The Importance of Citations and Citation Metrics in Science

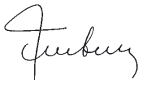
For every researcher all over the world, the summer season is an exciting time. Every year around June, Thomson Reuters publishes the "Journal Impact Factors" (JIFs) for the previous year after thoroughly evaluating citations and impact of thousands of scientific articles and journals. It is a simple calculation of citations of articles published within a two-year period that were cited during the same period of time, indicating the immediate impact of single papers on science and research. In many countries, these numbers are essential for institutions to estimate the quality of published papers in order to judge the output of persons or departments. Commonly, the evaluation of PhD candidates strongly depends on the cumulative JIFs of individuals. At universities, funding is ultimately distributed or redistributed based on JIF rankings and evaluations.

Today, citation metrics on the JIF-based evaluation systems have been repeatedly criticized for several reasons, such as ignoring papers not published in English, missing citation aggregation, etc. However, it remains the easiest way to compare science output and quality, because other people are performing the calculations for us (even if it is expensive). Yet we always wondered what the advantage of publishing in a top impact-factor journal is, if the paper is not or insufficiently cited afterwards. On the other hand, we have repeatedly experienced the opposite, that is, papers published in sources with lower impact factors received significantly more citations than the journal actually had in the year of publication. Of course, the higher the JIF is, the higher is the rejection rate, and also the higher the hurdle and the greater the achievement to publish there.

However, there is no doubt that besides the journal-based parameters also person-based evaluation criteria are desperately needed. The Hirsch Index (h-index) is a widely used parameter here, indicating the individual citations of scientists. Depending on the database, different h-indices are calculated, eg, an h-index based on "Google Scholar" entries is commonly significantly higher than one based on "Web of Knowledge". Moreover, the influence of a scientist's age and networks may have some falsifying effects.

To reduce the impact of researchers' age, an "m-index" and a "g-index" were introduced. The m-index is defined as h/n, where n is the number of years since the first published paper of the scientist. The g-index is more complicated and is calculated based on the distribution of citations received by a given researcher's publications, such that given a set of articles ranked in decreasing order of the number of citations that they received, the g-index is the unique largest number such that the top g-articles received together at least g^2 citations. These are just two examples of additional parameters that can act correctively where simple citation counts are no longer adequate. Citation metrics in bibliography today is a science unto itself, and several more indices also exist (eg, SCImago Journal Rank, Eigenfactor Score, Research Gate Score, etc.), requiring us to be discerning in our choice.

For us as Editors it is easy – the higher the JIF, the better the manuscripts we receive. Along with the whole JAD editorial team, we will always strive for a higher IF. Thus, we also feel the need for some changes in 2016. This issue is the last one with our well-known yellow cover design, which has been with us since the first issue of JAD in 1999. As of 2016, the Journal of Adhesive Dentistry will appear with a newly designed cover.



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