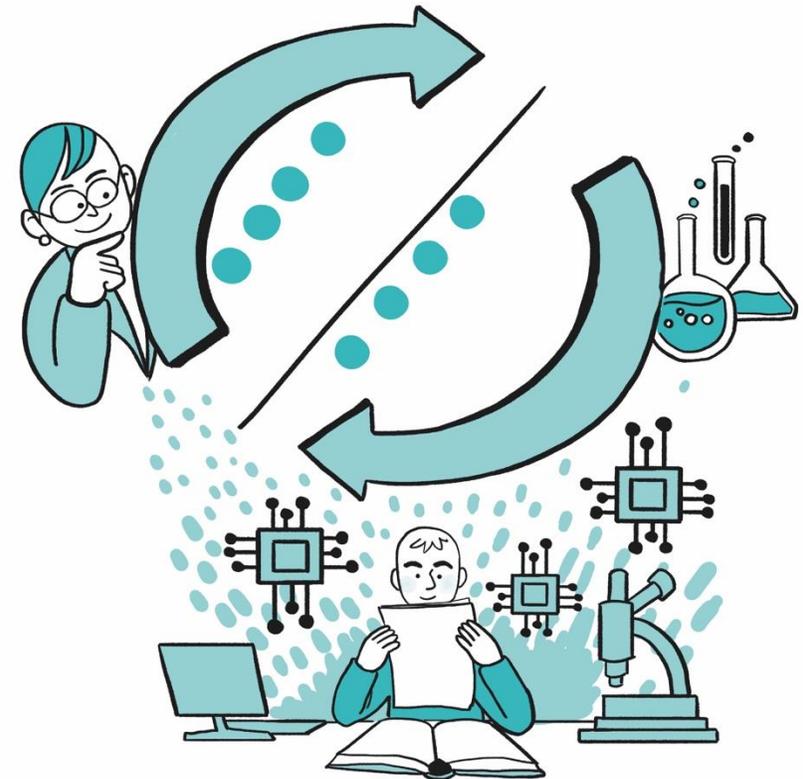


# A Guide to Peer Review

## Training the next generation of Early Career Reviewers

Flora Logoz, Corinna Martarelli, Rachel Heyard



Scriberia

Fig 1: <https://book.the-turing-way.org/>



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# Content

- Background
- The Project
- The Guide
- How to use the Guide
- Outlook

# Background

## “Replication Crisis”

Research Article

### Measuring the Prevalence of Questionable Research Practices With Incentives for Truth Telling

Leslie K. John<sup>1</sup>, George Loewenstein<sup>2</sup>, and Drazen Prelec<sup>3</sup>

