



UNIVERSITAS AIRLANGGA



Encouraging Academics to Embrace #OpenScience

The 5th UGM Public Health Symposium 

Rizqy Amelia Zein

Lecturer, Faculty of Psychology, Universitas Airlangga

Researcher-in-training, Institute for Globally Distributed Open Research and Education (IGDORE)

Member, Tim Sains Terbuka Indonesia



Keeping in touch

✉ amelia.zein@psikologi.unair.ac.id

🐦 [@ameliazein](https://twitter.com/ameliazein)

🌀 [@rameliaz](https://github.com/rameliaz)

💻 <https://rameliaz.github.io>

The slides are licensed as  BY-NC 4.0 and available in my  repository.

Getting it right, not just getting it published*

Is "publish or perish" culture still relevant?

How can we change the norms?

Why is science too polluted by noises?

What should we do to improve this situation?

How is the best strategy to promote #OpenScience to academics?

[*] Brian Nosek(2019) as presented in Open Science Symposium in Ghent University

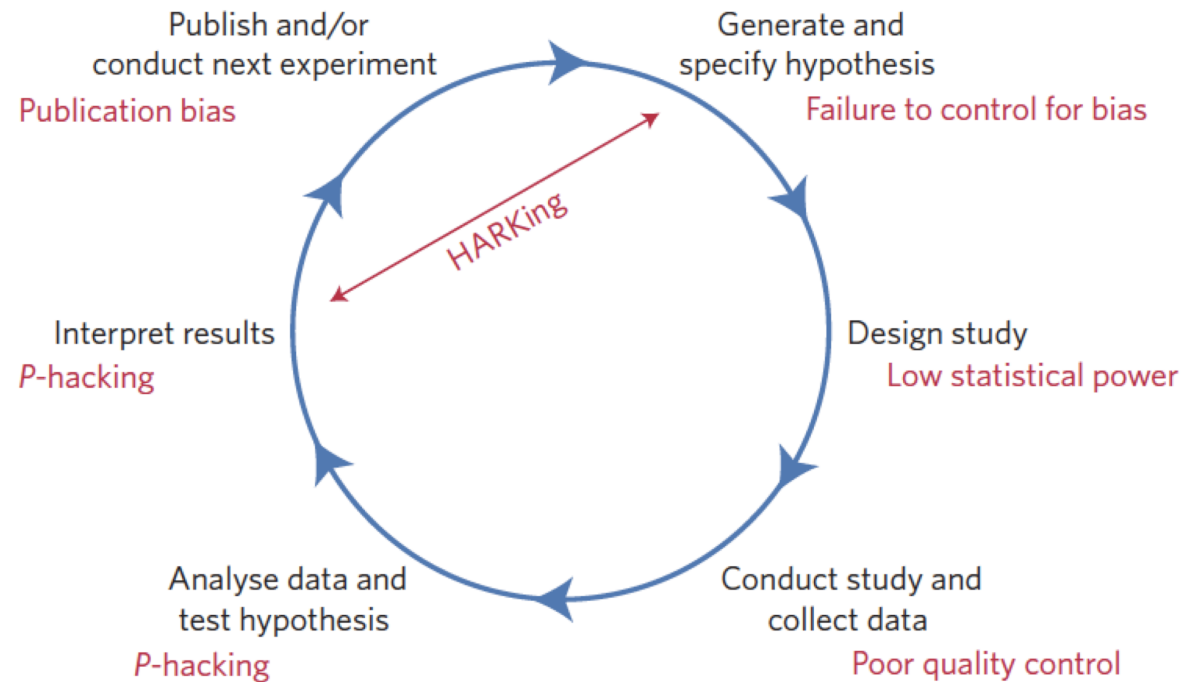
Changing the norms

- From *secrecy* to *communality*
 - We need to make our works **openly accessible** to everyone instead of **locking those up** in paywalled outlets
- From *self-interestedness* to *disinterestedness*
 - Treating science as **a competition**? Bad idea! It definitely **hinders innovations**.
 - Can we put our **love of knowledge** and our **desire to discover** something (useful) as our motivations instead?
- From *dogmatism* to *skepticism*
 - Stop putting too much time **to defend certain theories** or findings, start to consider **all new evidence**
- From *quantity* to *quality*
 - **Stop relying on crude metrics**. The real question that should be answered: have our research been done with **sound methodology**? **Are the findings credible**?
- From *competitive arrogance* to *intellectual humility*
 - Being at 'the top of our career' could potentially risk us of being *condescending*, *harsh* and *exploitative*, while **intellectual humility** could lead us to the true wisdom

The trouble with our current way of doing science...



