Universität Hamburg
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How open is public administration research and what should we change to be more open?

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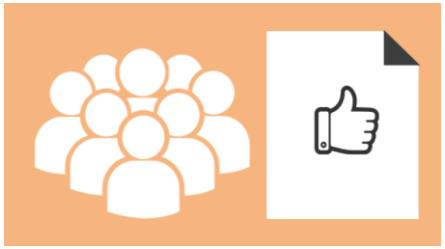
What is open science?

open access



Open Peer Review

open source software®

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Open science is “the process of making the content and process of producing evidence and claims transparent and accessible to others” (Munafò et al. 2017, p. 5).

OK. But why?

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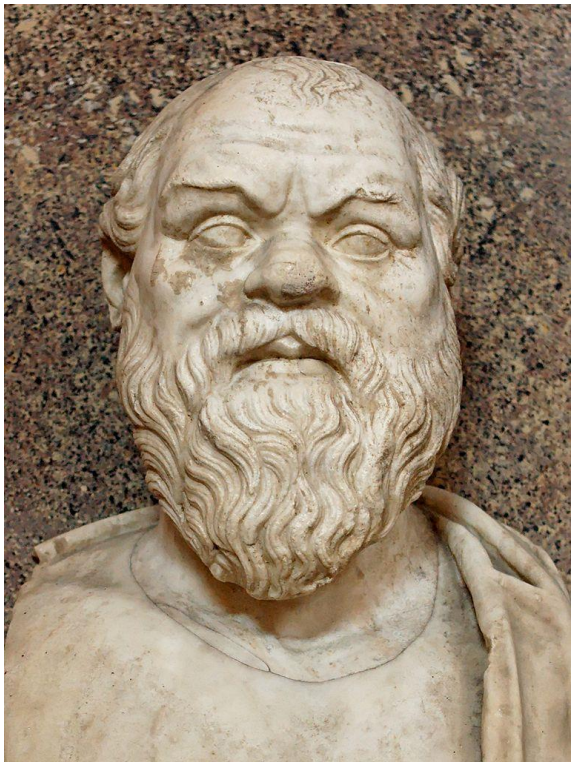
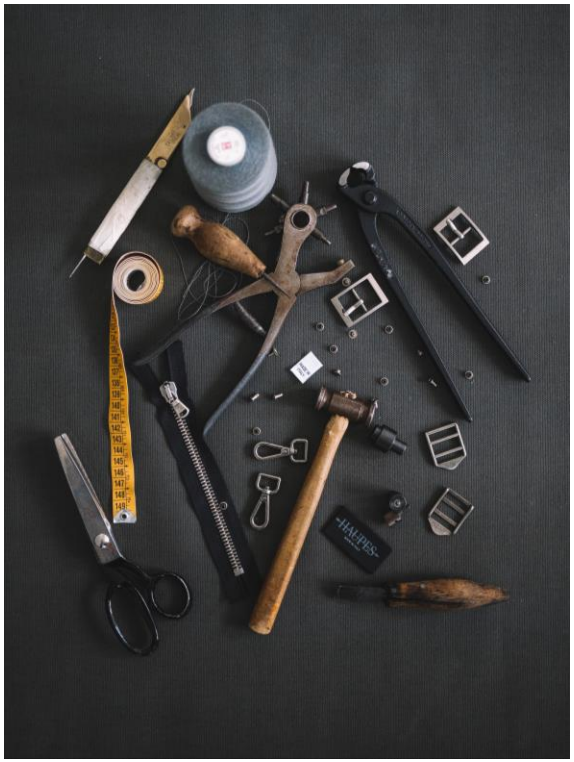
Normative answer



