

How to preregister research studies?

Agata Bochynska, PhD

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University of Oslo Library

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Time and place: Sep. 3, 2025 12:00 PM – 1:00 PM, Zoom

Open and reproducible research: An overview

Learn about what open research is and how to make your own research more transparent and reproducible.

Time and place: Sep. 17, 2025 1:15 PM – 3:00 PM, University of Oslo, Blindern, Georg Sverdrups Hus, DSC

Workshop: How to preregister research studies?

Learn about what preregistration is and how to preregister your own studies.

Time and place: Sep. 18, 2025 1:15 PM – 3:00 PM, University of Oslo, Blindern, Georg Sverdrups Hus, DSC

Workshop: How to make research reproducible?

Learn about tools and practices for more reproducible and effective research.

Time and place: Sep. 23, 2025 12:00 PM – 1:00 PM, Zoom

How to publish openly?

Learn about preprints, open peer-review, Open Access and how can you choose the best way to publish your results openly.

Time and place: Sep. 24, 2025 1:15 PM – 3:00 PM, GSH: UB-UHS-læringsoasen

Workshop: Update your UiO and ORCID profiles!

Learn how to utilise your UiO personal pages and ORCID record to make yourself and your work more visible to the academic community and the society at large.

Open and reproducible research courses

September 3rd – 24th

<https://www.ub.uio.no/english/courses-events/courses/research-reproducibility/>

Roadmap

- Why should we consider preregistration?
- What is preregistration?
- The benefits and challenges of preregistrations
- How to preregister research? A primer
- OSF Registries

1

What is your **field** or **discipline**?

What types of **method** and **data** do you work with?

2

Why do we need preregistration?

Credibility of academic
research is under debate

 OPEN ACCESS

ESSAY

Why Most Published Research Findings Are False

John P. A. Ioannidis

Published: August 30, 2005 • <https://doi.org/10.1371/journal.pmed.0020124>

nature

Published: 07 October 2015

How scientists fool themselves – and how they can stop

Regina Nuzzo

Nature **526**, 182–185 (2015) | [Cite this article](#)

1246 Accesses | **152** Citations | **2900** Altmetric | [Metrics](#)

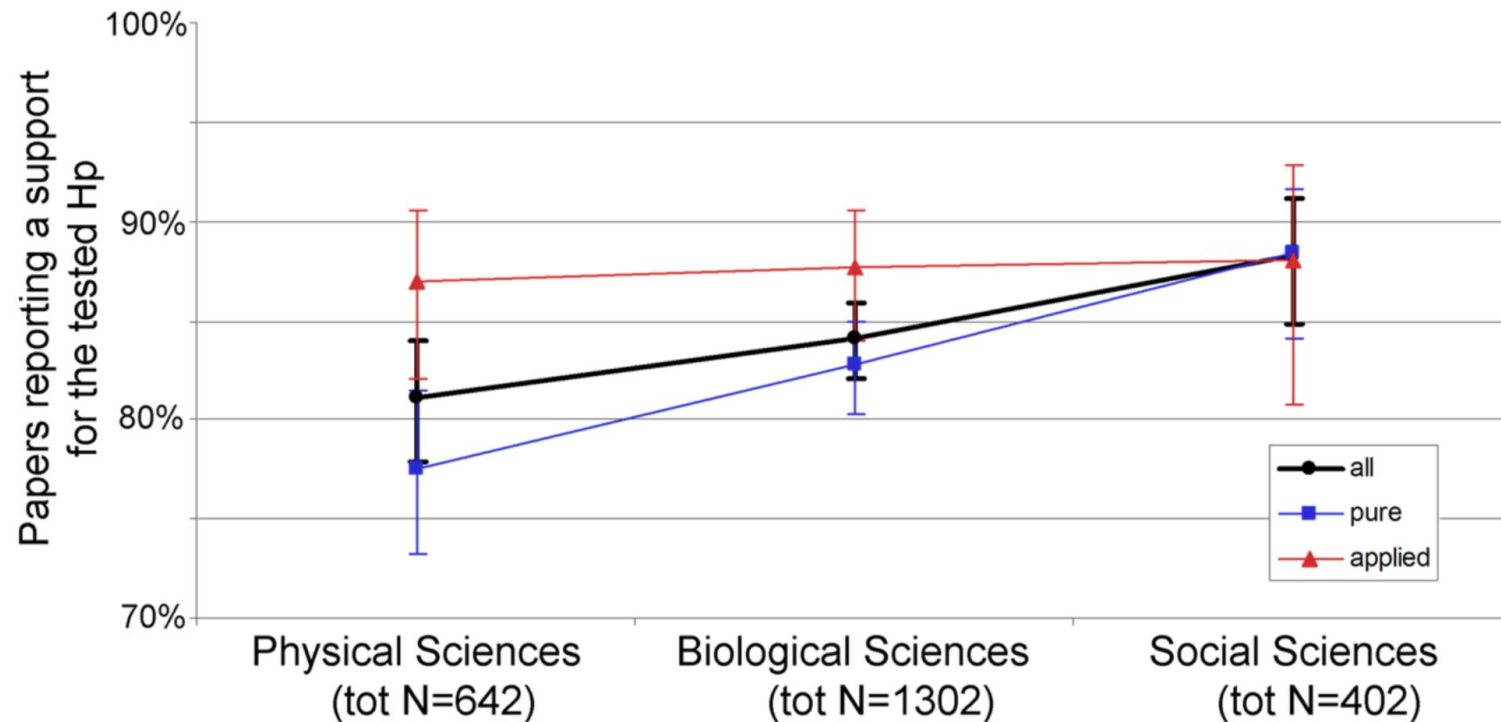
Negative or “boring” results are less likely to be published

(and more likely to end up in a file-drawer)



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Psychological Bulletin
1979, Vol. 86, No. 3, 638–641

The “File Drawer Problem” and Tolerance for Null Results

Robert Rosenthal
Harvard University

For any given research area, one cannot tell how many studies have been conducted but never reported. The extreme view of the “file drawer problem” is that journals are filled with the 5% of the studies that show Type I errors, while the file drawers are filled with the 95% of the studies that show non-significant results. Quantitative procedures for computing the tolerance for filed and future null results are reported and illustrated, and the implications are discussed.

