	21	122	19
13	BMJ-British Medical Journal (United Kingdom), Weekly	20.877	13	0.158	11	6.85	18	148	14
14	Gastroenterology (United Kingdom), 14/year	20.565	14	0.115	13	10.81	7	130	18
15	Cochrane Database of Systematic Reviews (United Kingdom), 12/year	20.479	15	0.047	20	9.28	11	344	2
16	Immunity (United States), Monthly	18.652	16	0.052	19	6.14	19	116	20
17	Nature immunology (United Kingdom), Monthly	18.639	17	0.223	7	9.99	9	164	11
18	Cancer Discovery (United States), annually	16.304	18	0.096	15	7.03	16	136	16
189	Journal of Experimental Medicine (United States), Monthly	15.923	19	0.045	21	7.17	15	101	21
20	World Psychiatry (United States), Triannual	14.403	20	0.162	9	9.53	10	154	12
21	eLife (United Kingdom), Continuous	11.743	21	0.007	22	7.75	13	411	1
22	Journal of Clinical Investigation(United States), Monthly	10.51	22	0.089	16	7.001	17	130	18

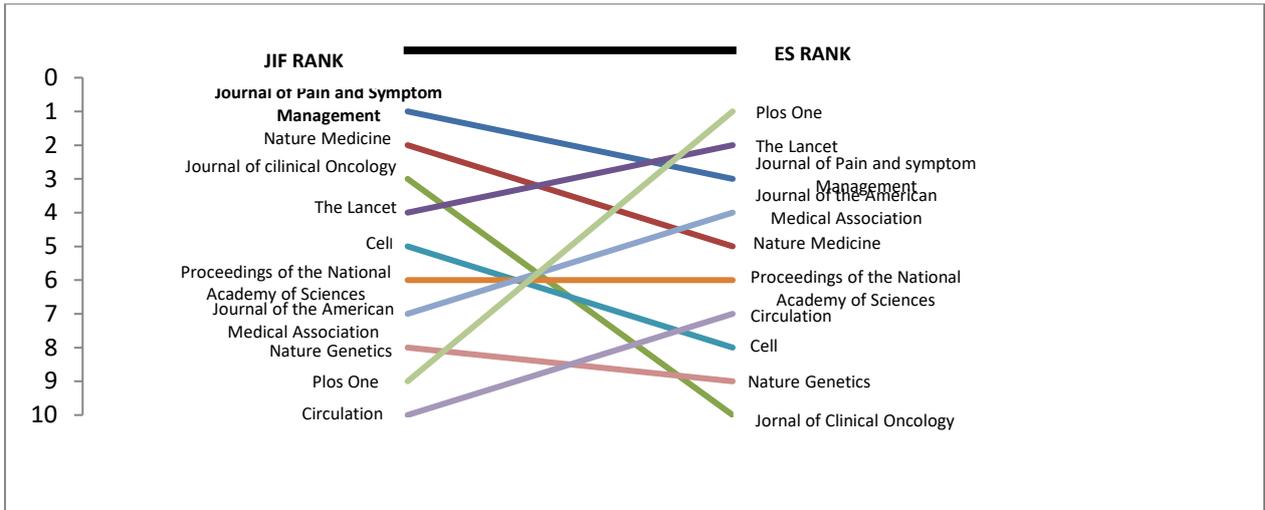
Table 1 shows ranking of the journals according to all four indicators and it reveals the indexed information of 22 picked online medical journals. Detailed information for each journal is shortened and evidently displays that none of the selected medical journals had the same ranking to parallel dissimilar indicators in all four classifications and metrics indices. In the form of JIF, ‘Journal of Pain and Symptom Management’ (60.392), ‘Nature Medicine’ (45.54) and Journal of ‘Clinical Oncology’ (40.595) are the most cited top three journals. These journals were narrowly followed by ‘The Lancet’ (38.637). In contrast, the lowermost citations were recorded by ‘eLife’ (11.743) and ‘Journal of Clinical Investigation’ (10.51). As per Eigen factor Score the journals that ranked top three ones were ‘PLoS One’ (1.533), ‘The Lancet’ (0.577) and ‘Journal of Pain and Symptom Management’ (0.396). Bottom of ES is recorded for ‘Journal of Experimental Medicine’ (ES 0.045) and ‘eLife’ (0.007). Regarding SJR for ranking top three ‘The Lancet’ (24.7), ‘PLoS One’ (19.8) and ‘Cell’ (15.81). As well, ‘Nature Genetics’ concluded end of list (2.05). Finally, H5-index for ranking top three journals recorded for ‘eLife’ (411), ‘Cochrane Database of Systematic Reviews’ (354) and ‘Journal of Pain and Symptom Management’ (301).

