

بنام او که آگاه بر هر نهان است و دانا بر هر حقیقت



دانشگاه علوم پزشکی کرمان

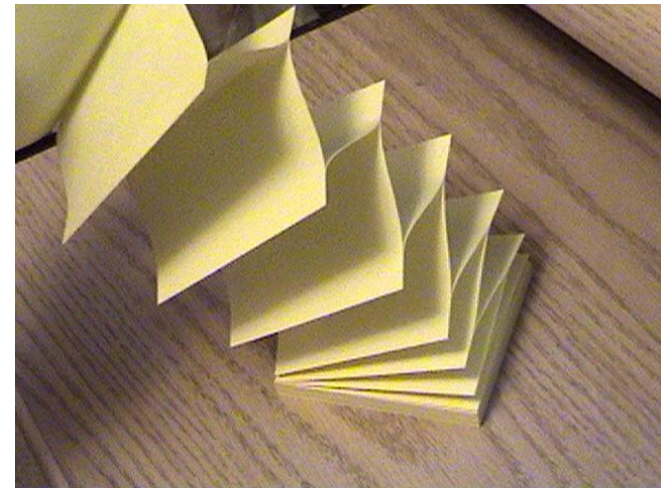
# How to write a research paper for publication



علي اکبر حقدوست، اپیدمیولوژیست

# Why we write?

- 4 ■ To distribute what we find
- 3 ■ To present what we know
- 1 ■ To promote
- 2 ■ To earn money
- 5 ■ To enjoy
- 6 ■ To expand mankind knowledge
- 7 ■ To .....



# Utilization of research findings

آنچه در تحقیقات می یابیم

یافته هایی که خود با ارزش می دانیم

آنچه که مکتوب می کنیم

آنچه که برای چاپ ارسال می کنیم

آنچه که به چاپ می رسانیم

آنچه که مورد استفاده قرار می گیرد

# Paper and manuscript

**Manuscript:** scripts that you send to editors

**Paper:** texts that is published in journals





# The main reasons of rejections?

Less than 25% of submitted manuscripts to major scientific journals are accepting, why???

- Inappropriate or incomplete statistics
- Over-interpretation of results
- A sample too small or biased
- Difficult to follow
- Insufficient problem statement
- Inaccuracy or inconsistency of data reported
- Incomplete, inaccurate or outdated review of the literature
- Insufficient data presented
- Defective tables or figures