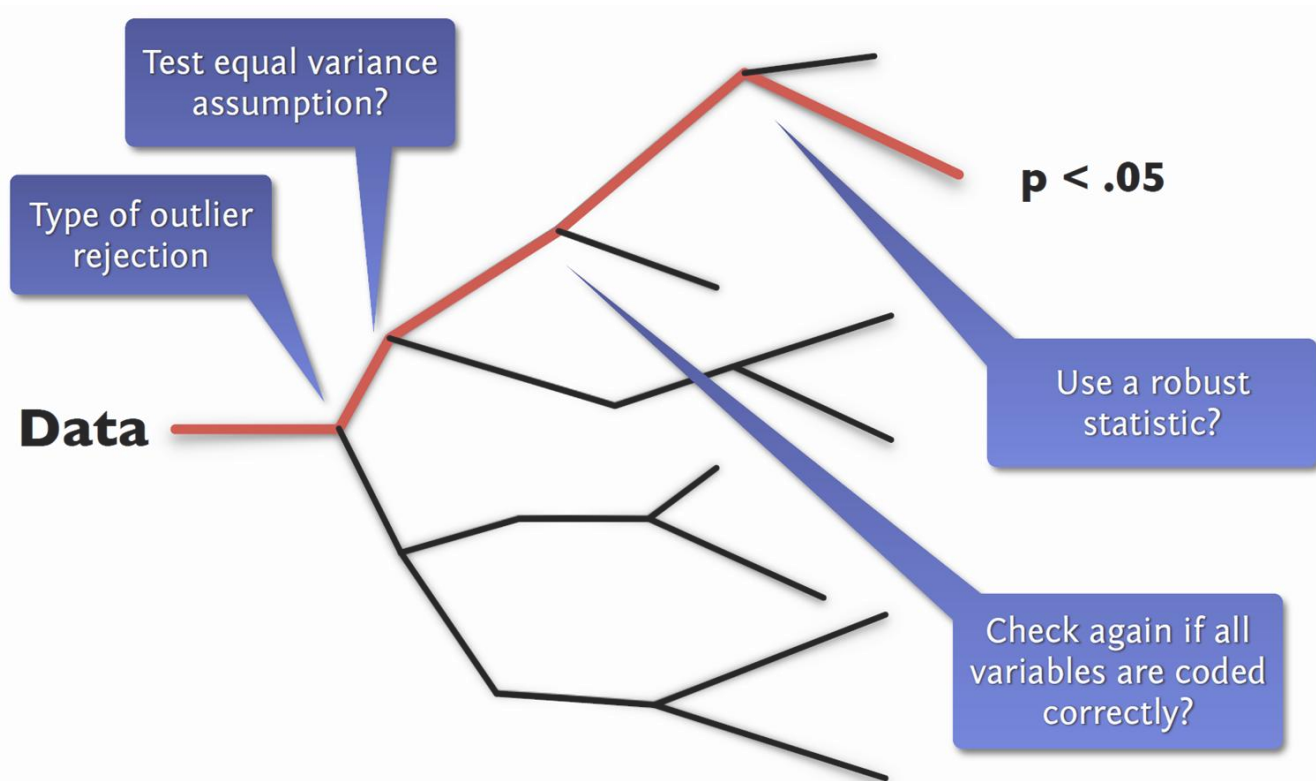
Researchers are biased and make arbitrary decisions

(also called “Researcher degrees of freedom”)



Researchers are biased and make arbitrary decisions

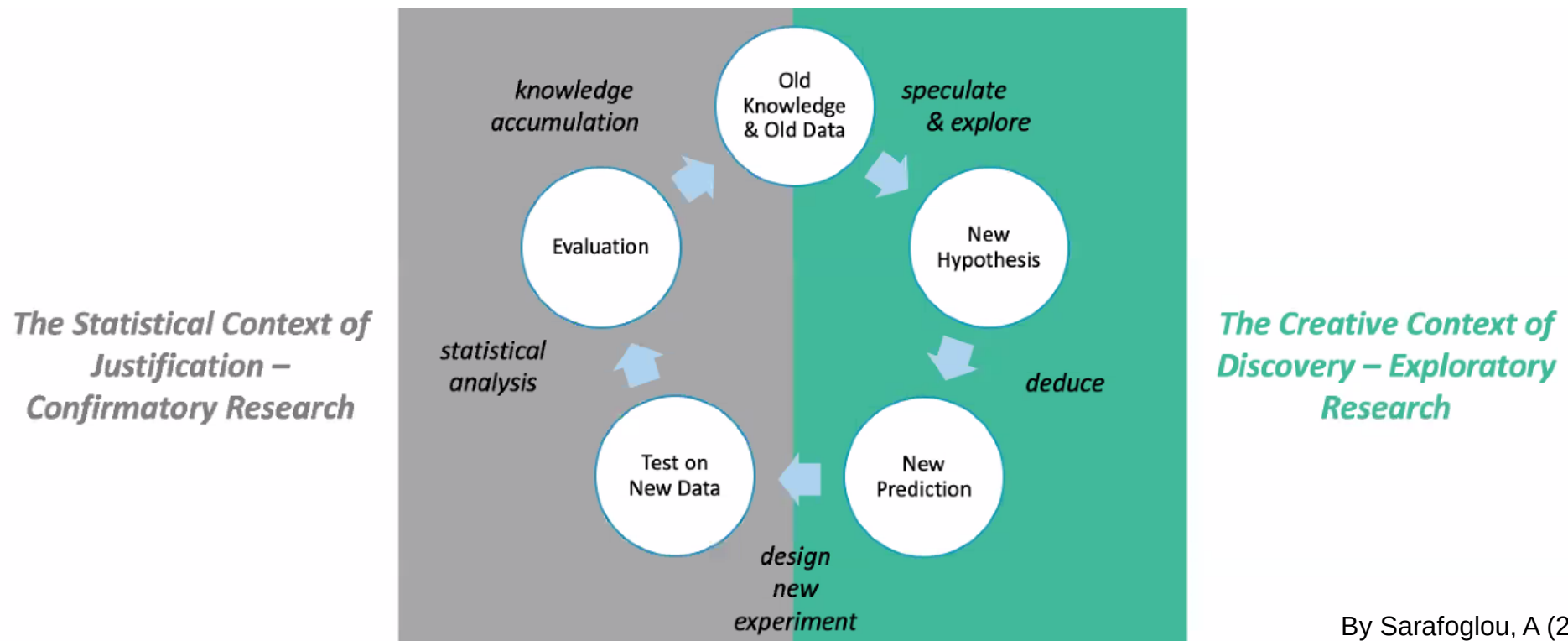
(also called “Researcher degrees of freedom”)



p-hacking
HARK-ing

Confirmatory and exploratory research is being mixed up

(and prediction is confused with post-diction)