**Table 2 Bivariate correlation between the indicators**

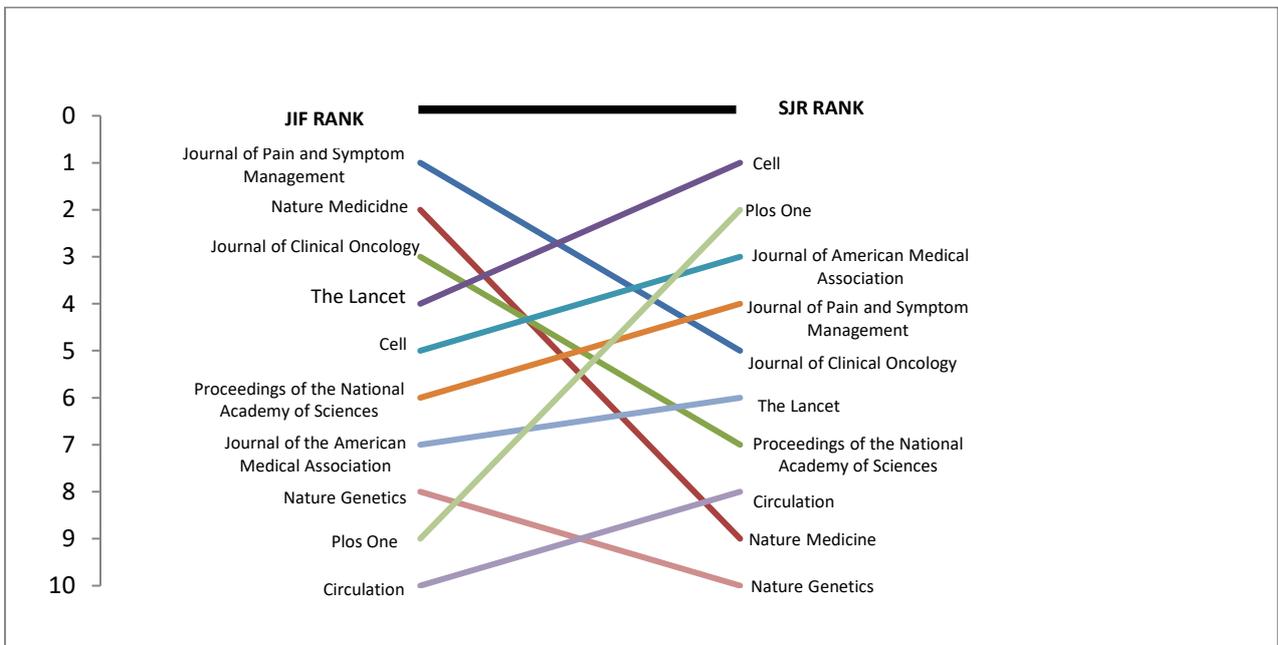
According to Ahmad and others (2017) “Pearson correlation calculates the linear relationship between two continuous variables while Spearman’s correlation calculates the monotonic relationship between two continuous or ordinal variables. Both coefficient values can be in range from -1 to +1. For example, if variables of data are increasing by consistent value and form a perfect line then both coefficient values will be +1 but if both variable are increasing with inconsistent vales then Pearson coefficient will be positive but less than +1. On the other hand, Spearman’s coefficients remain same. But in case of random or non-existent value both coefficients will nearly be zero but while getting a perfect line with decreasing relationship value both coefficients will be represented as negative (-1) value.”

