



## RESEARCH ARTICLE

### PUBMED INDEXING OR IMPACT FACTOR OF A JOURNAL: A DILEMMA TO A NEW AUTHOR FOR CONSIDERATION

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#### ABSTRACT

Publishing research articles has become an integral part of an author's/researcher's professional life. Publications are mandatory for faculty in institutions along with working or teaching experience. Medical council recommends indexed publications for being faculty in medical institutions. So authors are giving preferences to quality journals with respect to Pubmed Indexing or high Impact Factor. Some journals are highly rated indexed but have low impact factor while some journal have high impact factor but are not high rated index services. It is still a dilemma and difficult decision whether to select the journal having high Indexation services or having high Impact Factor for publication. This review has discussed the various aspects of indexing body i.e. pubmed/Medline and impact factor Journal Citation Reports (JCR) and Thomson Reuters (TR). It is desirable to publish research work in with journals indexed in highly rated indexing bodies also having high Impact Factor, however it is advisable to go for quality evaluation and peer-review publication processes.

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#### INTRODUCTION

The importance of publications in academic institution is increasingly recognized since past years. MCI/DCI recommends indexed publications for teaching faculty in medical and dental colleges. So new authors are publishing papers more and more since then. Selecting a good quality journals have a very tough and Dilemmatic decision for authors. Indexation or Impact factor, either or both, is the main question that arise in mind of new author for publishing into a journal as there is no clear criteria on the issue. Some journals are indexed in high rated indexing bodies e.g. Pubmed but having low Impact factor while other journals having high Impact factor but are not indexed in Pubmed. What are the criteria for a journal to be a 'high quality journal'? Indexation or Impact factor.

If we consider indexing then this brings us to the question which indexation is best and most valid and also how to compare the quality of articles published in journals indexed with different indexation services. If we consider Impact factor, what are criteria for calculating impact factors. Is its sole can be considered for measuring a quality of journal with its merits and demerits. Impact factor of a Journal does not have full guarantee that the individual article is of high impact. Indexation of a journal is representation of its quality. Indexed journals are considered to have greater scientific quality values when compared with non-indexed journals. Indexation of journals has become a controversial issue. Index Medicus has been the one of the most comprehensive indexing body of scientific journals since 1879. Over the years many other indexing services have come into existence. These include MedLine, PubMed, SCOPUS, Open J Gate, EMBASE, EBSCO Publishing's Electronic Databases, Hinari, Index Copernicus, SCIRUS, Caspur, SIIC databases, SCOLAR,

DOAJ, Ulrich's International Periodical Directory, Expanded Academic ASAP, Genamics Journal Seek, Primo Central, Pro Quest, Summon by Serial Solutions. Now the question arise is that all these indexing services are relevant equally? Journal indexed with any of these databases should be considered as "indexed"? Indexing is invaluable to the visibility and credibility of a journal. Inclusion in the right indexing services provides exposure to the target audience and potential authors. All BioMed Central journals within scope are included in PMC, and so indexed in PubMed (Balhara, 2012). PubMed is an online database (with its largest component being MEDLINE) of journal records and abstracts. It has approximately 5500 currently indexed titles. MEDLINE is a selective abstracting and indexing service with a good review process. Literature Selection Technical Review Committee (LSTRC), which consists of members from various medical specialties and they consider the applications for journal to get indexing in MEDLINE. Their review criterias are coverage scope and, quality and importance of content, editorial work quality, production quality, audience, content types, English abstracts, and geographical coverage. PubMed also contains the articles which are inprocess.

It links to full text articles in the online archive PubMedCentral (PMC). It also get the records of manuscripts funded by NIH and other funding agencies and maintain the records for a subset of books available from the NCBI BookShelf. MCI latest guidelines (2015) essentiate and recommends publications should be Indexed in agencies like: Scopus, PubMed, Medline, Embase/Excerpta Medica, index medicus and index Copernicus. Only original research articles and original research papers with authorship as first and second author is to be considered. Journals should be National or International journal and should be published by a National/International Specialty Journal/Journal of a National/International Society provided it included in one of the indexes mentioned above. Only is considered. E-journals: e-journals is not included.

### Impact factor

A related and equally controversial issue is that of impact factor (IF). 'Eugene Garfield' devised the Impact Factor (IF) which is calculated on yearly basis for journals indexed in Journal Citation Reports (JCR) and Thomson Reuters (TR). JCR provides quantitative tools for evaluation, categorization and comparing journals. The impact factor (IF) is the rate with which an article in a particular journal, is being cited in a specific time period. It measure the average number of citations to the articles published in science journals. The JCR impact factor is the ratio of citations and recently published citable items. Greater the impact factor of a journal, more influent is the journal when compared with the other journals published of the same subjects (Fassoulaki, 2002). The impact factor(IF) is the ratio between no. of citations and the recent citable items published. The impact factor of a journal is measured by the ratio of the number of citations in the current year to the published source items in that journal during the last two years by the number of published articles in that journal during the last two years. Journal Citation Reports (JCR) calculates and publishes the Yearly impact factors for journals. The greater impact factor usually indicates that the articles of this journal have been cited more (Not-so-deep impact, 2005). It can be understand by formula below.

