

Journal impact factor, errors in references in medical literature, medical writers and ethical publishing practices, and the 'dark side of publishing'



Journal impact factor

The journal impact factor, approximately the average number of times that primary research papers published in 2 consecutive years are cited in the following year, is the most widely used method of assessing

the quality of a journal. However, this metric also includes citations to other non-primary content such as reviews and news articles. Other shortcomings are that citations accumulate slowly in many fields, and the average number of citations per paper can be skewed by a few highly cited manuscripts. A recent editorial in *Nature Materials*¹ discusses the appropriate use of the impact factor. First they show that the impact factor of a journal is a good predictor of citations to primary research articles. For a sample of 100 journals across the spectrum of science and engineering (physical and chemical sciences, biological and medical sciences, earth and environmental sciences, engineering), the 2011 impact factor was found to correlate well with the 5-year median of citations to primary research papers published in 2008–2012. The values for the median correspond to the minimum number of citations received by half of the papers and are therefore robust to outliers and variations in the shape of the distribution. Citations to reviews, news, editorial material, and other non-primary research articles were excluded from the calculations of the median. The editorial then goes on to argue that the impact factor does not generally correlate with the performance of individual researchers. If the papers published 5 years ago by a scientist are ranked in decreasing order of citations alongside the impact factor of the corresponding journal in that year, there is generally a weak correlation at best with numerous outliers. Therefore, scientists should not be rated on the basis of their total number of publications weighted according to the impact factor of the journals where they

have been published, as this is a poor indicator of the future performance of individual researchers. Rather, article-level metrics should be used when assessing a small subgroup of papers or authors, and impact factors should not be used in grant-giving, tenure, or appointment committees.

Errors in references in medical literature found to be higher than expected

The bibliography of references section is an important component of a manuscript, directing the reader to relevant background literature, allowing the work of other researchers to be acknowledged, and supporting the authors' statements. If an article contains many errors in the references, the accuracy of other information in the article may be doubted by the reader. The reference list is also used to help calculate the impact factor of a journal. It is therefore very important that all references are cited correctly, i.e. the reference citations should match the source exactly. Samad *et al.*² have compared two premier Pakistani medical journals (the *Journal of Pakistan Medical Association* [JPMA] and the *Journal of College of Physicians and Surgeons Pakistan* [JCPSP]) for errors in references of original articles published in the year 2008. All original articles published in these two journals were included in the study. Only journal citations were included in the study; references to other sources (books, internet articles, websites, newspapers) were excluded. All types of error were evaluated and categorised into author errors, article title errors, journal title errors, year of publication errors, volume errors, and page number errors. The data were analysed through SPSS 16.0. The Chi-square test was used to determine statistical significance; a difference with P -value ≤ 0.05 was considered statistically significant.

Two hundred articles (100 from each journal) fulfilled the selection criteria and were evaluated. Only 9.5% of articles (19/200) were completely free of any error in the references; there was no significant difference between the two journals ($P < 0.469$). In total, 3783 references were assessed; 1715 (45.3%) for JPMA and 2068 (54.7%) for JCPSP. The overall reference error was 1.015 (26.8%). There were 531 (31%) and 484 (23.4%) incorrect references in the JPMA and PCPSP, respectively, and the difference

was not statistically significant ($P < 0.744$). The error most commonly observed was related to the author component ($n = 490$; 13%) followed by errors related to page numbers ($n = 297$; 7.9%), article title ($n = 222$; 5.9%), journal title ($n = 189$; 5%), volume ($n = 28$; 0.7%), and year ($n = 22$; 0.6%). JCPSP had more errors in the article title component ($P < 0.001$) and JPMA has more errors in journal title ($P < 0.001$) and page number ($P < 0.001$) components. No statistically significant differences were observed between the two journals regarding the other error components. The authors discuss their findings and compare their data with published reports of both local and international studies. They propose that the higher than expected magnitude of reference error may be rectified by more careful formatting of the initial manuscript and providing the final manuscript to the author for proofreading.

The role of medical writers in supporting ethical publishing practices

In a recently published review, Karen Shashok discusses the role that medical writers have in ensuring ethical publishing practices.³ During the development of a manuscript for publication, the medical writer consults with the investigators about the purpose of the study and the main results, and prepares a first draft of the manuscript. The medical writer also co-ordinates the review process, preparing revised drafts of the manuscript in response to comments from the investigators until all the authors agree that the research has been reported accurately and effectively. During this process the medical writer should raise any concerns over possible spin and underreporting of results, although the investigators may choose to disregard such advice. The medical writer is responsible for ensuring the content of the manuscript is accurate and clear, whereas decisions about what information should be included are made by the investigators. Consequently, the medical writer does not generally qualify as an author as defined by the International Committee of Medical Journal Editors (ICMJE) criteria. Rather, the role of the medical writer should be disclosed in the acknowledgements section of the manuscript, as recommended by current professional guidelines. A list of guidelines that have been developed by medical writers and other stakeholders to ensure transparency and best professional practice, including the checklist to discourage ghost-writing, is included in the review. By following the steps outlined in these documents, medical writers can ensure that their work is professional and that their contributions are reported accurately. The review concludes with some suggestions for actions

that could be undertaken by stakeholders to support ethical publishing practices. These include a switch to contributorship rather than authorship to make the roles of communication professionals, guest authors, and industry employees more transparent. Such a change is strongly supported by The Good Publication Practices Guidelines but has not yet been adopted by the ICMJE.

The 'dark side of publishing' in the era of open-access

In a recent article in the *New York Times*,⁴ Gina Kolata puts the spotlight on 'a parallel world of pseudo-academia'. The article begins by describing how scientists who thought they had been selected to present to the leading professional association of scientists who study insects (Entomology 2013) discovered too late that they had in fact been signed up for Entomology-2013; the speakers for this conference had been recruited by email and were not vetted by leading academics. Those who agreed to appear were later charged a fee. Meanwhile, a doctor from Mexico who sent two articles to *The Journal of Clinical Case Reports* after receiving an email invitation was shocked to receive a bill for publishing after the articles were accepted. The journal eventually waived the publication fee.

The number of journals and conferences with names nearly identical to those of established, well-known publications and events has increased rapidly in recent years as scientific publishing has moved toward open-access, where authors or their funders pay for articles to be published online so that anyone can read them for free. Well-regarded, peer-reviewed journals such as those published by the Public Library of Medicine are listed in databases like PubMed. However, some researchers feel that there has been a rapid increase in the number of online journals that appear to print anything for a fee. Some academics report that they have found it very difficult, sometimes impossible, to get themselves removed from the editorial board of such journals once they have mistakenly agreed to become members. Another researcher, a plant pathologist who accepted an invitation to serve on the editorial board of *Plant Pathology and Microbiology*, reports that he found that he was listed as an organiser and speaker on a website advertising Entomology-2013; the publisher of the plant journal was also organising the entomology conference. It took many weeks for the publisher to comply with a request from the researcher to be removed from the website and journal editorial board.

A recent news report in *Nature*⁵ highlights the 'rise of questionable operators' and discussed if

these journals should be blacklisted or if it would be better to create a 'white-list' of open-access journals that meet certain standards. The article also includes a checklist on 'how to perform due diligence before submitting to a journal or a publisher'.

References

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