File-drawer problem and publication bias



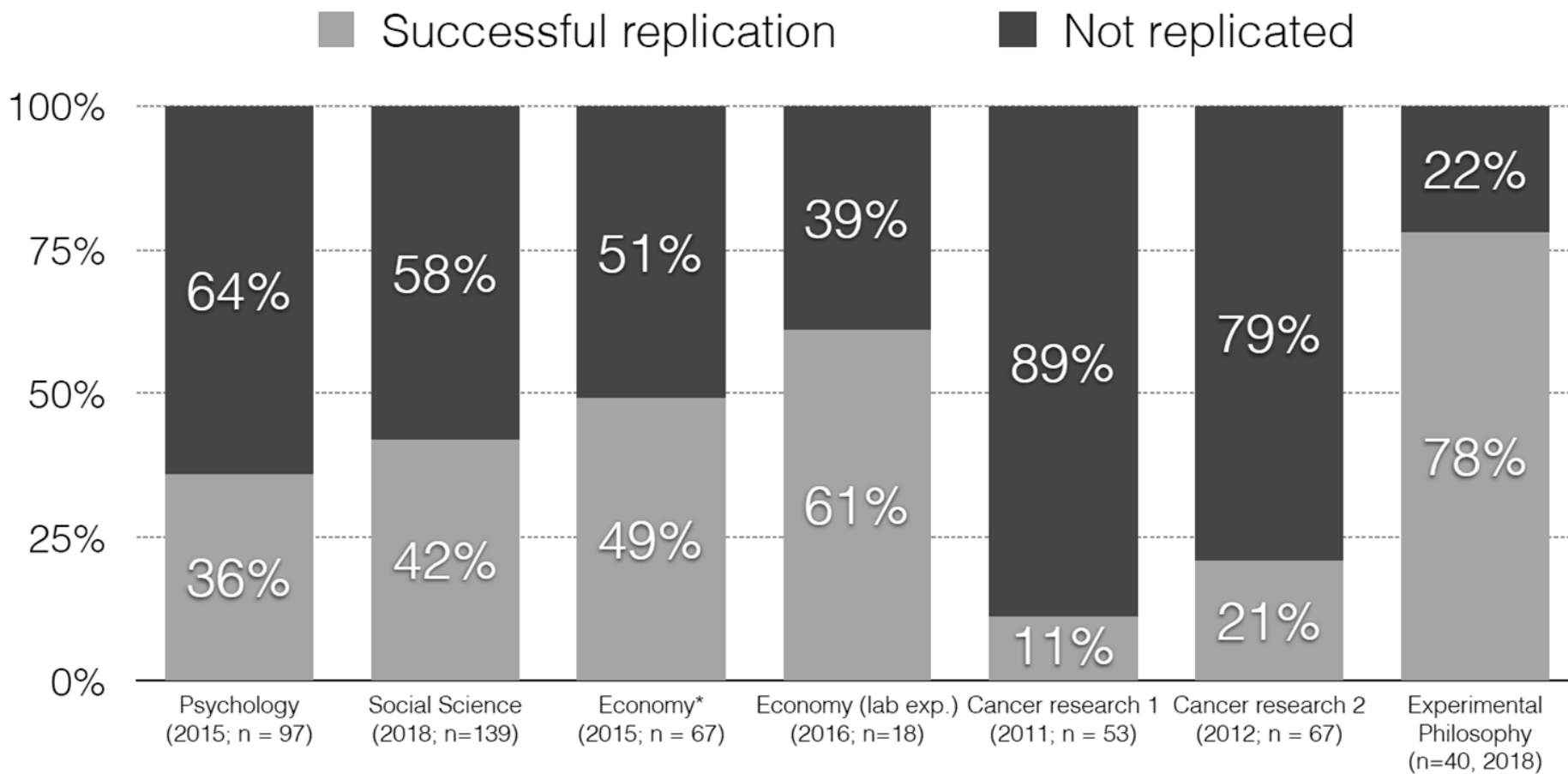
Researcher degrees of freedom



Confirmatory vs exploratory research



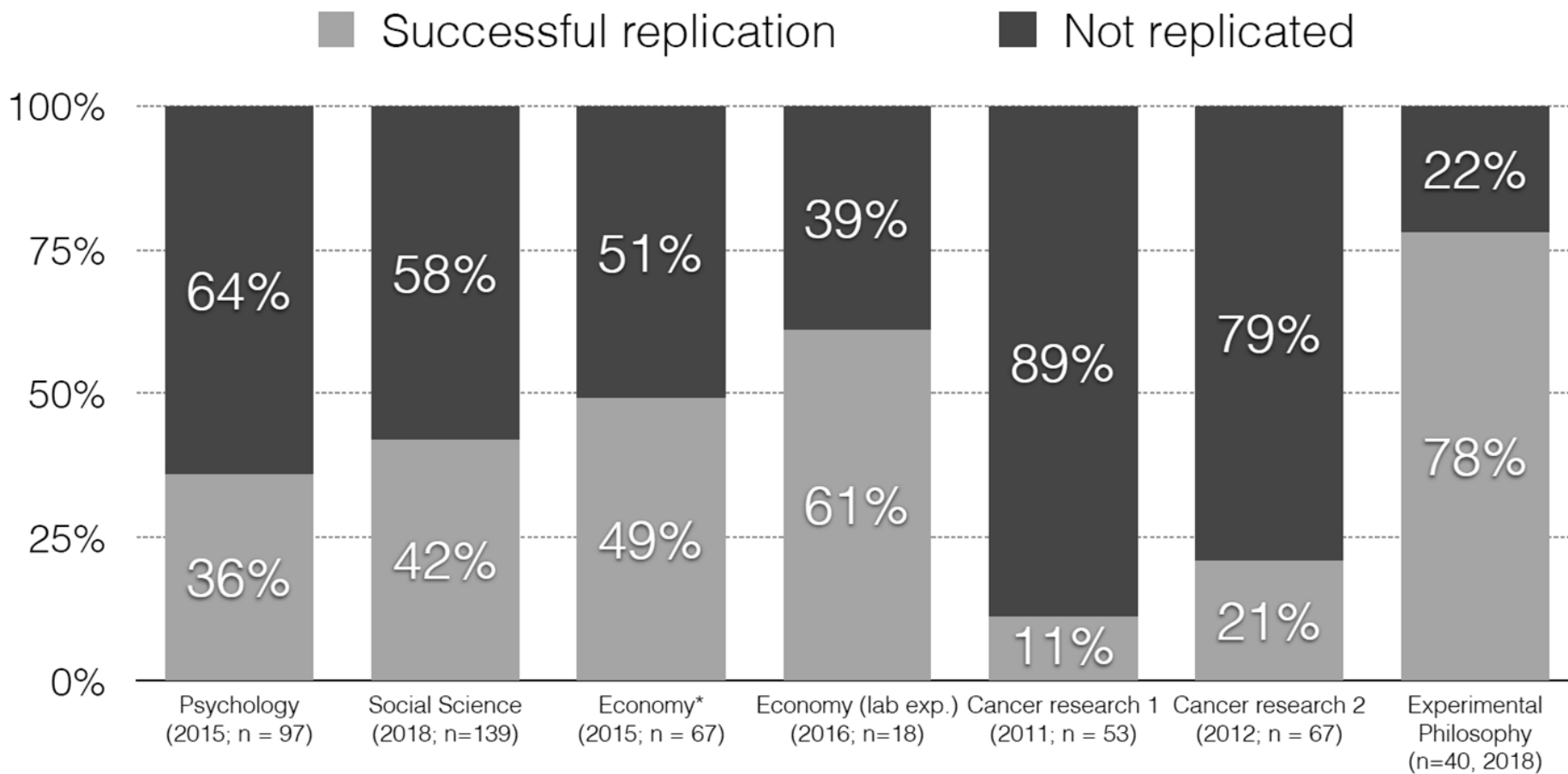
Replication crisis?



Open Science Collaboration (2015); Social Science: Combined sample of systematically sampled projects (RPP, SSRP, EERP); Chang & Li (2015); Camerer et al (2016); Begley, C. G., & Ellis, L. M. (2012). Prinz, F., Schlange, T., & Asadullah, K. (2011); Cova et al. (2018)

Replication is obtaining
similar results with new
data

Reproducibility is obtaining identical results with the same data



Open Science Collaboration (2015); Social Science: Combined sample of systematically sampled projects (RPP, SSRP, EERP); Chang & Li (2015); Camerer et al (2016); Begley, C. G., & Ellis, L. M. (2012). Prinz, F., Schlange, T., & Asadullah, K. (2011); Cova et al. (2018)

*The data on economics is about reproducibility (getting the same results with the same data)

Preregistration



How it started...