Practical answer



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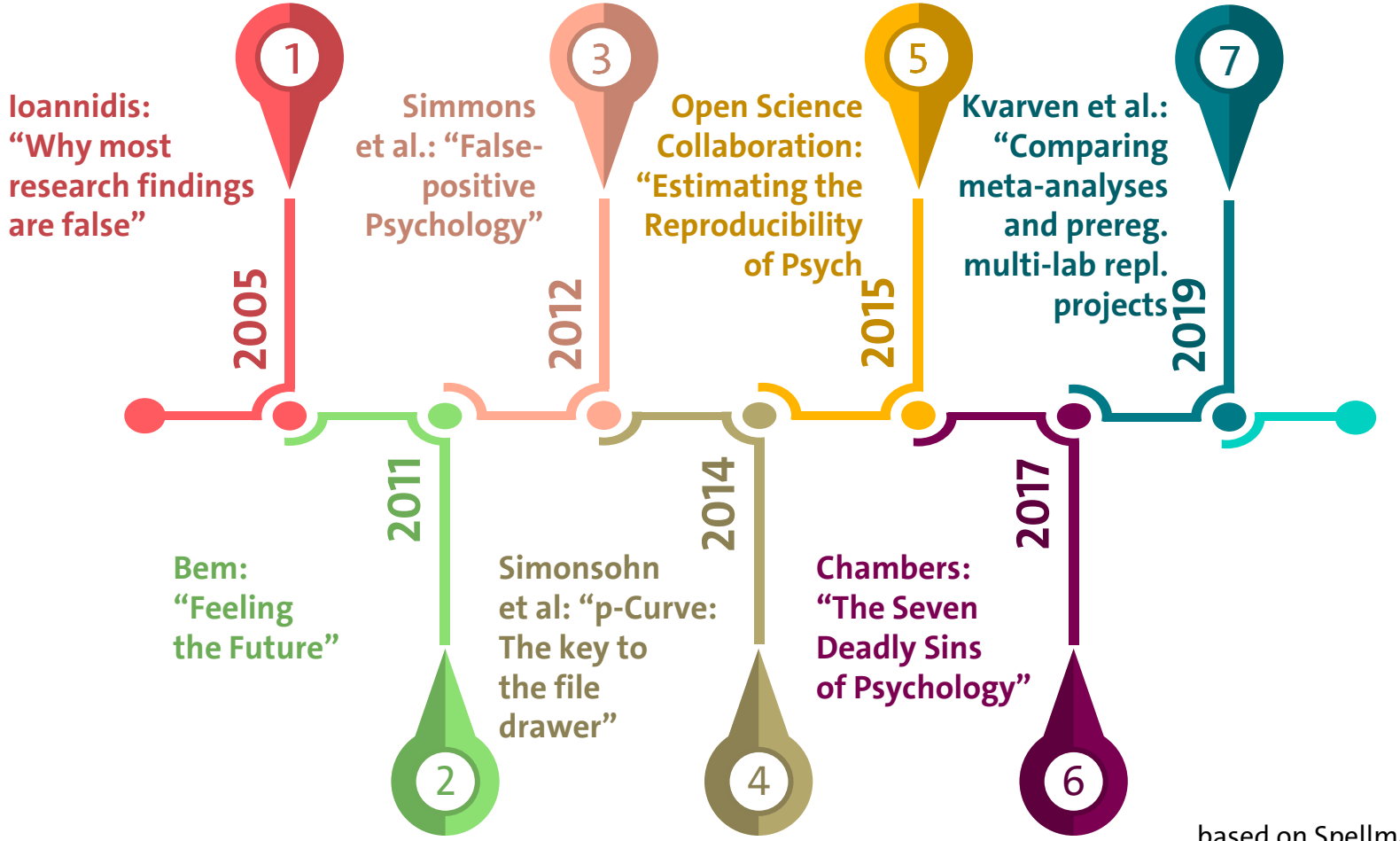
The replication / credibility crisis in psychology



based on Spellman et al. 2017

Psychologists (and other social scientists) wonder

- Why do we have such low replicability?
- What results can we trust?

Image by Robin Higgins from Pixabay

The many ingredients of the replication crisis

- At the center: Publication bias and the file drawer problem

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The many ingredients of the replication crisis

- Preference for novel, surprising, and significant results sets incentives for Questionable Research Practices (QRP)
  - **HARKing**: Hypothesizing after results are known
  - **p-hacking**: additional analyses / data to pass $p < .05$
  - Conducting **underpowered** studies
  - **Fraud**

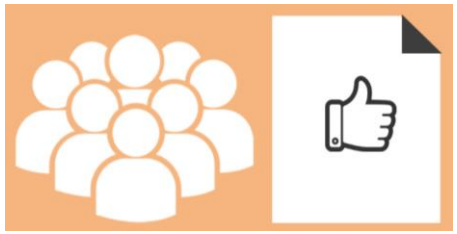
Photo by Calum Lewis on Unsplash

The solution(?)

