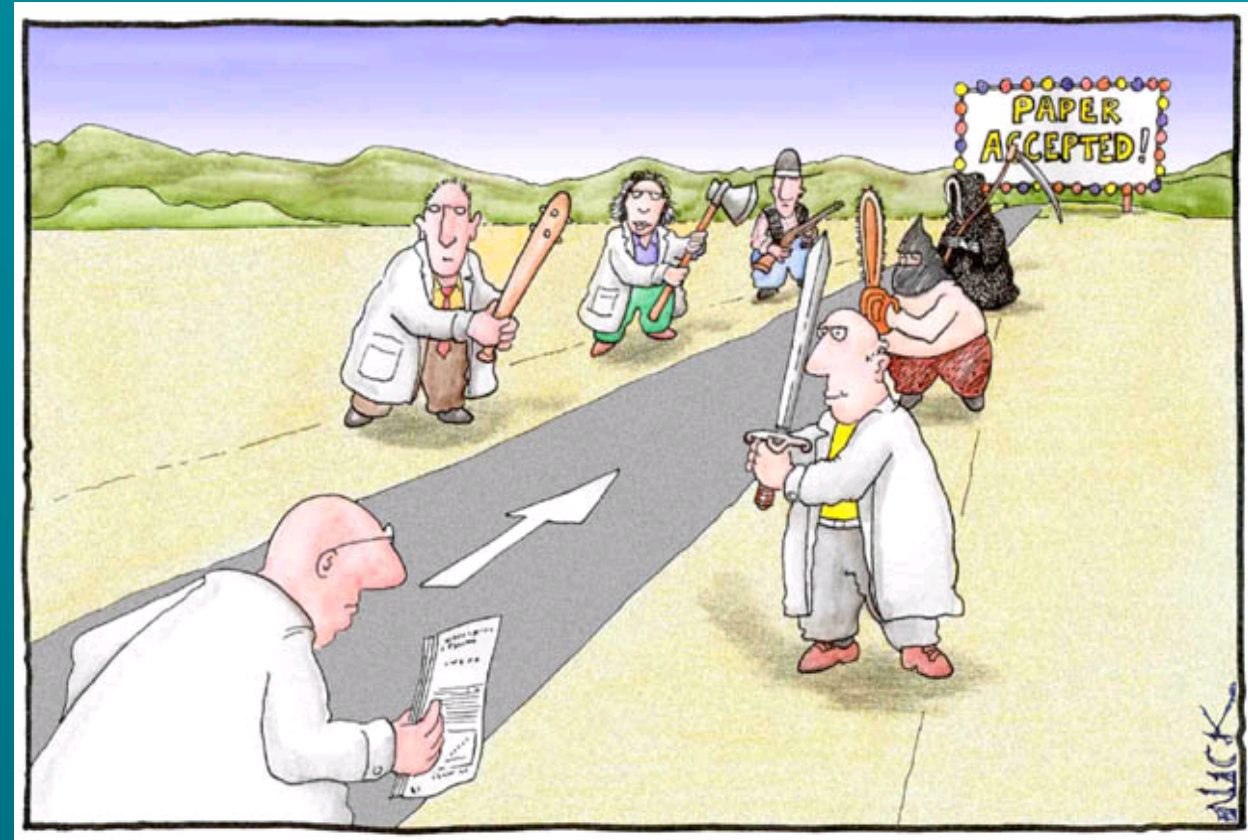# How to Write a Manuscript that Reviewers (& Editors) will Love
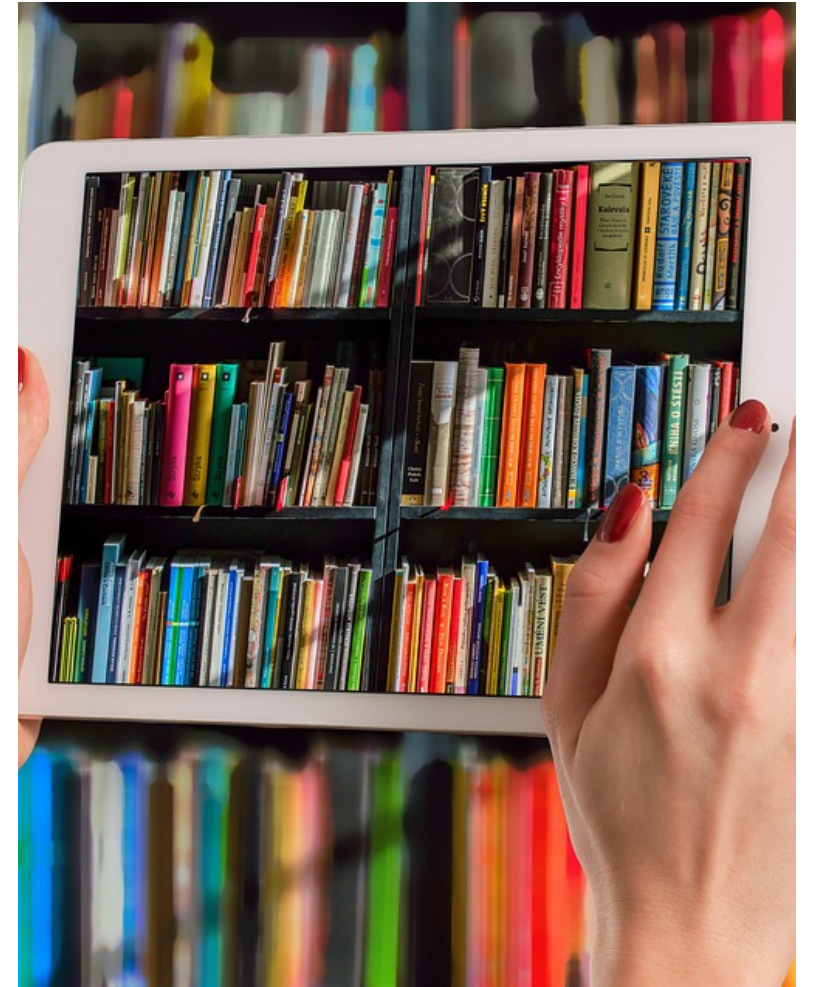
Nidhi Bansal, PhD
Editor-in-Chief, *Cancer Reports*
Developmental Editor, *Current Protocols*