The screenshot shows the ClinicalTrials.gov website. At the top, the NIH logo and 'U.S. National Library of Medicine' are on the left, and navigation links 'Find Studies', 'About Studies', and 'Submit' are on the right. Below the header, a breadcrumb trail reads 'Home > Submit Studies > Why Should I Register and Submit Results?'. A light blue banner contains the text: 'Do you or someone you know want to participate in a clinical study? See [information for patients and families.](#)'. The main heading 'Why Should I Register and Submit Results?' is in red. Below it, a 'Contents' section lists two links: 'What Is the Purpose of Trial Registration and Results Submission?' and 'Why Do I Need to Register My Trial and Submit Results to ClinicalTrials.gov?'. The first link is expanded, showing a section titled 'What Is the Purpose of Trial Registration and Results Submission?' with the text: 'Registering clinical trials when they begin, providing timely updates, submitting summary results, and making the information available to the public fulfills a number of purposes and benefits a variety of people.'

NIH U.S. National Library of Medicine

ClinicalTrials.gov

Find Studies ▼ About Studies ▼ Submit

[Home](#) > [Submit Studies](#) > Why Should I Register and Submit Results?

Do you or someone you know want to participate in a clinical study? See [information for patients and families.](#)

Why Should I Register and Submit Results?

Contents

- [What Is the Purpose of Trial Registration and Results Submission?](#)
- [Why Do I Need to Register My Trial and Submit Results to ClinicalTrials.gov?](#)

What Is the Purpose of Trial Registration and Results Submission?

Registering clinical trials when they begin, providing timely updates, submitting summary results, and making the information available to the public fulfills a number of purposes and benefits a variety of people.

<https://clinicaltrials.gov>



Journal of Clinical Epidemiology 145 (2022) 164–173

Journal of
Clinical
Epidemiology

ORIGINAL ARTICLE

Clinical trial registration was associated with lower risk of bias compared with non-registered trials among trials included in systematic reviews

Kristina Lindsley^{a,b,*}, Nicole Fusco^c, Tianjing Li^d, Rob Scholten^{a,b}, Lotty Hooft^{a,b}

^aJulius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht University, Utrecht, The Netherlands

^bCochrane Netherlands, University Medical Center Utrecht, Utrecht University, Utrecht, The Netherlands

^cXcenda, LLC, Boston, MA

^dDepartment of Ophthalmology, School of Medicine, University of Colorado Anschutz Medical Campus, Aurora, CO

Accepted 18 January 2022; Available online 23 January 2022

How it's going...



OSFHOME ▼

10,000+ results

Subject ▲

Social and Behavioral Sciences	110204
Psychology	62331
Medicine and Health Sciences	50108
Social Psychology	16923
Cognitive Psychology	12760
Life Sciences	12588
Education	9187
Public Health	7415
Business	7294

What is preregistration?

The specification of a research design, hypotheses, and/or analysis plan prior to observing the outcomes of a study.

Typically takes a form of a time-stamped, frozen document made available on an online platform.

3

What should we include in a preregistration?

Are you familiar with what preregistration consists of?

What would be most important to preregister in your project or discipline?

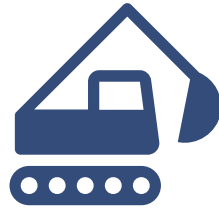
What do I need to preregister?



Research questions
and hypotheses



Study design and data
collection methods



Data preprocessing
and analysis plan



Real-life example: quantitative

Voice onset time in Norwegian infant-directed speech over development

Preregistered on Open Science Framework: <https://osf.io/5nwxu>

Real-life example: qualitative

Exploring Loneliness and Social Isolation in Emerging Adulthood

Preregistered on Open Science Framework: <https://osf.io/6cq8h>

4

Have you heard about a
Registered Report before?