- Transparency:
  - Everybody should be able to assess how results were obtained
- Reducing researcher degrees of freedom
  - Define as much as possible in advance

The solution: Transparency

- Open Data
- Open Materials (esp. Code)
- Reporting standards
- Open peer review
- Open Source Software
- [Open Access]



The solution: Reducing researcher degrees of freedom

- Separate exploratory from confirmatory research
- Confirmatory: Define as much as possible in advance
- ➔ Less ways to (unconsciously) tweak the results in the desired direction
  - Preregistration
  - Registered reports

Tools do not magically lead to better science

- Culture needs to change
- Incentives need to change

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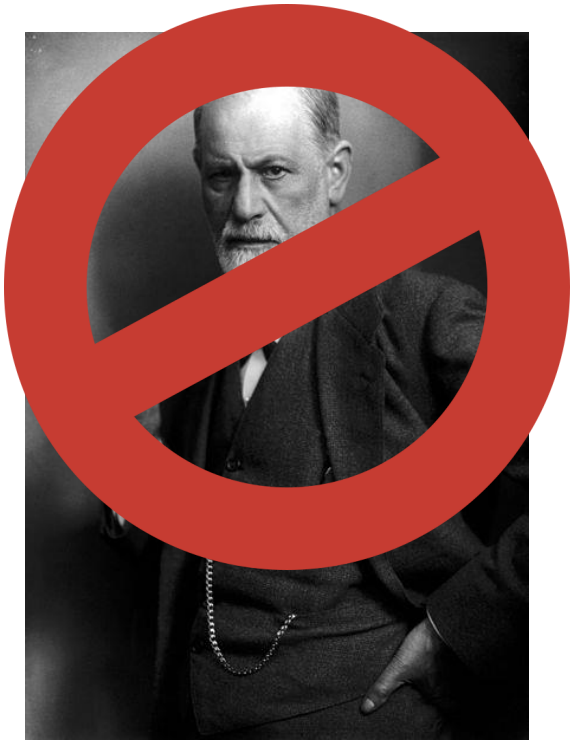
Changes to incentive structure

- Open science badges
- Registered reports
- Journals value replications
- Many Lab projects / large-scale replications
- Error (and fraud?) detection

Enough psychology, I want to learn about PA



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Is there a replication crisis in PA?

Yes 

- No careful assessment, yet
- Incentives are the same as in psychology
- Survey research offers even more ways for HARKing and p-hacking (control variables)

No 

- No evidence
- Less small-n experiments (yet?)
- Less ways to repeat studies to get intended results
- More PSM of PA researchers(?)

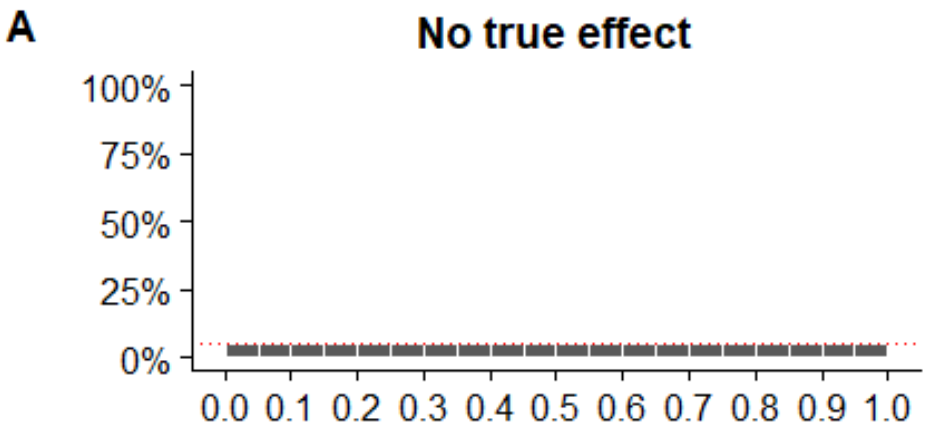
Does the literature on the PSM–performance relationship contain evidential value?

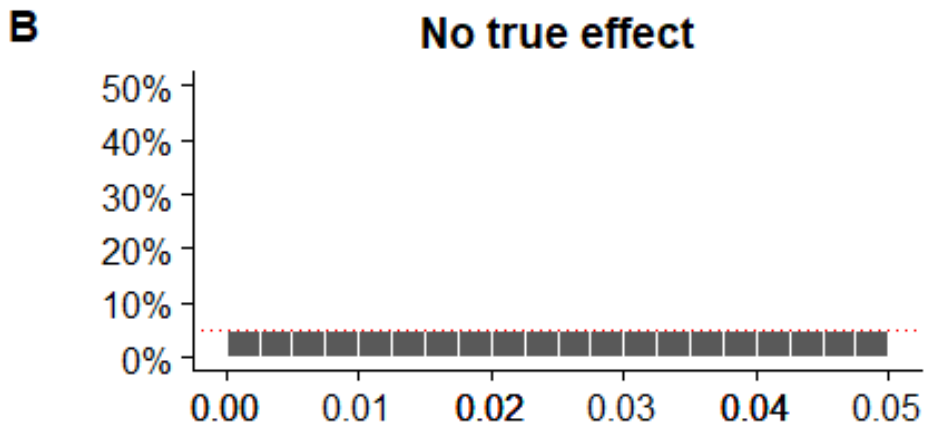
(Vogel & Homberg under review)

