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Contemporary Issue

'Peer review' for scientific manuscripts: Emerging issues, potential threats, and possible remedies

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ABSTRACT

Reviewers play a vital role in ensuring quality control of scientific manuscripts published in any journal. The traditional double blind peer review, although a time-tested method, has come under increasing criticism in the face of emerging trends in the review process with the primary concern being the delays in completion of the review process. Other issues are the inability to detect errors/fraud, lack of transparency, lack of reliability, potential for bias, potential for unethical practices, lack of objectivity, inconsistencies amongst reviewers, lack of recognition and motivation of reviewers. Alternative options to classical peer review being propagated are: open review, immediate self-publication using preprint servers, nonselective review focusing primarily on the scientific content, and post-publication review. These alternative review processes, however, may suffer from the inability to validate quality control. In addition, anecdotal instances of peer review frauds are being reported more often than earlier. Suggested means to ensure quality of peer review process includes: (a) each journal to have its own database of reviewers, (b) verification of email IDs of reviewers provided by authors along with details of their institutions, (c) ensure credibility of reviewers before requesting for review, (d) check for plagiarism at the editorial level, (e) editors to distinguish between a good review from a possible biased/bad review, and (f) give recognition for reviewers once in a year. To conclude, quickness of review and publication should not dictate the scientific publication process at the cost of quality of contents.

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Scholarly peer review is a well-established concept and a time-tested method for ensuring quality control of scientific manuscripts submitted to a journal prior to publication. Reviewers are the heart of any journal and play a vital role in evaluating and validating the quality and relevance of scientific manuscripts before these are considered acceptable. The history of the peer review process as a part of

scientific publication dates back to the beginning of the eighteenth century.¹ There has been an exponential growth in the number of scientific publications in the last decade and the trend is likely to be sustained in the future too. At the same time, the scientific community has witnessed a disturbingly growing number of retractions of scientific publications, thereby raising serious concerns about the

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Box 1.

Single blind review: Authors are unaware about the names of the reviewers.

Double blind review: Both authors and reviewers identities are concealed.

Open review: Identities of authors and reviewers are not concealed.

quality control measures adopted before publication of such manuscripts.²

Scientific publications in the medical literature influence not only readers and authors alike, but also have an impact on the practice of medicine and its future trend, and thereby affect society at large. Editors of medical journals constantly face a Catch-22 situation of balancing the journal turnaround time (including the peer review process) while maintaining quality of content. This problem is compounded by increasing instances of peer review fraud.³⁻⁵ Of late, the traditional peer review process has come under increasing criticism in the face of emerging trends in the review process.^{1,6,7} In this article, we shall endeavor to provide the discerning reader, an overview of the ongoing dilemmas of the conventional peer review process and related emerging issues.

Broadly, peer review can be of one of the three main types [Box 1]. Each type of review process has its own inherent strengths and weaknesses. It is widely believed that a double blind review is an effective way to ensure an impartial reviewer decision. This minimization of potential reviewer bias helps the editors to obtain objective opinions on quality of manuscripts before acceptance. Although this 'blind' review system has been well validated and has been in situ for a long time, recently, there have been criticisms of this review process, with the primary concern being the delays in completion of the review process and the publication cycle.

Other issues are the inability to detect errors/fraud, lack of transparency, lack of reliability, potential for bias against specific categories of manuscript, potential for unethical practices, lack of objectivity and being largely subjective, inconsistencies amongst reviewers, lack of recognition, and motivation of reviewers.¹ However, it is important to keep in perspective that many of these limitations are not unique to the traditional peer review process alone except the timeline delays which are inherent in this type of peer review. Although many academicians propagate 'Open Review' as an efficient method to curb malicious and unethical intent of reviewers, this review process also suffers from high potential for bias and possibility of a free and fair assessment not being rendered.