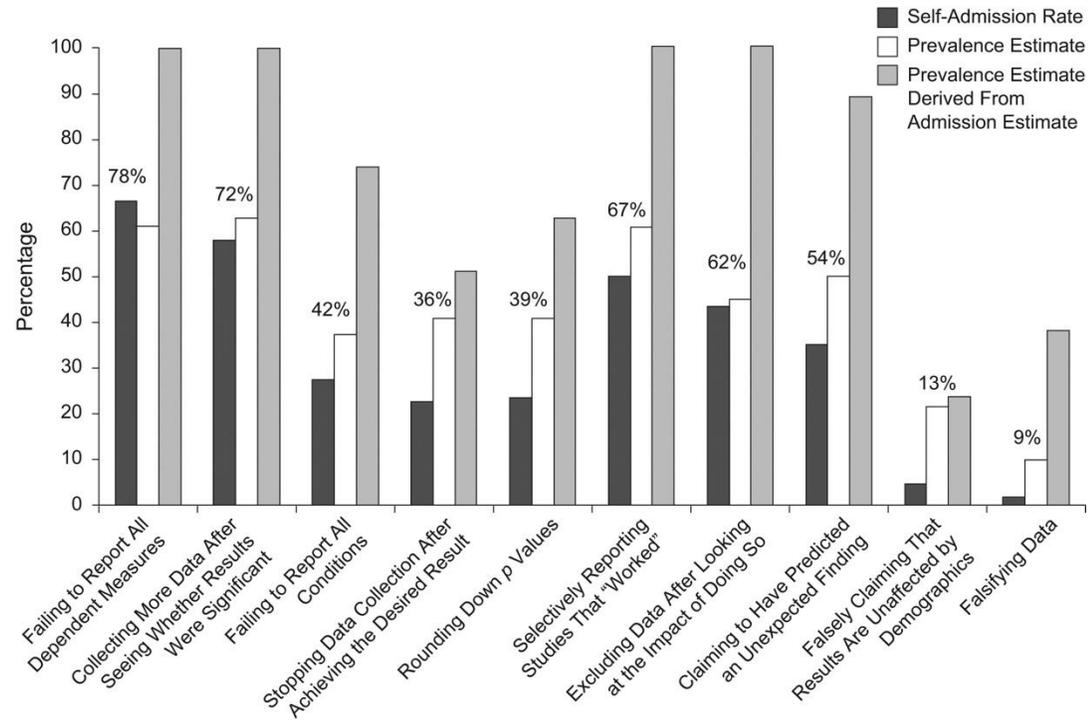
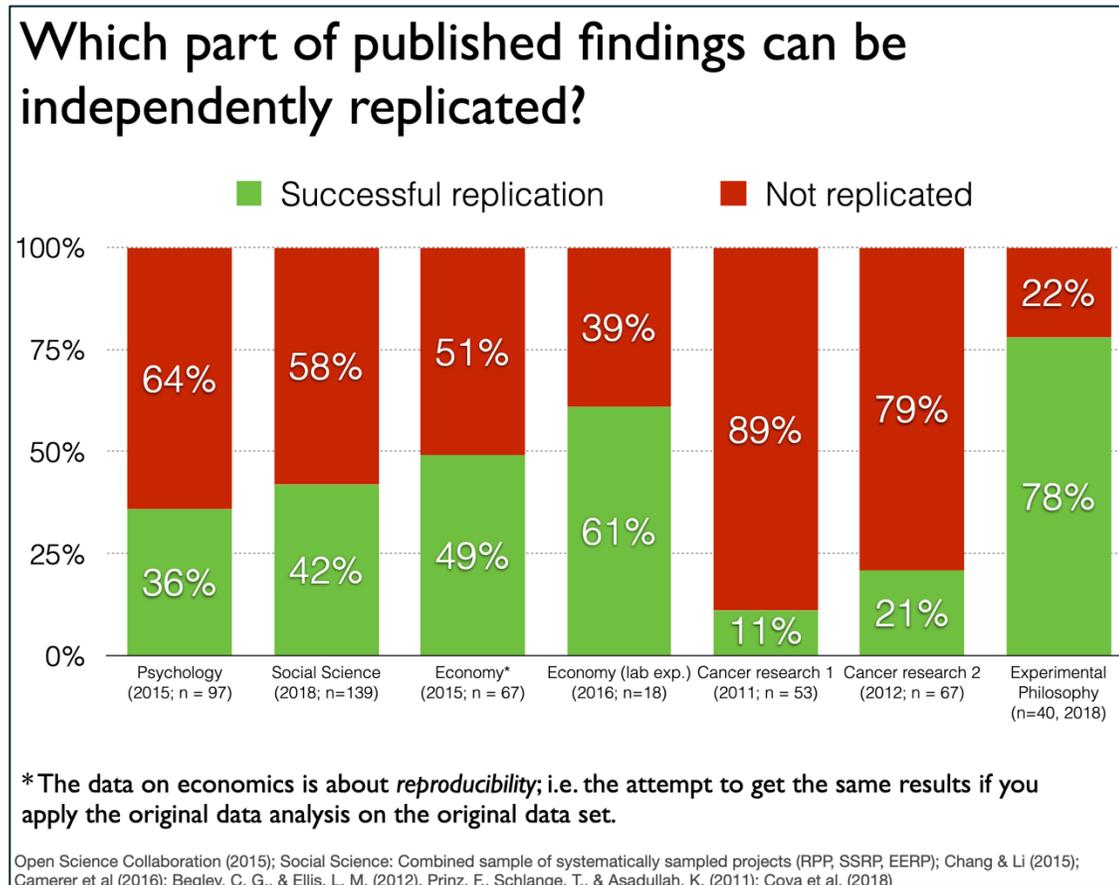


Fig. 2: John et al. (2012)