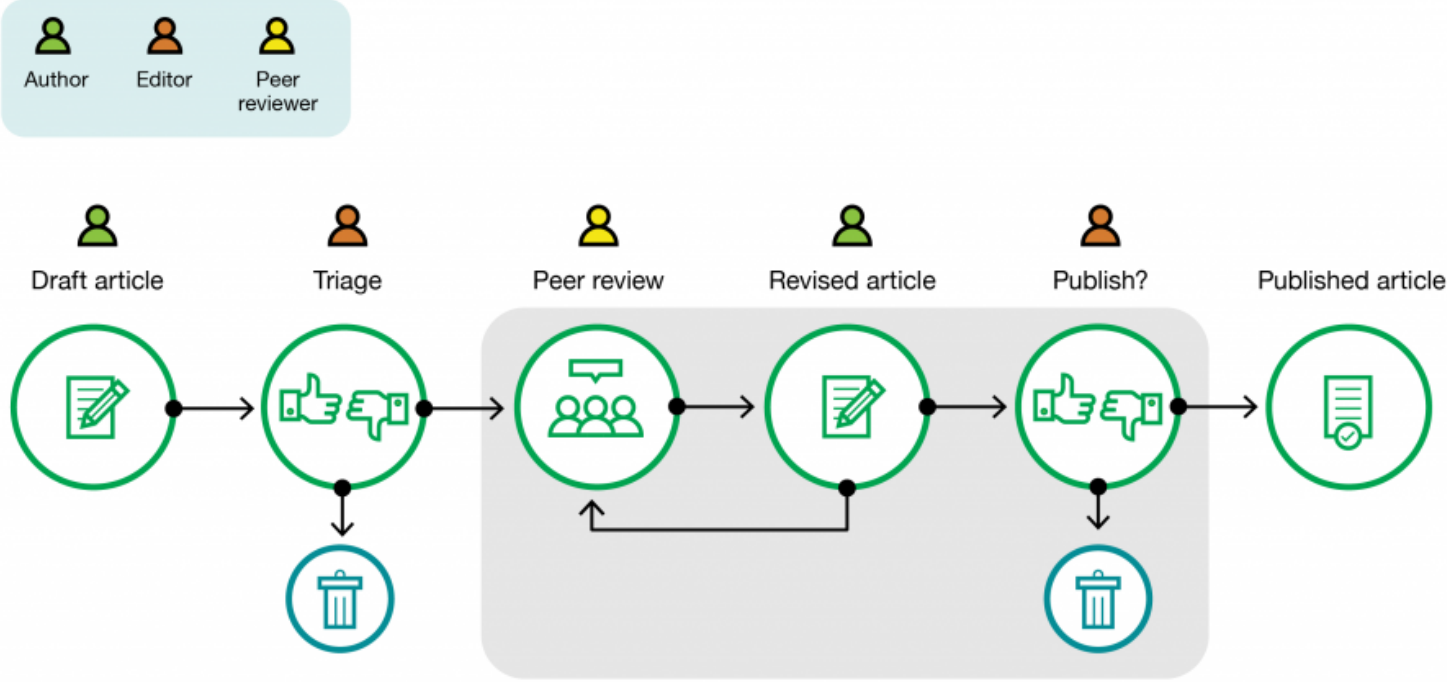Rutgers School of Graduate Studies

March 23, 2021

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Scientific Publishing – A view from the other side

Scientific Publishing: How do journals work?

