

Tips for peer-reviewing journal manuscripts

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Overarching advice:

My #1 piece of advice is to be respectful. We've all received reviews that feel overly critical if not insulting. Rudeness is just not necessary and can be harmful and discouraging to the authors, especially if they are junior. While most of your review will focus on things that can be improved, you can – and should – point out the good aspects. Once you've noted down all the room for improvement, read your whole review for tone from the perspective of the authors. Can you add a positive or change some words to sound more respectful? You don't need to go overboard, but a little positivity goes a long way.

Be prompt. If you've accepted the task of reviewing a manuscript, complete the task, and do it by the deadline given by the editor. The peer-review process is slow as it is, and taking up a review slot only to then not deliver will absolutely delay the manuscript's review, often by a month or more as the editor awaits your review, realizes it's not coming, and then scrambles to find another reviewer. Delayed reviews also slow down the process. Sometimes someone's graduation or promotion is dependent on timely processing of their manuscript, so delays can have real effects for people's career development.

You do NOT need to recommend rejection, acceptance, revise and resubmit, etc. in your written comments. There is usually a place to input that recommendation in the review submission system, or if not, then the journal would prefer for the editor to make that decision based just on the substantive review comments. There is usually a box in the review submission system for you to write comments just to the editor. Here is where you can point out things that provide context for your review to the editor, like if you were only able to review a portion of the manuscript because you didn't have expertise in one of the covered areas or the manuscript is really interesting and the topic is important but poor writing quality made it difficult to understand all the details.

How to write a journal article review:

Start with an overview of the article to demonstrate that you read it and understood what it's about. For example, "This manuscript presents an epidemiological analysis of the association between extreme heat and cardiovascular mortality across the U.S."

The overview is also where you can bring in the positives - what did the paper do well? Was the writing clear and concise? Did they use a particularly strong dataset? Is the topic of critical importance? Does the paper demonstrate an innovative approach? Do the figures show a

compelling way of visualizing the information? There is probably something good - find it and mention it!

The next section of your review should cover any major issues that should be addressed. Major issues are those that could substantially affect results and conclusions or the reader's understanding of what the paper has found and how it fits into the broader context in the field. Major issues might require new or redone analyses, or the authors may be able to address the comment with text changes.

- Most of the time, the major issues I find are drawn from my reading of the Methods section of the manuscript. So that is where I spend most of my time and energy when I review. If the methods are flawed, then the results and conclusions will be too.
- Aside from the Methods, there may be major issues with the other parts of the manuscript, including the Introduction, Results, Discussion, Conclusion, and Abstract. Sometimes these sections are not communicated clearly, and that could affect readers' ability to understand the manuscript. Sometimes there is not enough broader context in the Introduction or Discussion – e.g. motivating the manuscript in the context of the current literature (Introduction), identifying limitations and placing results in the broader context of the field (Discussion), uncertainty values are not reported (Results), etc. You should decide whether these rise to major issues or more minor editorial or stylistic comments.

The final section of your review should include more minor comments. Minor comments are those that are editorial, stylistic, or that you consider to be optional for the authors to address. Line by line editing for typos is not needed, but if you come across one, it's a nice service to the authors to point it out. Here is where you can note that font on figures should be larger, the logical flow of the paper can be improved, some extraneous detail can be removed, a particularly on point paper was overlooked in the Introduction or Discussion (though if they missed a large theme in the literature that could rise to a major comment), or any other issue that may not affect the results or conclusions.

Make sure line numbers are included throughout your review to make it easier for the authors to find the portion of the text to which your comment applies.

I usually read through the whole manuscript and jot down bullet points for myself with line numbers. After reading through the whole thing, I organize my bullets into themes (these three are about the dataset, these four have to do with the broader context, etc.), which I rewrite to avoid duplication, make clear, and ensure respectful tone. Then I decide which should be major vs. minor and put them into the format I describe above. Finally, I read through my whole review to ensure a respectful tone throughout.

If you are asked to review a revised manuscript:

- Accept the review request if you can. Otherwise the editor will need to seek different reviewers which may not understand your original comments.

- Try to avoid raising new issues that you didn't raise in the first round of the review, unless the authors made changes that you didn't review the first time.
- Review the authors' response to each of your initial comments. Keep an open mind because the authors may present insights that you didn't think about when you were doing your review. If they took your comment seriously and presented a logical argument for why they didn't make any changes, be open to agreeing with them, or agreeing to disagree if it's a matter of a difference of opinion or interpretation.
- Most of the time, though, the authors will have made changes to the manuscript to address your comment. Review those changes and determine whether they appropriately addressed the comment. You can still take issue with their response and point out remaining issues that should still be addressed. If it's an acceptable response, no further comment is needed.
- If you don't have any further issues to raise, consider submitting a review that is simply thanking the authors for taking your review seriously and addressing your comments in full. You can even congratulate the authors on a great manuscript.