

The Role of Peer Review in Health Sciences

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ABSTRACT

Peer review in health involves evaluating work by experts, ensuring the deliverable's quality and credibility while fostering scientific integrity.

This article presents different academic scenarios where reviewers examine the originality, relevance, methodology, interpretations, and conclusions of the work to provide comments and suggestions to improve the content and presentation of the results.

Indeed, the authors who crafted the article and the reviewers who meticulously assessed it undoubtedly derive mutual benefits from the process. Nonetheless, various challenges remain unresolved, including the unpaid workload, time demands, reviewer bias, insufficient training, and the absence of standardized guidelines.

In short, reviewing a manuscript is both a responsibility and a privilege. The work requires effort and time to read, critically evaluate, and write detailed, specific, and constructive comments for the authors to consider for the article.

Keywords: Peer Review, Health Care, Peer Review, Research, Peer Review / standards, Publishing / standards, Interprofessional Relations, Quality Control, Editorial Policies.

La revisión por pares en ciencias de la salud

RESUMEN

La revisión por pares en salud implica la evaluación de un trabajo por parte de expertos, que garantiza calidad y credibilidad del entregable, promoviendo la integridad científica.

Este artículo presenta diferentes escenarios académicos donde los revisores examinan la originalidad, relevancia, metodología, interpretaciones y conclusiones del trabajo, para proporcionar comentarios y sugerencias que permitan mejorar contenido y presentación de los resultados.

Indudablemente, del proceso se benefician quienes escribieron el artículo (autores) y quienes lo revisan (revisores). Sin embargo, existen múltiples desafíos sin resolver como: la carga y los tiempos laborales para una tarea sin remuneración, las opiniones sesgadas, la falta de capacitación y las normas inexistentes. En síntesis, revisar un manuscrito es tanto una responsabilidad como un privilegio. El trabajo requiere esfuerzo y tiempo para leer, evaluar críticamente y escribir comentarios detallados, específicos y constructivos para que los autores consideren sobre el artículo.

Palabras clave: revisión por expertos de la Atención de Salud, revisión de la investigación por pares, revisión por expertos, comunicación académica, relaciones interprofesionales, control de calidad, políticas editoriales.

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INTRODUCTION

We often hear or read the phrase “peer review” in research, a term that has existed for centuries¹. It is a cornerstone of the scientific process, in which a work is evaluated by third parties independent of the project, experts in the subject, in methodological aspects, or simply colleagues². However, over the years, it has evolved from informal and occasional exchanges between academics to highly organized systems that operate today throughout the world to evaluate large volumes of scientific articles and proposals for financial grants for clinical research³.

REAL-WORLD EXAMPLES

For the reviewers (two or more), this means submitting scientific deliverables to a personal opinion founded on expertise and experience, in order to establish the merit of the work based on originality, quality, rigor, and validity³.

For the authors, it is an important source of feedback on scientific writing and study methodology, and it can help in the professionalization of young researchers who are still learning or starting their careers⁴.

Table 1 presents various academic scenarios that incorporate both sides of the review process: authors and reviewers. Depending on the context, the latter are commonly referred to as “reviewers” or “evaluators,” which are more appropriate designations than the outdated term “referee,” as the final decision on a manuscript typically rests with the editor, not the reviewers⁵.

Despite being considered the most effective mechanism for ensuring the quality, reliability, integrity, and consistency of the academic literature by the vast majority, peer review can be frustrating, intimidating, or puzzling; so, this article aims to answer frequently asked questions in the process of researcher education and training.

WHAT IS THE PURPOSE OF THE BLIND IN PEER REVIEW?

It is mainly used to ensure impartiality and objectivity in the evaluation process, minimizing any bias that might occur due to factors such as institutional affiliation, the writer’s reputation (authorship), gender, nationality, or any other personal consideration. The aim is that young researchers from any country in the world, from less prestigious institutions or less well-known laboratories, should be confident that their work will be judged based on its content and not on where or by whom it was produced⁶.