The traditional publishing process

Author   Editor   Peer reviewer

Draft article — Triage — Peer review — Revised article — Publish? — Published article

1. Preparation & Submission   2. Evaluation   3. Publication and Dissemination

http://asapbio.org/digital-age

Choosing a Journal

Wow! A list of possible journals?!

No, a list of journals that rejected our article.

Tip 10 – Choice of journal: define a list of target journals!

THE RIGHT PAPER IN THE RIGHT JOURNAL

What is more important to you when choosing a journal for your paper?

https://scientificwritingtips.wordpress.com

a. Speed of publication

b. Access (subscription or open access)

c. Publication charges

d. Impact factor

e. Scope and readership of the journal

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Choosing a Journal

THE RIGHT PAPER IN THE RIGHT JOURNAL

Tip 10 – Choice of journal: define a list of target journals!

https://scientificwritingtips.wordpress.com

Journal Selection Criteria :

Scope/Impact/Audience

Preprint and Archive Policy

Funding mandate (Green OA vs Gold OA)

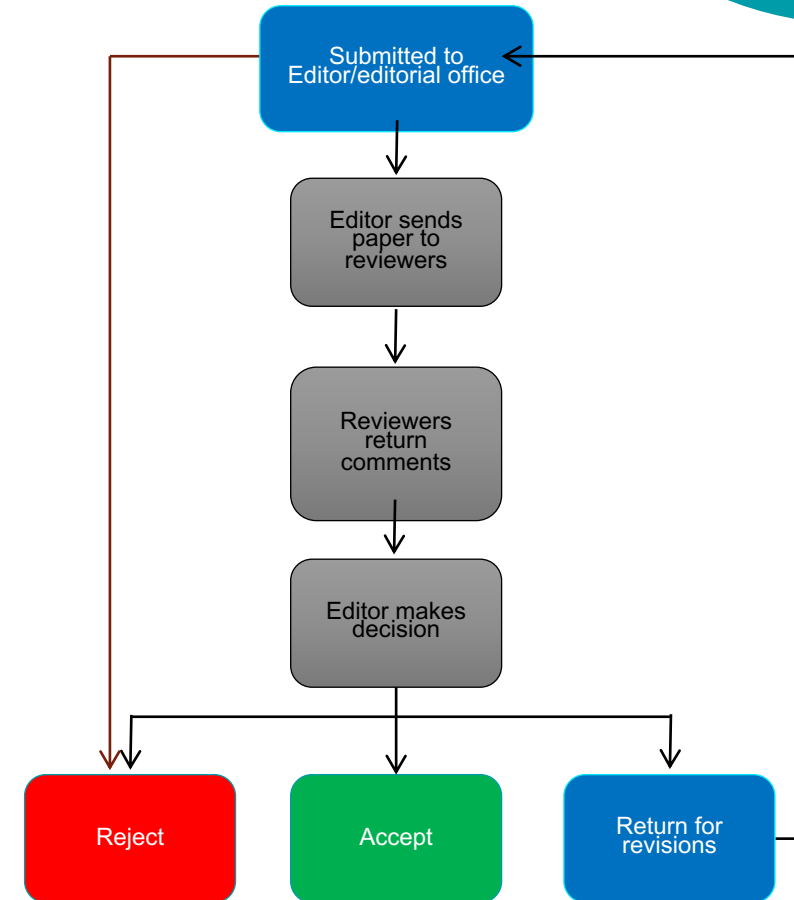**Publication time (submission to acceptance/publication)**

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Journal Guidelines

- ALWAYS, and I mean ALWAYS, read carefully the journal's guidelines for authors
  - What is required at submission? In which format?
  - Is there a template?
  - Is there a graphical abstract? How long?
  - Check the definition of authorship

- Word/Page limits ?

- Find out & follow the best practice in the field
  - Reporting standards
  - Data sharing and deposition
  - Open access policy, funders mandates

- Think like a referee, check the journal's reviewer guide

- Violating ethical guidelines is the fastest way to rejection, and worse (Plagiarism, duplication, fabrication, authorship issues)

- The cover letter is important for many journals

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What Happens When Your Manuscript is Submitted?

