

Peer Review in Scholarly Biomedical Journals: a Few Things that Make a Big Difference

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Peer review is currently a cornerstone of scholarly publishing in biomedicine. Most journal editors rely heavily on the support of internal and external reviewers to help them evaluate the scientific merit of submissions. In the absence of a solid evidence base justifying the use of peer review or universally accepted guidelines, each scholarly journal adopts its own rules for processing and editing manuscripts. These rules stem from the research and writing environment surrounding the authors, reviewers and editors. It is therefore not surprising that there are marked differences in how journal submissions are processed and accepted for publication within and between the mainstream science countries and the developing world.

The differences relate to who the reviewers are, how many are involved in the review, how long it takes to review and what type of incentives are used. The language in which the science is written and the size of the scientific community are additional sources of diversity. Furthermore, numerous limitations of peer review and resultant scientific corruption have been reported by editors of small journals around the world (1-3).

Misunderstandings and even conflicts sometimes arise when authors from disadvantaged or small scientific communities attempt to publish their works in journals of mainstream science countries with established traditions of peer review.

In the era of digitalisation, when journal publishing is becoming technically feasible in most parts of the world and large numbers of journal items are entering libraries and indexing services each day, science editors are encountering the ever growing issue of how to select the highest quality articles. A strict selective approach is also practised by prestigious indexing services, prioritising high-quality peer review and demanding improvements from journal editors.

How can journal editors balance the growing demands of their authors and the indexing services? Editors of large and small journals deploy different strategies. For most highly ranked journals 'flooded' by hundreds or thousands of submissions annually, the rejection of articles on relatively small, poorly designed and redundant studies in house, before external peer review presents as a workable solution (4). Most top biomedical journals also no longer publish medical case reports—a nega-

tive consequence of the current trends in scholarly publishing driven by scientometric priorities (5, 6). Editors of these journals are supported by a huge army of highly skilled, volunteer reviewers, who consider the invitation to review an honour and donate hours of their precious time to evaluating submissions and suggesting a set of revisions or a well-justified rejection. A reviewer's contribution to these journals is viewed by most as a service to the profession, with the reviewer acting as a gatekeeper, helping the editors select the most innovative and influential items. The response to the reviewer invitation is usually on time, comments are comprehensive, courteous, and helpful for the authors even in a case of rejection. The incentives for the reviewers of major journals are the opportunity to take part in intellectually enriching professional debates and the acknowledgement of their service.

In less popular journals, particularly those from small or disadvantaged scientific communities, peer review has many inherent limitations, requiring a different set of measures. These journals usually suffer from submission of poorly written manuscripts which may have been rejected by higher-ranking journals or focus on a narrow scope of interests. The scientometric profile of small biomedical journals is worsening due to the absorption of small items, including case reports or case series lacking novelty and research implications.

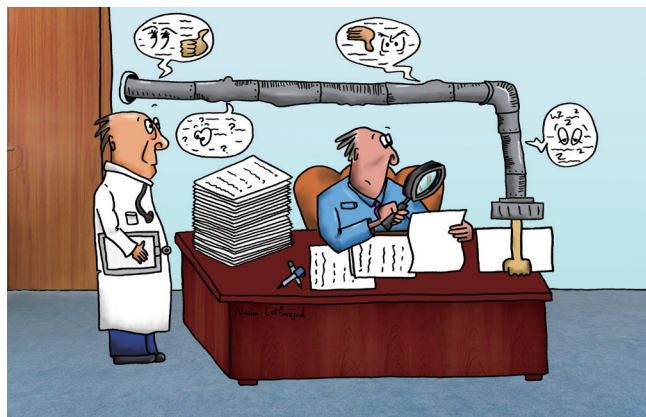
Perhaps the most successful example of a journal published by a small community is the *Croatian Medical Journal*. This small journal, edited by experts in science editing and research methodology, became a major educational tool for its local medical scientific community and implemented an author-friendly policy, supportive towards authors lacking adequate research and language skills (7). Manuscripts that might have been rejected received professional support, which later led to an increased publication rate of high quality items, citation counts, visibility in major indexing systems and attractiveness for the international community. Obviously, this example highlighted the importance of pre-review and editing by colleagues with advanced research and science writing skills, which is practised in most leading scientific institutions (8, 9) and by commercial editorial services supported by authors' editors, statisticians and a wide

range of other professionals (10, 11).

No training courses have proven essential for acquiring and advancing reviewer skills. Instead, based on the example of the *Croatian Medical Journal*, publishing guidelines and educational materials for potential reviewers seems a useful strategy (12). Such guidelines provide information on publishing priorities, triaging manuscripts, reasons for rejection and other points worth considering before submission or review of an article. One of the messages of these guidelines is that small and preliminary reports are low priority items for a small journal and should occupy a limited space. There is, however, an issue overlooked in these and many other guidelines, namely the specifics of peer review for each subject category and for each manuscript type. Over the past decades, such empirical experience has been gained mainly in biomedical sciences, which influenced many other branches of science. However, one should recognise that reviewer skills required for assessing different types of manuscripts (eg systematic reviews, original papers, case reports) differ within and between branches of science.

Given the shortage of skilled reviewers and the difficulties of involving them in the peer review, science editors and publishers alike have to adopt a system of incentives and acknowledgements. Reviewer contributions are credited by most academic and scientific institutions as a constituent part of continuous professional development and a reflection of scientific culture. Thus, listing names of the reviewers and offering editorial posts to the 'elite' contributors can be considered an attractive incentive for most reviewers. There are relevant examples from large and small journals. *The Lancet*, with its board of consultants comprising reviewers from all over the world, is one such example.

In conclusion, though peer review is imperfect and is not evidence-based, it is still employed by science editors around the world and serves as a guarantor of the quality in most cases. Improving the existing models of peer review based on positive experiences and adjusting them to the changing needs of specific scientific communities may be seen as a driver of successful editing and publishing.



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