

Reviewing a Journal Article (Peer Review)

Peer-review is defined as the expert assessment of submitted materials.
Because “the goal of this process is to ensure that the valid article is accepted, the messy article improved, and the invalid article rejected,”
It is done voluntarily and without compensation.
It assumes integrity and avoidance of bias (negative or positive).
For most journals, the process is blinded in some way; typically, the author does not know the identity of the reviewer, but the reviewer is fully aware of authorship.
Such anonymity allows constructive, but often highly critical, comments.
Academic altruism / an outstanding academic tradition / scientific community “citizenship”

Winston Churchill’s famous dictum: “Democracy is the worst form of government, except for all those other forms that have been tried from time to time.”

The same might be said for peer review—it is the worst form of manuscript assessment except for all others that have been tried!

Cochrane Review 2008

Editorial Peer Review for Improving the Quality of Reports of Biomedical Studies.

Included 28 studies. Found no clear-cut evidence of effect of the well-researched practice of reviewer and/or author concealment on the outcome of the quality assessment process (9 studies). Checklists and other standardization media have some evidence to support their use (2 studies). There is no evidence that referees’ training has any effect on the quality of the outcome (1 study). Different methods of communicating with reviewers and means of dissemination do not appear to have an effect on quality (3 studies). Based on one study, little can be said about the ability of the peer-review process to detect bias against unconventional drugs. Validity of peer review was tested by only one small study in a specialist area. Editorial peer review appears to make papers more readable and improve the general quality of reporting (2 studies), but the evidence for this has very limited generalizability.

Authors’ conclusions

At present, little empirical evidence is available to support the use of editorial peer review as a mechanism to ensure quality of biomedical research. However, the methodological problems in studying peer review are many and complex. At present, the absence of evidence on efficacy and effectiveness cannot be interpreted as evidence of their absence. A large, well-funded program of research on the effects of editorial peer review should be urgently launched.

Other Literature Reviewed

There has been surprisingly little study of what training and qualities are necessary to function as a proficient scientific reviewer. Even less is known about how peer reviewers should be selected, and yet all journals routinely appoint new reviewers whose true quality is often revealed only after a number of reviews. Almost none of the experiences and training that might logically be thought to make for a high-quality reviewer (such as training in critical appraisal, academic rank, having been a funded primary investigator, serving on an IRB, etc.) actually predict subsequent performance of higher-quality reviews. A multivariable analysis (which controlled for confounders) showed that comparing acceptable versus unacceptable reviews, having participated in grant review, and university environment predicted a better review; there was a nonsignificant trend in favor of a degree in statistics.

None of the other factors were predictive, except for serving on an IRB, which paradoxically was associated with lower-quality reviews.

Being asked to review: Editors usually choose reviewers from these sources:

- (1) Personal knowledge of experts in the field
- (2) Authors of articles referenced in the manuscript
- (3) Reviewers suggested by the authors
- (4) Literature searches
- (5) Requesting suggestions from the editorial board

Usually a period of two weeks for the reviewers to respond as to their ability to critique a manuscript. When they have responded, they have a further four to six weeks to provide a thorough evaluation of the manuscript.

As a reviewer, you serve as an advocate for the journal as well as the author.

- (a) Journal: to serve as a “consultant” to the Editor
- (b) Author: to provide feedback to authors about ways to improve the science and the communication of that science.

Your review will have two aspects to consider: technical and ethical.

Studies have found that editor-suggested reviewers (ESRs) are less likely than author-suggested reviewers (ASRs) to recommend acceptance.

Rivara et al: 75% of ESRs recommended accept or revise and 86% of ASRs recommended accept or revise.

Editors are less likely than both ASRs and ESRs to recommend acceptance of a manuscript

Becoming a Reviewer – Areas of Expertise

In general, it is recommended that reviewers initially select no more than two to three areas of expertise, preferably areas in which they have published.

This will allow novice reviewers to build a portfolio of quality reviews that will likely lead to future review invitations.

Additional areas of expertise can be identified as one’s career progresses.

A critical thing to remember: “Reviewers advise; editors decide.”

Reviewers offer their opinion on the strengths and weaknesses of the article.

Editor issues one of four decision letters: “rejection,” a request for “major revisions,” a request for “minor revisions,” or “initial acceptance, pending editor approval.”

It is very unusual to receive an “accept” decision on the initial submission.

What does the Editor expect from a reviewer?

- (1) Immediately return a manuscript if he or she is unable to complete the reviews promptly
- (2) Inform the editor of any potential conflict of interest
- (3) Look for scientific validity (methodology, results, and conclusions)
- (4) Indicate strengths and novelty
- (5) Suggest ways to improve the manuscript (advice and encouragement)
- (6) Report any ethical concerns
- (7) Respect the authors’ intellectual property.

This rigorous process requires a significant effort and expenditure of valuable time by reviewers.