Sl No	Correlation statistics	Coefficient value	Sig.
1	Pearson's between JIF & ES values	0.293	0.186
2	Pearson's between JIF & SJR values	0.403	0.063
3	Pearson's between JIF & H5 values	0.19	0.398
4	Spearman's rho between JIF & ES rankings	0.613	0.002
5	Spearman's rho between JIF & SJR rankings	0.335	0.128
6	Spearman's rho between JIF & H5 rankings	0.317	0.151

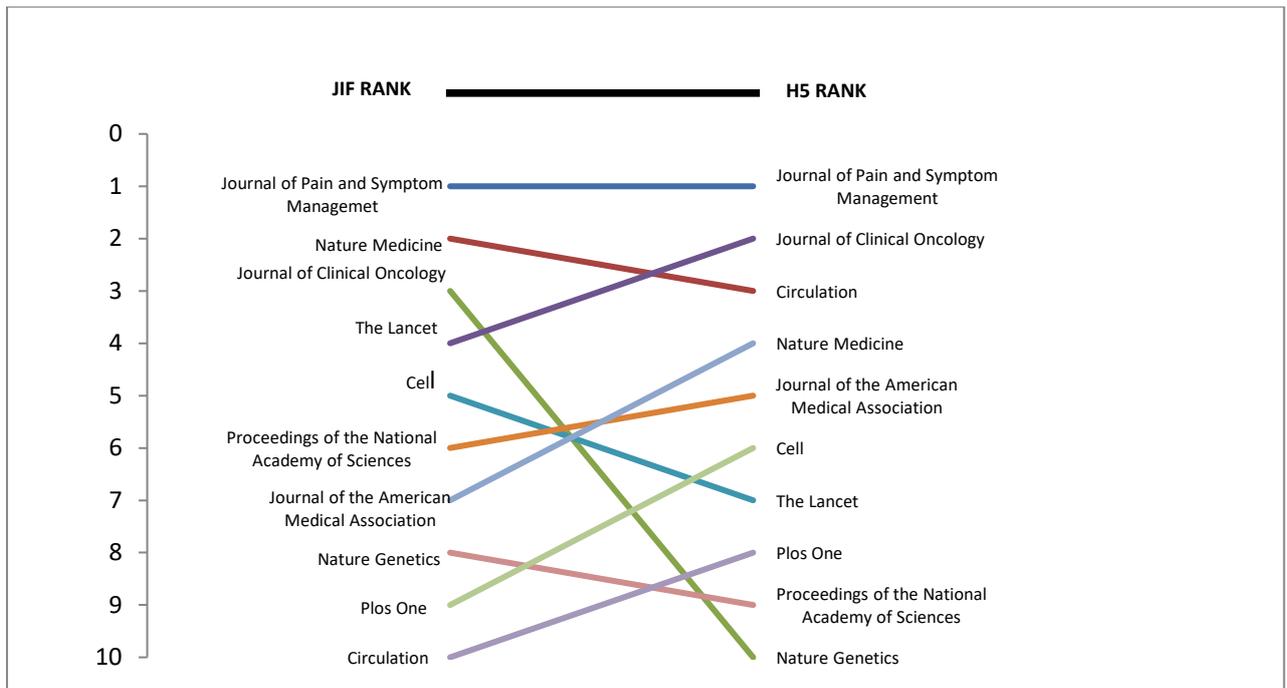
Table 2 illustrate co-ordination and comparison of the values and ranks of the journals through Correlations between indicators and they were estimated using Pearson and Spearman’s rho correlation. It displays a bivariate correlation between the four indicators (JIF, ES, SJR and H5) for ranking of medical journals. There is a high Pearson’s (r) statistical correlation between JIF and SJR indicators for journals in this category ( $r = 0.403$ ), whereas it is moderate between JIF and ES ( $r=0.293$ ) and it went for a low value between JIF and H5 values ( $r = 0.19$ ). It is evident that there is a high significant between indicators. As per Spearman’s rho statistical correlation a high correlation occurred between JIF and ES indicators for journals ( $\rho = 0.613$ ) and correlation is slightly moderate between JIF and both of SJR and H5 rankings ( $\rho= 0.335$  and  $\rho= 0.317$ ) respectively. It is evident that there is an association between the indicators JIF, SJR and H5.



