



Experts Corner

10 common mistakes in writing a scientific article

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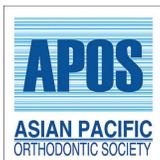
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ABSTRACT

Over the past 15 years, I have been involved in different roles as author of orthodontic and non-orthodontic manuscripts, reviewer of orthodontically related submissions and assistant/associate editor of different orthodontic journals. Over that span, I have committed multiple mistakes both while writing a manuscript and while critically appraising one. I hope these few timbits* would help you strengthen any future manuscript submission you may consider working on. I have identified 10 common mistakes that I have observed while preparing/reading scientific articles. The list is not ordered according to importance but following the template of a typical scientific article.

Keywords: Journal article, Medical writing, Mistakes.

ANOTHER STUDY ABOUT THE SAME

I have been at fault regarding this concept so many times. Among my first 10 publications, 5 were about tooth size prediction - mixed dentition analysis. How much can tooth size actually vary between populations? Moreover, even if there are statistical differences, are those differences clinically relevant? Nowadays, I face this almost every week in my function as assistant/associate editor because I tend to receive most of the systematic reviews/meta-analysis submissions. How many more do we need? From almost none a decade ago now we may have too many. This has been lately questioned several times, i.e., see Derek Richards' editorial at <https://www.nature.com/articles/6401280>. So think deeply what exactly is the study you are planning to execute add to what we already know? If it is not going to be a meaningful building block for the next "level" of knowledge, why to invest time and resources. Note this applies before a manuscript is even started. Nowadays, there are a lot more submissions than spots available to be published. Hence, editors will reject outright submissions that do not clearly answer the "so what" question. Editors will identify similar papers in the process of selecting reviewers. Hence, "forgetting" to mention previously related published manuscripts is not the way to instill confidence to a reviewer/editor.

A DETAILED TITLE THAT CLEARLY STATES WHAT IS BEING DONE

I know that some journals have very strict rules about how many words a manuscript title can have but that still should not mean that we should consider the importance of the title implications lightly. It should clearly state what is actually being assessed/tested. Word count limitation may limit the degree of details but not the essence of the work. The title is also not the place to try to convince the reviewer/editor that what you are submitting is more important or have clinical implications than it actually is. Science is built by little building blocks. A single paper has not changed the world. Some additional interesting suggestions

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about how to decide the title of your submission can be found at <https://www.annaclemens.com/blog/ten-most-common-mistakes-when-choosing-a-paper-title>.

IT IS NOT A COMPETITION TO SHOW HOW MANY REFERENCES YOU HAVE TO SUPPORT A STATEMENT

This one should be self-evident but still happens commonly. Journals do have word count limits. Do not waste words with an unnecessary number of references. Each one will count around 25 words in the reference list! If there are several references that support a statement, then use the most appropriate/newest. In grant craftsmanship, it is expected that the reviewer will look for previous critical manuscripts about a given topic. If they have not been cited, then they assume the authors are not up-to-date with that given topic. Cite a few articles but cite them well! I am not saying only one reference should be used, maybe two or up to three but feel certain why all are needed. A useful link can be found at <https://wordvice.com/how-many-references-to-include-in-a-research-paper>. Keep it mind it refers to the total number of references not how many per statements. And also be sure that the reference you use is actually adequate. How many times we read something in another publication and simply edit the concept, write it up in our manuscript and use the same reference without checking if the authors of the original reference did actually support what is claimed. Have a copy of every article you quote and be sure you have interpreted it reasonably.

CLEARLY STATE WHAT IS THE QUESTION YOU SEEK TO ANSWER

One of the most elemental concepts of article craftsmanship but constantly forgotten is to clearly state the question to be answered. Not a lot to say except that if it is not clear what you are a really doing, then your work will be judged inappropriately. No word limits here. Consider this guidance: <https://writingcenter.gmu.edu/guides/how-to-write-a-research-question>.

QUESTIONS THAT HAVE RELATIVELY LOW CLINICAL RELEVANCE

The vastness of the world is at our reach. New communication forms have reduced distance as a barrier. This is reflected by a measurable increment in the number of submissions worldwide. English is becoming less of a submission barrier. Where I am going with this is that your manuscript will compete for a publication spot with a lot other good submissions. What differentiates your submission? The higher the clinical impact, the more likely the editor is going to give you a chance. Start the whole process of research with this end in sight. This obviously applies to any type of journals.

IT IS CLEARER IN YOUR MIND THAT WHAT YOU THINK IS IN THE TEXT

How many times I have received reviewer's comments asking for clarity in my submissions and my first reaction is "but if it is clear as pure water." Then, some minutes go by and you actually read what you wrote and the question the reviewer is presenting to you and slowly realize that the reviewer has a strong point. We invest so much time in the research project and the related manuscript that we think everything is certainly clear. This may be in our minds but not necessarily in the text. Ask colleagues to read your manuscript and ask questions about its clarity. That would avoid unsupportive comments from the reviewer because they do not truly understand exactly what you did. Think about these suggestions by one publisher: <https://authorservices.wiley.com/Reviewers/journal-reviewers/how-to-perform-a-peer-review/step-by-step-guide-to-reviewing-a-manuscript.html>.

STATISTICAL ANALYSIS SHOULD BE PROPERLY SELECTED

Most of us have no significant training in statistics. Hence, get expertise and does not let your ego guide you in the selection of statistical analysis. There are statistical consulting services that are useful. Keep in mind the phrase "there are lies, more lies, and statistics." It is important that the statistical analysis truly reflects what the data are telling us and not keep looking for a statistical test that shows a difference you hope for. A good manuscript that does not find statistical significance will still be published. Although there is some evidence suggesting that studies with statistical significance are more likely to be published.

DO NOT REPEAT EVERYTHING FROM THE TABLES IN RESULTS

This should be self-explanatory. Results should summarize/synthesize the study findings. Figures and sometimes tables are great visual aids, but still, some information has to be provided as text. Some useful advice at <https://wordvice.com/writing-the-results-section-for-a-research-paper>. No personal opinions or description of tendencies or comparison to other study results should appear in results sections. It should be simply a description of the findings.

DO NOT ONLY DESCRIBE RESULTS AGAIN IN DISCUSSION

Just do not reword the results section in the discussion and add some results from other studies. Contrast the findings. Propose a hypothesis why there are differences. Here is where authors can provide their opinions, suggest future steps. Again be careful with the number of references to be added. Some useful tips at <https://bitesizebio.com/31855/write-discussion-paper>. It is not the size of the discussion but the essence of it that makes a difference. Concise but thoughtful. Finish acknowledging the limitations. Hiding

them does not help. Every research project can be improved. A good discussion of the limitations and why you were not able to overcome them does actually create a positive feeling on the reviewer. They will be more trustful of your manuscript if they feel you are not hiding information.

CONCLUSIONS THAT DO NOT MATCH THE QUESTION ASKED

Finally, it amazes me how lengthy conclusions can be when there is only a simple question to be answered as per point 4 above. It is really important to be concise and fair. Remember that the future readers will likely only read the title of your paper and then the conclusions and move on. You have a high level

of responsibility of not overselling what you actually found. Be humble and direct. Important differences between what should be stated in discussion and conclusions at <https://www.enago.com/academy/discussion-conclusion-know-difference-drafting-manuscript>. Some journals do not have an actual conclusions section but expect that conclusions will be the last paragraph of the discussion. Keep that in mind when writing this section.

*timbits are well-known Canadian bite-size fried-dough confectionery manufactured by Tim Hortons' franchises.

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