For example, when reviewers were unaware of where the submissions came from, there was a marked increase in the acceptance of abstracts from non-English-speaking nations and countries other than the United States⁷. Another historical example is that of professor and physicist Alan Sokal, who in 1996 submitted a manuscript to a journal that published it, an acknowledged “academic hoax” that made it possible to demonstrate that there was

no review by academic peers or external experts⁸. The most commonly adopted model is the *single-blind* model, in which the reviewers know the identity of the authors, but the authors do not know the identity of the reviewers⁹. It is the system most widely used by scientific journals and accounts for approximately 85% of all manuscript reviews³. The reverse situation can also occur, where the authors know the identity of the reviewers, and the reviewers do not know the identity of the authors (Fig. 1).

In a *double-blind* format, the authors do not know the identity of the reviewers, and the journal does not officially inform the reviewers about the identity of the reviewers. However, its use is limited due to the practical difficulty of guaranteeing the anonymity of authors when there is usually a need to self-reference previous work on the research topic and cite methods already established in other articles, among other frequent situations.

HOW TO BECOME A REVIEWER?

There are no formal qualifications to become a reviewer. Possible selection factors include professional expertise in the topic, reputation in the field of specialization, familiarity with the methods used, absence of conflicts of interest, past reliability and performance, and availability to review the article³.

Current platforms allow the editorial team to rate reviewers. Some characteristics of a “good” reviewer include the following⁵:

- Having authored original published articles.
- Being knowledgeable in one’s own field or area of specialization (keeping up-to-date, having critical thinking skills).
- Having reviewed for other journals (preferably).
- Understanding basic epidemiology and statistics.
- Emphasizing both the strengths and weaknesses of the research.
- Reporting violations of ethical behavior (e.g., plagiarism, lack of ethical approval).
- Responding positively and quickly to requests for review (willingness).
- Identifying own/personal biases and minimizing them.
- Providing a constructive, honest, polite, objective, fair, and thorough review.

SOME UNRESOLVED ISSUES

Imperfect and subjective system

The chief criticisms concerning the system relate to the following aspects: biased or prejudiced opinions (already mentioned); evaluation times (which leads to delays in the editorial process); quality of the reviews (which implies that low-quality or plagiarized articles may pass the evaluation); and lack of transparency in the process.

Despite the general agreement on the need for reviewers to be impartial, ethical, reliable professionals with critical skills, there is a high level of discrepancy in evaluations. The subjective nature of the process is evident to everyone involved.

Table 1. Academic scenarios with peer review

Person evaluated	Evaluation of a different scientific deliverable**
<p>A <i>master's candidate</i> (who has already completed the course and passed curricular subjects but has not yet submitted or defended her thesis) is currently in the scientific writing stage of his or her final work and is presenting preliminary results in a group session (academic space with researchers), to obtain feedback from third parties, facilitate the exchange of opinions, and improve the quality of the presentation of her draft under construction.</p>	<p>In the context of a master's degree, it generally refers to the process in which students' theses (or final papers) undergo evaluation to obtain valuable feedback, which helps them strengthen their research and writing skills, as well as improve the quality of their deliverables.</p> <p>There are several methods: work exchange among students, teacher reviews, director and tutor reviews, or reviews by external juries. The objective is to provide constructive comments, make recommendations to improve the work, and point out possible areas for improvement.</p>
<p>A <i>resident</i> presents a research study (a Final Specialty Paper) as an original communication (e.g., abstract or full paper for award consideration) at a scientific conference.</p>	<p>In the context of a scientific conference, this generally refers to the process in which experts in the field evaluate the submitted papers. The scientific committee makes the final decision on their inclusion (or not) in the program based on the evaluations of the reviewers. The goal is to ensure and maintain high-quality standards and to ensure that only papers that make a significant contribution are submitted.</p>
<p>A <i>junior researcher</i> (in training) submits his or her research protocol/plan in search of funding, taking on the role of Principal Investigator for the first time.</p>	<p>In the context of research funding (e.g., grants from funding agencies, government institutions, foundations, educational institutions, or other organizations), this generally refers to the evaluation of proposals or work plans submitted by funding applicants, assessed by a committee of experts. The goal is to develop a critical process to help ensure that funds are allocated fairly and equitably to high-quality research projects with scientific relevance.</p>
<p>A <i>fellow</i> (or postdoctoral trainee) submits his or her first academic paper to a scientific journal.</p>	<p>In the context of a scientific journal, this generally refers to the editorial process. Editors typically assign the manuscript to reviewers who are experts in the specific subject area addressed in the article. Reviewers get selected for their expertise and their ability to evaluate the work's quality and relevance with a critical eye. The goal is to improve the scientific quality of the publication.</p>

** A "scientific deliverable" refers to any tangible product resulting from scientific research that can be used to share and communicate findings, thereby contributing to the advancement of knowledge in a particular field. This may include articles/manuscripts, presentations at scientific conferences, device prototypes, datasets, technical reports, mathematical or computational models, developed software, and patents, among other examples.

