

## Opinion Paper

# Journal Impact Factor: it will go away soon

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Like many other investigators who participate on editorial boards of various journals, I have witnessed the emergence of the so-called “Journal Impact Factor” over the last 10 years. The Impact Factor (IF) is a number derived by dividing the number of citations a journal receives over a period of time by the number of papers published. It is an average indicator of how frequently papers published in a particular journal are cited (1). At board meetings, the IF dominates discussions regarding the journal’s status and well-being. Much of the time spent at such meetings evolves around strategies on how to improve the IF using any means possible. People are looking at the numerator and are trying to maximize it using conventional wisdom or tricks, including finding high-impact/high-quality papers or publishing items that usually receive more citations (e.g., reviews, special issues, etc.), or by minimizing the denominator by attempting to exclude from the calculation items such as letters to the editor, brief communications, etc., even though citations received for these are included in the numerator! In general, an IF of <2 is considered poor, a value between 3 and 5 is good and anything over five is excellent; breaking the barrier of 10 indicates outstanding success. Bottles of champagne are opened when the IF breaks certain barriers (e.g., 5 or 10).

Much has been written already on the IF and its limitations, and it is not my intention to repeat such discussions. In general, it is well-known that the IF of journals is dependent primarily on a few very highly cited papers, in comparison to the bulk of papers published. But who would care about IFs? Publishers are very interested because they can market their journals

accordingly, claiming their importance in the field. Editors feel proud that their journal may be in the same league as other prestigious journals, and authors can claim that their papers are of high impact if they are published in high-impact journals. The stakes here are high.

There are some questions worth considering:

1. Should a paper published in a high-impact journal be considered a high-impact paper? The answer is simple. If the paper is indeed of high impact (let us say, by judging from the number of citations received), then, the IF of the journal that published it is irrelevant. The same applies to a paper which was published in a high-impact journal, but the paper itself received a low number of citations, indicating, superficially at least, that the paper has no impact. In conclusion, what really counts is the impact of the particular paper, not the IF of the journal.
2. Another question to be considered by editors and publishers is whether they would prefer to publish a few papers a year (or even 1–2 for that matter) which make a difference (e.g., a technique or a biological advance that led to a new diagnostic or therapeutic application) and which would eventually receive a large number of citations (or maybe not). This other situation is whether to publish many papers that receive a nominal number of citations (e.g., 5–10 per year), but do not really break any new ground. If I were a publisher or editor, I would much prefer the former.
3. It would seem to me that inevitably, scientific publishing will eventually reach a new equilibrium where peer review will be abandoned completely and authors will publish their papers in electronic journals, and readers will have the chance to post their comments about the papers online. Such models already exist (e.g., PLoS). With this system, papers published will forever be under scrutiny, a form of peer review that is much more powerful than the current system.
4. It also seems to me that the IF of journals will eventually lose popularity. Those who are interested about “impact” should favour identifying papers that make a difference, vs. papers which do not. Averaging high-impact papers (as judged by citations) with low-impact papers, and claiming that the vehicle of the publication is “high impact” or “low-impact” seems silly, to say the least. Some scientists do not expect the demise of the IF any time soon because it has become so pervasive (2). I predict that the days of the IF being the ‘king’ in scientific publishing will soon vanish. It will be replaced by the real indicator of impact, which is

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the impact of the individual paper, no matter where it was published. If my predictions of peer review becoming obsolete also prove to be true, it may mean that in the future, there will be no "good" or "bad" journals, but just journals. Or, some sort of repositories in which papers could be archived, read, and commented upon, forever. Traditional journals, especially those published by Societies/Associations, may assume the new role of publishing news/commentaries/reviews and probably summaries of papers related to the dis-

cipline, whose full text could be found in electronic repositories.

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