Preregistration vs Registered Report

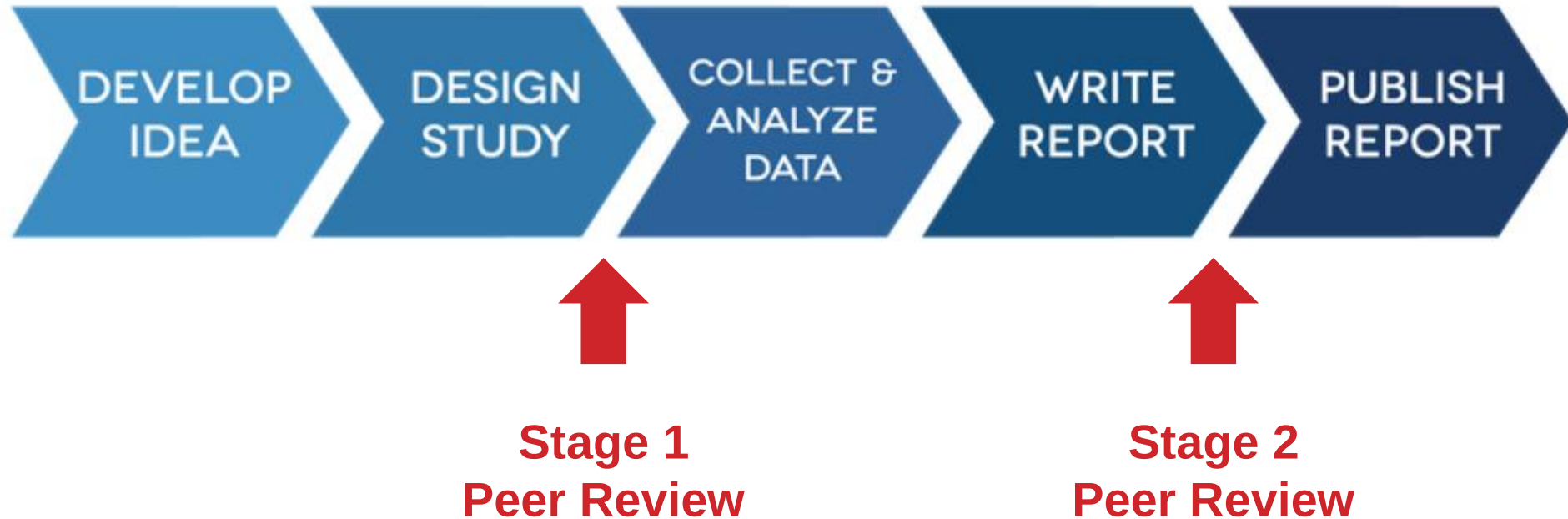


Preregistration vs Registered Report

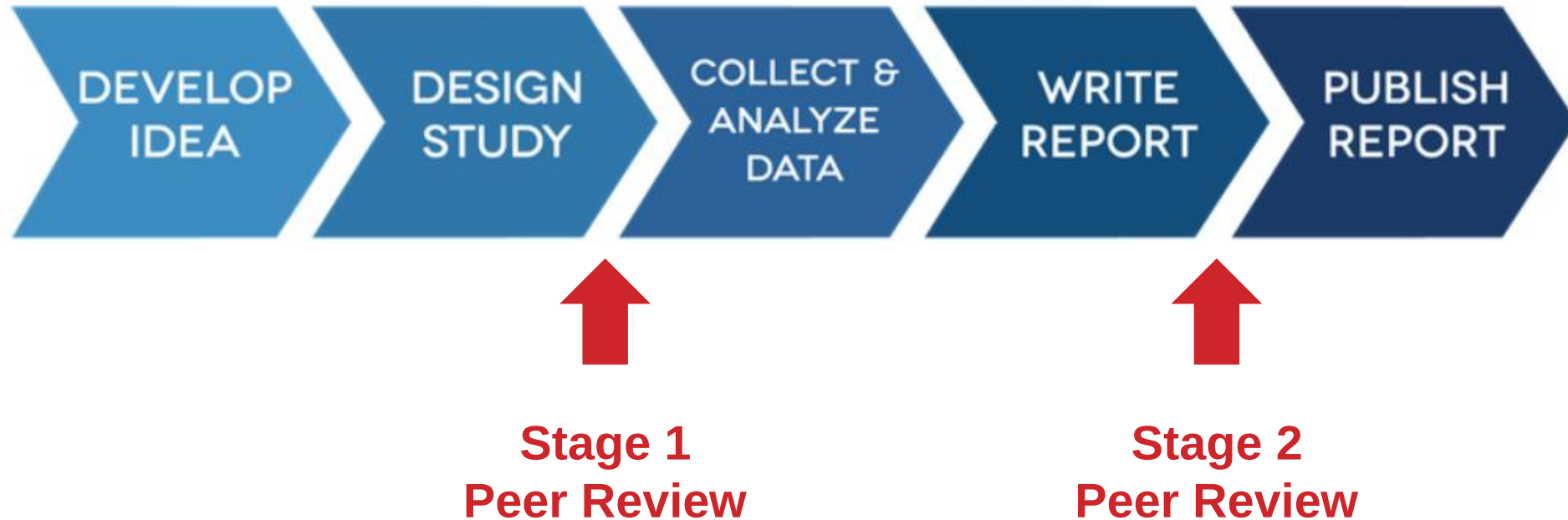


**Preregister and time-stamp
on an online platform
(no peer review)**

Preregistration vs Registered Report

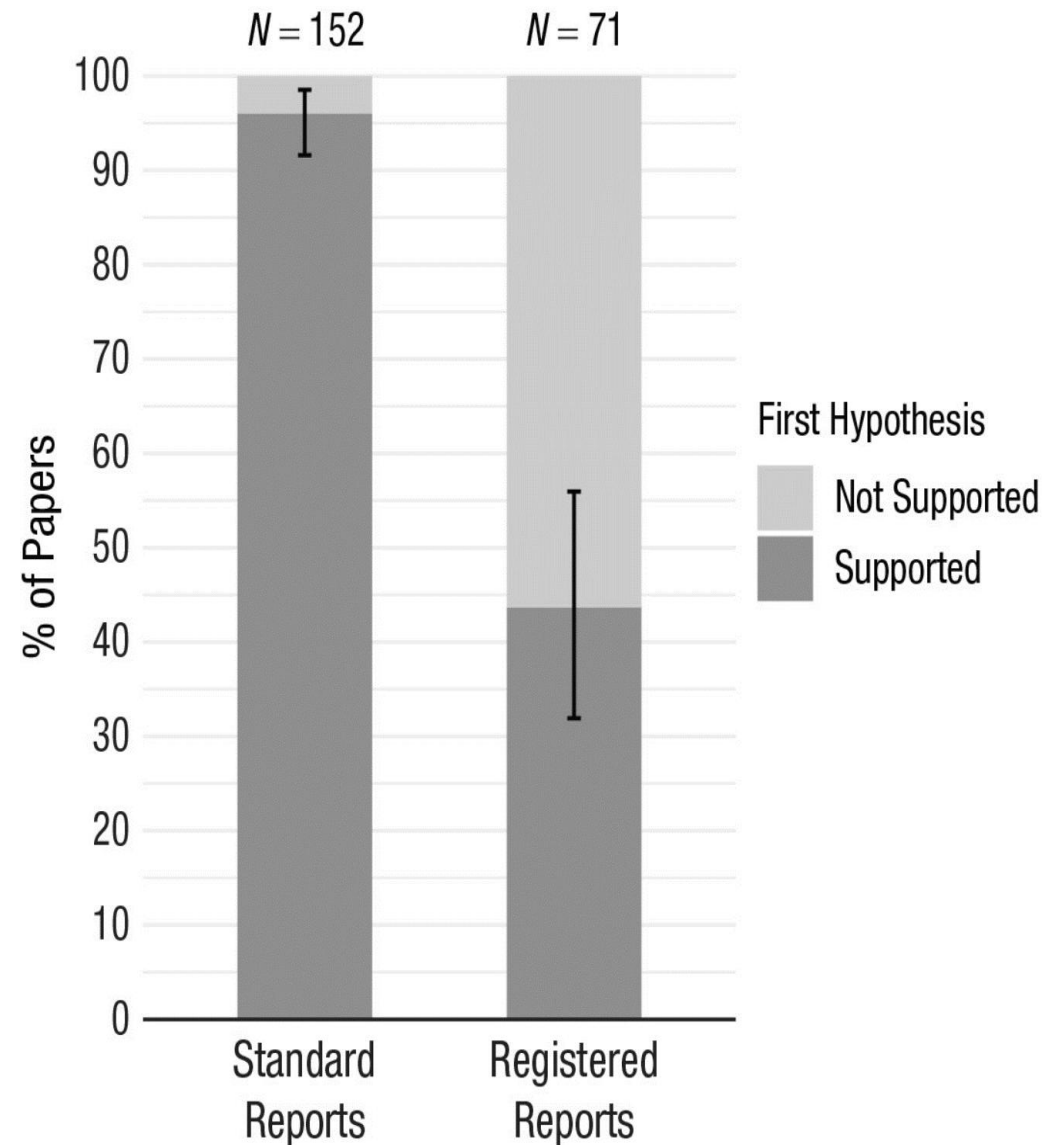


Preregistration vs Registered Report



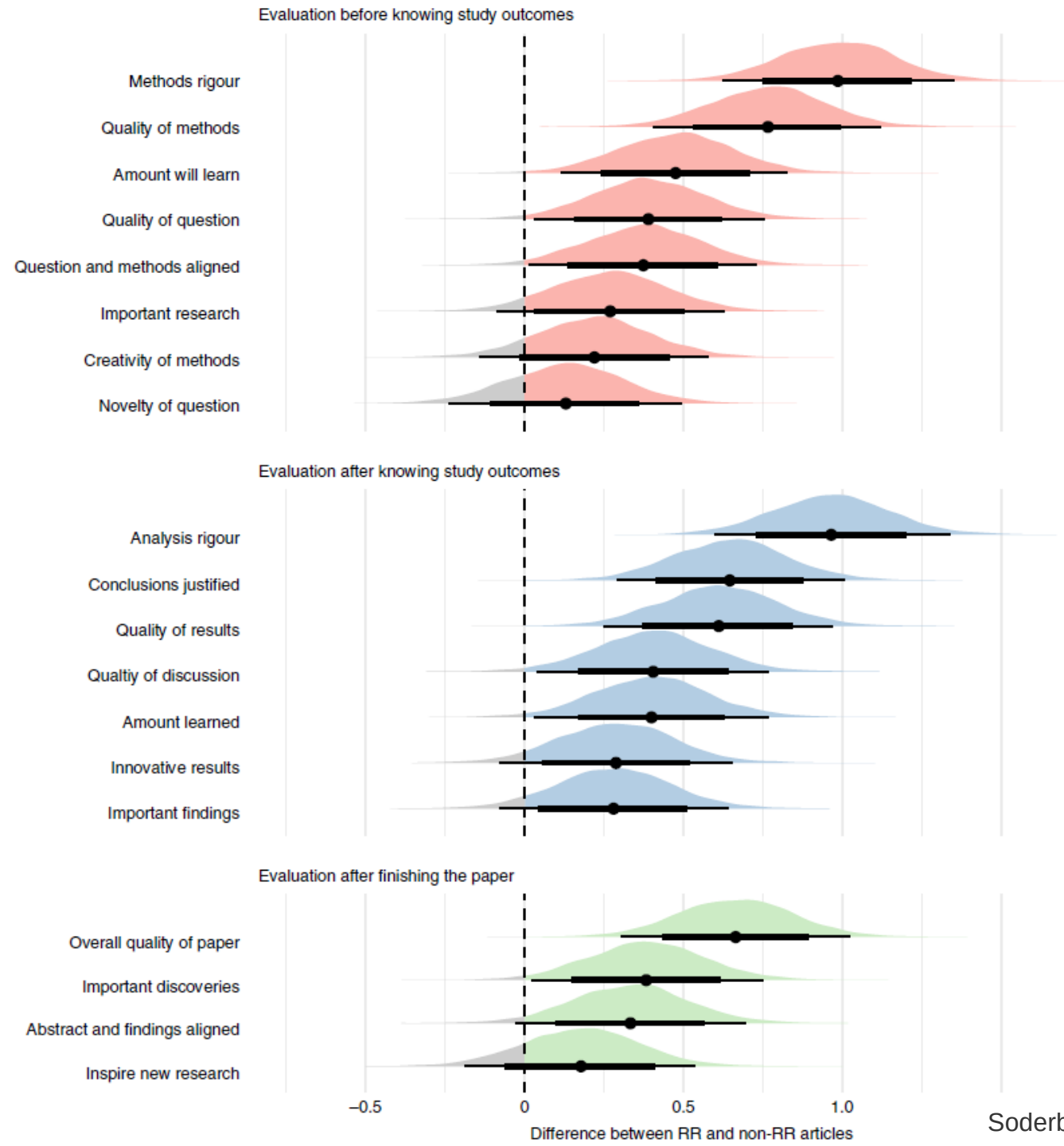
Currently, over **300** scientific journals use the Registered Reports publishing format either as a **regular submission option** or as part of a single **special issue**.

