Learning objectives

After this short presentation, you will be able to provide a brief explanation about:

1. Some important characteristics and components of the results, discussion, references and abstract of research articles

2. Some important considerations in writing the results, discussion, references and abstract of research articles

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Results

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Some important characteristics of the results section

◦ An important part of your paper

◦ Easiest section to write

◦ More passive voice

◦ Objective presentation

◦ Not interpretation

◦ Knowledge extension, not merely confirmation

◦ Not fabrication or distortion of data

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Some important components of the results section of research articles

- ◦ Characteristics(not demographics!)of the participants in Table 1
- ◦ Only new findings
- ◦ Not a mere " laundry list" of data but high quality findings
- ◦ Findings from simple to complex
- ◦ First positive findings
- ◦ Figures and tables

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A template for results

- First paragraph
- Study sample
- First about cases then controls

- Second paragraph
- Univariate analysis
- Describing single variables

- Paragraphs 3 to n-1
- Bivariate analysis
- Relation between the outcome and explanatory variables

- Last paragraph(S)
- Multivariate analysis
- The results in the presence of confounders and modifiers

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Some important considerations in writing the results section

◦ Order the key findings in relation to the research questions

◦ Describe exactly what you found

◦ Let numbers say themselves

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Some important considerations in writing the results section

◦ Consistent in the use of units

➢ JAMA: imperial units of measurement(SI in parenthesis)

◦ Capitalize people's names

◦ State the results in absolute numbers when feasible

◦ e.g: 5/10, not 50%

◦ Mean and percentage with one decimal place , SD or SE with two

Some important points about tables and figures

◦ Information just in tables or figures or in text(not replication)

◦ Separate numbers for figures and tables

◦ Being referred from the text

◦ Abbreviation as Fig in the text

◦ Brief, complete and inclusive legends for tables and figures

◦ "Stand alone" tables and figures

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Some important points about tables and figures

◦ Detailed row and column descriptors

◦ Tables on separate pages, not into the text

◦ Pie charts in usually oral presentations

◦ Clear messages from a table or figure

Some important points about tables and figures

◦ Not too large tables

◦ Clarity of shrunk format of tables

◦ Not multiple borders and grids

◦ Groups by columns and outcome variables in rows

◦ Text-tables for small data sets

◦ Totals add to 100 percent

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Some important points about tables and figures

◦ Figures: graphs, photos, drawings, maps, schematics , etc.

◦ Vertical axis: outcome/ dependent variable

◦ Horizontal axis: exposure/ independent variable

◦ Possibility of false impressions by 3D box histograms

◦ Not copy electronic figures into the text

◦ Explain which measures of central tendency, spread or precision

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Some rules for reporting numbers

◦ Sample size>100: only one decimal place to report percentage

◦ Sample size<100: no decimal place to report percentage

◦ e.g: 5% of 60 – 20.4% of 324

◦ No percentages for sample sizes less than 20

◦ "to" or comma for ranges

◦ Exception: in citations, page ranges

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Some rules for reporting numbers

◦ Less than 10: words

◦ 10 or more: numbers

◦ Exception: Words begin a sentence, not numbers

◦ Less than 1 begin with zero

◦ No space between a number and %

◦ One space between a number and its unit
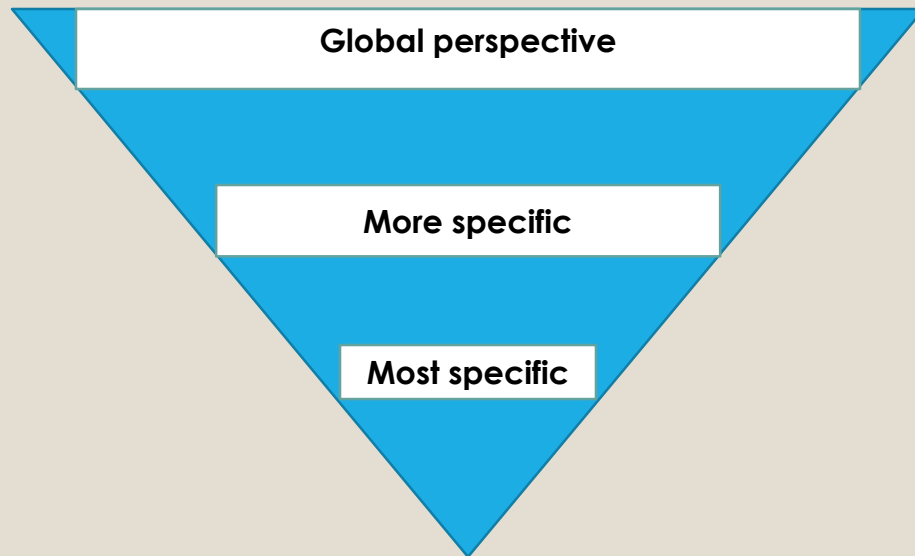
Discussion

