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How to write a research and review article

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Introduction

- In this section you want to inform your audience of all the relevant background information of your research project
- Each bullet point should be a **concise summary** of what you will tell the audience verbally

Background and literature review in introduction

- This will be a **brief** literature review for your audience, where you discuss **only** the **most relevant** articles or texts that you used in your research
- Use this section to **build the case for your study**; explain why this research is important.
- In this section, use *text citation format* (authors, publication year) and a **brief** statement about what you gleaned from their work and how it supports your research

Aim of study at the end of introduction

- A clear, concise statement of the **specific aim** or objective of the study
- Includes variables, population, and setting
- Examples of statement prefix: “The purpose of this study is to:
  - *Describe*…
  - *Determine* differences between groups…
  - *Examine* relationships among…
  - *Determine* the effect of…

Aim of study at the end of introduction

- Specific statements that focus on what variables or concepts are to be described and what relationships might exist among them
- Create an aim statement for each set of variables to be studied

Methods
Study design

- Describe the design you propose to use
- This is the **blueprint** for conducting your study
- Guides the research in planning and implementing a study
  - Maximize control over factors that could interfere with the validity of the findings

Methods
Measure and instruments

- Describe measures or instruments you will use in your study (use established and tested measures when available and appropriate)
- Provide rationale for chosen measures
- Provide reliability and validity for measures

Methods
Operational definition

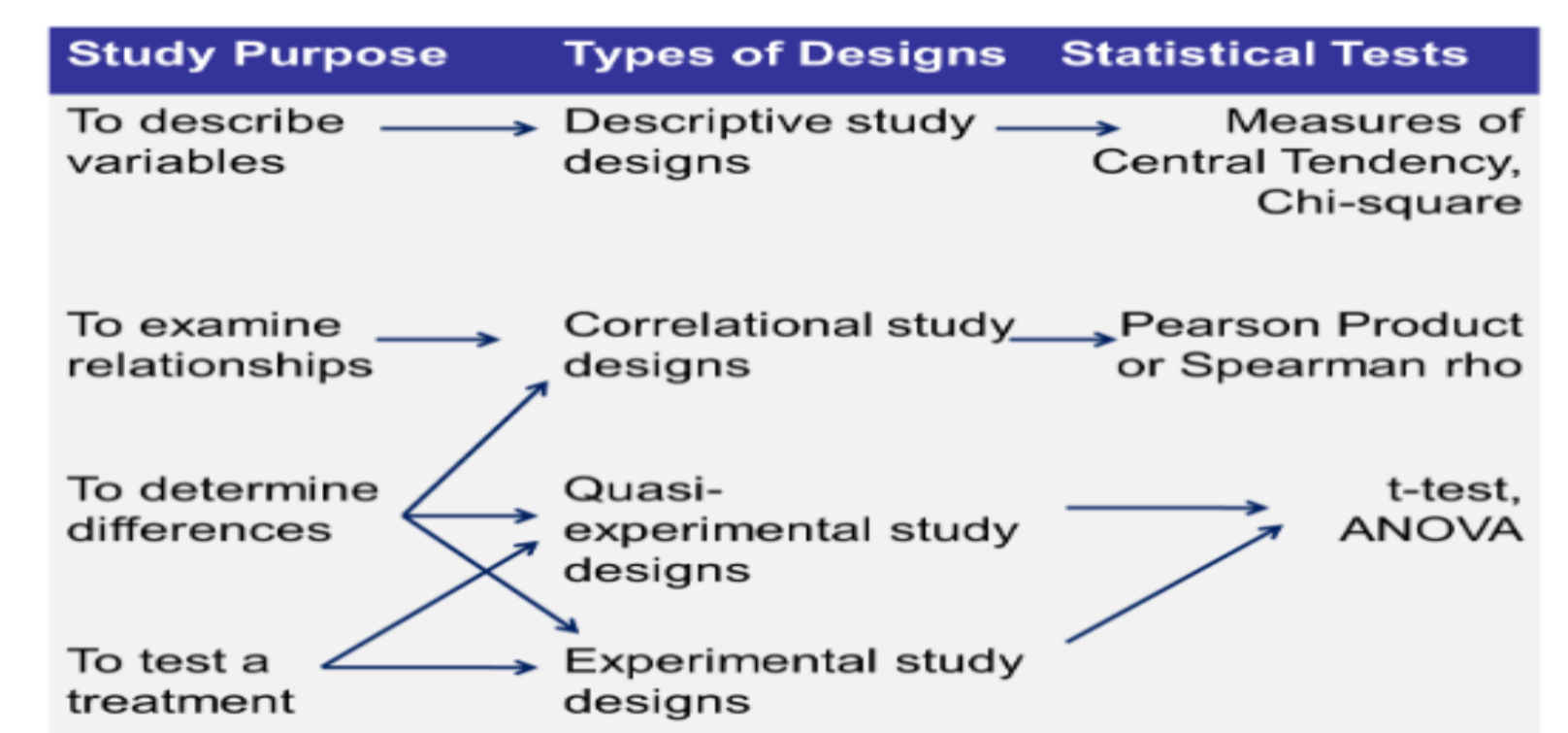
- Clarify and define the outcomes of interest (i.e. variables) in your study.
- Specify the operations that you will perform to measure it (i.e. use an instrument, record a specific measure from the EMR)
- Consider how the variables have been measured in the literature