Emerging and alternative trends in the reviewing/publication process include immediate self-publication of scientific papers without formal review using suitable open access or commercial websites including noncommercial preprint servers, nonselective review focusing primarily on the scientific content rather than quality of a manuscript, immediate publication with a post-publication review, portable review (reviewers' comments on a submitted manuscript in journal 'A' is passed on to journal 'B', in case the manuscript is not suitable for publication in journal 'A' to help journal 'B' or the authors to reduce the reviewing time).¹

As opposed to a blinded peer review process, the essence of most alternative review processes described above is rapid review and fast publication to keep pace with developments in the scientific field, and the desire of the research community to 'get there first'. At times, this may also lead to a relative disregard for quality and content of such manuscripts. Thus, the vexatious question facing the scientific medical community is: is rapid publication and author satisfaction the main criterion for a scientific publication in the medical literature? If the answer is to be in the affirmative, then possibly we are heading for a potential disaster, when the validity and rigor of scientific research in the realm of medicine becomes questionable. Medical professionals cannot afford to forget that scientific publications are not merely publications meant to increase the volume of scientific research done by authors or published in a journal, but they are intended for fulfilling greater obligations and responsibilities towards the academic world as well as to the humanity.

There are a large number of flawed/erroneous studies published in various journals even today which are responsible for purveying incorrect and inaccurate information, to the scientific community and the patient population alike. Rising number of retractions in the recent past is a testimony to the corruption of knowledge in the open world which may have resulted from the ease of availability of information from myriad sources. An article by Ioannidis⁸ critically analyses and spells out possible reasons for errors in scientific research. Should not all stakeholders be equally responsible for maintaining research integrity and trustworthiness of scientific publications? A post-publication peer review system according to the interests of various clinical disciplines⁹ will be of benefit to the harried clinician, to sift out information relevant to his needs.

With 'publish or perish' becoming the norm in the academia, the insatiable need for publications and concomitant peer recognition forces authors, reviewers, and at times even editors to indulge in chicanery to deceive the existing fallible system of quality checks for scientific publications. Reports of peer review fraud and related scams are seemingly routine, with not much repercussion being evident.^{3,4} Anecdotally, authors have themselves masqueraded as reviewers for their own manuscripts and reviewers have also been found to be coercing known authors to cite their articles to improve their online ratings or scores. It is postulated that this increased incidence of unethical scientific practice could be due to one or more of the following: professional pressure for publication of original articles as a mandatory requirement of regulatory bodies to ensure career progression, performance pressure on editors to get the reviews completed to keep the journal turnaround time reasonably low, inadequate reviewer database, over-reliance on reviewer particulars provided by authors without any verification by the editorial team and mushrooming of 'predatory' journals (online as well as print).

Many measures are being debated for ensuring quality control of the peer review process.¹⁰⁻¹² Ideally, each journal should either develop and have its own reviewer databank or be able to access a common pool of reviewers across publishing platforms. This should be coupled with carefully evaluating the credentials of the potential reviewers. Editors must invariably verify the credentials of reviewers and their

affiliations especially when suggested by authors themselves. Institutional details as well as relevant experience or domain knowledge must be established before inviting a reviewer. At times, partly double-blinded review wherein reviewers suggested by authors may be utilized after ascertaining reviewers' credentials while maintaining anonymity. Editors should carefully peruse reviewer comments and make a value assessment of their feedback and inputs. Plagiarism/similarity issues are best dealt with at the editorial level at the screening stage itself, and definitely before sending the manuscript to reviewers. Use of commercial services like iThenticate or similar services is suggested. It should be incorporated in the journal policy to empanel biostatistician/epidemiologists to review the statistical component of articles being sent for scholarly peer review. It is essential that editors as well as reviewers are familiar with the existing Committee On Publications Ethics (COPE) ethical guidelines for peer reviewers.

Reviewers are a rare breed of professionals who function in anonymity, with no recognition for their yeoman services, and without whom journals cannot survive. Editors must be tolerantly appreciative and encouraging of their reviewers. They must determine innovative ways to recognize the reviewers and their stellar contribution.¹³ An alert journal's editorial team should ideally evaluate the reviewers' performance periodically both in terms of timeliness as well as quality of review. However, editors need to appreciate that obtaining a delayed but thorough review is preferable to publishing in haste and then retracting and repenting at leisure.

To conclude, there is an urgent need to have a quality control system in position for all scientific biomedical journals. The traditional double blind peer review process may still be an effective means of ensuring quality of peer review despite a few limitations. Medical professionals are human in their responses, and are prone to subjectivity and bias, hence newer formats of review may take yet more time to take hold.¹¹ Quickness and expediency of review and speed of publication should not dictate the scientific publication process at the cost of sacrificing quality of content for greater benefit to society.

Conflicts of interest

The author has none to declare.

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