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Some important characteristics of the discussion section

❖The Least structured section of the manuscript

❖Most daunting section of a paper to write

❖Difficult for those with a broad knowledge and various opinions

❖Meaning of the results in the research context

❖Link the aims and findings with pertinent previous research

❖1/3 of a paper

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Some important characteristics of the discussion section

◦ Reverse of introduction(pyramid)

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Important components of the discussion section of the research articles

❖Answer(s) to the research question(s) or hypotheses

❖Summarized and brief principal findings of the study

❖From the most to the least important topics

❖Comparison the new results with published data

❖Findings fitness with previous knowledge

❖Any inconsistencies

❖Others' alternative explanation or any unforeseen design flaw

Important components of the discussion section of the research articles

❖Limitations of methods and results

✓e.g: small sample size, low **RR**, one- site study or other contextual factors

❖Major conclusion(s)

❖Practical significance of the study

❖What new finding was added to the current knowledge

❖New research questions

❖What next steps in research will be

A template for the discussion

1st paragraph
- What was really found(main findings)
- Why it was important(address the purpose(s) of the study

2nd paragraph
- Strengths and limitations of the research design and methods
- The way(s) to minimize the possibility of bias& …
- "How the current research is better than the previous ones" in the 2nd paragraph or later

Paragraphs 3 to n-1
- The relevance to the current literature
- How the results support or refute the current literature
- limitations

Last paragraph(s)
- Conclusion (Reiteration of the main findings and summary of their implications)
- A clear " So what?" and " Where now?"
- Suggestions

Some important considerations in writing discussion

❖Brief and focused references

❖Discussion with any different findings

❖ Not generalization of the results beyond the participants

❖Not unjustified conclusions

❖Would and show instead of could and suggest with strong fi

❖Not generalization

✓e.g: " further studies are needed to clarify the issue"

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Some important considerations in writing discussion

❖Support with just methodologically sound evidence

❖Not conclusion with the authors' own thinking

❖Not extension of discussion beyond the research findings

❖Not bold judgements about the research impact

❖Discussion in the same sequence as in the results

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Some important considerations in writing discussion

❖Not introduction of any new vocabulary

❖All interpretations based on facts not imaginations

❖Justification of the differences with others' findings

❖Use specific expressions and quantitative descriptions

❖e.g: 12 degrees higher not a higher temperature

❖Conclusion, not the summary of the article

Some important considerations in writing discussion

❖Conclusion in 2-3 sentences

❖Present tense for facts and conclusions and past tens for what was achieved

❖Not over criticizing yourself

❖Better to use bridge sentences

❖e.g: the weak negative relationship between… suggests that

Acknowledgments

Writing acknowledgement of research articles

◦ Description of specific contributions

◦ Permission to be acknowledged

◦ The size of the acknowledgment

◦ Roles that warrant acknowledgement*

◦ Vancouver Groups' criteria on authorship**

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Roles that warrant acknowledgement*

1. General support by a department head or an institution
2. Data collection, laboratory work and technical help
3. Input of students, trainees and research assistants
4. Provision of clinical details of patients
5. Library, graphics or statististical support

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Roles that warrant acknowledgement*

