How to write a scientific paper?

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Scientific writing - beginner's guide: Do's & Don'ts of publishing research

Be motivated to publish: are you engaged to write a paper? You should have a personal reason to write, rather than for others' expectations; make writing meaningful to you, & identify colleagues with expertise who can motivate & support you. Do you have data or topic for a paper? Have you considered a journal? what will be your take home message??... keep calm & create content!

1 Topic & Journal?

What is the topic of your paper? write down the title, it is of main importance.
Focus your mind & set boundaries:
- are you clear of the aim & purpose?
- who are you writing for, and how will you engage readers?
- how will you demonstrate originality in your contribution?

What journal are you going to address?? have a top 3: A, B, C. Journal for your readers or out-of-the-box (not in your field)?? Scan journals, subscribe to eTOC (electronic table of content - freely available on every journal websites ie Intensive care Medicine bit.ly/ICMeTOC).

Consider what kind of papers journal is used to publish. Open access? more likely that citations are going to increase!

Organize: if you know the journal, start writing, conforming to author guidelines BEFORE submitting (download the author guidelines & read these, many times), otherwise it is going to be rejected (could be offensive for editor/reviewers). If you do NOT know the journal, start writing by using general paper lay-out.

Title page
title, author names, affiliations, corresponding author address
Introduction
Methods
Results
Discussion
+ limitations & implications
Conclusion

2 The Manuscript

Get ready! When & where to start writing? ASAP, NOW, today, after reading this... Choose a place, everywhere you like, turno off smartphone & email.
How to start writing? easy!
- type a title page (you may be not academic with title)
- use KISS Keep it Short & Simple
- be accurate/informative
- write short sentences < 3 lines
- use plain language don't try to impress... reviewers should not open dictionary to understand your paper

Use reporting guidelines (simple, structured tool for health researchers to use while writing manuscripts) relevant to your research: this is of main importance! Most are freely available, download & use: check EQUATOR network gold standard (Enhancing the QUAlity and Transparency Of health Research), international initiative that seeks to improve reliability & value of published research literature by promoting transparent/accurate reporting and wider use of robust reporting guidelines. Check www.equator-network.org

Abbreviations?? may help reducing word count, but are NOT going to increase readability, so be moderate. Do not start a sentence with an abbreviation (it is not an official rule, just an advice). Some journals require a list of abbreviations (look at author guidelines).

3 Key Messages

Write down key messages gives you an idea of what is know about this topic, and what this paper adds (what is new). This will help deciding where to publish, & may motivate you to keep going or get started.

Title

Effective titles maximize paper discoverability! Papers with shorter titles & colons rather than question marks, get higher citations (Hudson J. Scientometrics. 2016)
- identify main issue; begin with subject, eventually study method after colon
- accurate, unambiguous and complete, but do not put too much details in
- do not use rare abbreviations
- short & sharp, less than 12 words (some journals have advices on title in their guidelines) that adequately describe content, including keywords.

Sometimes a provocative catchy/title works, but whatever you do with your title need to flow with your paper.

Abstract

Abstract is really important:
- employ keywords to maximize discoverability
- repeat keywords 2/3 times in a natural manner, particularly at start
- use MeSH terms for keywords
- structure abstract based on author guidelines, usually (standard) →

Abstract
Background
Aim
Method
Results
Conclusion

Method

Method is section where you describe the design of the study:
- use subheadings: settings, study population, intervention, outcomes, analysis
- don't forget ethics! (ethical considerations): be mindful, some journals require to formally state that the study has been conducted in accordance with the Declaration of Helsinki.

Results (or Findings)

About results (findings for qualitative studies):
- do not overlap text which can be read in tables/figures
- be clear & do not start interpreting
- quantitative studies?
  table of characteristics of study participants
  make sure tables are clear; long tables (> 2 pages)? consider to add in (electronic) supplemental material (may contribute to transparency use! also consider for other material: give all your data). Figures need to be clear & use journal's format (jpg, PDF, TIF)
- qualitative studies: think about the narratives to include in the findings section; if using narratives, don't forget to add participant at every narrative.

Plagiarism is a big offence! Self-plagiarism is unethical, say the same in other words; if unsure, check manuscript before submitting: journals use softwares to check for plagiarism before publication.

40% of papers have errors in references list! use reference management software & don't forget to check reference list with journal requirements.

Introduction

Introduction should be short, leading to aim of study: think in boxes! 1st paragraph need to make editor/reviewers excited: convince them!

Funnelling the background

Albarran JW, Latour JM. 2019

broad introduction of topic- set the context

nature & scale of the problem/relevance to the readership is made explicit

(mini) review of published studies + identification of gaps/knowledge

study aim

Title of table always on top of table

Title of figure always at bottom of figure

study summary

Present results & emphasise key findings using relevant data

discuss results of previous studies confirm if data supports (or contradicts) previous studies and give reasons

study limitations - write in honest/transparent way implications for clinical practice - write significance conclusion (supported by results) & future research

Funnelling the discussion

Albarran JW, Latour JM. 2019

KEEP CALM AND SUBMIT

Discussion

discussion most difficult part!
- start with what you have found; again, think in boxes; 3 pages? more than enough; try not to discuss every individual result, put most important/striking ones, that are most important to discuss
- compare your results with other studies
- acknowledge potential imitations: every study has imitations; a study with no limitations? or best study ever published or not a study...
- highlight implications for clinical practice/conclusion

Manuscript finished?? don't submit too quickly, read out loud, present to co-authors, ask a colleague and a consumer to read.
To submit, have ready:
- co-authors details, title, qualifications... as some journals require a lot of these
- short cover letter
- potential reviewers: some journals ask/require potential names

Some reviewers are inexperienced, bad luck; some are experienced, lucky you. Reviewers are mostly not paid! do not bother them ie if paper rejected for not following author guidelines.
When resubmitting, you do not need to accept every comment → rebuttal

Authors & Co-authors

Authorship matters! Who Is an author?
Author & co-authors should be stated in study proposal;
co-authors only if significant contribution: use acknowledgement section. The ICMJE (International Committee of Medical Journal Editors http://www.icmje.org/) recommends that authorship be based on 4 criteria:
- substantial contributions to conception or design of work; or acquisition, analysis, or interpretation of data for work; AND
- drafting the work or revising it critically for important intellectual content; AND
- final approval of the version to be published; AND
- agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of work are appropriately investigated and resolved.

10 tips to deal with decision

1. Get mad. Then get over it
2. Consider what editor's decision letter really says
3. Wait & gather your thoughts
4. Even if reviewer is wrong, it does not mean you are right
5. Choose your battles wisely
6. Do not pit one reviewer against another
7. Be grateful for editor's and reviewers' time
8. Restate reviewers/editor's comment when responding
9. Be prepared to cut text
10. Do not submit the same version to another journal

Annesley TM. Clin Chem. 2011 Apr;57(4):551-4.

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