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COMMENTARY

Weighing the impact (factor) of publishing in veterinary journals



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Received 3 September 2014; received in revised form 21 January 2015; accepted 22 January 2015

KEYWORDS

Bibliometrics;
Citation metric;
Domestic animal;
Journal impact factor;
Publications

Abstract The journal in which you publish your research can have a major influence on the perceived value of your work and on your ability to reach certain audiences. The impact factor, a widely used metric of journal quality and prestige, has evolved into a benchmark of quality for institutions and graduate programs and, inappropriately, as a proxy for the quality of individual authors and articles, affecting tenure, promotion, and funding decisions. As a result, despite its many limitations, publishing decisions by authors often are based solely on a journal's impact factor. This can disadvantage journals in small disciplines, such as veterinary medicine, and limit the ability of authors to reach key audiences. In this article, factors that can influence the impact factor of a journal and its applicability, including precision, citation practices, article type, editorial policies, and size of the research community will be reviewed. The value and importance of veterinary journals such as the Journal of Veterinary Cardiology for reaching relevant audiences and for helping shape disciplinary specialties and influence clinical practice will also be discussed. Lastly, the efforts underway to develop alternative measures to assess the scientific quality of individual authors and articles, such as article-level metrics, as well as institutional measures of the economic and social impact of biomedical research will be considered. Judicious use of the impact factor and the implementation of new metrics for assessing the quality and societal relevance of veterinary research articles will benefit both authors and journals.

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<http://dx.doi.org/10.1016/j.jvc.2015.01.002>

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Where you publish is important. Even as online publishing has shifted our focus from bound print issues to article PDFs, the prestige and importance of a journal—the package in which your article is wrapped—can have a big influence on the perceived value of your work and on your ability to reach certain audiences.

Today, the value of a journal is determined largely by its impact factor, a widely used metric of journal quality and prestige. An impact factor is a ratio of the number of citations a journal receives in a given year to articles published during the previous 2 years, relative to the total number of articles published over the same period.^{1,2} For example:

$$\text{2013 impact factor} = \frac{\text{number of citations received in 2012 to articles published in 2011 and 2010}}{\text{number of articles published in the journal in 2011 and 2010}}$$

Over the past 2 decades, the impact factor has evolved from a tool intended to aid librarians in purchasing journals for their collections, to the primary benchmark for discipline-based rankings and a proxy for the scientific quality of individual articles, authors, graduate programs, and universities.^{3,4} The linked valuation between impact factor and individual research articles has led us down a slippery slope to where this single number can make the difference in getting tenure, promotion, a job, or a grant. In China, authors receive cash rewards to publish in high impact factor journals⁵; in Greece, faculty hiring is based in part on a “total impact factor”, the sum of the impact factor of all the journals in which a person has published; in Brazil, the allocation of research resources and fellowships is linked to journal ranking and impact factor.⁶ This competitive race to attain “maximum impact” has altered the behavior of both authors and editors, with publishing decisions often based solely on impact factor. Sadly, the drive for impact comes at the expense of specialty journals and journals representing small research communities, including veterinary medicine and regional and local journals, making it more difficult for them to grow and improve.³

A look at the numbers

A journal’s impact factor is published annually by Thomson Reuters in *Journal Citation Reports*. In

2013, impact factors ranged from 0.000 to 162.500 for the 8474 science journals in the Thomson-Reuters Web of Science database.⁷ The distribution of impact factors is highly skewed: the median value was approximately 1.4 and only 2 journals (*CA: A Cancer Journal for Clinicians* and the *New England Journal of Medicine*) had an impact factor >50. Nearly 24% of journals had an impact factor of ≤ 1.0 while only about 7% had an impact factor ≥ 5 . For the 129 journals in the Veterinary Sciences category, impact factor ranged from 0.071 to 3.383 and 74/129 (57%) journals had an impact factor of ≤ 1.0 (Fig. 1).

While impact factor generally reflects the influence of a journal, it has limitations and should

not be taken at face value. First, journals get most of their citations (~80%) from a small proportion of articles (~20%), so citation data are highly skewed, affecting statistical validity.^{2,8} Further, reporting impact factor to 3 decimal places—intended to avoid overlap and facilitate ranking—implies a false sense of discrimination among journals.^{2,8} Instead of 124 unique rankings for 129 veterinary journals, there are only 28 rankings when impact factor is rounded to one decimal place and only 4 rankings when impact factor is rounded to a whole number (the actual precision of the impact factor measurement). Large changes in journal ranking can result from small changes in citations, article categories, or the number of papers published. In addition, the

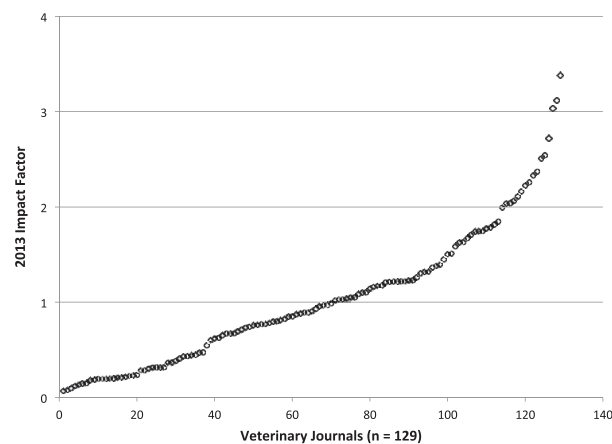


Figure 1 Impact factors (2013) for journals in the Veterinary Science category.

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