p-curve method: analyze significant *p* values of published research

- Distribution of *p* values (*p*-curve) follows a predictable pattern
  - Holds for subset of significant *p* values
- Reporting of significant *p* values should be unbiased

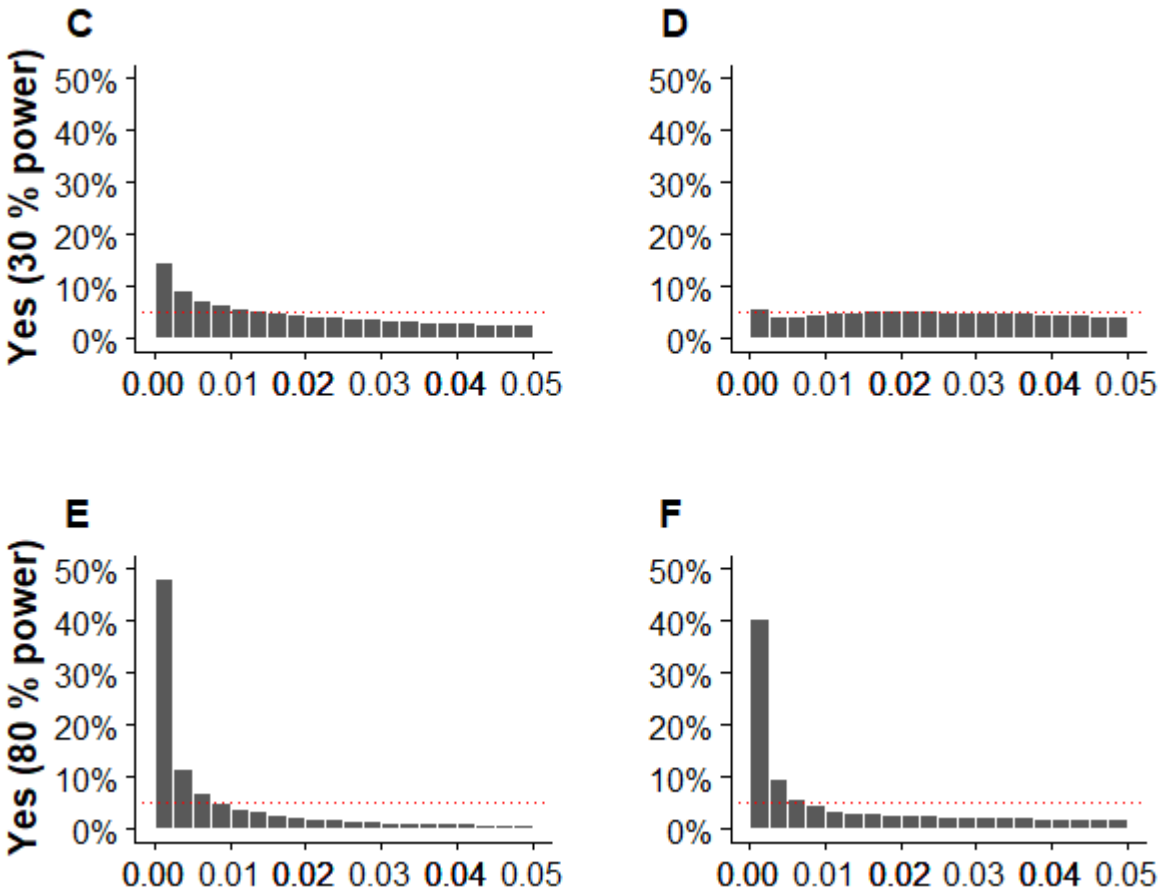
Distribution of *p* values without a true effect



