## Review Research Paper

# Higher Impact Factor: Better Journal? Not a Necessity

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## Abstract

Often, impact factor (IF) is considered as an important criteria to assess the academic repute of a scientific journal. It is considered as the all important criteria to decide how good the journal is. This has led to a mad rush for publishing articles in journals having higher impact factors. In recent years it has became a dilemma for the new comers to the field that how to search for a "Good" journal for their budding articles. In the present article we are going to discuss the pros and cons of using impact factor as the criteria for judging the quality of the article as well the journal in which it is published. A brief overview about the procedure of imparting impact factor to the journal is also presented. Additionally, a brief description of the other prevalent bibliometric measures is also discussed.


**Key words**: Impact factor, Bibliometric indicators, Academic Journal

## Introduction:

For a promising academic carrier nowadays it has became mandatory to publish a paper into a journal of good repute. These papers and publications count a lot for recruitment of faculty and promotions as per the prevailing trends of Medical Council of India. But when it comes to the assessment of 'goodness' of repute of the journal, there arrives a question- how to judge this goodness.

Often, the impact factor is considered an important criterion to decide the academic repute of a journal. It has become a trend that authors are now assessed, not so much by the validity, interest or quality of the work itself, but by the impact factor of the journal. [1]

However, is impact factor an appropriate and justified bibliometric measure? Should it be the only criteria while selecting a journal? These and other relevant questions form the basis for the present article.

The article further revises the exponential growth of bibliometric and attempts to expose the overall dissatisfaction with the analytical quality of IF. [2]


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## Who Reports Impact Factor?

Impact factor is obtained from the data that is produced by the Institute for Scientific Information (ISI) in Philadelphia since 1961. The ISI records scientific citations as represented by the reference lists of articles from a large number of the world's scientific journals.

The references are rearranged in the database to show how many times each publication has been cited within a certain period of time, and by whom. These results are then published as the Science Citation Index (SCI).

On the basis of this index and the list of authors' publications, the annual rate of citation of papers by a scientific author or a research group is calculated. Similarly, the citation rate of a scientific journal, known as the journal impact factor, can be calculated. By this definition, only research articles, technical notes and reviews are "citable" items, meaning that only these publications can be cited.

Other types of publications, like editorials, letters, news items, meeting abstracts etc. are "non-citable items", meaning that they are not used for the purpose of calculating impact factor. [2, 3]

In general **impact factor** (IF) of an academic journal is a measure reflecting the average number of citations to recent articles published in the journal. [4] In a given year, the impact factor of a journal is the average number of citations received per paper published in that journal during the two preceding years.

For example, if a journal has an impact factor of 3 in 2008, then its papers published in 2006 and 2007 received 3 citations each on

average in 2008. The 2008 impact factor of a journal would be calculated as follows:
*A* = the number of times that articles published in that journal in 2006 and 2007, were cited by articles in indexed journals during 2008.
*B* = the total number of "citable items" published by that journal in 2006 and 2007. ("Citable items" are usually articles, reviews, proceedings, or notes; not editorials or letters to the editor.)
2008 impact factor = *A*/*B*. [4]

## The Pros and Cons of Impact Factor:

Nothing in this world is perfect and the same implies to the celebrated bibliometric measure- impact factor. Here we have made an attempt to evaluate the merits and demerits of the usage of this criterion which are discussed as follows:

## Pros:

1. It provides objectivity to the peer review process, which is the first requirement of any assessment system.
2. Better the article; more are its chances of being published. Therefore, the impact factor tells about the worthiness of the articles that are published.
3. It is a reasonably good measure of establishing quality, especially if used judiciously. [5]
4. It ensures maintenance of standards of article when they are published in the journal.
5. It brings bibliometric uniformity in the assessment system.
6. It is an important tool to prevent manipulation of the journals by big publications. Its presence ensures that the less popular journals of big publication houses are not given undue favours merely because of their names.
7. It makes peer review more transparent and helps in counterchecking its shortcomings. [6]

While the above mentioned advantages make IF an important tool in bringing subjectivity to the way different journals are ranked, it is not without its shortcomings. Some of these are documented below.

## Cons:

1. In an ideal world, every citation must be accounted for. However, this is not the case with IF. There are situations like self-citations, 'ghostly' citations, letter to the editor etc. which increases the citation of the article, causing IF to be manipulated. [5,7,8]
2. IF can be manipulated by the industry based on their requirements.
3. Any article/manuscript that can have a positive effect on the respective company can be promoted by the respective company, thereby increasing the IF. [9]
4. It is an incomplete and inadequate method to measure the scientific merit of the published article.

a) It tells how many times the article is cited, not how deserving the article is. The number of citations depends on the amount of work that is being done on that subject, and not on its utility. Therefore, the fields which are dynamic, i.e. having large scale expansion and contraction, have more chances of being cited, and thus have higher impact factor. Thus, the fields that are short-lived are often favoured by the journals to boost up their IF, putting other specialties at a relative disadvantage.

b) The number of citations is highly dependent on the language and geographical location of the journal and author. A journal/author who is publishing from English speaking country, like USA, would be cited more often than someone who is from non-English speaking region, like Asia. [10-12]