$$2012 \text{ IF} = \frac{A(\text{Articles published in 2010-2011 cited in indexed journal during 2012})}{B(\text{Number of 'citable items' published in 2010-2011})}$$

$$B(\text{Number of 'citable items' published in 2010-2011})$$

One of the significant point in the calculation of IF is that it takes all the citations of journal in the numerator part of the calculation and in denominator part it only takes the documents which is worth scholarly. It includes research articles and reviews with other contents meeting the set criterias. Ideally the Impact Factor should only be used to compare between the journals that publish work and materials on the same subject, because of the citation behavior differences in different subject areas. Also it is unsuitable for assessment of individual documents. Since the majority of citations to a journal are subjected to the minority number of the articles for eg. typical 50% of total citations goes to less than 20% of articles, and 50% of articles are much responsible for 90% of the total citations, the Impact Factor influence very less about the most of the articles in a given journal. Lastly, the Impact Factor is very much susceptible to manipulation because its calculation includes a decision about the documents is to be taken as scholarly items or not and it counts the citations made from one document to another published with in the same journal. The impact factor is one the most important and essential criteria for measurement of journal's quality. It is regulated by the number of publications in each journal the self-citations. So the question arise here is that whether it means that the journal without an impact factor is not good in view of its quality and scientific content. There are also few journals calculating their own impact factors other than Journal Citation Reports (JCR) and Thomson Reuters (TR). The impact factor is very useful tool for clarification regarding the significance of absolute (or total) citation frequencies. It omits the bias of those counts which favors the big journals over smaller ones, or the more frequently issued journals over the less frequently issued journals and the older journals over newer ones (Malathi, 2012). Impact Factor is also awarded by SCImago Journal Ranking (SJR) like Thomson Reuters Journal Citation Reports (ISI-Thomson), Both are issued by Elsevier. SJR calculates IF based on a regularly and periodically cited data and gives variable weight to citations depending on the citing journal using the Page Rank algorithm in the journals network. The reputation of a journal is transferred from the references that a journal get from others. SCImago publish Cites/Document (C/D) for its journals. The Impact factor and C/Ds calculation is quite similar. IF or the C/D for journal "Jr" in any year "Yr" is given by the following equation:

$$\text{IF}(\text{Jr}, \text{Yr}) = \text{C/D}(\text{Jr}, \text{Yr}) = \frac{\text{C}(\text{Yr})}{\text{A}(\text{Yr}-2) + \text{A}(\text{Yr}-1)}$$

where  $C_{(Yr)}$  is the total number of citations in journals from each collection to articles published by journal "Jr" in years "Yr-2" and "Yr-1", and  $A_{(Yr-i)}$  is the number of articles published by "Jr" in years "Yr-1" and "Yr-2".

Few of journals now calculates IF using the same equation as:  $\text{IF}(\text{Yr}) = \text{A/B}$  (where Yr is the year, A is the number of times articles published in years 'Yr-1' and 'Yr-2' were citations in indexed journals during year 'Yr', and 'B' is the number of articles, reviews, and notes published by the journal in years 'Yr-1' and 'Yr-2') IF is not necessarily similar to C/D. These two collections cover up a very large areas of peer-reviewed scientific journals around the world. They gets overlap

significantly, but still there are differences. JCR-ISI provides its collection into two independent part i.e. JCR Science Citation Edition and JCR Social Sciences Citation Edition. Whereas SCImago uses a single index that covers its entire collection. Two other differences is significant. (1) SCImago is freely accessible but JCR-ISI is only accessed by fee-paying subscribers, and (2) JCR-ISI has a bias in favor of English-speaking countries where SCImago provides broader base for this regard. The Question is still in mind that what exactly do these indexing body measure and how reliable are they? It is general statement that citations of articles are an indirect measure of quality, so it is assumed that both IF and C/D reflect quality. However, no gold standard has been discussed that effectively measures journal quality. There are various factors which creates bias in the calculation of IF. These factors are mainly the database language preference and coverage, citations collecting procedures, impact factor calculating algorithm, citation distribution of journals, publications online availability, negative citations, publishers preference regarding the type of articles, publication lag, behavior citation across various subjects etc. These above factors may also play a vital role, impact and influence in journal indexation (Balhara, 2011).

### Conclusion

To conclude it can be said that a journal with a high impact factor ratio is perceived to have more significant impact in their field. The number of articles and self-citation is definitely have more effects on Impact factor of a journal.

Impact factor is the one of the most essential and prominent criterion for measurement of journal's quality. So it would be a very good suggestion for considering factors that affects Impact factor like self-citation. It is very much desirable to publish work in journals which are indexed in highly rated indexing/abstracting bodies as well as those having high Impact Factor, however it is advisable to go for quality evaluation and peer-review processes. To get clean and clear picture of impact / indexing / quality of journal, the editors association must play essential role in considering that indexing bodies/ agencies should have a good open,fair and clear criterias for selection and a unversly accepted standard formula should be established.

**Conflict of Interest:** We declare that none of the authors have a conflict of interests.

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