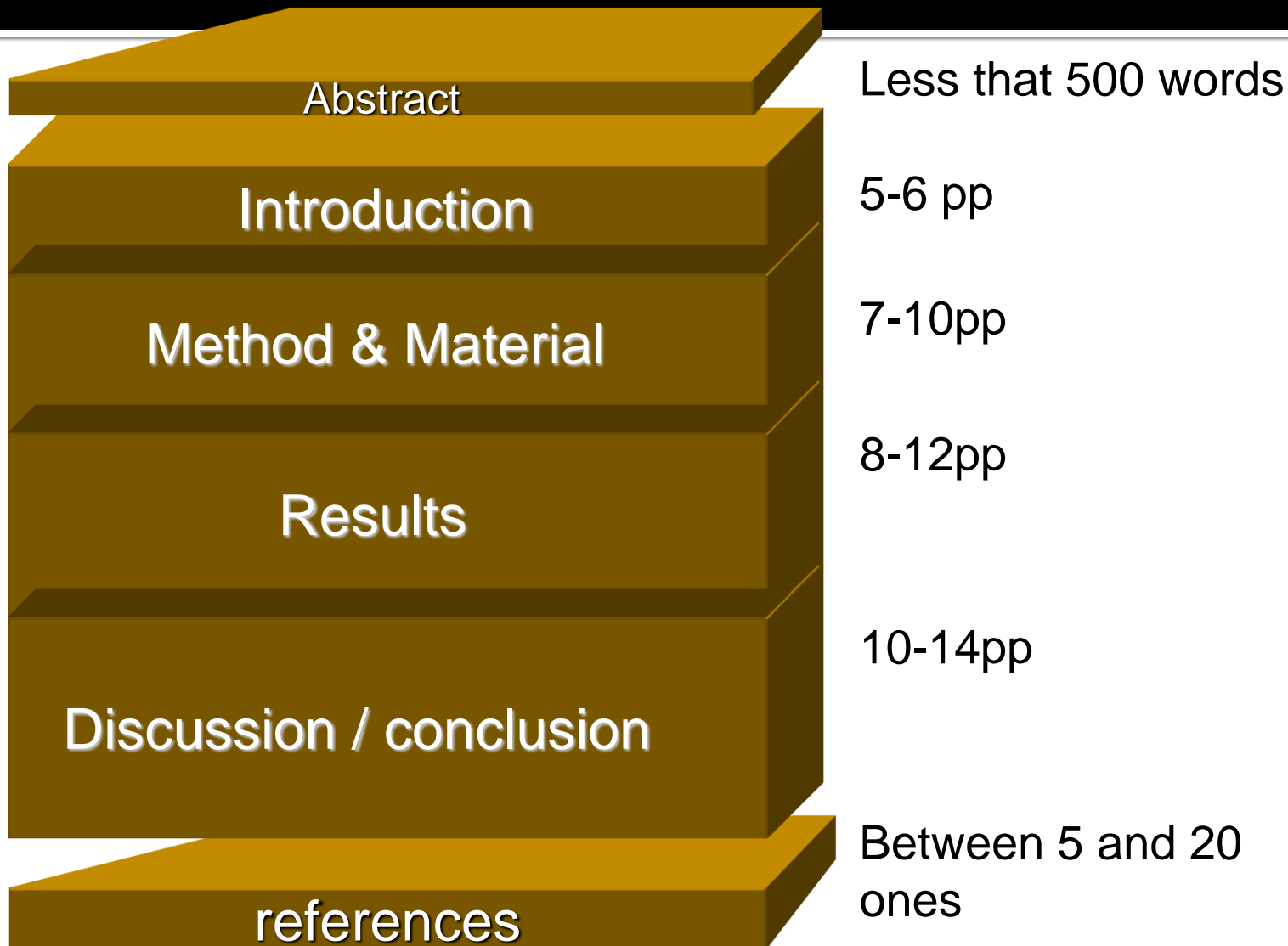
# Pay attention

A manuscript should disclose new information or a new way of thinking about old information.

If not, it will not be published-regardless of how well it is written



# Anatomy of a research paper



# Introduction (1)

Concisely describes  
the study  
hypothesis, rational,  
purpose, and  
objectives





# Introduction (2)

Background: three to four paragraphs

- Select key references and remember that for publishing purposes, less is better than more
- Show why your research is important

## Introduction (3)

### Research question

The last paragraph of the introduction should state the research question as clear as possible

# Introduction (4)

- Things to avoid in the introduction
  - Reviewing the literature extensively
  - Arguing against other's results
  - Unrelated paragraphs
  - Discussion about controversies
  - Speculation

# Material and methods (1)

- **Materials** refers to what was examined; e.g., humans, animals, tissues; also to various treatments; e.g., drugs, gases; and instruments
- **Methods** refers to how subjects or objects were manipulated to address the experimental question; how measurements and calculations were made; and how the data were analyzed

## Material and methods (2)

Detailed enough so that if some one wants to repeat the study, it will possible.

It shows how much is valid  
your results

## Material and methods (3)

Pay more attention to the main considerations of your research according to your study type

# Material and methods (4)

- Subject selection criteria
- Validity of research tools
- preparations
- Protocol design including blinding
- Controlling biases
- Sample size or power estimation
- Ethical considerations
- Measurements and calculations
- Statistical analysis appropriate to study design

## Material and methods (5)

Use active voice  
and  
simple past tense



## Results (1)

Use active voice  
and  
simple past tense

# Results (2)

- Describe your sample
- Address to your main research question
  - Simple statistical tests
  - Multivariate analysis
- Subset analysis
- Accidental findings???

# Results (3)

- Write a story to show what you find
- Do not write:
  - Table 1 summarizes our findings in subgroup C
- Use advance statistical tests, but show the results as simple as you can
- Keep in your mind that most of readers are not familiar with statistical issues, but your papers is checked by reviewers who are expert in statistics  
!!!

# Results (4)

- P-value versus confidence interval
- Standard deviation versus standard error
- Percents versus number

# Results (5)

- How to write numbers in text?
  - Spell out numbers less than 11
  - Avoid a sentence starting with a number; in any case, spell out the number
  - Be consistent when you write a few numbers in a sentence
  - Generally speaking do not put more than two decimal points

## Results (6)

### Avoiding long and confusing sentences

A third person riding late on an airplane can take your manuscript and get the message at first reading.

# Results (7)

## Graphs and tables

- Simple
- Appropriate
- Self explanatory
- Focus on the main study question
- Avoid from repeated characters or phrases
- Add statistical information as much as you can

## Results (8)

Provide data relevant  
to the research  
question



# Discussion (1)

- **Elements to include in the discussion**
  - State the study's major findings
  - Explain the meaning and importance of the finding
  - Relate the findings to those of similar studies
  - Consider alternative explanations of the findings
  - State the clinical relevance of the findings
  - Acknowledge the study's limitations
  - Make suggestions for further research
  - **Take home message**

# Discussion (2)

- **Things to avoid in the discussion**
  - Over presentation of the results
  - Unwarranted speculation
  - Inflation of the importance of the findings
  - Tangential issues
  - The “bully pulpit”
  - Conclusions that are not supported by the data

# Discussion (3)

It should start with:

"Our study showed....."

