

Parajuli R

Department of ENT-Head and Neck Surgery
Chitwan Medical College Teaching Hospital, Bharatpur, Nepal.

Correspondence to:

Dr. Ramesh Parajuli
Department of ENT-Head and Neck Surgery
Chitwan Medical College Teaching Hospital, Bharatpur, Nepal.
E-mail: drrameshparajuli@gmail.com

IMPACT FACTOR IN OTOLARYNGOLOGY JOURNALS**Abstract:**

Impact factor is the measure of the number of citations within scientific journals. It is used to gauge the relative importance of a scientific journal within its field. Eugene Garfield, the founder of the Institute for Scientific Information (ISI), which is now part of Thomson, is the person who devised the impact factor. Thomson Scientific calculates impact factors annually for the journals it indexes.

Key words: Impact factor, Otolaryngology, Publications

INTRODUCTION:

Impact factor is the measure of the number of citations within the scientific journals. It reflects the frequency with which the articles in a journal are cited in the scientific literature¹. It is used to gauge the relative importance of a scientific journal within its field. Eugene Garfield and Irwin H. Sher created the concept of impact factor in 1961 to help to select journals for the Science Citation Index (SCI)². Eugene Garfield is the founder of the Institute of Scientific Information (ISI) which is now part of the publication company, Thomson Corporation (aka Thomson Scientific), now known as Thomson Reuters; which calculates impact factors annually for the journals it indexes.³.

METHOD OF CALCULATION:

As the impact factor (IF) is defined as the average number of citations, that the articles in a specific journal received during the previous 2 years, a journal's IF is based on 2 elements: the numerator, which is the number of citations in the current year to items published in the previous 2 years, and the denominator, which is the number of substantive articles and reviews published in the same 2 years⁴. Hence, in a given period (yearly), 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 5 in 2013, then its articles published in 2011 and 2012 received 5 citations each on average. The 2013 impact factor of a journal would be calculated as follows:

A = The number of times the articles published in 2011 and 2012, cited by journals
B = The total number of articles published by that journal in 2011 and 2012.

2013 Impact Factor = A/B

The journal impact factor relates to a specific time period; it is possible to calculate it for a desired period.

Impact factor is a simple method for comparing journals regardless of their size. Although being developed conceptually in the early 1960s, it has changed from a bibliometric indicator, to become a quantitative measure of the quality of a journal, its research papers, the researchers who wrote those papers, and even the institution they work in. The increasing awareness of journal impact factors, and the possibility of their use in evaluation, is already changing scientists' publication behavior towards publishing in journals with maximum impact. In China and in various parts of the world the University funding is awarded based on the basis of impact factors.

Advantages of journal impact factors:

1. IF is commonly used as a tool for managing scientific library collections. Librarians face with finite budgets, must make rational choices when selecting journals for their departments and institutions. Impact factor helps by determining which journals are most frequently cited. Journals that are cited frequently generally have the greatest "impact" in a given field and are therefore of greatest interest to researchers, teachers, and students in most scientific disciplines. Journal IF also help authors decide where to submit their articles. As a general rule, the journal with high IF is among the most prestigious today.
2. The impact factor is a valid tool for the quality assessment of scientific journals. It is based on a simple calculation of data that are fully visible in web of science⁵.
3. It is a good evaluation system of journals as it saves time of the researchers and clinicians, who otherwise have to go through each article for quality assessment.
4. Many researchers publish in local journals with little or no external peer review, to hide their ineffectiveness. Scientists when generally have something really important to report so called "hot papers" they send those articles to the better known, higher impact journals. So the researcher with their papers published in a journal with a high impact factor is evidence that the research may have some international significance³.

Limitations of journal impact factor:

1. Journal impact factors are not statistically representative of individual journal articles because IF correlate poorly with actual citations of individual articles for e.g. Review articles are heavily cited and inflate the IF of journals; similarly the long articles collect many citations and give high journal impact factor. And also the database is dominated by American publications and it has an English language bias⁶.
2. Numerator and denominator problem: IF is a ratio. ISI classify papers into a number of different types (articles, reviews, proceeding papers, editorials, letters to editor, news items, etc). Only those classified as 'articles' or 'reviews' and 'proceedings papers' are counted in the denominator for the impact factor calculation, whereas citations to all papers (including editorials, news items, letters to the editor, etc) are counted for the numerator. This can lead to an exaggerated IF (average citation per paper) for some journals compared to others⁷.
3. Most of the journals with the exception of few have a tendency to cite the articles from its own journal rather than citing the articles

of other journals. This self citing rate may significantly affect the impact factor of a journal⁸.