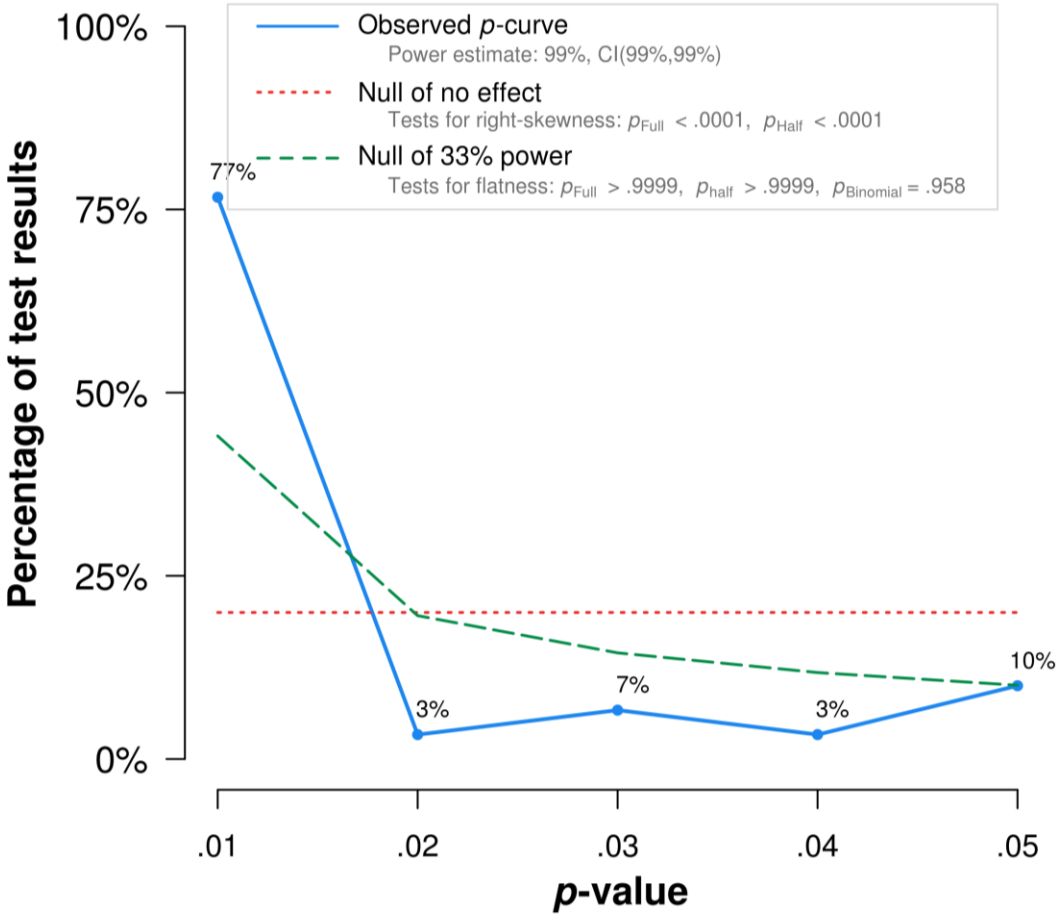


not p-hacked

p-hacked



Result of the p-curve analysis



Note: The observed *p*-curve includes 30 statistically significant ($p < .05$) results, of which 25 are $p < .025$.
There were 5 additional results entered but excluded from *p*-curve because they were $p > .05$.

So, no reason to worry?

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Why should PA adopt open science practices?

- We know little about the credibility of PA research
- Even if there is no replication crisis, open science practices help to prevent a crisis in the future
- They help to do better science ➔ find the truth

What did already change?

- Reviewers are more aware of adverse effects of underpowered studies, HARKing, and p-hacking
- Preregistration more and more common and valued
- New open access journals
- Funders are pushing for open science practices

What did not change?

- No pre-print culture
- No registered reports
- Journals still closed access

Why should I adopt open science practices?

- "You're doing it because you want to do high quality work. You want to have the best possible chance of learning something True about the world and the people in it." (Corker 2018)
- "The first principle is that you must not fool yourself – and you are the easiest person to fool." – Richard Feynman

OK, you convinced me. What can I do?

- Preregister your studies when possible (and indicate exploratory work)
- Publish your data, analysis code, and materials
- When reviewing: ask for proper reporting and transparency; be skeptical
- Publish the accepted manuscripts of your publications
- Publish pre-prints?

What can journals do?

- Require proper statistical reporting
- Enable registered reports
- Push for open data, open materials
- Encourage pre-prints
- Encourage replications
- Adopt TOP guidlines

What can societies do?

- Value open science practices
- Switch from traditional publishing system to open access

PMRA
public management research association

EGPA/IIAS
European Group
for Public Administration

GEAP/IISA
Groupe Européen
pour l'Administration Publique

IRSPM
International Research Society
for Public Management

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