

Writing Your Research Manuscript

Your research manuscript is the last step in completing the Scholarly Activity requirement for your residency. The following information will help you in writing your manuscript. Please contact GME research if you have any questions.

Your manuscript should be typed using the following format:

- 1 inch margins on all sides
- Line spacing at 1.5
- 12-point font

Elements of the research manuscript:

Your manuscript should have the following sections:

- 1. Title:** The title should reflect your work and should be something that grabs the reader's eye. You want the title to tell the potential reader "Read Me!" Then, authors followed by department.
- 2. Abstract:** This is the synopsis of your research. You always write the abstract last, after you have written the complete manuscript.
- 3. Introduction and Background:** In this section, you provide a brief review of the literature and the background to your research question. You have already written much of this section for your protocol. You may want to add additional information if new research articles or guidelines on your topic have been published since you wrote your protocol. The introduction and background should set the stage for your research question. The last sentence of your introduction should lead directly into your objective or research question. **Clearly state the research question or objective of your work.**

4. Materials and Methods: This is where you will describe HOW you did the study. Again, you have already written much of this for your protocol, so you can use a majority of what you have already written. Remember to change the tense, though, for example instead of “We will assess” it should be “We assessed”.

In objective terminology, describe your:

Study Design

Prospective • Retrospective

Controlled • Uncontrolled

Randomized • Nonrandomized

Blinded • Not Blinded

Describe patient population studied

Inclusion Criteria

Exclusion Criteria

What information did you collect?

Demographics (age, race, gender)

Key Information (medical history, procedure details, co-morbidities)

Pertinent to your study protocol (i.e., BMI if you studied obesity)

How did you get the information?

Chart/data base review

Billing records

Laboratory values

Interview with Subject/Family

Questionnaire (self-report)

Data Analysis

Primary (key) outcome variables

Secondary outcomes

Power analysis (that you used to estimate sample size before study started)

Statistical test(s) used; explain if esoteric

Level of significance ($p =$) selected (usually, $p \leq .05$)

Any adjustments made for multiple comparisons

5. Results: The results section should be written in a completely objective manner. You simply state exactly what you found in you study, without any discussion of these results (that comes later!)

In this section, some of your results can be stated as text, others should be put into tables or graphs. The tables or graphs should be at the END of your manuscript, not inserted into the text. You can refer to them as Table 1, Table 2 etc. in the text. Graphs or pictures should be referred to as figures. Tables can be made in Microsoft Word; graphs should be made in Excel and then copied and pasted into your manuscript.

Give your data the best chance to be *understood* and *remembered*

Describe the primary outcome variable(s)

Tables or Graphs

Indicate significant differences (*; p =)

Clearly label the study groups

Tables need titles

Figures need legends

Describe the secondary outcome variable(s) in the same way

Describe any interesting incidental findings

- ▶ Do not repeat what the reader can see in your tables and/or graphs ◀
- ▶ Do not interpret findings here. Just the facts! ◀

6. Discussion: The discussion section is where you tell your reader how your data compare to data in the literature, why you think your findings are important and what limitations there may be in your study. This is the one place in the manuscript where you get to be somewhat subjective, where you get to say what you think your research means.

Relate your findings to the hypothesis or research question

Did you answer the research question?

If not, why not?

Was the hypothesis proved or disproved?

If not disproved, why not?

Put your results into perspective

How do they relate to previous published work?

What do they mean?

What are the implications?

What are the limitations of your study?

Last paragraph:

Summarize the most important results

Give the reader a take-home message

7. Conclusions: Write a brief paragraph that summarizes the findings of your study. This is simply a recap of the major points of your study.

8. References: Your references should be numbered as they appear in the text. So, the first citation in the text should be labeled (1) and that should be the first item cited in your list of references.

Follow the Uniform Requirements for Manuscripts Submitted to Biomedical Journals (<http://www.ncbi.nlm.nih.gov/books/NBK7282/>) for reference style.

For example: To cite a journal article:

Smith JA, Jones MC. The effect of manuscript preparation on resident stress level. *Journal of Silly Research* 2016 March; 11(2): 100-105.

You must list all authors up to the first six authors. If there are more than six, then list the first six and then use the term “et al”.

After you have completed the manuscript, go back and write the abstract. The abstract should be in the same format as the manuscript and should not exceed one page in length.

If you wish to publish your manuscript in a journal, the GME Research Office will help you with the process. The first step is to decide what journal you wish to publish in and to download and read the “Instructions for Authors”. Every journal has different word limits and styles; you will save yourself a lot of time and effort if you read these instructions first!

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