What	Who	Time taken
• Quality control	Editorial assistant/Editor	1-3 days
• Suitability for the journal, general scientific quality	Editor-in-Chief (EiC)	1-5 days
• Reviewer selection & invitations	EiC or Associate Editors	3-15 days
• Peer-review process	2-3 Reviewers	14-28 days
• Evaluation of reviews, recommendation to EiC	EiC/Associate Editors	1-7 days
• Evaluation of recommendation, final decision	Editor-in-Chief	1-2 days
• **Total**		**21-60** days

```
Submitted to
Editor/editorial office
        |
        v
Editor sends
paper to
reviewers
        |
        v
Reviewers
return
comments
        |
        v
Editor makes
decision
    /   |   \
Reject  Accept  Return for revisions
```

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Broad Assessment by the Editor

ALL JOURNALS

-**Scope**
-Format (Communication, full paper, review…)
-Understandability
-Ethical Compliance

Sound Science Journals

-Hypothesis/Aims
-Technical and scientific rigor
-Conclusions supported by data

Selective Journals

-Novelty
-Importance (in specific field / in related disciplines)
-Interest

*Editors are not always qualified to assess the technical merits of a manuscript – This is where peer-reviewers input

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Top Reasons for Editorial Triage

- Manuscript does not fall within the aims and scope of the journal.

- Lack of a clear hypothesis or research aim (i.e. written like a report).

- Glaring flaws in the procedures and/or analysis of the data.

- Poor language (grammatical errors, typos, verbose).

- Research topic is of little significance.

- Piece of research is incremental.

- Manuscript has ethical issues

  - Plagiarism

  - Missing ethical approvals and no informed consent from patients

  - Multiple submission

What constitutes Plagiarism?

- Unintentional Plagiarism: A researcher is extensively referencing past works and ends up using too much of the original text from those works.

- Intentional Plagiarism: A researcher presents ideas or findings from other published papers as his own, instead of citing those papers.

Considerations:
- Where in the text do the similarities occur? How much?
- Direct copying and theft? Or use of prior published article as 'inspiration'?
- Is the data authentic? Are the results new?

What is the peer-review process?

"Peer review is the critical assessment of manuscripts submitted to journals by experts who are not part of the editorial staff"-International Committee of Medical Journals Editors

WHAT IT SHOULD DO	WHAT IT CANNOT DO (*)
-Filter out scientifically flawed studies -Provide feedback on structure, presentation, study design and scientific rigor -Make sure results are interpreted correctly, and convincingly -Improve the quality of publication	-Detect fabrication -Prevent duplicate publication -Pick the most interesting papers -Ensure the article is right for the journal -Measure the impact of the findings

(*) AUTOMATICALLY

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This is how reviewers are chosen

-Editors' knowledge & experience

-From related papers:
  - cited manuscripts
  - literature search

-Additional research:
  - conference/lab visits
  - web search (good 'ol Google)

-Reviewer database:
  - keywords, interest, history…

- Author recommendations

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Types of Peer Review

	Modality	Pros	Cons
Traditional	**Single-blind** Author known Reviewer unknown	• Encourages frank opinion • No retribution from author	• Reviewers may be unnecessarily critical • Authors fear their work is purposefully delayed
Traditional	**Double-blind** Author unknown Reviewer unknown	• Prevents bias	• Author still identifiable (writing style, topic, citations)
Innovative	**Open** Author known Reviewer known	• More honest (transparent)	• Less honest (polite)
Innovative	**Post-publication** Everybody knows	• Encourages further checks, dialog	• Quality control of comments

Manuscript Preparation – THE FIRST STEP

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Manuscript Preparation

Where to start?

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Manuscript Preparation

Where to start?

How will you begin writing a research manuscript?

a. Introduction

b. Methods

c. Results

d. Discussion

e. Figures

f. Tables

g. Abstract

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The order of writing/reviewing different parts of paper is not set in stone

As Author

- Figures and Tables

- Introduction

- Methods

- Results

- Discussion

- Abstract

- Title

As Editor

- Title

- Abstract

- Figures and Tables

- Introduction

- Methods

- Discussion

- Results

As Reviewer

- Title

- Abstract

- Introduction

- Methods

- Results

- Figures and Tables

- Discussion

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Tips and Best Practices

1. Title

2. Abstract

3. Introduction

4. Methods and Results

5. Discussion

6. Figures and Tables

7. Journal Selection

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Title and Abstract

First impressions for editors and reviewers to assess the paper's merit and suitability for the journal

- **Title:** Keep the title simple and specific to describe the content and main finding. Be concise, not too technical.

- **Abstract –** Don't cram the abstract with details. Tell the audience that the butler did it in the 1st sentence!