**Figure 1: Bump chart for top 10 medical journals (comparison between JIF and ES rankings)**



**Figure 2: Bump chart for top 10 medical journals (comparison between JIF and SJR rankings)**

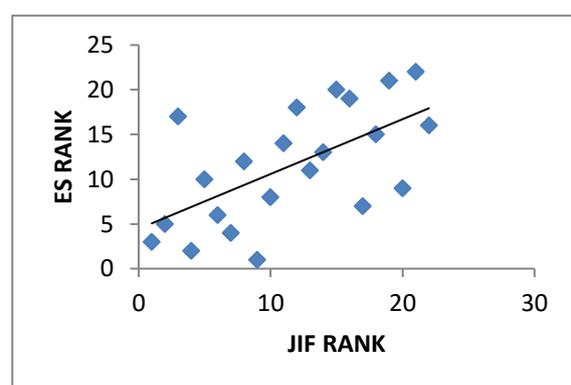
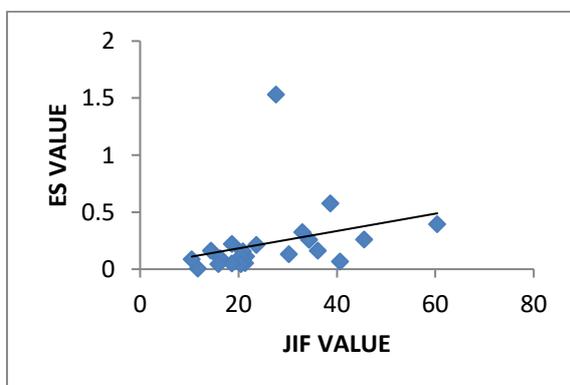


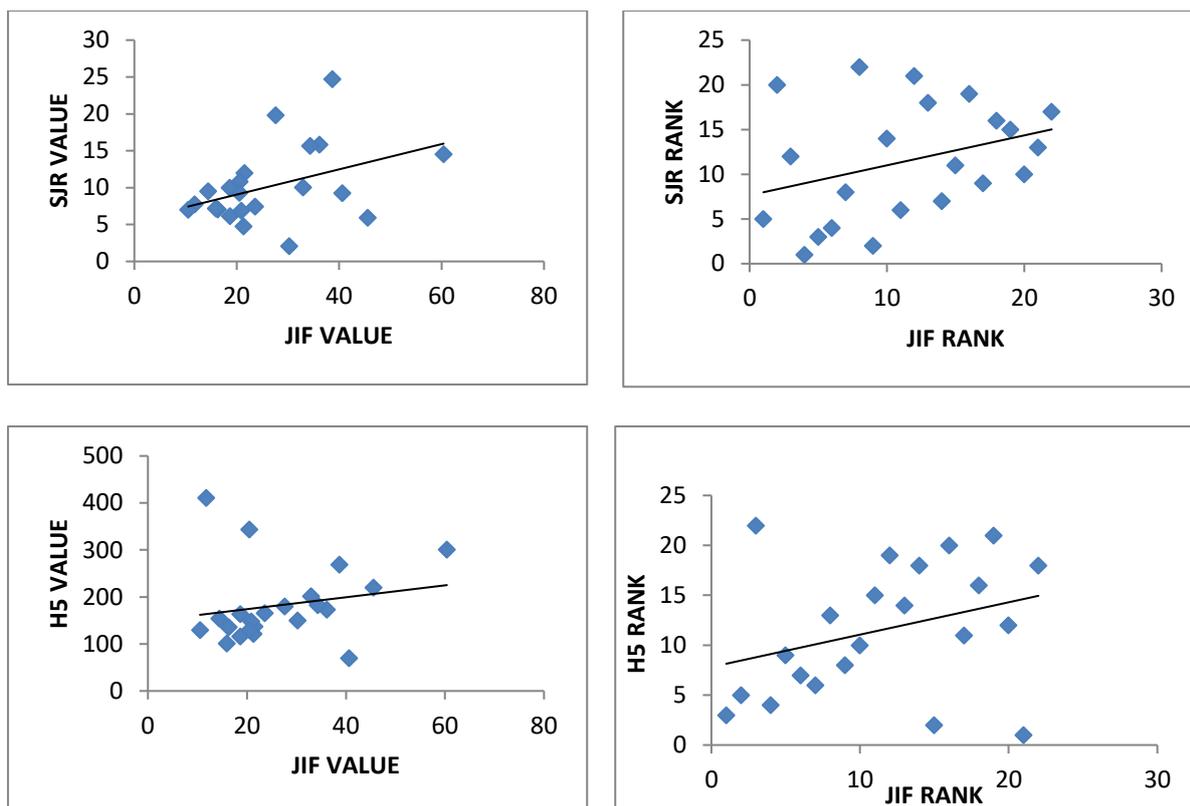
**Figure 3: Bump chart for top 10 medical journals (comparison between JIF and H5 rankings)**