Landmark, Landmine, or Landfill? The Role of Peer Review in Assessing Manuscripts

“The bottom line is that the verdict as to whether the submitted paper is a landmark piece of work, a landmine of controversy or flawed science, or simply landfill is rendered by readers and scientists elsewhere. This is reflected in the letters to the editor and by citations and reproducibility.

What do journal editors want back from reviewers?

To provide a useful, thorough and balanced review.

To provide concise, constructive criticism about the organization and clarity of the ideas within the text.

- It is useful to provide a brief overview and then follow with a detailed and systematic list of comments.
- Don't write a review that is inflammatory or insulting and do not promote your own work unreasonably, i.e. demand that the reviewer cite your own work, or provide personal comments about the authors.
- Remember too, when you are a reviewer you must keep confidential your knowledge of the manuscript.

Preparing for the Review:

Before You Read the Article

- What does the title lead you to expect about the article?
- Study any sub-headings to understand how the author organized the content.
- Read the abstract for a summary of the author's arguments.

Approach to reading the article

- Problems with the Science
 - Pay attention to the integrity of the science - not so much right or wrong because you may not be able to know what will be right or wrong
- Problems with the Ethics
- Problems with the Presentation
 - Poorly focused
 - Authors fail to develop their ideas systematically (they need to lead the reader through their thinking)
 - Author may fail to be explicit about the logical structure of the study - they fail to specify goals, hypotheses, testable predictors of the hypotheses and conclusions
 - For tables and figures, try to interpret the data first before reading the captions and details.

Keep asking

- What is missing?
- Is the article important - what question does it answer?
- What is the novelty of the idea, methods, etc.?

First Read / Second Read

Writing the Review

There will be comments that you write to the editor and comments that you will write to the authors. There will be some overlap in these:

To the Editor:

- Summary of the article
- Main criticism and questions
- Recommendation

To the Authors:

- Same Article Summary
- Major / minor comments - obligated to explain each one to the author - you must be clear and specific to distinguish between major and minor concerns.
 - These concerns
 - Some reviewers use a “major–minor” approach, first listing major concerns then moving to more minor, changeable concerns.
 - Other reviews move section by section through the manuscript, chronologically interspersing major and minor concerns.
 - Major concerns are those that threaten the validity of the study, expose a theoretical confusion, or reveal a mistaken use of a particular statistical technique.
 - Minor concerns can be corrected (e.g., an additional analysis, an addition of a study to the literature review).
- It is also very helpful when reviewers number their concerns so that, if a revision is encouraged, the author(s) can refer to specific points raised by each reviewer in the resubmission letter.
- Don't get into the praise business - what if the editor doesn't like the article but you praise it?

Comments to the author(s) constitute the lion's share of the review. The opening paragraph should:

- Describe the reviewer's overall opinion of the manuscript.
- Highlight both the manuscript's strengths and weaknesses as they relate to methodology/experimental/statistical approach/interpretation of results.

Major concerns, particularly those that may make the manuscript unpublishable, generally conclude the opening paragraph.

Be sure to distinguish your thoughts from the author's words.

Note limitations of the study at the end of the essay:

Keep Asking Questions?

- What is the purpose of the study? What questions were asked?
- How did the study address these questions?
- What is the importance of the research question? Originality?
- What assumptions did the author make?
- Is there sufficient data to support the author's generalizations?
- Does this paper highlight something you did not know before or that was interesting?
- What were the major findings?
- Does it contradict existing findings?
- Do the data and conclusions contradict each other?
- Are there any ethical concerns (animal / human)
- What contribution is this paper likely to make to the field?
- Will this paper, if published, generate additional research that can further the science?
- What questions remain unanswered? How could future studies be improved?

Do's and Don'ts of the Review Process

To summarize the major points delineated above, when conducting a review, one should keep the following in mind.

1. **Do** make your overall enthusiasm for the paper clear to the authors in your written review. Don't state in the comments to the authors your recommendation to the Action Editor (i.e., reject, major revisions, minor revisions, or accept).
2. **Do** be consistent with the comments you make to the authors and Action Editor. Don't laud a manuscript in the comments to the authors while disparaging it in confidential comments to the Action Editor. Your recommendation should match your comments. For example, it is particularly challenging for an Action Editor if a reviewer lauds a manuscript in the written review but then chooses "major revisions" or "reject" as the recommendation regarding publication.
3. **Do** provide detailed commentary if a manuscript has shortcomings that, if corrected, would make it suitable for publication. Don't provide such detail if you recommend that it be rejected, unless using the review as a teachable moment for the author(s). A description of the fundamental flaws and uncorrectable shortcomings is sufficient.
4. **Do** recommend a revision if the manuscript will make a significant contribution to science. Don't recommend a revision if, even with changes, the manuscript will not make a significant contribution.
5. **Do** provide specific references to text within the manuscript or references to the literature to support your comments/critiques. Some reviewers copy and paste text from the manuscript into their review, and this can be extremely helpful to authors. Don't make vague or ambiguous text references or blanket opinionated statements that are not supported by data.
6. **Do** be clear about what changes you want to see in a revised manuscript if recommending a revised submission. Don't leave the authors guessing.
7. **Do** read a manuscript more than once. Don't form an opinion of a manuscript after a first reading and then generate a list of criticisms without rereading the manuscript and identifying specific items that corroborate your criticisms.
8. **Do** reread your review to make sure you have not included any overly harsh or inappropriate comments. Don't send the review off without looking it over at least once.
9. **Do** treat authors of a manuscript as your equal, regardless of the quality of the manuscript. Don't talk down to authors. Science is a collaborative process, and reviewer comments should be made with a collaborative tone and spirit.