  - **Background**: Brief overview and rationale for the study that should provide logical progression to the findings
  - **Objective**
  - **Methods and Results** – Very concisely state how the study was performed and the **main** findings.
  - **Conclusions** - should provide clear context for the paper's implications
  - **Key Words**

...With easy to find keywords!

NEW!

Tip 2 – Title and abstract: sell your paper!

KOTZ & CALS WRITING TIPS

https://scientificwritingtips.wordpress.com/the-cartoons/

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Introduction

An Effective Introduction Leads to a Logical Progression of Why the Study Was Conducted

What is already known about the subject, related to the paper in question
  o Is there sufficient scientific background (including relevant references) to understand the motivation, context, and rationale for the study

What is not known about the subject and hence what the study intends to examine (or what the paper seeks to present)

The rationale/significance of the work is established

Are the questions (objectives/hypotheses) you are seeking to answer identified

Tip 3 – Introduction: work on that funnel shape!

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Materials and Methods

Editors' and Reviewers' expectations for this section have undergone significant changes and trace back to the inception and execution of the study.

The driving forces

Scientific Rigor and Reproducibility
Transparency and access
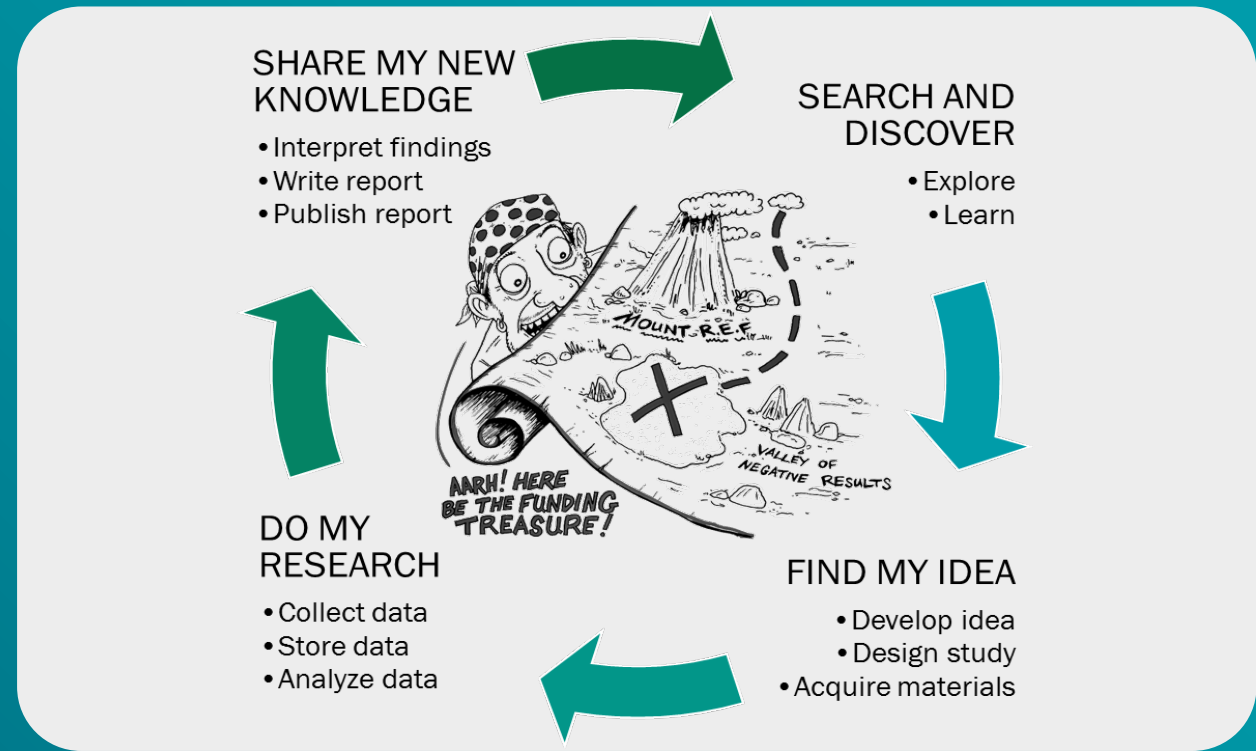
Open Science

Open Access

Increasing the accessibility of publicly funded research

Open Data

Enabling verification of data, methodology and reporting standards and allowing others to build on existing work

Open Publishing Practices

Increasing transparency and reproducibility of the research process and published product

Open Collaboration

Supporting inclusive and networked research practices

Open Recognition & Reward

Helping integrate researcher identification and evaluation tools

https://authorservices.wiley.com/open-science

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Open Data and Open Publishing Practices are sparking discussions and initiatives to improve how research is performed, reported and published.