Methods
Study procedures

- Once a research subject is in the study, what happens?
  - *Write it like a recipe: detailed, specific*
- Describe data that will be collected and methods of measurement
  - What data?
  - When? How often?
  - How collected and processed?

Methods
Data analysis

- Describe your plan for statistical analysis
- Your chosen tests should be consistent with your study purpose and design



Results

- Include a summary of the outcomes of your study
- Include a concise description of the outcome as well as tables and figures, showing statistical results
- Your results should be organized and linked to the study aims and/hypothesis

Results
Tables and figures

- Make sure that your data is not too complex for a single graph. Often, you can split one chart into two to make the point more clearly.
- Label your graphs clearly and consistently; include axis titles and legends
- Choose the right chart type for your data (ie. Bar chart, Pie chart, etc.)
- It's often useful to add an arrow or callout to the chart to point out important data or trends

Discussion

- Include highlights of your key findings and the impact based on previous literature
- Include implications for practice
- Include future research needed to address residual or new questions that surfaced with your work
- Identify any limitations of your study

Conclusion

- What do you conclude from the results?
- Include suggestions for applications

Acknowledgement

- Acknowledge those study team members and hospital associates, including your mentor, residents, fellows, nurses, and/or office staff who provided ancillary or intermittent assistance but who did not make a direct and significant contribution to the study.
- Include funding sources using complete and formal titles.

Reference

- Include proper references for those citations included in the presentation.

Why are reviews useful?

- They organize, evaluate, and distill information
- They are an entry point for students and policy makers
- They provide a bridge between fields
- They direct and shape future research

Why write a review?

- Not So Good Reasons
  - You want to learn about a new subfield
  - Its seems like an easy way to get another line on your CV
- Practical Reasons
  - It's an opportunity to demonstrate expertise in your subfield
  - On average, reviews are cited and downloaded more than primary research articles
  - It's an opportunity to think deeply about the state of your subfield
- Good Reasons




- A Great Reason
  - You can provide an insight that cannot be directly obtained from reading the primary empirical literature

Thinking about the content: Basics

- What is the central thesis?
- Why does this matter?
- Why does this matter *now*?
- What is the tone?
- Who is the audience?
- Is it positioned distinctly from other reviews?

Organization

- Start with an outline
- We like 4-6 main sections
  - And perhaps 2-3 subsections in some of those main sections
  - But don't subdivide the introductory or concluding sections
- Use parallel structure in headings
  - Help organize information sensibly
  - Ensure you're giving adequate attention to all aspects of the review
  - Good subsection length: 2-4 paragraphs
  - Shorter sections, don't subdivide; longer sections, make into 2 main sections
- In other words, don't have four subsections in one main section and one in the next
  - Because it looks silly and it doesn't make sense to divide one thing into one part, or a short section into a bunch of shorter paragraphs

Make sure you're saying something new

- A review is not a collection of results
- Readers should learn something they couldn't get just by reading the references
  - Comparison, critique, assessment—including of your own work
  - Synthesis of disparate ideas
  - Actual ideas for future experiments (not just "future work is needed")
  - Path to translation, market, industrial scale-up
- Manage reader expectations
  - Tell your readers why this is timely and why you've chosen to write this review right now
  - Your review will probably not be exhaustive, and that's okay
  - Acknowledge other reviews and explain why yours is different
- The pesky concluding section
  - Is it one paragraph where every sentence starts "In this review, we have demonstrated"?
  - Or, is there a brilliant thesis statement buried in the second-to-last sentence?

Top 10 Take-Aways

- A review is not a list of results
- Only write a review if you feel you have something to say
- If possible, submit a proposal before writing the manuscript
- In the proposal, make clear why the topic is important, why it is important *now*, and why *you* should write it
- Know what journey you want to take your readers on
- Manage readers' expectations from the beginning
- Avoid jargon
- Expect to *heavily* revise the first draft
- Follow the journal's formatting guidelines