4. Papers like, case reports which are normally positioned at the lower end of the hierarchy of evidence, when published in the journals with higher impact factor may be considered as of higher academic value while review and original articles in lower impact factor journals would be recognized as of lower merit than a similar article in a more meritorious journal⁹.

DISCUSSION:

Evaluating scientific quality is a difficult problem which has no standard solution. Ideally, the published scientific results should be scrutinized by true experts in the field and scores should be given for quality and quantity according to established rules. The traditional methods of ranking journals includes peer review, reputation of author, editorial standards, percentage of research articles, inclusion in indexes and databases, online availability, timeliness, readership and circulation. In practice, however it is usually performed by a committee called peer review that resort to secondary criteria like crude publication counts, journal prestige, the reputation of authors and institutions, estimated importance and relevance of the research field. These committees have general competence rather than the specialist's insight that is needed to assess primary research data⁶.

The journal impact factor is one of the quantitative tools for ranking, evaluating, categorizing, and comparing journals. It is frequently used as a proxy for the importance of a journal to its field. The use of IF instead of actual article citation counts is a controversial issue². IF might reflect a journal's reputation rather than its actual quality. So there should be critical review of randomly selected samples from each journals to examine correlations between IF and quality of a journal¹⁰. The use of IF to evaluate both the journal and the author impact often causes problems. It is one thing to use impact factors to compare journals and quite another to use them to compare authors. Journal impact factors generally involve relatively large populations of articles and citations. Individual authors, on average, produce much smaller number of articles. It can be said that the Impact factor is not a perfect tool to measure the quality of articles but there is nothing better and it has the advantage of already being in existence and is, therefore, a good technique for scientific evaluation. Experience has shown that in each specialty the best journals are those in which it is most difficult to have an article accepted, and these are the journals that have a high impact factor. These journals existed long before the impact factor was devised. The use of impact factors, a measure of quality is widespread because it fits well with the opinion we have in each field of the best journals in our specialty¹¹. Although IF is not without limitations, there is evidence that it may be a valid indicator of quality for medical journals (as judged by both practitioners and researchers). So its use as a measurement tool in the selection of journals is probably justified¹⁰.

12	CURR OPIN OTOLARYNGO	1.731
13	RHINOLOGY	1.72
14	INT J AUDIOL	1.632
15	J AM ACAD AUDIOL	1.63
16	OTOLARYNG HEAD NECK	1.625
17	J VOICE	1.55
18	EUR ARCH OTO-RHINO-L	1.458
19	OTOLARYNG CLIN N AM	1.458
20	INT J PEDIATR OTORHI	1.35
21	AM J OTOLARYNG	1.228
22	ANN OTO RHINOL LARYN	1.212
23	TRENDS AMPLIF	1.125
24	ACTA OTO-LARYNGOL	1.106
25	ORL J OTO-RHINO-LARY	1.099
26	FOLIA PHONIAATR LOGO	1.077
27	ENT-EAR NOSE THROAT	1.03
28	INT FORUM ALLERGY RH	1
29	J VESTIBUL RES-EQUIL	1
30	AURIS NASUS LARYNX	0.948
31	CLIN EXP OTORHINOLAR	0.877
32	AM J AUDIOL	0.865
33	LARYNGO RHINNO OTOL	0.82
34	ACTA OTORHINOLARYNGO	0.786
35	SKULL BASE-INTERD AP	0.719
36	J LARYNGOL OTOL	0.681
37	LOGOP PHONIAATR VOCO	0.571
38	BRAZ J OTORHINOLAR	0.545
39	HNO	0.42
40	B-ENT	0.355

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Tab. 1: ENT Journals Impact Factors 2013

Rank	Journal	Impact Factor
1	EAR HEARING	3.262
2	JARO-J ASSOC RES OTO	2.952
3	HEAD NECK-J SCI SPEC	2.833
4	HEARING RES	2.537
5	AUDIOL NEURO-OTOL	2.318
6	OTOL NEUROTOL	2.014
7	LARYNGOSCOPE	1.979
8	DYSPHAGIA	1.938
9	CLIN OTOLARYNGOL	1.869
10	ARCH OTOLARYNGOL	1.779
11	AM J RHINOL ALLERGY	1.744