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METHODS

A Methods Section Must Provide the **Details** of How The Study Was Conducted (Rigor & Reproducibility)

What goes into the methods section:

- Experimental Design
    - Precise details of all procedures (including sequence of manipulation, measurement procedures)

- Experimental Subjects
    - Control and experimental procedures, technical and biological replicates

- Materials
    - Source, catalog #
    - Cell line authentication

- Statistical Analyses

    - Exclusion criteria, outliers defined and handled, data removed prior analyses, randomization and blinding procedures

- Ethical Approvals and written informed consent (for human subjects)

Let your study design simmer for a while...

Then add some data collection and analysis...

Tip 4 – Methods: provide a cookbook with the study's ingredients!

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Design and Perform a Robust Research Study (Scientific Rigor)

- Well-reasoned hypothesis

- Unbiased, scientifically rigorous study design and statistical analysis
  - experimental subjects
  - experimental conditions
  - blinding methods
  - data points
  - variables
  - sample size
  - replicates
  - statistical assumptions
  - statistical power

- Adherence to reporting guidelines – ARRIVE (Animal Research: Reporting in vivo Experiments) and CONSORT (Consolidated Standards of Reporting Trials)

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Randomization and Blinding can Reduce Experimental Bias

- Blinding: Experimenter and/or subjects do not know the experimental condition

- Randomization: experimental subjects ("Units") are assigned to a group at random

- Extremely important for confirmatory research with major impact.

- Crucial when the study cannot be repeated because of ethical /resource-limitation

For more information - https://onlinelibrary.wiley.com/doi/full/10.1002/jnr.24340

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What Biological or Technical Variables Might Influence the Outcomes?

Biological variables

- Sex
- Age
- Litter
- Cell Line
- Species
- Strain

Technical Variables

- Cage
- Experimental
- Machine
- Batch
- Order
- Time period between analysis

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What Should You Include In Your Statistics Section?

- How the power analysis was performed to determine sample sizes/effect sizes (and report calculated power/effect sizes)

- Inclusion/exclusion criteria and methods to account for biological and technical effects

- Justification of statistical inference and data transformation procedures

- Assumptions (don't just say you tested assumptions, explain and provide details)

- Explanation for how data will be presented (e.g., means or medians, SD)

- A link to the data for reviewer/editor verification

For more information -
https://onlinelibrary.wiley.com/doi/full/10.1002/jnr.24340

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Data Sharing – to maximize the value of research

- **FAIR** Data - Findable, Accessible, Interoperable, Reusable

- Raw data, processed data, softwares, algorithms, protocols, methods, materials

- Assists editors and reviewers to evaluate research

- Funder Compliance

- Promotes research reproducibility and integrity

- Journal Editors and Publishers are encouraging/expecting/mandating authors to share their data

- For example, many Wiley journals are
  - Publishing 'Data Statements' where authors confirm the presence or absence of shared data
  - Partnering with data repositories like Dryad to sponsor the Data Publication Charges for their authors
  - Adopting Data Citation policy

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RESULTS

- Organize the results in a <u>logical order</u> that address the research questions asked in a stepwise manner.

- Include a heading for each result that summarizes the key finding.

- Clearly summarize the findings and point the reader to the relevant data in the text, figures and/or tables?

- Text should complement the figures or tables, not repeat the same information.

- Present key results without interpreting their meaning

  o Report the descriptive statistics (e.g., mean ± SD or SEM)
  o Quantify all statements concerning significance numerically
  o Report the test statistic, degrees of freedom, test value, and *P*-value and sample size

- Results sections should be written with accuracy, brevity and clarity…

  - BUT readers cannot be expected to extract important trends from the data unaided.
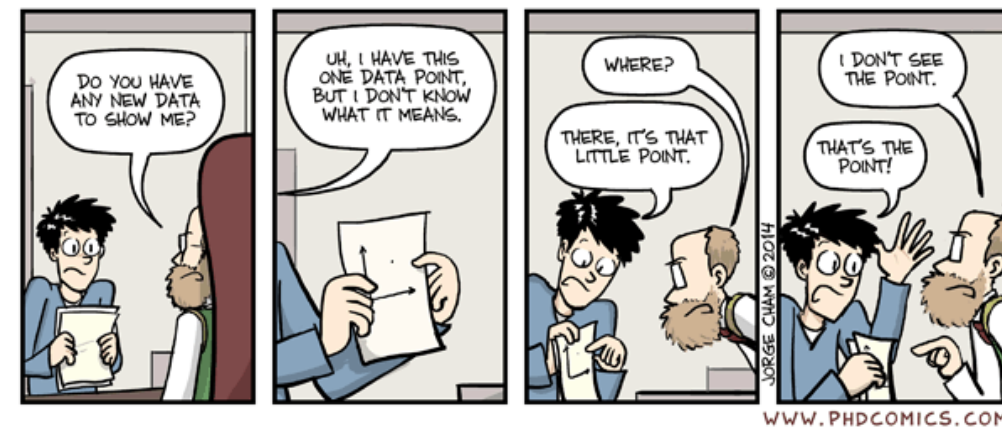
Tip 5 – Results: present findings without interpretation!