Figure 1 demonstrates a bump chart for top 10 medical journals (comparison between JIF and ES rankings). It clearly gives a picture of the changing pattern of JIF and ES indicators for ranked journals. ‘Journal of Clinical Oncology’ had the highest dissimilarities among the top ten journals for both JIF and ES rankings. Noticeably, ‘Proceedings of the National Academy of Sciences’ ranked 5<sup>th</sup> position in JIF and ES rank as well.

In figure 2, a bump chart for top 10 medical journals (comparison between JIF and SJR rankings). Undoubtedly it defines the fluctuating features of JIF and SJR indicators for ranked journals. ‘Nature Medicine’ exposed the foremost gap between the indicators than the other.

Figure 3 specifies a bump chart for top 10 medical journals (comparison between JIF and H5 rankings). It describes the wavering features of the JIF and H5 for the ranked journals. ‘Journal of Clinical Oncology’ and ‘Nature Genetics’ obtained the prominent inconsistencies among this collection of corroborated journals. Remarkably, ‘Journal of Pain and Symptom Management’ placed 1<sup>st</sup> position in JIF and H5 rank also.





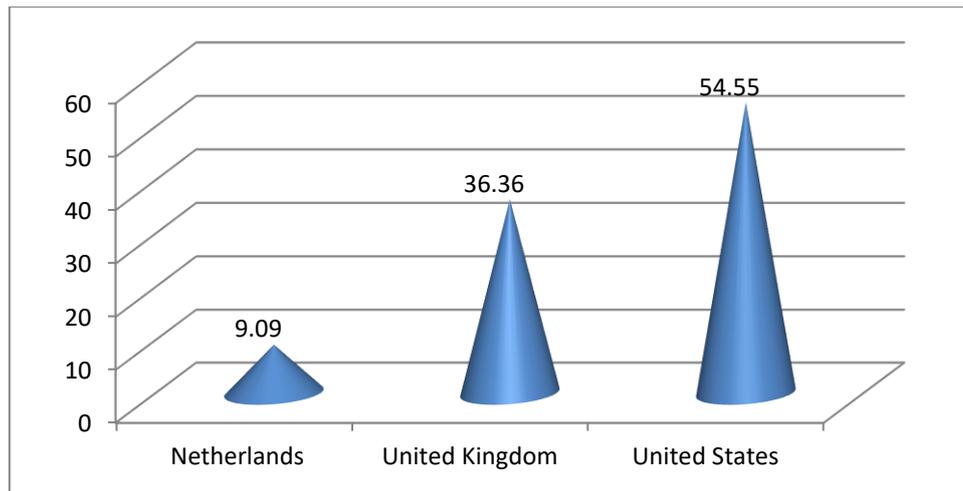
**Figure 4: Scatter plots for correlation between JIF, ES, SJR and H5 Index values and rankings**

Figure 4 show scatter plots for correlation between JIF, ES, SJR and H5 Index values as well rankings and also their fit lines for 22 online medical journals. There is a direct correlation between JIF and SJR, and JIF and ES (values and rankings). It indicates that strong probability of a well journal evaluation. While it is significant that a clear linear relationship between ranking of journals than values.