It works!



It works!

RR – Registered Reports
non-RR – Standard Reports



Tema: Registrert rapport

Her kan du lese mer om Stiftelsen Dams satsning på
registrert rapport.

Registered Report: peer-reviewed
preregistration (stage 1) and article
(stage 2) in a journal

Registered Report: peer-reviewed preregistration (stage 1) and article (stage 2) in a journal

Preregistration: not peer-reviewed research plan, time-stamped on an online platform

5

Would you consider a Registered Report?

What are possible challenges or downsides?

Is peer-review necessary already at preregistration stage?

Knowledge about others reduces one's own sense of anonymity

[Anuj K. Shah](#) & [Michael LaForest](#)

[Nature](#) 603, 297–301 (2022) | [Cite this article](#)

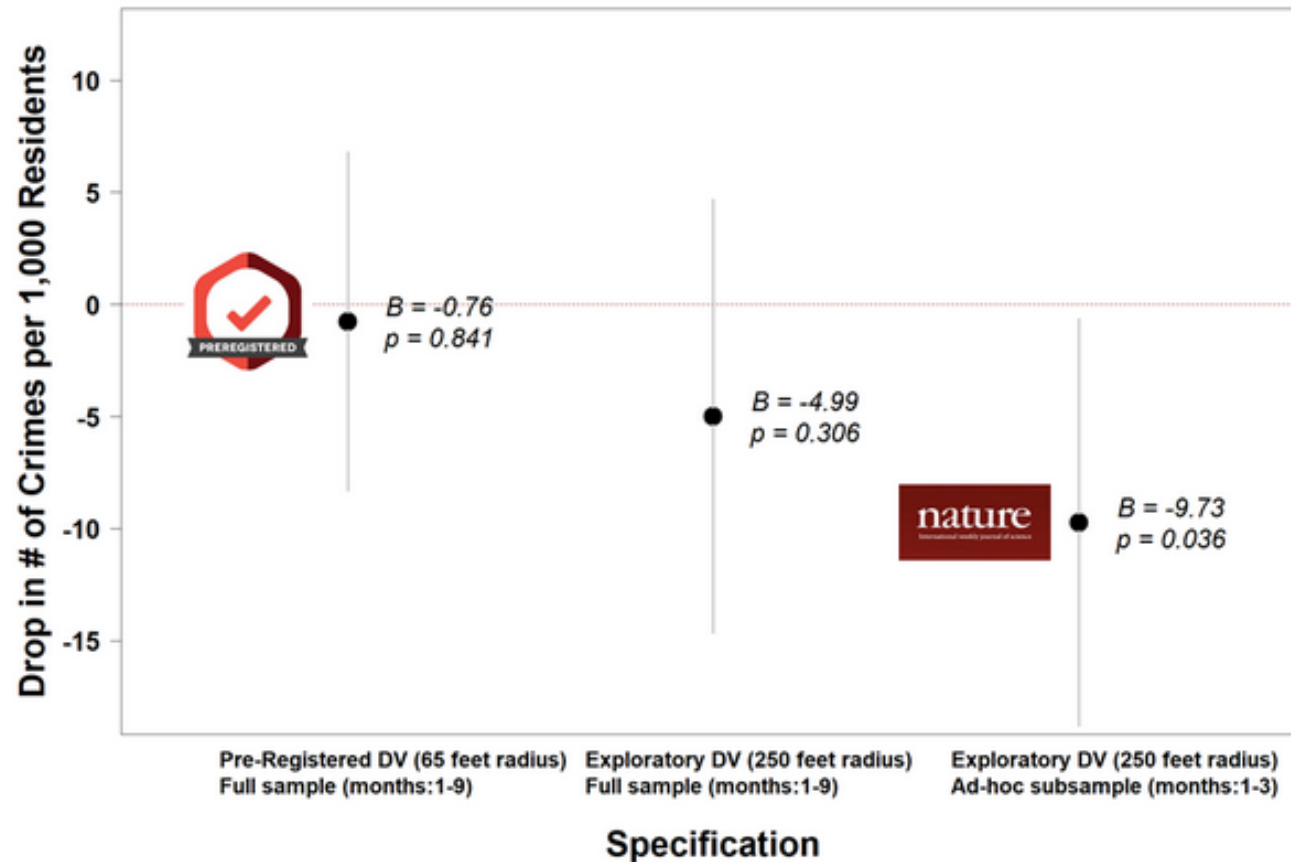
5586 Accesses | 1 Citations | 181 Altmetric | [Metrics](#)

Preregistration works
...even when not followed

The authors **did not hide any results.**

There is **nothing wrong** with focusing on different outcomes than those preregistered...

...however, **choosing which analyses to report or emphasize based on the results** is problematic.



Transparency does not
guarantee **credibility**...

...but it makes research
evaluatable

The benefits of preregistration

- Increased research **transparency**
- More visibility to **null results**
- More **visibility to research ideas and plans** early in the process
- More **trust** in research studies (through reduced biases)
- Clearer **distinction** between confirmatory and exploratory research as well as *a priori* and *post hoc* analyses
- Reduced redundancy of research studies?