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Figures & Tables

- Should complement the results.

- Should be self-explanatory

- Do not cram the figures/tables with data points and text! Chose your scale wisely.

- Final figures should be of good resolution.

- Refer the figures in the text.

- Title of a table should be at the top and that of a figure at bottom.

Yes, this is pie that has been eaten...

And this is pie that has not been eaten yet!

Tip 7 – Tables and figures: make them self-explanatory!

Simple Tips & Tricks

Using Tables and Figures in Your Manuscript

Table 1. XYZ

Figure 1. ABC

- A clear, descriptive, and concise title placed above the table.
- A good set of column titles (with units/unit symbols wherever applicable) that allow the reader to grasp the context of the table.
- Data should read from top to bottom.

- A clear, descriptive, and concise caption placed below the figure.
- A high-quality image with good resolution and appropriate size.
- Can include bar graphs, histograms, maps, scatter plots, etc.

https://www.enago.com/academy/how-to-use-tables-and-figures-to-effectively-organize-data-in-research-papers/

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Transparency in Data Visualization

## Bar Graph Anatomy – Different datasets can lead to same bar graph
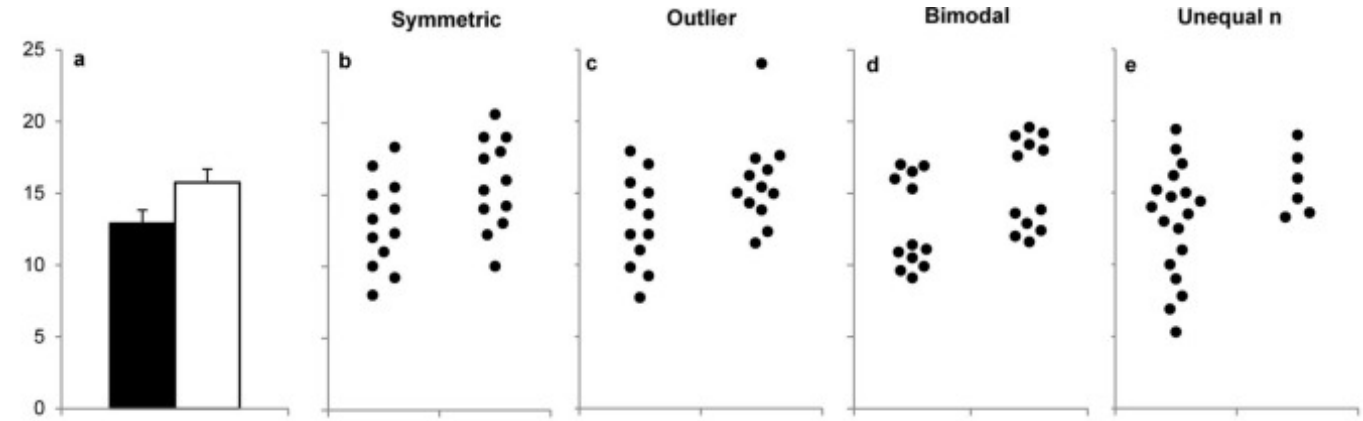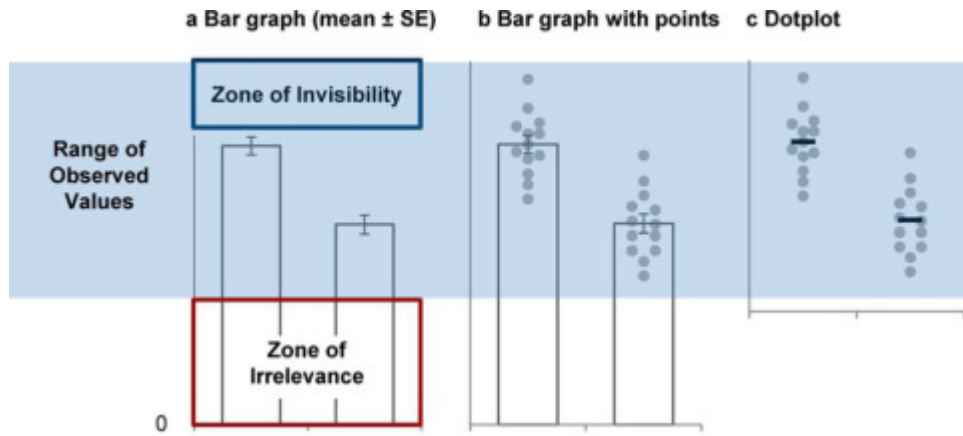
Weissgerber et al., 2017, J Biol Chem