5. The two year citation period is highly arbitrary and questionable. Dynamic and rapidly evolving fields like biochemistry and molecular biology would obviously cite more articles, thereby having higher IF, vis-à-vis a slowly developing field like Forensic Medicine. [8]
6. The length of the publication also affects the impact factor. It is seen that long articles collect many citations and give high journal impact factors. Consecutively, short publication lag allows many short term journal self citations and gives a high journal impact factor.
7. '**Coercive citation**' is another disturbing trend that is visible these days. In order to inflate the impact factor, the editors force the authors to add some citations from their journal, or out rightly reject those articles which do not have any citation of their journal. These spurious citations defeat the very aim of research and learning. [13]
8. One important criticism of IF is that the database that is used to calculate it is not complete. An important set of instrument that is not used is the books, which are important scientific publications.
9. Impact factor is distorted by positive feedback. This means that many times, the articles are cited not based on actual reading, but by their citation in other articles. People just add them, simply to increase the

bibliography of their article, without going through them. This distorts the actual citation of the article. [14,15]

10. Journals on basic sciences cover a large number of topics. So, obviously, they would have a higher impact factor, as compared to the specialist journals, that would have a lesser impact factor. [16, 17]
11. Manipulation by the journals: A journal can adopt editorial policies to increase its impact factor. For example, journals tend to publish more review articles, as they are cited more, thereby increasing the impact factor of the journal. This is evident from the fact that review journals generally have the highest impact factor in their respective fields. [18]
12. Statistical shortcomings: it is not necessary that every article of the journal is cited same number of times. Often, few articles are cited more, while others are cited less. This gives a skewed appearance to the article citation rate and consequently to the journal impact factor. [19]

## Other Bibliometric Indicators:

Impact factor is not the only bibliographic measure that is present to assess the quality of the journal. There are other methods that can provide the same. Some of these include Google Scholar, Page Rank, H-index, Immediacy index, Eigen Factor etc., which are detailed below: [20]

1. **Immediacy Index**: It denotes the number of citations the articles in a journal receive in a given year, divided by the total number of articles published by the journal. (21).
2. **Cited Half-Life**: It is the median age of the articles that were cited in Journal Citation Reports each year. For example, if a journal's half-life in 2005 is 5, that means the citations from 2001-2005 are half of all the citations from that journal in 2005, and the other half of the citations precede 2001. [4, 21]
3. **Aggregate Impact Factor:** It is used for a subject category: This is calculated taking into account the number of citations to all journals in the subject category and the number of articles from all the journals in the subject category
4. **h-index:** This is an index that attempts to measure both the productivity and impact of the published work of a scientist or scholar. The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other publications. The index can also be applied to the productivity and impact of a group of scientists, such as a department or university or country, as well as a scholarly journal. It is sometimes called the Hirsch index or Hirsch number. [22]
5. **Page Rank:** It is used for websites. It works by counting the number and quality of links to a page to determine a rough estimate of how important the website is.
6. **Google Scholar:** While most academic databases and search engines allow users to select one factor (e.g. relevance, citation counts, or publication date) to rank results, Google Scholar ranks results with a combined ranking algorithm in a "way researchers do, weighing the full text of each article, the author, the publication in which the article appears, and how often the piece has been cited in other scholarly literature". [23]
7. **Eigen Factor Score**: Journals are rated according to the number of incoming citations, with citations from highly ranked journals weighted to make a larger contribution to the eight factor than those from poorly ranked journals. [24]
8. **SCImago Journal Rank:** The SJR indicator is a measure of scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where such citations come from.

## Conclusion:

Impact factor has become the most important barometer of measuring the reputation of the journal. However, it is not without its shortcomings, as we have seen.

Therefore, using it as the sole criteria for judging the journal is fought with danger. Although the use of impact factor-based indicators for science policy purposes has increased over the last two decades, several limitations have been pointed out and should be borne in mind.

As far as the field of Forensic Medicine is concerned, we have a limited viewership and readership. Impact factors of forensic journals are fairly low, in comparison with many other disciplines, probably because of the small size of the field, fewer active researchers and less pressure to publish. [25]

Bibliometric parameters may have academic consequences, e.g. in Central government institutes in India like AIIMS, the faculty of forensic medicine is at a relative disadvantage during the promotions and job upliftments as compared to their colleagues from the clinical fields.

This can be learnt from the fact that journals from the general medicine category like *Lancet* had an impact factor of 39.06 in 2011, while renowned journals of Forensic Medicine like **American Journal of Forensic Medicine and Pathology** had an impact factor of 0.883 in the same year.

For development of true research in the field of forensic medicine and toxicology we need to evaluate the journals beyond the scope of impact factor. [26] Although the current system may be effective at measuring merit on national and institutional scales, the most effective and fair analysis of a person's contribution derives from a direct assessment of individual papers, regardless of where they were published.

Forensic Medicine and Toxicology authors can consider other journal quality metric alternatives, in addition to the impact factor option, including the Eigen factor Score, Article Influence Score, h-index, SCImago Journal Rank (SJR), and discipline-specific generated journal quality measures. This should also be emphasized that there is no substitute for a well scrutinized and an informed peer-review procedure.

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