

# JOURNAL IMPACT FACTORS: USE AND MISUSE

## Short History and Definition

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The journal impact factor was created in the early 1960s by Eugene Garfield and Irving H. Sher to help select core group of highly cited journals for the Science Citation Index. From its onset it was intended solely to compare journals regardless of their size.

A journal's impact factor is based on two factors: (a) a numerator denoting the number of citations in the current year to any items published in the journal in the previous two years, and (b) a denominator denoting the number of substantive articles in the last two years.<sup>1</sup>

## Intended Use: Journal Comparison

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The journal impact factor was designed for only one purpose – to compare the citation impact of one journal with other journals.<sup>2</sup> While originally created to measure of the frequency with which the “average article” in a journal has been cited in a particular year, it also increasingly used to evaluate a journal's relative importance with others in the same field. It has been increasingly evident that the best journals within each specialty are those “in which the it is most difficult to have an article accepted, and these are the journals that have a high impact factor.”<sup>3</sup>

## Evolved Uses: Evaluation of Journals and Research

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The impact factor is not only increasingly used to measure the quality of specific journals (as the best or most prestigious). Time, budget, and administrative pressures tempt many to use this readily available citation metric not only to support, but to substitute for informed peer judgment in research evaluation.<sup>2</sup> This tool is also being used erroneously as the sole or major factor in assessing the “quality of scientists, institutions, and even scientific research.”<sup>4</sup>

### Common misuses of the impact factor as a sole criteria

- Promotion and tenure decisions (impact factors of the journals where an author has published)<sup>5</sup>
- Journal selection by researchers for article submissions<sup>3</sup>
- University administrators' rating or ranking academic and research programs within and across an institutions<sup>2</sup>
- Establishment of journal reputations by their publishers to attract subscriptions and participation by top authors<sup>2</sup>

An impact factor indicates to some extent the quality of a journal as a whole. However, the impact factor alone does not indicate the quality of individual articles within a journal, the overall quality of the research performed authors publishing within journals with impact factors, or the prestige of associated academic departments, research programs, or institutions.



## Tools and Methods to Use with Impact Factors

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Journal Citation Reports (JCR) includes not only the impact factor, but a [number of related metrics which can be used to evaluate journals](#) (Mulford Library Help Sheet). Additionally, the JCR Web site provides information on how to more effectively compare journals with factors as review articles, self citations, and journal format changes.

A research study also strongly recommends use of additional mathematical criteria to assess journal quality. It has concluded that the methodological quality of clinical research articles includes impact factors of the publishing journal in conjunction with citation rates, circulation rates, and low manuscript acceptance rates.<sup>6</sup>

However, while the above mathematical computations are useful, they can never replace peer review or reading and evaluating the quality of individually published scientific articles.<sup>4</sup>

## References

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