6

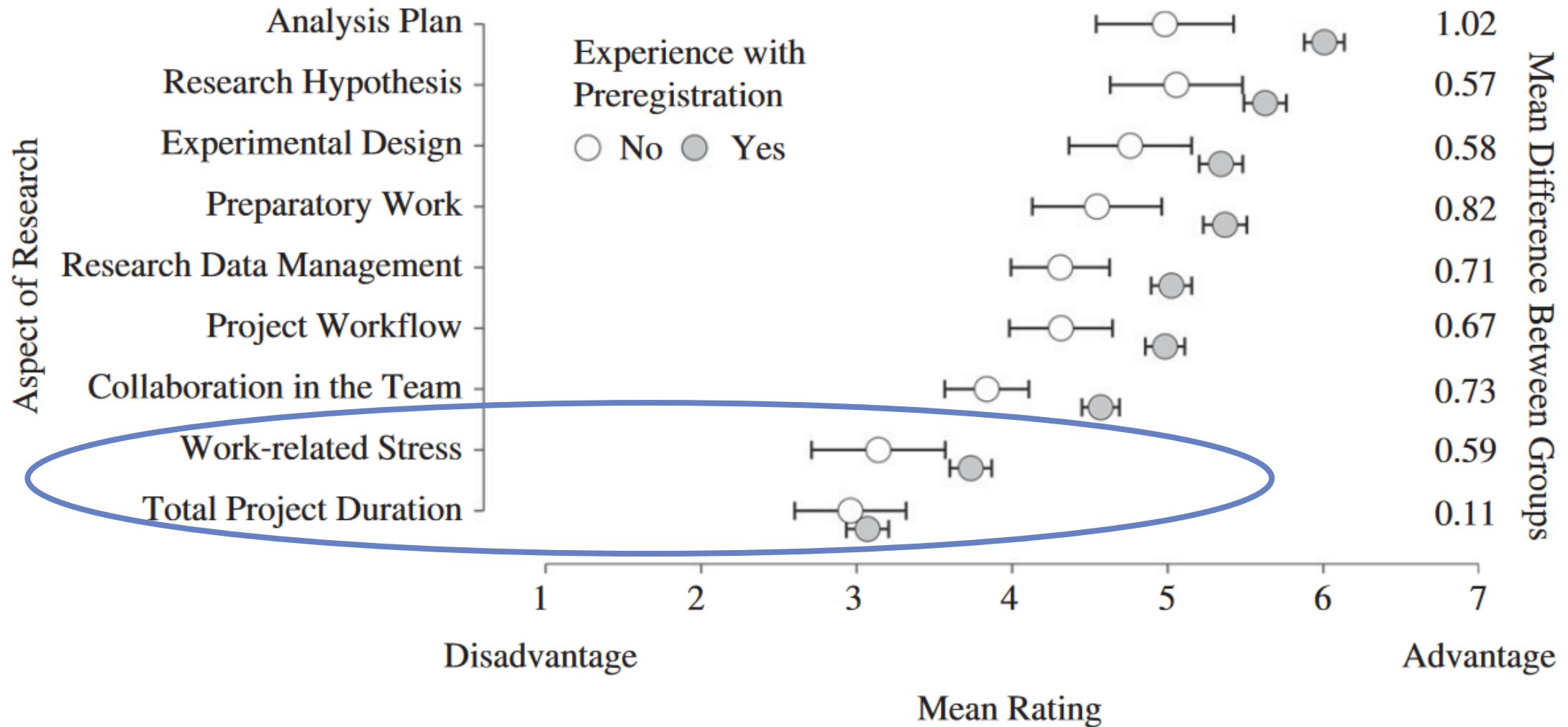
What are the benefits for **YOU**?

6

What are the benefits for **YOU**?

What are the challenges?

How preregistration affects research workflow



The challenges

- **More time** required at the planning phase (but less time required at the analysis and writing stage!)
- Higher **visibility of errors** (e.g., if wrong types of analyses are preregistered)
- **Less flexibility** (however, changes to preregistration are possible)
- Writing preregistration may improve study design and analyses, but there is **no quality stamp**

The 'myths'?

- It prevents **exploratory** research
- It limits research **creativity** or **flexibility**
- It might lead to others **scooping** my idea and my research plan
- There is no way to decide on data processing and analysis **without looking at the data**

How to preregister research?

A primer

Step 1: Choose the platform and the template

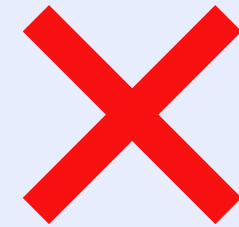
Focus	Type of research	Platform	Template
Discipline-specific	Clinical research	clinicaltrials.gov	Generic
		clinicaltrialsregister.eu	
	Animal research	animalstudyregistry.org	Generic
	Economics/Social sciences	socialscienceregistry.org	Generic
	Systematic reviews in health-related research	www.crd.york.ac.uk/prospero/	Generic
Discipline-general	Basic research	aspredicted.org	Generic
		osf.io/registries	Structured, Unstructured, Qualitative research, Replications, etc.

Step 2: Write up!

- **Think through** your research questions and/or hypotheses, your methods and/or planned statistical analyses
- Be **precise** about your exclusion criteria, stopping rule, handling missing data and outliers
- **Try out** your methods and planned analyses in a pilot study or on mock data
- Think about possible **unexpected scenarios**

Step 2: Write up!

We are interested in testing group differences.

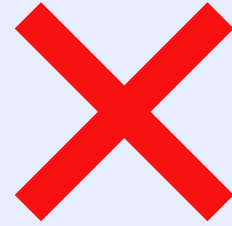


We hypothesize that groups A and B will differ in condition X based on...



Step 2: Write up!

We will exclude inattentive participants.

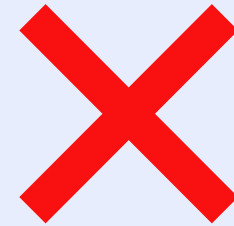


We will exclude participants who did not pass 2 out of 3 control questions.



Step 2: Write up!

We will remove outliers.



*We will remove influential observations
identified through Cook's Distance analysis.*



Step 3: Register and time-stamp!



You can decide whether you want your preregistration to be open to public or closed until the results are published.



Step 4: Changes to preregistration

- Even the best plans might need **changes** once implemented
- When reporting deviations from the original, preregistered plan, be **explicit** about what has changed
- If needed, you can upload changes to your time-stamped preregistration or preregister a new plan (but refer to the original preregistration and explain why you made the changes)

7

How would you formulate your research question or hypothesis for preregistration?

Remember to use clear and precise language!

How to get the most out
of preregistration?

Preregistering quantitative vs qualitative studies

Quantitative research: have the right confirmatory analyses been carried out based on original hypotheses?

Qualitative research: have the right data collection and analysis methods been used? Is the interpretation convincing, based on original theoretical framework and planned methodology?

Preregistration will look different depending on scientific discipline or the type of research study.

Choose **the right template** for your preregistration.

Take a look at **preregistration examples** for similar studies before you write up yours.

Consult your **colleagues** if they have experience with preregistration in your field.



