



EDITORIAL

Journal of Optometry bibliometrics

Índices bibliométricos de Journal of Optometry

José M. González-Méijome*



Editor-in-Chief, Clinical and Experimental Optometry Research Lab (CEORLab), Center of Physics, University of Minho, Portugal

Scientific bibliometrics or “Scientometrics” are increasingly used to evaluate the impact of scientific publication. Most of them rank the scientific work visibility for individuals, journals or institutions based on different algorithms that generally compute the number of citations received by the publications. They have a significant effect on the public and peers perception of scientific merit for authors, journals and institutions.

Not dismissing the limitations of those metrics, which have been object of previous publications^{1,2} they provide an objective methodology to evaluate the impact of the research published. Other applications of bibliometrics aim to identify the interaction between researchers in different fields highlighting the predominant authors or the countries where such research is conducted.^{3–7} One of the most traditionally used metrics is the Impact Factor (IF) published every year by Clarivate Analytics in the Web of Science.⁸ This index ranks the journals according to the number of citations received over the previous two years. So, the IF uses a simple algorithm resulting from a quotient between citations received (numerator) and articles published (denominator) over the 2 year period.

Journal of Optometry has evolved significantly in the number of manuscripts submitted for publication as well as in the number of citations collected from other publications.

Figure 1 shows a picture of other rankings for Journal of Optometry as obtained on March 22nd, 2020. Notably, J Optom SJR has increased steadily over the last 4 years. Out of the 10 indexed journals in its category, J Optom ranks

3rd along with the other two main journals Optometry and Vision Science (OVS) published by the American Academy of Optometry and Ophthalmic and Physiological Optics (OPO) published by the British College of Optometrists. J Optom is also the only one that provides Open Access to readers, being also free for authors publishing in the journal.

Consequently, metrics calculated by different platforms has increased steadily over the past years. All the estimated metrics have increased consistently over the last years. (Figure 1). Clarivate IF metric is not available as J Optom is not indexed in that database. Lower absolute values of SJR and SNIP (see figure caption for definitions) should not surprise the reader as they result from the calculation method and this behavior is also common to other journals in the field. A summarized view of relevant aspects and calculation

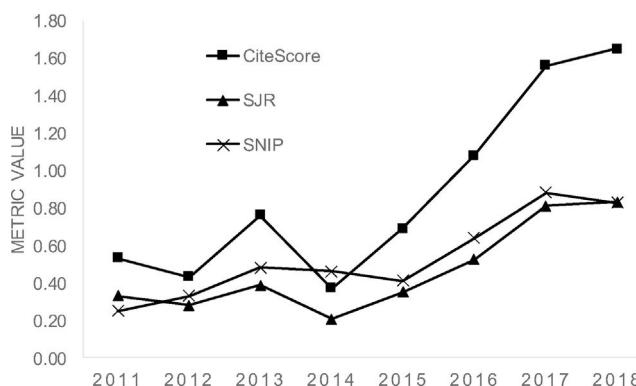


Figure 1 Evolution of Journal of Optometry metric values from 2011 to 2018 Scopus CiteScore (CiteScore), SCImago Journal Ranking (SJR), and CWTS Source Normalized Impact per Paper (SNIP).

* Corresponding author. José M. González-Méijome, PhD CEORLab – Center of Physics University of Minho, Portugal.
E-mail address: jgmeijome@fisica.uminho.pt

methods of the different metrics introduced in this editorial are summarized in Table 1.

One of those important metrics adopted by several academic institutions around the world has been delivered by SCImago. According to Scimago ranking, the Journal of Optometry ended the year 2018 in the 1st quartile (3rd in the ranking) in the section of *Health Professions (Optometry)* along with other 9 publications.⁹ SCImago Journal Ranking (SJR) index is a metric based on the idea that not all citations are the same. SJR uses a similar algorithm as the Google page rank; it provides a quantitative and qualitative measure of the journal's impact. In the words of SCImago "SJR is a measure of scientific influence of journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where such citations are originated. It measures the scientific influence of the average article in a journal, it expresses how central to the global scientific discussion an average article of the journal is".

The H-index, after Argentinean-American Professor Jorge E. Hirsch is another metric that now has been extended to rank not only individuals but also institutions and journals.¹⁰ H-index represents the number of publications by a given author, journal or institution being cited equal or superior number of times. Despite its merits in differentiating highly cited publications, this metric tends to favor the older publications compared to the new publications as well as older

authors compared to youngest that had less time to accumulate citations. As an example, J Optom ranks 6th in the SJR instead of 3rd, when ordered by H-index which is perfectly understandable as the first 4 ranked are covered from the 1980's for the calculation of this index compared to 2007 for the 5th ranked journal and third semester of 2008 for J Optom.

Another emerging index is the Scopus CiteScore™ that measures average citations received per document published. In its 2018 metrics covering citations during 2015, 2016 and 2017, J Optom ranks 3rd among the 14 journals indexed in the Optometry field. As stated in CiteScore webpage, all types of documents (research articles, review articles, conference proceedings, editorials errata, letters, notes, and short surveys) are included in the CiteScore calculation. Although articles in press are included in Scopus they are not included in the CiteScore calculation.¹¹

No single metric is perfect and one of the flaws pointed is that comparing journals or authors in different fields is difficult because of the asymmetry between the scientific activity. For example, comparing Cancer research field where thousands of articles are published covering a very large scope of biological, pharmaceutical, medical specialties among many others and being potentially cited by all of them, with other sub-specialties as Ophthalmology, Optometry, etc, is not possible. To avoid this, some metrics such

Table 1 Different citation metrics and Journal of Optometry position in the ranking. Information collected between last trimester 2019 and first trimester 2020.

