Writing a Scientific Manuscript (Part 1)

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Senior Research Associate
Meharry-Vanderbilt Alliance
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Session Outline

• Good writing hygiene
• First steps
• Manuscript sections & strategic writing
• Submitting the manuscript
• Revising and resubmitting manuscripts
• Rejected manuscripts
• General tips
• Supplemental Resources
Why publish?

- Contribute to science
- You have something important to say
- Affect policy & change
- Expectations in your profession
Good writing Hygiene

• The more you write the easier it gets
• Protect your writing time
• Take steps to make yourself accountable
• Binge writing is rarely successful…write regularly
First Steps
First Steps

• What are you writing about?
  – What data do you have access to?
  – What is important in your field?

• Manuscript ideas can be leveraged from other study’s (limitation sections, future directions/next step sections)

• Respond to journal call for papers
First Steps

• Have a target journal(s) in mind
  – Review thoroughly author instructions

• Obtain template articles from journal (subject matter template and statistical methods template*)

• Outline a draft of the paper
  – Work on the easiest sections first - more rewarding
    – Methods → Results

• Draft authorship list*
First steps- co-authorship

• Different groups have different “cultures” around authorship
  – 1st author- heavy lifting
  – 2nd author-analytical contributor (if not first author)
  – Last (senior)- typically the person whose grant funded data acquisition and/or the person who provided mentorship to the first author
  – Other authorship positions typically defined by the amount of effort invested
    – Initiate this conversation with your mentor/ coauthors

• Journals provide a general description of author contribution guidelines
# Co-authorship table template

<table>
<thead>
<tr>
<th>Author</th>
<th>Name</th>
<th>Name</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conception &amp; design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisition of data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis &amp; interpretation of data</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Drafting the manuscript</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Critical revision of the manuscript for important intellectual content</td>
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<td></td>
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</tr>
<tr>
<td>Statistical analysis</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Obtaining funding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative, technical, or material support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervision</td>
<td></td>
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</tr>
</tbody>
</table>
First Steps- The paper skeleton

- 1- Draft a “working title” for your manuscript
- 2- Using the comment’s feature of MS Word- enter key journal information in the margins
  - Type of articles (original research, brief report, meta-analysis, systematic review, case study etc.)
  - Abstract word limit (structured/ unstructured)
  - Font, margin parameters, word limit
  - Major section guidelines
  - Referencing style
- 3- Create a 2nd MS word document labeled “TBD content”
paper skeleton example
&
skeleton + outline example
Manuscript Sections & Strategic Writing
Major Sections

- Title page
- Abstract (structured vs. unstructured)
- Introduction/Literature Review
- Methods
- Results
- Discussion
- Tables & Figures
- References
Title page

• Concise
• Some titles report the findings
• Author affiliation – be consistent
• Corresponding author information
• Funding source*
Abstract

• Generally 150-250 words
• Structured vs. Unstructured
• Take home message

• Abstract Elements
  – Objective
  – Design
  – Setting*
  – Participants
  – Measurements
  – Results
  – Conclusion
Introduction/Literature Review

• The longer the literature review, the more theory included (generally)

• Public health and medical journals tend to have shorter introductions than social science journals

• Key questions that should be answered in this section
  – Why is the study important?
  – How does it add to existing knowledge?

• **Statement of purpose should be clearly stated**

• Consider your literature review a marketing tool
# Medical & Social Science Journals

<table>
<thead>
<tr>
<th>Journals</th>
<th>Word count max</th>
<th># Tables/Figures</th>
<th># of References</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medical Journals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New England J of Medicine</td>
<td>2,700</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>J of the American Medical Association</td>
<td>3,000</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Annals of Neurology</td>
<td>3,000</td>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td><strong>Social Science Journals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aging &amp; Mental Health</td>
<td>5,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethnicity &amp; Health</td>
<td>7,000</td>
<td>-</td>
<td>≈30</td>
</tr>
<tr>
<td>J of Gerontology B: Psychological &amp; Social Sciences</td>
<td>5,000</td>
<td>-</td>
<td>-</td>
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</tbody>
</table>
Methods

• Sample/Participants: when collected, response rate, etc.
• Measures: instruments, survey items
• Procedure: what did you do/study flow
• Statistical methods and software
• Generally it is okay if this section is written similarly across papers leveraging the same data set
• Great place to start writing in concert with the results section
Results

• Refer to describe sample and describe significant findings
  – “Table 1 shows participants in the two groups did not significantly differ in demographic makeup.”

• Focus on primary finding (related to study aims)

• Take note of journal style, some include p-values in text others do not

• Too many numbers can interfere with readability

• Do not discuss finding in this section
Discussion

• Summarize main findings, no statistics in this section
• Bridge key findings to prior relevant work
• Emphasize ways in which the current study enhances prior work
• Acknowledge limitations and emphasize strengths
• Do not end discussion section with limitations
• Don’t overreach/ overinterpret results- alternative explanations?
• Restate major point of paper, implications/ future directions
Tables & Figures

**Tables**

- Should be informative
- Should stand alone
- Prepare dummy tables (and figures) to circulate to coauthors for feedback
- Consult journal templates

**Figures**

- Illustrates an important aspect of the analyses in a way that is a good use of space
- Captions for figures should be clear and thorough
- Should stand alone
- Consult journal templates
• Journal templates should inform density of references
• Cite peer-reviewed journal articles
• Cite/reference strategically – pick the best/ most important references
• Include references from the target journal (if possible)
• Break out references so they coincide with a specific point
  - “Underlying pathological mechanisms implicated in the relation between poor glucose regulation and cognitive impairment include cerebral microvascular and macrovascular damage [6], and increased AD neuropathology [7].”
  - “Underlying pathological mechanisms implicated in the relation between poor glucose regulation and cognitive impairment include cerebral microvascular and macrovascular damage and increased AD neuropathology [6,7].”
Manuscript Writing Resources

How to Write the Methods Section of a Research Paper
Richard H Kallet MSc RRT FAARC

How to Write an Effective Discussion
Dean R Hess PhD RRT FAARC

39 Sentences Toward Your First Draft of A Scientific Article

Complete these 39 sentence stems and you’ll have a good first draft of your scientific article.
(These were written with epidemiological research in mind. Some adaptation is needed for other types of research.)
Submitting the Manuscript
Manuscript Submission

• Prepare a short letter to the editor, “sell” your manuscript

• Have potential reviewers in mind

• Do not send articles to multiple journals at the same time

• Have co-author contact information readily available

• Organize submission files (separate files for abstract, manuscript body, tables, and figures)
Please complete evaluation forms prior to leaving - Thanks!
# Session Schedule

All sessions held at the MVA from 12pm-1pm

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 19</td>
<td>Literature Reviews &amp; Grants 101</td>
</tr>
<tr>
<td>June 26</td>
<td>Writing a Scientific Manuscript (Part 1)</td>
</tr>
<tr>
<td>July 10</td>
<td>Writing a Scientific Manuscript (Part 2)</td>
</tr>
<tr>
<td>July 17</td>
<td>Fundamentals of Study Design</td>
</tr>
<tr>
<td>July 24</td>
<td>Fundamentals of Biostatistics (Part 1)</td>
</tr>
<tr>
<td>July 31</td>
<td>Fundamentals of Biostatistics (Part 2)</td>
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To RSVP call (615) 963-2820 or email mva@Meharry-Vanderbilt.org