For a quick guide to figures that basic researchers most often use refer Weissgerber et al., 2016, *Journal of Neuroscience Research*

Discussion

Discussion should be concise but informative. <u>Focus on the important and unexpected results</u>. Not on small details.

- Interpret the results considering what was already known about the subject of the investigation

- Provide answers to the testable hypothesis

- Do the findings agree with what others have shown?

- What is our new understanding of the problem investigated and outlined in the Introduction; what are the logical next steps?

- Do the authors consider how the results of other studies may be combined to derive a new or perhaps better substantiated understanding of the problem

- What are the limitations of the study and what has not been addressed.

- No new results are introduced in the Discussion (or speculations)

- **Do not over-interpret.**
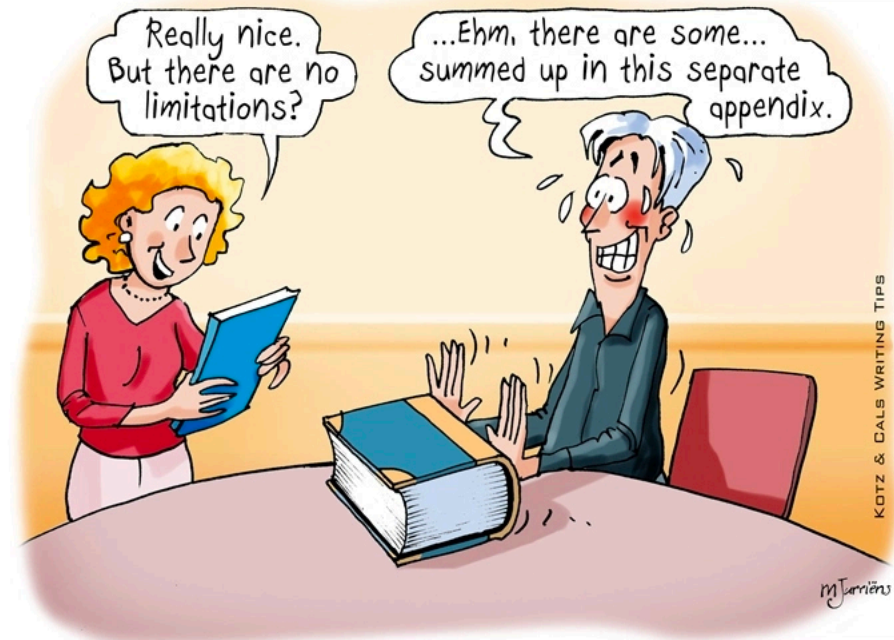
Tip 6 – Discussion: be frank in acknowledging limitations!

Discuss **what is** and **not what if !!**

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The Revision Decision

Tip 12 – Responding to reviewers: don't get frustrated!

KEEP CALM & IMPROVE YOUR MANUSCRIPT

- Carefully consider referee comments
  - Not all changes have to be made…
  - …but need convincing (scientific) arguments for changes not made

- Prepare revision
  - Revise manuscript
    - Highlight changes in manuscript
  - Point-by-point response to all referee criticisms
    - Changes made
    - Why changes not made
  - Response may go back to referees!
    - Need to convince editor and referees

The peer-review process is not a private conversation between authors and referees. Try to work your answers to the reviewers in the revised manuscript!

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Thank You!

Nidhi Bansal, PhD
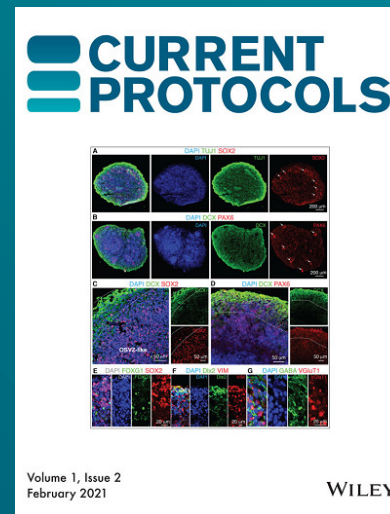
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LinkedIn: www.linkedin.com/in/NidhiB2282

Opportunity to learn and gain experience in Scientific Publishing!

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