Preregistering qualitative research

Tamarinde L. Haven ^a and Dr. Leonie Van Grootel ^b

<https://www.tandfonline.com/doi/full/10.1080/08989621.2019.1580147>

Preregistration of exploratory research: Learning from the golden age of discovery

Ulrich Dirnagl

Published: March 26, 2020 • <https://doi.org/10.1371/journal.pbio.3000690>

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3000690>

Theoretical-review Articles

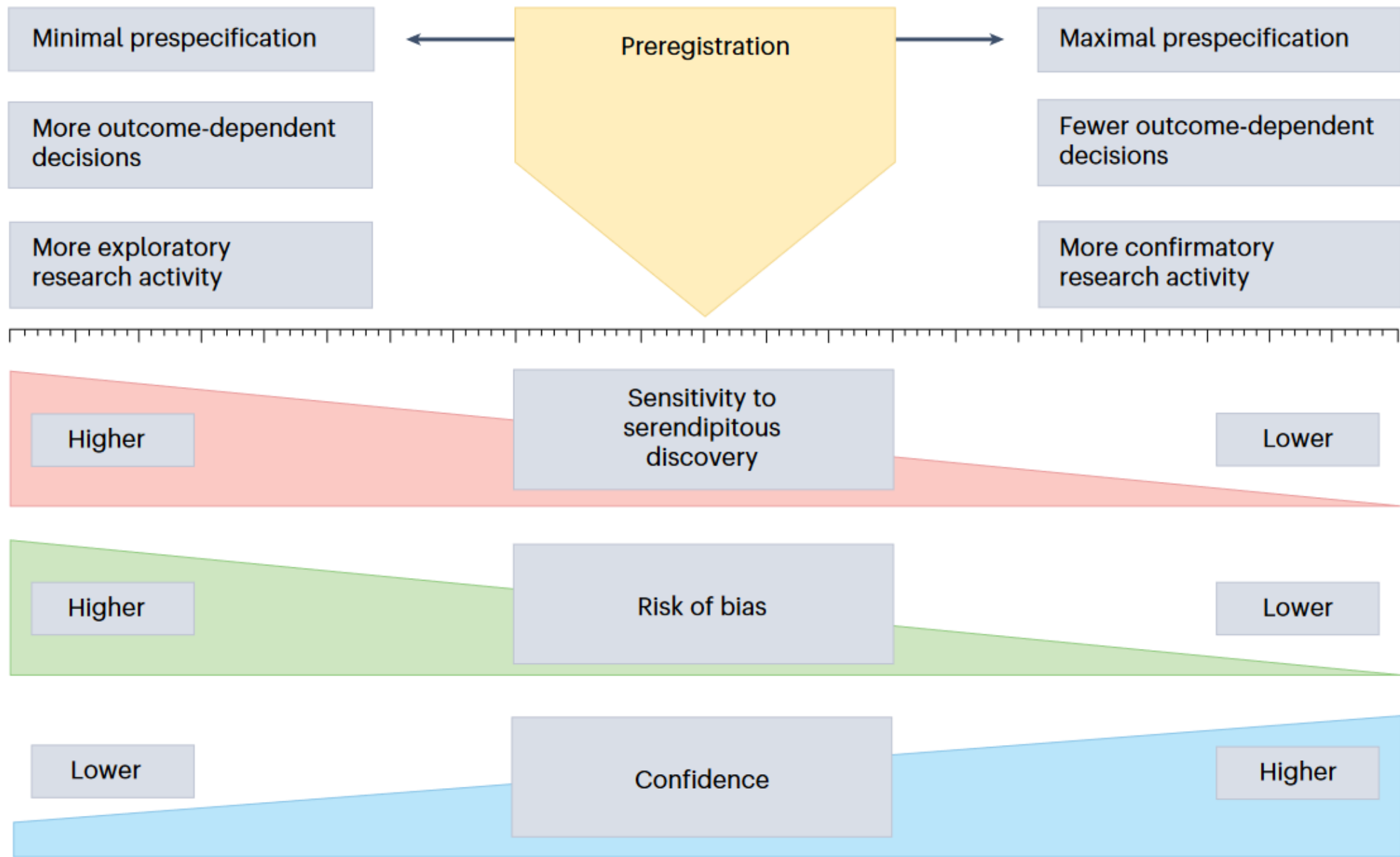
Preregistration of Analyses of Preexisting Data

Authors: Gaëtan Mertens , Angelos-Miltiadis Kryptos

<https://www.psychologicabelgica.com/articles/10.5334/pb.493/>

Preregistration is a plan, not a prison.

Remember that you can make changes to the preregistration or report non-preregistered findings, as long as you are explicit about what was planned and what was not planned.



What is OSF?



Free, discipline-general platform that helps researchers:

- manage
- document
- share

their research plans, outputs and workflows



The open registries network

Add New Registration

You are submitting to OSF Registries. [Click here](#) to learn more about other hosted registries.

STEP 1

Do you have content for registration in an existing OSF project?

YES

NO

STEP 2

Which type of registration would you like to create? *

OSF Preregistration ▲

OSF Preregistration ▲

Open-Ended Registration

OSF-Standard Pre-Data Collection Registration

Pre-Registration in Social Psychology (van 't Veer & Giner-Sorolla, 2016): Pre-Registration

Preregistration Template from AsPredicted.org

Qualitative Preregistration ▼

UNIVERSITY
OF OSLO

DSC

Digital Scholarship Centre

at the University of Oslo Library

Courses, guidance, networks, and resources

 Research Data Management

 Digital tools and methods

 Science visualization

 Open research

Digital Scholarship Centre (DSC)

The Digital Scholarship Centre (DSC) gathers and highlights digital resources from the University Library and UiO that can enhance your research activities. On this page, you will find an overview of methods and tools. We also offer specialized courses and workshops for PhD candidates, instructors, researchers, and other employees at UiO and OUS.

Find resources and courses about:

Open research and research data	+
Science visualization	+
Digital tools and methods	+
Literature search for systematic reviews	+

Open and reproducible research

Learn about how to make your research more open and reproducible and get involved in initiatives and communities that are interested in sharing and improving research at UiO.

More and more researchers and students across disciplines are implementing open research practices, preregistering their hypotheses, methods, and analysis plans and sharing research materials, data and analysis scripts. Digital Scholarship Center can help you learn about and implement these practices in your own research as well as advise on the policies and requirements from funders.

Open Science Lunch



Every last Thursday of the month we meet at noon to discuss topics related to open research.

ReproducibiliTea@UiO



Join us for a Journal Club where we read and discuss papers on open research and meta-science.

Norwegian Reproducibility Network



Join a broader community that aims to promote and enable rigorous, robust and transparent research practices in Norway

Courses and workshops



Click here for the list of upcoming and previous courses and workshops on open and reproducible research at UiO.



Open Science Lunch

Each last Thursday of the month at 12:00 we invite you to join us for a lunch seminar to hear about how to make your research more open. We will discuss research transparency and visibility, open publishing, data sharing, and more!

ReproducibiliTea

Journal Club

**JOIN IN AND DISCUSS WITH FELLOW
STUDENTS AND RESEARCHERS**

**OPEN RESEARCH, REPRODUCIBILITY
and RESEARCH IMPROVEMENT**



Join us

Everyone is welcome to join us - whether you are an enthusiast of open and reproducible research, a skeptic, or a cautious explorer. Currently, all meetings are hybrid with the possibility of joining on-site at Blindern or via Zoom. Grab a cup of tea (coffee?) and join us!

Subscribe to our mailing list



Det senteret for digitalforskerstøttes nyhetsbrev,
en del av Universitetsbiblioteket i Oslo

The Digital Scholarship Centre's Newsletter,
part of the University of Oslo Library

DSC NEWS

Senter for digitalforskerstøtte
Digital Scholarship Centre



<https://sympa.uio.no/ub.uio.no/subscribe/dsc-news/subscribe>

Thank you!



- Choose the right **template** for your preregistration.
- Take a look at preregistration **examples** for similar studies before you write up yours and consult your **colleagues**
- Remember that you can make **changes** to the preregistration or report non-preregistered findings, as long as you are **explicit** about what was planned and what was not planned.

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