Excerpt of „From Crisis to Renaissance“, a Power Point Presentation by Felix Schönrbodt (2022)



Schönrbodt (2022)

## Contributing Factors:

- **Questionable Research Practices:** HARK-ing, p-hacking, selective reporting
- **Publication Bias** towards Significant Results
- **Researcher Degrees of Freedom:** Stopping criteria, exclusion of observations, comparisons and combinations of conditions, choice of covariates etc. (Simmons et al., 2011)

# Peer Review

- **Gate-keeping function:** A tool to prevent erroneous research to be published

*„the goal (...) is to ensure that the valid article is accepted, the messy article cleaned up, and the invalid article rejected“*  
(Weller, 2001)

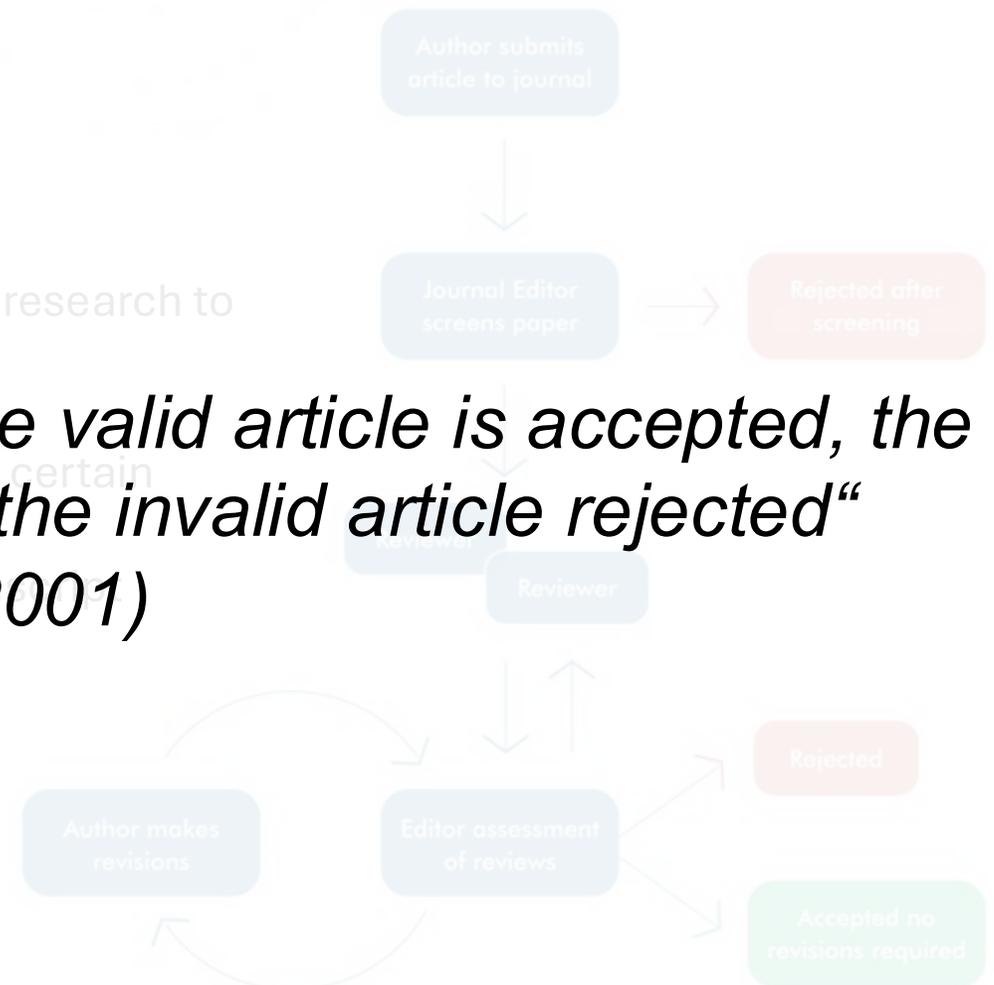


Figure 3: <https://www.j-psp.com/home/peer-review-process>



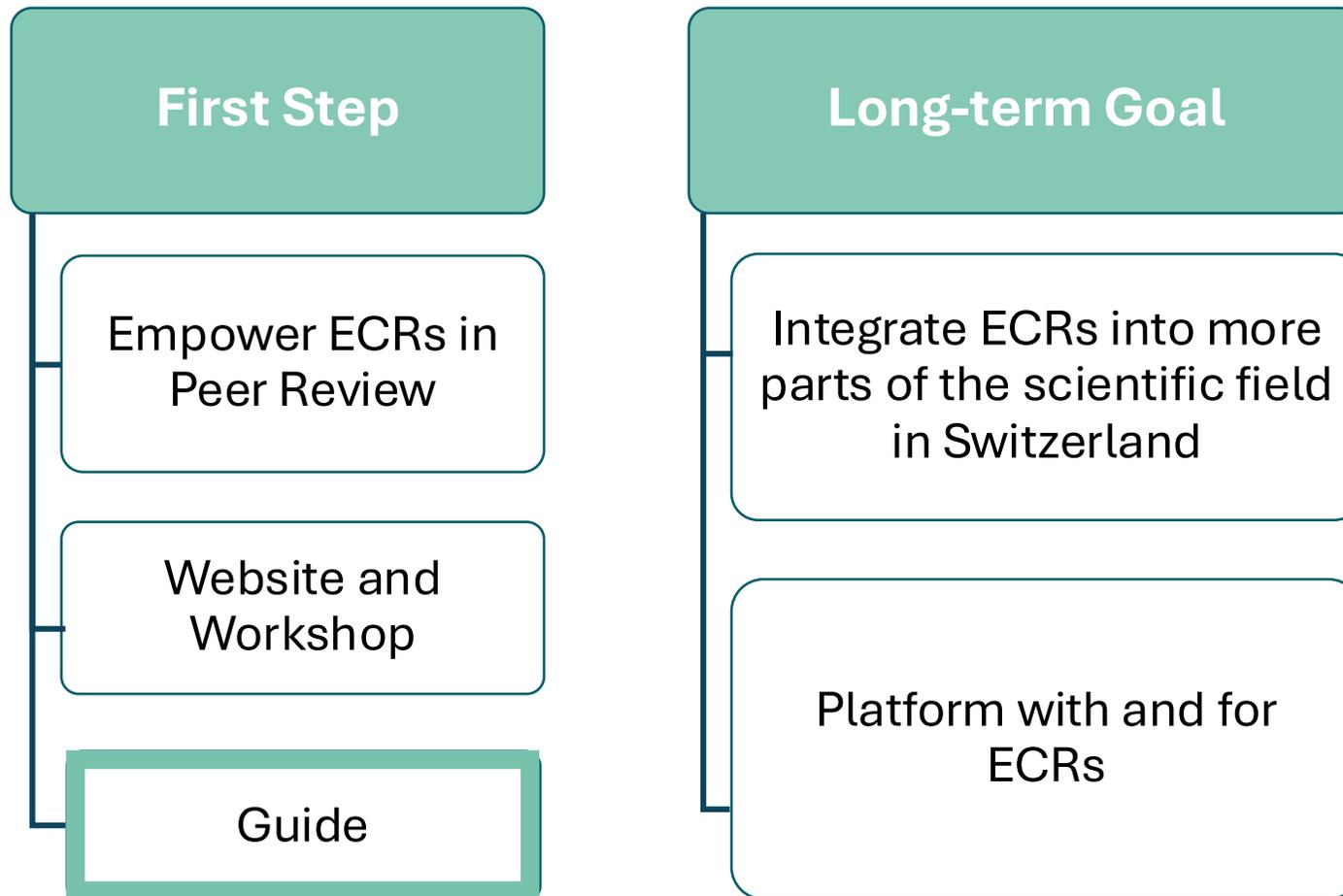
Early Career Researcher  
(ECR):  
Early doctorate to early  
post-doc

- ECRs at the forefront of Open Science and Good Scientific Practices
- However, ECRs are still underrepresented in important parts of academia, e.g., admission panels

Peer Review : Quality  
control for science  
dissemination

- Number of journal submissions grows faster than number of experts in the respective field
- Editors increasingly reach out to ECRs for peer review (PR)
- PR is “learned on the job”: ECRs receive no formal training on PR

# The Project



# The Guide

- This guide is the essence of a workshop and website on PR
- Aim: **Empower ECRs** in conducting **methodologically rigorous PR**
- Content: What is a “good” PR? How to review the methods? What are good research practices?
- Target group: Non-statistician ECRs in empirical and quantitative research fields (e.g., bio-medicine, psychology, political science)



