How to write a research manuscript

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By courtesy of
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Disclosures

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Publish and perish—“The Seven Deadly Sins”

Data manipulation, falsification
Fabricating large amounts of data from experiments which he had never conducted Mentor Eugene Braunwald - Harvard

List of scientific misconduct incidents
Publish and perish - “The Seven Deadly Sins”

Data manipulation, falsification
Duplication manuscripts
Plagiarism – software to detect
Redundant publication
What constitutes redundant publication?

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>Data in conference abstract?</td>
<td>No</td>
</tr>
<tr>
<td>Same data, different journal?</td>
<td>Yes</td>
</tr>
<tr>
<td>Data on website?</td>
<td>Maybe</td>
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<tr>
<td>Data included in review article?</td>
<td>OK with permission</td>
</tr>
<tr>
<td>Expansion of published data set?</td>
<td>Yes</td>
</tr>
</tbody>
</table>
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Plagiarism

Redundant publication

Author conflicts of interest

Animal use concerns — ethics

Humans use concerns - GDPR General Data Protection Regulation
- DPIA Data Protection Impact Assessment
Statistics and data manipulation

- Use statistics to make the most of your data
- Do not use statistics to manipulate your results
- Fishing for results
- Salami slicing
Quantify and Analyse properly

There are lies, damn lies and statistics

Statistics are for the masses, but not for the individual

Benjamin Disraeli, British Prime Minister
What makes a good research paper?

• Good science
• Innovative topic
• Solid data
• Good writing
• Dissemination
What constitutes good/significant research?

**Innovative therapies**

- new mechanism of action
- aimed at treating an un-met medical need
- significant and clinically meaningful benefit
What constitutes a good journal

**Impact Factor** –
average number of times published papers are cited up to 2 years after publication / number of published papers

**Immediacy Index** –
average number of times published papers are cited during the year of publication
GUIDELINES ON AUTHORSHIP
Each author should have participated sufficiently in the work to take public responsibility for the content. This participation must include: (a) conception or design, or analysis and interpretation of data, or both; (b) drafting the article or revising it for critically important intellectual content; and (c) final approval of the version to be published. Participation solely in the collection of data does not justify authorship.
Prepare your ms – start with the results

- Gather all raw data, analyses, plots and tables
- Organise results according to a logical sequence
- Choose the data to use in figures
- 6-8 figures are usually a good number to start with – end up with 2-3
- Discuss the data with your colleagues and note down important points

NB! From your results - Decide the focus of your paper!
Before writing consider

“Those who have the most to say usually say it with the fewest words”
Prepare your manuscript

Write the study protocol as if it is the manuscript without result and discussion and you will have your manuscript already structured

- Identify the most important findings emerging from the data and make them the central theme of the article
- Focus on the readers of the journal that you are considering to publish your work
- Prepare figures, schemes and tables carefully
Manuscript title and authors

- The title must be simple, attractive and must reflect the investigation or the finding

The New England Journal of Medicine

Original Article

Edoxaban versus Warfarin in Patients with Atrial Fibrillation
Manuscript Structure

Abstract
Introduction
Material and Methods
Results
Discussion and Conclusions
Acknowledgements
References
Figures and Tables
Additional online material
Abstract

Summary of manuscript (200-300 Words)

Problem investigated - background

Purpose of research - aim

Methods

Results

Conclusion
Introduction

Background on the topic
  2-3 paragraphs to discuss previous research

Focused background information
  Need for study

Focus of paper
  Hypothesis and aim

Overall 300-500 words
Material and Methods

Provides instruction on exactly how the study has been conducted

- Subjects/patients
- Sample size justification
- Description of the methods
- Experimental drugs and randomisation/masking
- Data collection
- Data analysis techniques
- Ethical considerations – DPO-GDPR/DPIA etc
Material and Methods

Common Mistakes

- Too little information
- Too much information on well known tests
- Unclear flow of procedures
- Too many / complex sentences
- Results / sources of error reported
Results

Objective presentation of experiment results

Summary of data

NOT a Discussion!

Common mistakes

Redundancy

Discussion and interpretation of data

No figures or tables

Methods/materials reported
Discussion

List the main findings of the study in the first 2-3 sentences

Interpret the results

Did the study confirm/deny the hypothesis?
Did the results provide an alternative hypothesis?
What interpretation can be made?
Are the results in agreement with previous research
Possible sources of error/anomalous data behaviour
Implications of the study for the field
Limitations and strengths
Discussion

Common Mistakes

- Mixing it with results
- Discuss results that have not been presented
- Broad statements and conclusions not substantiated by data
- Incorrectly discussing inconclusive results
- Ambiguous data sources
- Missing information
Conclusion / Acknowledgments

Conclusion

Short summary of major findings followed by brief sentence on future perspectives and/or application of present work

Important: Do not rewrite the same conclusion of the abstract

Acknowledgments

Remember to thank the funding source

Colleagues/scientists/technicians who might have provided assistance
References

The styles vary for different journals. Check referencing style of journal
Use e.g. ENDNOTE, RefWorks, RefMan – do not use free versions from web

Check for the accuracy of all citations

Reference:
  Articles from Peer-reviewed journal, abstracts (not more than 2 years old),
  from books

Should not reference:
  Articles from non-peer-reviewed journals or personal communications
Before submission

Leave it for a week or two before the final revision.

Get feedback from advisor and colleagues.

Make sure the paper is read by at least one or two colleagues who are not familiar with the specific work.

Check for spelling, grammar, consistency in terms and abbreviations, accuracy of tables, figures, references, …

DON´T BE SLOPPY!
Revision

• Read comments carefully

If a reviewer misunderstands a point, the point probably needs revision

• Be polite and respectful when disagreeing a reviewer’s comment but no need to be submissive

• Include a point-by-point response to each reviewers’ comment with an explanation of the changes made with page and line ref to the text were the changes are included
What to do if a paper gets rejected

Reason for rejections:

• Select the journal more adequate for your manuscript
• Make it more sexy
• Critically revise the manuscript and add analyses or experiments, additional studies if appropriate
• Use the study as preliminary findings for grant application
Join the ESC Working Group on Cardiovascular Pharmacotherapy

Membership is free

www.escardio.org/working-groups/Working-Group-on-Cardiovascular-Pharmacotherapy
Thank you for your attention.