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13. The Committee on Publication Ethics (2013) has published some excellent guidelines for peer review downloadable from:
14. http://publicationethics.org/files/Ethical_guidelines_for_peer_reviewers_0.pdf.

Reviewer Checklist

General:

- Is the research question relevant to the readers of the journal?
- Is the research question original?
- Does the study answer a question or contribute to the field?
- Was the study conducted ethically and with institutional review board approval, if necessary?
- Did the authors follow reporting standards?

Background:

- Was a thorough review of preexisting research conducted?
- Were other research studies properly referenced?
- Is the rationale for the question provided?
- Are the purpose and/or hypothesis clearly stated?

Methods:

- Is the study design clear?
- Was it the appropriate study design for the research objectives?
- Are the methods sufficiently detailed so that someone else could repeat what was done?
- Was the source of subjects discussed?
- Are inclusion and exclusion criteria of the sample discussed?
- Did the authors conduct an a priori power analysis?
- If more than one sample is used (i.e., cases and controls), were they similar? Was this tested statistically?
- Were subjects randomized? If so, was the method of randomization described?
- Is the sample biased? Are the results generalizable based on the sample?
- Was blinding used and discussed?
- Were the treatments well defined?
- Were the correct measurements used? (i.e., objective functional measurements) Is there great measurement error?
- Were the outcome measures appropriate? (i.e., validated questionnaires to assess subjective measurements such as pain)
- Was the duration of follow-up discussed?
- Were the proper statistical tests conducted? Are they clearly stated?
- Were p values and/or confidence intervals reported?
- Are losses to follow-up/missing data/low response rate reported and discussed?

Results:

- Are the results clearly presented?
- Is variability of the data discussed?
- Do the tables and figures stand on their own?
- Do the findings unambiguously answer the question or address the purpose or hypothesis?
- Were side effects/complications reported?

Conclusion;

- Are the conclusions supported by the data?
- Are important discussion points missing?
- Do the authors suggest future research on this topic?
- Does previous research on this topic support or refute the findings? Do the authors discuss these other studies?
- Do the authors discuss assumptions, limitations and sources of bias?
- Have the authors overlooked critical references and/or only selected a biased range of papers?

Another Checklist

1. Scientific quality of the work

- Are the methods appropriate and presented in sufficient detail to allow the results to be repeated?
- Are the data adequate to support the conclusions?

2. Presentation

- Writing: Is it clear, concise, and in good English?
- Title: Is it specific and does it reflect the content of the manuscript?
- Abstract: Is it brief and does it indicate the purpose of the work, what was done, what was found, and the significance?
- Figures: Are they justified? Are they sharp, with lettering proportionate to the size of the figure? Are there legends to explain the figures?
- Tables: Can they be simplified or condensed? Should any be omitted?
- Trade names, abbreviations, symbols: Are these misused?

3. Research violations

- Are there violations of the Guiding Principles in the Care and Use of Laboratory Animals?
- If the research involved human subjects, were the studies performed in accordance with the Declaration of Helsinki? If you have concerns about the welfare of animal or human subjects used by the authors, include written comments to the editor.

4. Rating

- Assign a rating on the reviewer form; rank the manuscript relative to other work in the same field.

5. Confidential comments

- Provide comments regarding the novelty and significance of the manuscript.
- Provide a recommendation about the manuscript's suitability for publication in the journal; these comments will not be returned to the author(s).

6. Comments for authors

- On the reviewer form, provide specific comments, preferably numbered, on the design, presentation of data, results, and discussion. DO NOT include recommendations for publication.
- Please be certain that your comments to the author(s) are consistent with your rating recommendation.

7. Privileged document

- This manuscript is a privileged communication; the data and findings are the exclusive property of the author(s) and should not be disclosed to others who might use this information in their research.
- The manuscript, illustrations, and tables should be destroyed upon completing the review or, if anticipating a revision, kept confidential until the review process is complete.
- If you have shared responsibility for the review of this manuscript with a colleague, please provide that person's name and institutional affiliation.