- Welcome
- Peer Review
- The Guide**
- ECReviewer's Workshop
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- About this Project
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- Structure of this Guide
- Acknowledgements

# ECR Reviewers Platform

## AUTHORS

- Flora Logoz 
- Corinna Martarelli 
- Rachel Heyard 

## Welcome

## About this Project

The [reproducibility crisis](#) affects all of published research, in and outside of Switzerland. Early career researchers (ECRs) have been among the strongest advocates for transparency, reproducibility, and good scientific practices. However, their voices are still underrepresented in many parts of the academic field. At the same time, there is a growing demand for ECRs to peer review scientific papers. As the number of submissions of manuscripts to journals grows disproportionately faster than the number of new researchers, journal editors increasingly reach out to junior reviewers. However, peer review is still learned “on the job” which makes it especially challenging to ECRs. Our project aims, in a first place, at empowering junior reviewers and equipping ECRs with the necessary skills to conduct methodologically rigorous peer review. In the long term, we want to build a platform with and for ECRs to increase their representation in scientific expert boards and research evaluation panels in Switzerland.

## Structure of this Guide

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Peer Review  
The Guide  
ECReviewer's Workshop  
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### Contents

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**Structure of this Guide**  
Acknowledgements

### **1. Asked to PR?**

- ❖ When (not) to accept

### **2. How to conduct Peer Review**

- ❖ What to consider beforehand
- ❖ Reviewing the different parts of the manuscripts

### **3. How to write the Peer Review Report**

### Info Box

This is what an Info Box looks like - Info Boxes summarize and define relevant concepts.

### Tool Box

This is what a Tool Box looks like - Tool Boxes provide the reader with practical advice and helpful tools.

### Further Information



### Info Box

This is what an Info Box looks like - Info Boxes summarize and define relevant concepts.

### Tool Box

This is what a Tool Box looks like - Tool Boxes provide the reader with practical advice and helpful tools.

### Further Information

Within the guide, you will also find this sort of window with further information. Just like the Info and Tool Boxes, you can open and collapse these windows. That way, you can read them or ignore them according to your interests.

# 1. Asked to peer review?

- You don't have to accept! But please answer to the invitation e-mail!
- When to accept / decline and what to do if you're unsure
  - Time, expertise
  - Also: *Values!* (Info Box on Open Science Principles) and be aware of predatory journals!

If you want to actively contribute to [Reproducibility](#) and [Open Science](#), check out the Peer Reviewer's Openness (PRO) initiative's [guidelines for reviewers](#). Note that the PRO initiative's platform also includes guidance to help authors comply to the principles of Open Science.

In case you are invited to review a manuscript that does not adhere to the above Open Science principles, the PRO initiative provides [examples](#) of how to address such issue with the editor.

# 2. How to Peer Review

Before you start

- Journal Guidelines, Reporting Guidelines, confidentiality etc.
- Is the study within the scope of the journal?

General recommendations

- tips and tricks from experienced reviewers



*„Record your thoughts as you read“*

*„Outsmart your own biases!“*

## Reviewing the different sections of a manuscript and when to stop

The scope of your review

Title and abstract

Introduction, research questions, and hypotheses

Methods

Analysis and results

Discussion and limitations

- Reporting, reporting, reporting!  
→ Sample size determination, stopping criteria, descriptive stats, full results etc etc ect
- Go beyond p: Adequate measures of uncertainty
- Different forms of bias and how to detect them

# 3. How to write a peer review report

- Review format
- How to form your decision
- Transparency in your review report ...

# How to use the Guide

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The

Find the  
this page

As

First o

The screenshot shows the OSFHOME website interface. At the top, there is a dark navigation bar with the OSFHOME logo, a search bar, and buttons for 'Support', 'Donate', 'Sign Up', and 'Sign In'. Below the navigation bar, the main content area is divided into two columns. The left column displays a document titled 'A peer review guide - Empowering early career reviewers' by Flora Logoz, Corinna Martarelli, and Rachel Heyard. The document content includes sections for 'About this project', 'Aim of this guide', and 'Target group'. The right column displays the 'Component Metadata' for the document, including fields for Title, Description, License, Date created, Date modified, and DOI. A blue arrow points to a PDF icon in the top right corner of the document preview area. A blue button with a question mark and the word 'Help' is located at the bottom right of the metadata section.

