

HOW RELEVANT ARE IMPACT FACTOR AND INDEXATION IN MEDLINE ?

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In the late 50's Eugene Garfield¹ thought of an innocent idea of "Journal Impact Factor", essentially a grading system for journals that could help to pick out the most important publications from the ranks of lesser titles. From there on Impact Factor (IF) became a widely used measure of the citations to science and social science journals. Thus it was considered a yardstick for the reputation and popularity of a journal. IF became institutionalized when Garfield founded The Institute of Scientific Information (ISI), now part of Thomson Scientific, developed citation indices and compiled a Science Citation Index (SCI), ending up in Journal Citation Reports (JCR) in 1975.

IF served a very useful purpose for many years and it had huge influence on the way the published scientific research is perceived and evaluated; however, in the recent years IF has become controversial as it has been used as a tool to control the scientific enterprise. While IF is being applied to the journals in a skewed fashion, it is also being applied to the individual articles and individual scientists and researchers. This is a glaring misuse of an important yardstick. Garfield compares it to nuclear energy; a force that can help society but can unleash mayhem when it is misused. He warns about the "misuse in evaluating individuals" because there is "a wide variation from article to article within a single journal"²

IF, originally a measure of reputability of a journal, seems to have assumed so much power that it has started to play a critical role in hiring, tenure decisions and awarding of grants. This is another indication of the misuse of tool being applied as a measure of productivity of individual scientist or researcher.³

In a recent editorial⁴ The PLoS Medicine Editors are of the view that measures like these will become outmoded as the Internet allows for users to interact more directly with published articles. Many journals have taken appropriate steps in this direction. With the availability of more articles in full electronically and as search engines become more sophisticated at mining the Web and assessing usage, interaction with literature will become easier. This will provide an opportunity to the readers to judge papers for themselves rather than relying on outmoded surrogates for quality such as Impact Factor. Opening up of literature means that better ways are becoming available to assess the quality of papers and standard of the journals.

Questions are being raised with increasing frequency about the way the IF is calculated. There was an interesting debate on this issue on WAME Listserv recently.⁵

It is now alleged that IF is threatening to skew the course of scientific research. Inclination on the part of researcher is to select topics for research which are fashionable enough to be accommodated in high-impact journals rather than the topics which fulfill the practical needs of the community or society. Critics also point out that the editors may also manipulate the system through deceptive practices to inflate their own rankings,³ by asking the authors to

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add citations to the previous articles from the same journals. It is a clear violation of scientific ethics. Editorial policy may include publication of larger percentage of review articles with citation of articles from the same journal. Therefore review articles may raise the impact factor of the journal.⁶ Editors of some journals with good impact factor may reject the studies with less fashionable topics but also important papers, submitted from less developed part of the world, under the fear that such articles would not attract sufficient citation attention.

Considering the increasingly controversial status of IF, other measures of the impact are now under active consideration. For example: PageRank algorithm, H-index and The F1000 factor.

PageRank algorithm:

In 2006, it has been proposed by J. Bollen et al.⁷ to use PageRank algorithm used by Google to distinguish the quality of citations and hence improve Impact Factor. It is a modified system that combines the calculations made by ISI Impact Factor and PageRank.

H-index:

This index seeks to describe the impact of individual researchers, rather than journals. H-index has recently featured in Nature.⁸ Online programs are available to calculate a scientist's H-index (<http://www.brics.dk/mis/hnumber.html>).

The F1000 factor:

The faculty members of The Faculty of 1000 Medicine evaluate and comment 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).

Papers are classified into six types: interesting hypothesis, new findings, controversial, technical advance, important confirmation and refutation. (www.f1000medicine.com/about/system/)

The journals in the less developed world suffer on two accounts. Impact Factor is one of them. There is no representation in journals in big league with high IF and relatively poor

presence even in the list of journals with low IF. The other factor is low representation in the number of journals indexed in Medline. Does it mean that the journals published from the developing countries are uniformly poor in their quality? Or are they all irregular in their publication to warrant denial of indexation. Probably there is more than what meets the eye and there must not be so visible or apparent factors which do not allow the journals to get indexed on Medline. Our belief is that there are a significant number of journals, both general and specialized, who are doing a commendable job in spite of the difficulties of logistics and economics.

As a result of non-indexing the visibility of such journals is limited and that starts a vicious cycle of lack of repute and thus these journals do not attract significant contributions from the authors, especially the high quality papers.

Saving grace is provided by going online. Those journals which have taken the initiative to become visible by going on the net have significantly improved the number of manuscript submission. One such example is Pakistan Journal of Medical Sciences. Since going online, the number of submission, nationally and internationally has increased many folds.⁹⁻¹¹ Online journals, especially those with free, full text availability, provide easy access to the researchers to the medical data and also help to improve their citation rate.

Newer avenues, facilitating increased visibility of online journals, are now coming up. One such example is Directory of Open Access Journals.¹² It has over 650 quality controlled scientific journals with full text and available free. It is maintained by Lund University Library, supported by Scholarly Publishing and Academic Resource Coalition (SPARC). PubMed Central is also providing similar service. Yet another useful source for citations is the Google Scholar freely accessible on the net.

With full text medical journal availability on line, indexing in Medline is likely to become less significant. So much so that it has started

generating comments like, “with online availability of full text medical journals, indexing in Medline is going to become irrelevant”.¹³

Despite criticism and problems, Impact Factor and Indexation in Medline is an indication of quality of manuscripts and standard of a journal. However, it is Not and should Not be the only criteria to judge the quality and standard of a medical journal. The investigators and researchers could benefit a lot from the local data available now in abundance in various local and regional databases for reference to local studies as they cover most of the medical journals from the developing third world countries. More research is also needed to evaluate the Impact Factor and other measures of Journal and article quality. WAME suggests that Journal Editors should look beyond Impact Factor, present summary statistics and present other indicators of journal visibility which includes circulation, number of articles received and published every year besides distribution of citations.¹⁴ Such demographic of a journal should be regularly published to keep the readers and authors of the journal informed. In keeping with this principle what we at Pakistan Journal of Medical Sciences have tried to do, during the last few years is to publish the self publication audit. It is proving to be great source of information of the overall progress and a measure of quality for ourselves and the readers.

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