To lucidly summarize your study findings

## Discussion (4)

The second part (2-4 paragraph) may describe the novelty of your findings or if they parallel previous research.

Only beginners try to refer to all published papers in the field.

## Discussion (5)

The third part (2-3 paragraphs) may describe how study contradicts previous research or established dogmas

## Discussion (6)

The fourth part (1-2 paragraphs) should describe study limitations. It may also mention unsolved questions and direction of further studies

# Discussion (7)

- The last paragraph is conclusion summarizing the potential significant of your finding and what changes to research or clinical practice your data may support
- Avoid broad claims and strong statements.

# Discussion (8)

- Do not repeat introduction
- Do not present new data
- Do not repeat data presentation
- Avoid general statements that are not founded in data
- Do not write a review of all possible mechanisms that you have not accounted for your study



نگو حقيقت را يافتم  
بگو حقيقتي را يافتم

جبران خليل

To prove that something is true  
or

to find out whether it is true

## Abstract (1)

Abstract  
Versus  
summary

## Abstract (2)

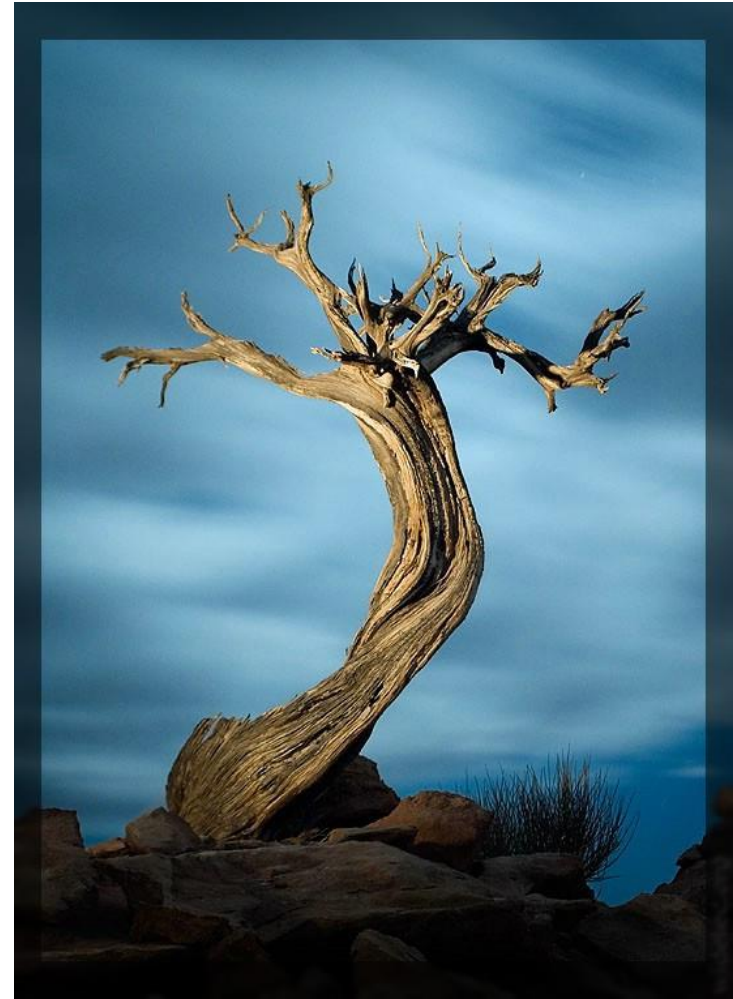
There are differences  
between paper abstracts  
and seminar abstracts

# Abstract (3)

1. Why did you start?
2. What did you do?
3. What did you find?
4. What does it mean?

# Abstract (4)

An abstract can be only a  
“bare bones” version of  
all the information  
pertaining to the study;  
but it should taste  
“meat” especially in the  
method and results  
sections!



# Abstract (△)

## Title

Ideally about 10-12 words long,  
including the scope of the investigation,  
the study design, and the goal

Do not include jargon phrases such as:  
"A study of ...."; or "An investigation into...."

# Abstract (۹)

## Some writing tips

- All acronyms should be spelled out on first use
- Use simple declarative sentences
- Active voice is preferable
- Use generic names for drugs and devices