	Impact Factor (IF) ^a	SCImago Journal Ranking (SJR) ^b	H-index ^{*c}	CiteScore ^d	Source Normalized Impact per Paper (SNIP) ^e
Owner/Developer	Clarivate Analytics	SCImago	Database owner	Scopus-Elsevier	CWTS at Leiden University
SourceDatabase Algorithm(i.e. year 2018)	Web of Science Citations (2016+2017) Publications (2016+2017)	Scopus Not disclosed, "claimed to be similar to the Google PageRank algorithm"	Scopus Number of Publications with \geq Number of Citations Each	Scopus Citations (2018) Publications (2015+2016+2017)	Scopus Not disclosed, "weights citations according to fields potential"
Number of Journals analyzed	≈12.000	≈32.000	≈25.000	≈25.000	≈25.000
Positive aspects	Simple metric Available every year	Free Access Considers wider scope of journals	Positive discrimination of highly cited items	Free Access Considers a longer period (3years) Considers wider scope of journals	Free Access Direct comparison of subfields Considers wider scope of journals
Negative aspect	Paid Access Only counts citations in journals with IF	Algorithm not fully disclosed	No timeframe, favors older publications	Citations of one year, significant short-term variations	Algorithm not fully disclosed
J Optom Ranking [‡] (2018)	Not indexed	3 rd out of 10	6 th	3 rd out of 14	4 th out of 8

* H-index as reported in the in SCImago Journal Ranking (SJR) using Scopus Database

‡ Subject Area and Category: Health Professions / Optometry

Sources:

^a <https://jcr.clarivate.com/JCRHomePageAction.action>

^{b,c} <https://www.scimagojr.com/journalrank.php>

^d <https://www.scopus.com/sources>

^e <https://www.journalindicators.com/indicators>

as the Source Normalized Impact per Paper (SNIP) developed by Centre for Science and Technology Studies (CWTS) of Leiden University weights citations based on the total number of citations in a subject field.¹² As stated elsewhere ‘‘compares each journal’s citations per publication with the citation potential of its field, defined as the set of publications citing that journal’’. A synthesis of this and other citation metrics can be found elsewhere.^{13,14}

It has to be highlighted that all metrics have about 1 to 2 years of delay as the metrics usually available have been calculated considering the citations in papers published 2 years before the yearly metric release. This is the only way to capture virtually all the citations obtained by a given article, author, journal or institution.

As authors, reviewers, professionals and students recognize the value of Journal of Optometry in dissemination of the knowledge this has been followed by prestige databases as recognition of Pubmed, Scopus, SCIMago, SNIP, CiteScore, just to mention some of the most widely adopted. Noteworthy, the metrics achieved by J Optom are even more remarkable considering that its level of autocitation is among the lowest, under 10% of all the cites collected between 2015 and 2019. Journal of Optometry is certainly a fully consolidated and respected journal in the field and it is our responsibility to keep this track record to strength the publication capability of the optometry and vision science field to contribute to the advance of scientific knowledge and provide wider and better eyecare to populations World-wide.

References

1. Grzybowski A. The journal impact factor: how to interpret its true value and importance. *Med Sci Monit.* 2009;15. SR1-4.
2. Grzybowski A. Impact factor-strengths and weaknesses. *Clin Dermatol.* 2010;28:455–457, <http://dx.doi.org/10.1016/j.clindermatol.2010.01.002>.
3. Cardona G, Sanz JP. Publication analysis of the contact lens field: what are the current topics of interest? *J Optom.* 2015;8:33–39, <http://dx.doi.org/10.1016/j.optom.2014.02.003>.
4. Ruiz-Pomeda A, et al. Bibliometric study of scientific research on optometric visual therapy. *J Optom.* 2020 (in press).
5. Efron N, Brennan NA, Nichols JJ. Citation analysis of the contact lens field. *Optom Vis Sci.* 2012;89:70–79, <http://dx.doi.org/10.1097/OPX.0b013e318236dcca>.
6. Efron N, Brennan NA. Citation analysis of Australia-trained optometrists. *Clin Exp Optom.* 2011;94:600–605, <http://dx.doi.org/10.1111/j.1444-0938.2011.00652.x>.
7. Villa-Collar C, Álvarez-Peregrina C, Hidalgo Santa Cruz F, Povedano-Montero FJ. Bibliometric Study of Scientific Research on Overnight Orthokeratology. *Eye Contact Lens.* 2018;44:344–349, <http://dx.doi.org/10.1097/ICL.0000000000000545>.
8. Journal Citation Reports. Available at: <https://jcr.clarivate.com/JCRHomePageAction.action>. Accessed on March 22nd, 2020.
9. Scimago Journal Rankings. Available at: <https://www.scimagojr.com/journalrank.php?category=3610>. Accessed on March 22nd, 2020.
10. Hirsch JE. An index to quantify an individual’s scientific research output. *PNAS.* 2005;102:16569–16572, <http://dx.doi.org/10.1073/pnas.0507655102>.
11. CiteScore 2018 metrics. Available at: <https://www.scopus.com/sources>. Accessed on March 22nd, 2020.
12. CWTS. Available at: <https://www.journalindicators.com/products>. Accessed on March 22nd, 2020.
13. Measuring a journal’s impact. Available at: <https://www.elsevier.com/authors/journal-authors/measuring-a-journals-impact>. Accessed on March 2nd, 2020.
14. University of Maryland Libraries. Available at: <https://lib.guides.umd.edu/c.php?g=327388&p=2196059>. Accessed on March 22nd, 2020.