**Table 3: Country wise Distribution of the journals**

SI No	Name of the Country	No. of Journals	%	Rank
1	United States	12	54.55	1
2	United Kingdom	8	36.36	2
3	Netherlands	2	9.09	3
Total		22	100	

Table 3 reflects the distribution of journals contributed by country wise, it is clearly states that out of 22 journals, the maximum number of (54.55%) contributions are from the United States and it has been placed the first rank and followed by 36.36% of the journals are contributed by United Kingdom and it is the second ranked country. 9.09% of contributions came from the Netherlands and got placed third.



**Figure 5: Country wise distribution of the journals**

## 6. FINDINGS AND CONCLUSION

As per Journal Impact Factor (JIF), ‘Journal of Pain and Symptom Management’ (60.392) was the topmost cited journal. Comparatively, the lowermost citations were recorded by ‘Journal of Clinical Investigation’ (10.51). In the form of Eigen factor Score the journal that ranked top one is ‘PLoS One’ (1.533), bottom of ES was recorded for ‘eLife’ (0.007). Regarding SJR ranking ‘The Lancet’ (24.7) ranked first position, ‘Nature Genetics’ concluded end of list (2.05) as well. ‘eLife’ (411) positioned first place among H5-index for ranking journals. In accordance with Pearson’s (r) statistical correlation, there is a high significant between four indicators and as per Spearman’s rho statistical correlation, there is an association between the three indicators i.e. JIF, SJR and H5. Bump charts gives a clear picture of the changing pattern of JIF, ES, SJR and H5 indicators for ranked journals. The study evident that, there is a linear relationship between rankings of journals than values. The maximum number of (54.55%) journals were contributed from the country ‘United States’ and only 9.09% of contributions came from the ‘Netherlands’.

Gathered research data and information revealed that use of the SJR index is strangely modify the system classification of journals compared to the JIF or its method of computation. Since SCImago Journal and Country Rank is free access, this suggests that both SJR and H5 may be considered alternative to the JIF.

## References

1. Cantín, M.; Muñoz, M. & Roa, I. Comparison between Impact Factor, Eigenfactor Score, and SCImago Journal Rank Indicator in Anatomy and Morphology Journals. *International Journal of Morphology.*, 2015. 33(3). 1183-1188.
2. Ahmad, S.; Magid, E. T. I. M. A.; Magid, C. I. M. A. & Waris, A. Comparison among Selected Journal Quality Indicators of Mechanical Engineering Journals. *J. Sci. Res.*, 2017. 6(3). 151-158.
3. Ahmad, S.; Sohail, M.; Waris, A.; Elginaid, A.; & Mohammed, I. SCImago, Eigenfactor Score, and H5 Index Journal Rank Indicator: A Study of Journals in the area of Construction and Building Technologies. *DESIDOC Journal of Library & Information Technology.*, 2018. 38(4). 278.
4. Ahmad, S.; Magid, E. T. I. M. A.; Magid, C. I. M. A. & Waris, A. Comparison among Selected Journal Quality Indicators of Mechanical Engineering Journals. *J. Sci. Res.*, 2017. 6(3). 151-158.
5. Ahmad, S. A. J.; Abdel-Magid, I. M. & Hussain, A. Comparison among journal impact factor, SCimago journal rank indicator, eigenfactor score and h5-index of environmental