6. Critical review of the drafts

7. Financial support from granting bodies, drug companies etc.

8. Financial interests that may pose a conflict of interest

9. Provision of free materials

Making a decision about authorship

❖The most sensitive part of writing

❖Both ethical and professional responsibilities of coauthors

❖Personal satisfaction& career rewards

❖Early decisions, less problematic

❖Standard criteria for authorship

❖Request to justify the assignment of authorship

❖Junior staff or students as an author in at least one paper of a single large study

Vancouver Groups' criteria on authorship**

1. Substantial contributions to conception and design or analysis and interpretation of data & to

2. Drafting the article or revising it critically for important intellectual content

3. Final approval of the version to be published

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Ghost and guest authorship

1. **Gift authorship**: no intellectual contribution

2. A stamp of authority on a paper by senior gift authors!

3. **Ghost authorship**: omitting authors of with a major contribution

4. " practices of gift and ghost authorship are to be avoided at all costs"

Abstract

Some characteristics of a paper abstract

➢The last part to write

➢Short , as one paragraph

➢usually up to 250 words or less

➢150 words or less for un-structured abstracts

➢if no stated limit: no longer than the abstracts in recent issues of a journal

Some characteristics of a paper abstract

➢should make sense alone

➢the main story and a few essential details of the paper

➢Structured or narrative(based on the target journal)

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less important information in the abstract

1) Definitions

2) Background!

3) Experimental preparation

4) Data for less important variables

5) Confirmatory results

6) Comparisons with previous results

Key elements of a paper abstract

➢IMRaD

✓I: the question that was asked(present tense verbs)

✓M: what was done to answer the question(past tense verbs)

✓R: what was found that answers the question (past tense verbs)

✓D: the answer to the question(present tense verbs)

✓Main consequence of the findings

❖Passive voices are preferred

Some do's& don'ts in writing the abstract of a paper

1) Two or three sentences of background*(the big problem) and **objectives**

2) Selected results, only the most important ones

3) Conclusion: the value and implications of the work

4) Implication: not the same as the answer to the question

Some do's& don'ts in writing the abstract of a paper

5) Not abbreviations

6) No device name and their model!

7) Usually not figures or tables

8) Usually not references, even to figures or tables

Some do's& don'ts in writing the abstract of a paper

9) Short sentences

10) Simple words

11) Not jargon

12) the techniques of continuity*

13) In accordance with the full text

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Some important considerations in choosing keywords

❖ More popular terms, with disciplinary or interdisciplinary significance

❖ Current, specific terms, preferably medical subject headings (MeSH)

❖ Phrases , as well as single words

❖ Sometimes , only terms that are not in the title of the paper

Some important considerations about the authors of a paper

➢ Authorship

➢ Guest authors

➢ Ghost authorships

➢ Just one affiliation and the one at the time of the study

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References

Some important considerations in writing references of research articles

➢For giving credit to other scientists' work

➢Just those in peer-reviewed journals

➢Just accessible, most valid, most important, most relevant and most recent literature

➢Just original works and not plagiarism

➢If allowed, personal communications just in the text

➢E-mail communications as personal communications

Some important considerations in writing references of research articles

- ◦ Ideally recent review papers!

- ◦ facts not personal opinions of review writers

- ◦ Not referencing to theses& dissertations

- ◦ Not to textbooks!

- ◦ excluding abstracts

Some important considerations in writing references of research articles

◦ Only 1 or 2 references per point

◦ Usually up to 20-35 in original articles

◦ Not over self-citing

◦ From Web of Science, PubMed and Scopus

◦ Hard copy of every reference

Some important considerations in writing references of research articles

- In clinical research, quoting the science, not the scientist(not in behavioral sciences)
- Journals' preferred template
- Books and book chapters according to " instructions to authors"
- Submit unpublished articles along with the proposed submission

Some important considerations in writing references of research articles

- Endnote or other reference management databases
- Usually in numerical order
- Retrieval date for web citations
- Even the web address in the text
- Accuracy of your references

Some important considerations in writing references of research articles

- DOIs, URLs if necessary
- Abbreviated journal names in the January issue of Index Medicus
- Original title for non-English publications(transliterated according to English rules if necessary)
- If possible, its translation into English in square brackets

Really appreciate your attention