Impact factor: Is it the ultimate parameter for the quality of publication?

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In the present time of competitive world of science, the career development or awards/prizes are largely based on the scientific publications as one of the major parameters of the caliber of a scientist. The quality of publications is generally judged on the Thomson Reuters’ impact factor (IF) of the journal publishing the article.\[^1\]

While this is an important and relevant yardstick for the quality of publication/quality of research, one must also understand that this is not the only parameter to judge the quality of the journal and the article.\[^2\] One must note that the traditional method of evaluation continues to be peer review, whereby scientific results are scrutinized by scientific colleagues, who are assumed to have required expertise.

The other prevailing misconception amongst researchers is that publication of an article in an e-journal should not be considered as an original article. This is just baseless, to say the least. The fact is that ‘e’ i.e. electronic is merely a medium of communication like paper in print journal. In today’s time, more and more number of people access e-version of various journals and that is crucial for the citations of an article. That is why researchers are now using more and more of social media including researcher ID and ORCID for disseminating their research globally.

The official journal of the Indian Association of Indian Medical Microbiologists is the *Indian Journal of Medical Microbiology* (IJMM). Many experts and decision-making bodies consider a publication in IJMM as that in a “National Journal” and, therefore, do not judge the articles published as of international standard. As Editors, it is our duty to clarify that a journal indexed in all major indexing and abstracting services globally and having Thomson Reuters’ IF factor is a journal of international quality irrespective of the country of its publication. IJMM is a peer review journal and is indexed with all major global alert services viz. CAB Abstracts, Caspur, CINAHL, China National Knowledge Infrastructure, DOAJ, EBSCO Publishing’s Electronic Databases, Excerpta Medica/EMBASE, Genamics Journal Seek, Google Scholar, Hinari, IndMed, Journal Citation Reports (JCRs), MedInd, MEDLINE/Index Medicus, National Science Library, OpenJ Gate, PrimoCentral, ProQuest, PubMed, Science Citation Index, Science Citation Index Expanded, Scimago Journal Ranking, SCOPUS, Summon by Serial Solutions and Web of Science. It is a member of the Committee on Publication Ethics.

In the Indian context, IF has assumed an important role. As a result, all sorts of indices are being devised for evaluating one and all – scientific journals, science, and scientists. In addition, a lot of emphasis is being given to IF when deciding a promotion or selection, all the researchers, therefore, want publications in journals which are indexed in Thomson Reuters’ Web of Science’s principal component, i.e. Science Citation Index expanded database with IF and its sister annual publication, the JCRs.\[^3\] Therefore, it is important to understand the basics of IF.

The latest edition of JCR has published 2014 IF. It has only 104 Indian journals and IJMM is one of them. The IF of IJMM has slightly come down to 0.882 in 2014 from 1.037 in 2013, which caused a lot of apprehension in the IJMM and Editorial Board members. In fact, there are many factors which determine the IF of a journal.

The method of calculation of the IF is illustrated below.\[^1\]

**Impact Factor Calculation**

The IF for a particular journal is calculated by dividing the total number of citations received by the articles published in

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the journal during the two previous years, by the number of articles published in the journal the same period.

Mathematically,

\[
\text{IF (Jy)} = \frac{X_1 + X_2}{Y_1 + Y_2}
\]

Where,

\(X_1 = \text{Number of citations received by Y1 source items in Y year.}\)

\(X_2 = \text{Number of citations received by Y2 source items in Y year.}\)

\(Y_1 = \text{Number of source items published in journal J in (Y-1) year.}\)

\(Y_2 = \text{Number of source items published in journal J in (Y-2) year.}\)

Thus, the IF is the average number of citations received per year by the articles published in the journal during the previous 2 years and is, therefore, an estimate of the number of citations an average article published in that journal the present year will receive.

2014 Impact Factor for the Indian Journal of Medical Microbiology

Cites in 2014 to items published in:

- 2013 = 52
- 2012 = 90
- Sum = 142

Number of items published in:

- 2013 = 78
- 2012 = 83
- Sum = 161

\[\text{Calculation:} \frac{\text{Cites to recent items}}{\text{Number of recent items}} = \frac{142}{161} = 0.882\]

IFs are calculated and published yearly in the JCRs, brought out by the Thomson Reuters, USA. The latest edition released in June this year provides 2014 IF of journals.

The type of articles can sometimes skew the IF. The example was given in a recent correspondence.\[^4\] Specifically, the IF of the journal, *Acta Crystallographica Section A: Foundations of Crystallography* (pISSN 0108-7673) was 2.051 in 2008, mutated to 49.926 in 2009 and then increased to 54.333 in 2010, and its current 2014 IF is 2.3074! The main reason attributed to this high IF was a single review article receiving a large number of citations. This shows that we should not just assess the quality of a publication by the IF of the journal where it is published but also look at the citations for that particular article. Such kind of situations has now emphasized the role of \(h\)-index for the evaluation of a scientists’ output in terms of research publications. Interestingly, people are now even talking about honest \(h\)-index (i.e., excluding self-citations from the calculation of \(h\)-index).\[^5\]

The authors’ views expressed in this communication do not necessarily reflect the views of the AIIMS or ICMR, New Delhi.

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