OSFHOME

Search Support Donate Sign Up Sign In

Seite: 1 von 16 Automatischer Zoom

## A peer review guide - Empowering early career reviewers

Flora Logoz, Corinna Martarelli and Rachel Heyard

**About this project**

The [reproducibility crisis](#) affects all of published research, in and outside of Switzerland. Early career researchers (ECRs) have been among the strongest advocates for transparency, reproducibility, and good scientific practices. However, their voices are still underrepresented in many parts of the academic field. At the same time, there is a growing demand for ECRs to peer review scientific papers. As the number of submissions of manuscripts to journals grows disproportionately faster than the number of new researchers, journal editors increasingly reach out to junior reviewers. However, peer review is still learned "on the job" which makes it especially challenging to ECRs. Our project aims, in a first place, at empowering junior reviewers and equipping ECRs with the necessary skills to conduct methodologically rigorous peer review. In the long term, we want to build a platform with and for ECRs to increase their representation in scientific expert boards and research evaluation panels in Switzerland.

**Aim of this guide**

This guide contains practical advice on what to consider when being asked to peer review for a scientific journal; from deciding on whether or not to accepting a peer review invitation to what to consider after submitting the report. The guide will be used in a workshop and a platform to empower non-statistician ECRs when conducting peer review of quantitative and empirical research. Key points of good peer review are summarized with reference to open (educational) resources, publications, blog posts, checklists and tools for further reference. To help ECRs critically evaluate the validity of the presented statistics, we put special emphasis on the review of the statistical design and methods. Ensuring that only methodologically sound research is published is essential. However, there are many cases where statistical errors are overlooked. Possible reasons include a lack of statistical knowledge, the lack of clarity on what peer review should cover, or common misconceptions on statistical concepts. Our guide is meant to support non-statistician ECRs in promoting good research practices via peer review.

**Target group**

## Component Metadata

**Title**  
A peer review guide - Empowering early career reviewers

**Description**  
\*\*Aim of this guide\*\* This guide contains practical advice on what to consider when being asked to peer review for a scientific journal; from deciding on whether or not to accepting a peer review invitation to what to consider after submitting the report. The guide will be used in a workshop and a platform to empower non-statistician ECRs when conducting peer review of quantitative and empirical research. Key points of good peer review are summarized with reference to open (educational) resources, publications, blog posts.

[Show more](#)

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**Date created**  
August 2, 2024

**Date modified**  
August 21, 2024

**doi**  
<https://doi.org/10.17605/OSF.IO/T5WRH>

## Contributors

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? Help



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# Outlook

EARLY CAREER RESEARCHERS

# PEER REVIEW

WOKRSHOP

- **ECR's from different empirical disciplines** welcome
- **Flipped-classroom model:** Acquire skills in self-study and with **real pre-accepted manuscripts** at our in-person session!
- **Spring 2025 in Brigg, Switzerland**

# Acknowledgements

We want to thank the experts who gave us valuable feedback on our guide during our online workshop on June 26, 2024:

Gorka Fraga González, Gabriel Okasa, Karin Bütler, Lareunt Donzé, Alodie Rey-Mermet, Nicolas Rothen, Darías Holgado, Romain-Daniel Gosselin, Ana Marusic.

# Thank you and References

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(2019) for a detailed tutorial on sample size and power calculation.



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  - Reviewing the different sections of a manuscript and when to stop
    - The scope of your review
    - Title and abstract
    - Introduction, research questions, and hypotheses
    - Methods
    - Analysis and results
    - Discussion and

## Calculate sample size for randomized designs

### Continuous Outcome:

- ✓ Power: t test (2 groups)
- ✓ Power: F test (>2 groups)
- ☐ Power: Repeated measurements
- ☐ Precision estimation of effect size: half-width CI

### Other Outcomes:

- ☐ Categorical outcome
- ☐ ...

- Links to open-source software like the R package [pwr](#) or the [SampleSizeR online tool](#)
- Resource for detailed tutorial on sample size and power by Brysbaert ([2019](#))