

# Journal Impact Factor: Its Use, Significance and Limitations

Dear Editor,

The impact factor (IF) is frequently used as an indicator of the importance of a journal to its field. It was first introduced by Eugene Garfield, the founder of the Institute for Scientific Information.<sup>[1]</sup> Although IF is widely used by institutions and clinicians, people have widespread misconception regarding the method for calculating the journal IF, its significance and how it can be utilized. The IF of a journal is not associated to the factors like quality of peer review process and quality of content of the journal, but is a measure that reflects the average number of citations to articles published in journals, books, thesis, project reports, newspapers, conference/seminar proceedings, documents published in internet, notes, and any other approved documents (by Indian Council of Medical Research or similar body).<sup>[2]</sup>

Impact factor is commonly used to evaluate the relative importance of a journal within its field and to measure the frequency with which the "average article" in a journal has been cited in a particular time period. Journal which publishes more review articles will get highest IFs. Journals with higher IFs believed to be more important than those with lower ones.<sup>[3]</sup> According to Eugene Garfield "impact simply reflects the ability of the journals and editors to attract the best paper available."<sup>[4]</sup> Journal which publishes more review articles will get maximum IFs.

Impact factor can be calculated after completing the minimum of 3 years of publication; for that reason journal IF cannot be calculated for new journals. The journal with the highest IF is the one that published the most commonly cited articles over a 2-year period. The IF applies only to journals, not to individual articles or individual scientists

unlike the "H-index." The relative number of citations an individual article receives is better evaluated as "citation impact." In a given year, the IF of a journal is the average number of citations received per article published in that journal during the 2 preceding years. IFs are calculated each year by Thomson scientific for those journals that it indexes, and are published in Journal Citation Reports ([http://www.thomsonreuters.com/products\\_services/science/science\\_products/a-z/journal\\_citation\\_reports/](http://www.thomsonreuters.com/products_services/science/science_products/a-z/journal_citation_reports/)). For example, if a journal has an IF of 3 in 2008, then its papers published in 2006 and 2007 received three citations each on average in 2008. The 2008 IFs are actually published in 2009; they cannot be calculated until all of the 2008 publications have been processed by the indexing agency (Thomson Reuters). The IF for the biomedical journals may range up to 5-8%.<sup>[5]</sup> The IF of any journal may be calculated by the formula;

$$2012 \text{ impact factor} = A / B$$

Where A is the number of times articles published in 2010 and 2011 were cited by indexed journals during 2012. B is the total number of citable items like articles and reviews published by that journal in 2010 and 2011.

The calculation of IF for the journal where in a person has published articles is a contentious issue. Nevertheless, this have been already warned; "misuse in evaluating individuals" because there is "a wide variation from article to article within a single journal" therefore, "In an ideal world, evaluators would read each article and make personal judgments," said by Eugene Garfield.<sup>[1]</sup>

**Mohit Sharma, Anurag Sarin, Priyanka Gupta<sup>1</sup>, Shobhit Sachdeva<sup>2</sup>, Ankur V. Desai<sup>3</sup>**

Departments of Conservative Dentistry, Shree Bankey Bihari Dental College and Research Centre, Ghaziabad, <sup>1</sup>Maharana Pratap College of Dentistry and Research Centre, Gwalior, <sup>3</sup>Vaidik Dental College and Research Centre, Daman, <sup>2</sup>Department of Pedodontics, ITS Dental College, Ghaziabad, India

## References

1. Garfield E. The history and meaning of the journal impact factor. JAMA 2006;295:90-3.
2. Esposito M. The impact factor: Its use, misuse, and significance. Int J Prosth Dent 2011;24:85.
3. Malathi M, Thappa DM. The intricacies of impact factor and mid-term review of editorship. Indian J Dermatol Venereol Leprol 2012;78:1-4.
4. Garfield E. How can impact factors be improved? BMJ 1996;313:411-3.
5. Rossner M, Van Epps H, Hill E. Show me the data. J Cell Biol 2007;179:1091-2.

### Access this article online

#### Quick Response Code:



#### Website:

[www.wjnm.org](http://www.wjnm.org)

#### DOI:

10.4103/1450-1147.139151

#### Address for correspondence:

Dr. Mohit Sharma, Department of Conservative Dentistry, Shree Bankey Bihari Dental College and Research Centre, Ghaziabad, Uttar Pradesh, India.  
E mail: dhirik160@gmail.com