Dear [Name],

Attached, you will find the review corresponding to the article you submitted to [*Name of the journal*].

Dr. [Reviewer's Name], who conducted the review, included comments in the document using track changes mode, with suggestions to improve the manuscript.

I hope you find this feedback helpful. If you choose to accept the suggestions, we kindly ask that you highlight the changes in a different color to facilitate their identification.

Thank you for trusting us with your work.

Sincerely,

[Name]

Editorial Secretary

Figure 1. Example based on a real e-mail received on 27/03/2024, in which the editorial team informs the authors of the name of the reviewer. The manuscript, with suggestions, was delivered to the reviewer in an anonymized form (with authorship omitted on the first page).

There is a popular academic joke about reviewer #3¹⁰, who disputes a submission that was favorably reviewed by the first two reviewers.

First reviewer: "Very interesting findings, which could contribute to the field."

Second reviewer: "Solid data and appropriate analysis."

Third reviewer: "Lacks methodological rigor and I don't think it should be published."

Lack of training and guidelines

In recent years, several journals and editors have disseminated guidelines and checklists for authors, following each of the main study designs, to ensure consistent and complete reports¹¹. Although not all scientific journal editorial boards recommend and/or require them, now these tools and resources help reviewers to generate better returns, be it the Equator Network[®] templates according to study design (e.g., www.equator-network.org) or the Cochrane bias assessments (e.g., <https://methods.cochrane.org/risk-bias-2>), which make it easier to evaluate methods and results in a standardized way.

However, guidelines for reviewers do not come easy to find. In a survey of 116 health journals, they found that only 41 (35%) provided online instructions for reviewers¹². Thus, most of them learn by doing, through experience and mentoring: writing or receiving reviews, getting feedback from experienced reviewers, and then replicating (as "by imitation")¹³.

Furthermore, there is no standard training system to ensure quality and coherence¹⁴.

Usually, the final label to be issued is "not publishable," "publishable with major changes," or "publishable with minor changes." Reviewers should consider the importance of the manuscript, its rigor, and the clarity of the presentation¹⁵, but it is not specified when to choose one of the two verdicts. Undoubtedly, comments should be as specific as possible and have a constructive and respectful tone.

Unpaid Work

It can be hard to find reviewers, as those already available are often overburdened. These are professionals who are very busy with their work lives, so asking them to take on additional tasks in the evenings and on weekends usually means doing so without financial compensation.

Some financial rewards "in kind" do exist, such as free or discounted access to paid journals or small-value gifts (e.g., a mug or a book). There are also academic recognitions, including: a) acknowledging reviewers in the journal's final issue of the year (e.g., listing names on websites); b) issuing certificates that count toward continuing medical education credits or recognized work hours for specialty recertification (e.g., PDUs, or Professional Development Units); and c) invitations to social events (e.g., free registration for scientific conferences). These forms of compensation help mitigate the shortage of reviewers.

Peer review, however imperfect, adds value by strengthening the certainty of evidence, ensuring quality, precision, and validity of studies through expert validation and methodological consensus, and improving visibility,

reputation, and credibility within the community. Being a reviewer leads to new invitations (e.g., as a subject matter expert or speaker) or becoming editor-in-chief and/or member of the editorial team.

CONCLUSIONS

The peer review process helps authors refine the quality of their work by providing constructive suggestions ahead of its release to the scientific community (e.g., before thesis submission or manuscript publication).

Anyone can provide valuable input during peer review (e.g., master's or doctoral colleagues, co-workers). It is a competency or skill that requires training. Ideally, appropriate and transparent review is required¹. However, despite the great interest in improving review skills among young clinicians and researchers, such training is still not commonly included in postgraduate education programs¹⁶.

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