- engineering journals. *COLLNET Journal of Scientometrics and Information Management.*, 2017. 11(1). 133-151.
6. Brown, T. & Gutman, S. A. Impact factor, eigenfactor, article influence, scopus SNIP, and SCImage journal rank of occupational therapy journals. *Scandinavian journal of occupational therapy.*, 2019. 26(7). 475-483.
  7. Garfield, E. The history and meaning of the journal impact factor. *Jama.*, 2006. 295(1). 90-93.
  8. Kianifar, H.; Sadeghi, R. & Zarifmahmoudi, L. Comparison between impact factor, eigenfactor metrics, and scimago journal rank indicator of pediatric neurology journals. *Acta Informatica Medica.* 2014. 22(2). 103.
  9. Motamedi, F. & Ramezani, P. L. F. A comparative study of Impact Factor (IF) and SCImago Journal Rank (SJR) in library and information science journals. *Caspian Journal of Scientometrics.*, 2015. 2(1). 50-56.
  10. Ramin, S. & Shirazi, A. S. Comparison between Impact factor, SCImago journal rank indicator and Eigenfactor score of nuclear medicine journals. *Nuclear Medicine Review.*, 2012. 15(2).132-6.
  11. Shirazi, A. S. & Sadeghi, R. Comparison between Impact factor, SCImago journal rank indicator and Eigenfactor score of nuclear medicine journals. *Nuclear Medicine Review.*, 2012. Mashhad university of medical sciences.
  12. Waris, A.; Ahmad, S.; Mohammed, I. & Abdel-Magid, I, M. Comparison among Selected Journal Quality indicators of Public Health Journals. *Trends in Information Management (TRIM).*, 2017. 11 (2). 150-164.
  13. [https://www.scimagojr.com/journalrank.php?area=2700&page=2&total\\_size=7462](https://www.scimagojr.com/journalrank.php?area=2700&page=2&total_size=7462)
  14. <http://eigenfactor.org/projects/journalRank/journalsearch.php>
  15. [https://scholar.google.com/citations?view\\_op=top\\_venues&hl=en&vq=med\\_medgeneral](https://scholar.google.com/citations?view_op=top_venues&hl=en&vq=med_medgeneral)

## CONTRIBUTORS

### ***Mrs. Mamatha V***

*is UGC-JRF full time Research Scholar under the guidance of Dr. Keshava, Professor, Department of Library and Information Science, Tumkur University, Tumakuru. She holds Msc in Library and Informaton Science from Banglore University in the year 2016 secured with 4TH RANK and in the same year she was cleared K-SET (Karnataka State Level Eligibility Test) and UGC NET-JRF in first attempt. She could successfully completed internship training in ISEC (Institute for Social and Economic Change) Dr. V.K.R.V. Roa Road, Nagarabhavi P.O., Bengaluru. Started her career as a Librarian at Sridevi Polytechnic, Tumkur. She has published good number of research papers in National and International journals and conference proceedings. She has participated and presented research papers at various National and International seminars and conferences. She has been awarded "MOTEWALE AWARD FOR YOUNG AUHTHOR OF THE BEST PAPER WRITTEN AND PRESENTER" in 64th Annual Conference of ILA International conference*

*held at Indore (MP) and received “BEST PAPER PRESENTER AWARD” in International Conference on Transforming Academic Libraries: Vision 2030 held at Sri Krishna College of Engineering and Technology, Coimbatore, Tamil Nadu. She is life member of ILA(Indian Library Association). Her research interests are Metric studies, Information Retrieval, ICT.*

### ***Keshava***

*Presently working as a Professor, Dept of Library and Information Science, Tumkur University. He is having 19 years of teaching experience. He has successfully guided 7 research scholars leading to PhD. Presently there are 8 research scholars working for doctoral degrees. He has published more than 100 research papers in national and international journals and conference proceedings. He has attended and presented paper in national and international conference. He has been associated with many universities on academic assignment. He is life member of ILA, KALA and IATLIS. He has completed a major research project funded by UGC. He is also serving as Director, PMEBA, Tumkur University, Tumakuru.*