

Journal Impact Factor

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Eugene Garfield of Institute of Scientific Information (ISI) of Philadelphia, USA introduced Journal Impact Factor (IF) in 1960. The impact factor is calculated every year from 17000 science and social sciences journals indexed by ISI. The calculation of Impact factor is based upon citation of various papers published by that journal during the two previous years. It indicates how many times the papers published in a journal are cited by others in their articles.¹

For example, the 2005 impact factor for a journal can be calculated as follows:

- * The number of articles published in a journal during 2003 and 2004, which were cited in all ISI indexed journals during 2005.
- * The total number of articles, reviews, proceedings or notes published in the same journal during 2003 to 2004.

The IF of the journal for 2005 will be = A/B.

The impact factors and indices are published in Journal of Citation Reports (JCR) every year.² The IF of some of these journals out of 6088 journals published in 2005 are shown in the table.

The IF is the gauge of the quality of various journals. Higher the impact factor, greater is the prestige of that journal. IF provides quantitative tool for ranking, evaluating, categorizing, and comparing various journals. The most important application of IF is its weightage in academic appointments. IF has a huge, but controversial, influence on the way published scientific research is perceived and evaluated.³

What are the controversies regarding IF? The opponents of IF argue that few non-English journals are indexed by ISI. Delay in processing of an article causes outdated of research therefore less citation. Journals

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containing more review articles have greater citation, therefore higher impact factor. Others complain that the temporal window for citation is too short, therefore classic articles cited frequently even after several decades are not included in the citation, thus does not affect the IF of that journal. Example of super-citation classic includes the Lowry method⁴ cited 300,000 times. Furthermore self citation is encouraged by editors to improve the IF of that journal.⁵ A recent debate on the World Association of Medical Editors (WAME) Listserv also highlighted the fact that how some journals try to manipulate their Impact Factor.⁶

As evident from the table no biomedical journal of Pakistan has any IF and therefore cannot be compared with any international journals. Ideally the local journals should try to get in themselves indexed with ISI and acquire an impact factor.⁷ At present just one, Pakistan Journal of Medical Sciences is covered by the Science Citation Index Expanded (SCIE) by ISI/Thompson which has just been approved in April 2007. Inclusion of

Table: Impact factor of some of international journals and the only two Pakistani journals, which have an impact factor.	
<i>Journal Title</i>	<i>2005 Impact Factor</i>
Annual review of Immunology	52.4
New England journal of Medicine	38.6
Nature Reviews: Cancer	36.6
Physiological reviews	33.9
Nature	32.2
Science	31.9
Nature Medicine	31.2
Cell	28.4
JAMA	24.8
Nature Genetics	24.7
Pharmacological Reviews	22.8
Lancet	21.7
Annals of Internal medicine	13.1
BMJ	7.0
J chemical society of Pakistan	0.194
Pakistan journal of Botany	0.153

more Pakistani medical journals at the moment seems very difficult at present. Currently 36 biomedical journals are recognized by Pakistan Medical and Dental Council (PMDC) and they give equal importance to all of them. This is not fair as some of these journals are of very high standards and indexed in Index Medicus, whereas others have variable standards. Therefore we must devise a system similar to IF for local biomedical journals so that authors publishing in better journals may be given preference over those who get their papers published in low standard journals. There are a number of institutions which can take this responsibility, like Higher education Commission of Pakistan, PM&C or College of Physicians and Surgeons Pakistan. Impact can also be calculated, like Citation index, which shows the number of times an article is cited by others.⁸

Other measures of impact of a journal are now under active consideration. The examples include PageRank algorithm, H-Index and The F1000 factor.^{8,9}

Page Rank algorithm: J. Bollen et al proposed it in 2006. Page Rank algorithm is used by Google to distinguish the quality of citations and hence improve the Impact Factor.

*H-Index:*⁸ It seeks to describe the impact of individual researchers, rather than journals.

*The F1000 Factor.*¹⁰ The Faculty of 1000 medicine evaluates and comments on the most interesting papers they read each month. They assign a rating: "Recommended" (F1000 factor 3.1), "Must read" (F1000 factor 6.2), "Exceptional" (F1000 factor 10.7)

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