Threats to Reproducible Science



Munafo et al. (2017)

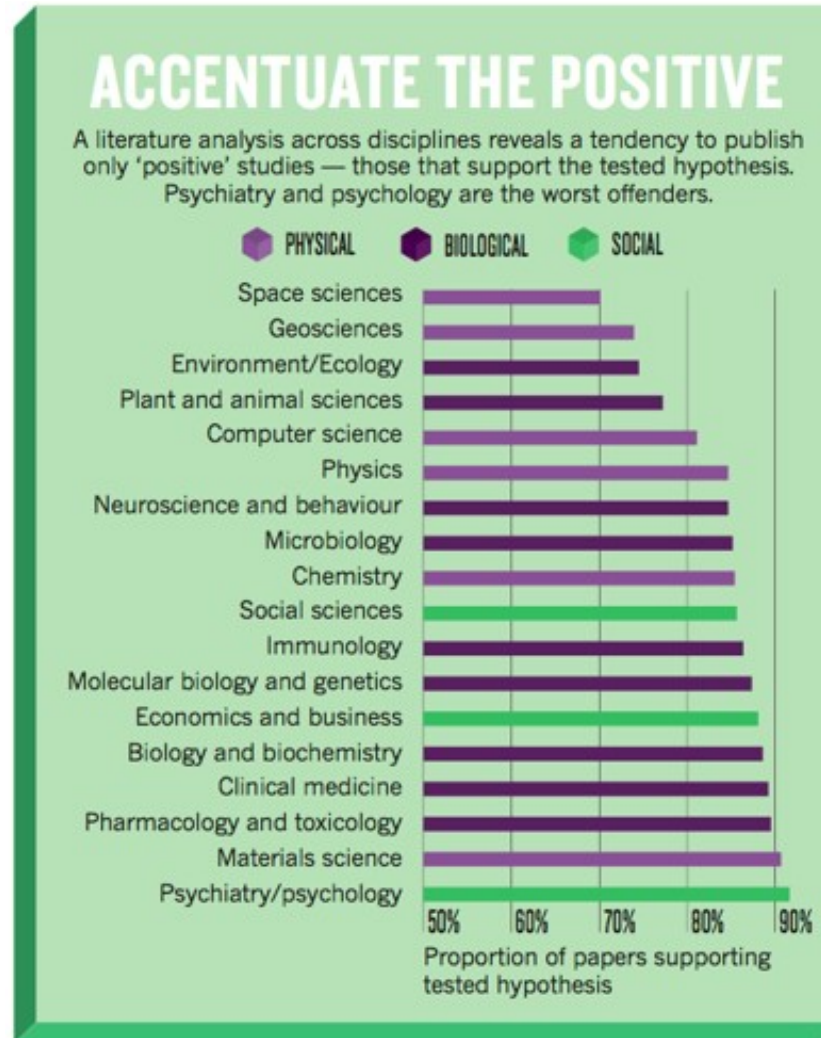
Replication crisis is real...

1. Plaguing almost every disciplines
 - Including **medicine**, **biology**, **chemistry**, **hydrology**, **psychology**, and many more! (it's a long list, tbh)
2. The danger: Undermining **the credibility of science** (and scientists, too)
3. Integrity is **preceeded by** openness, transparency and sharing
4. Science and pseudoscience are no longer distinguishable
5. Cumulative science is not so useful anymore, because it is based on highly-biased estimation (due to publication bias)¹
6. John Ioannidis² argues that "...there is massive production of **unnecessary, misleading, and conflicted systematic reviews** and **meta-analyses**. Instead of promoting evidence-based medicine and health care, these instruments often serve mostly as **easily produced publishable units or marketing tools...**"

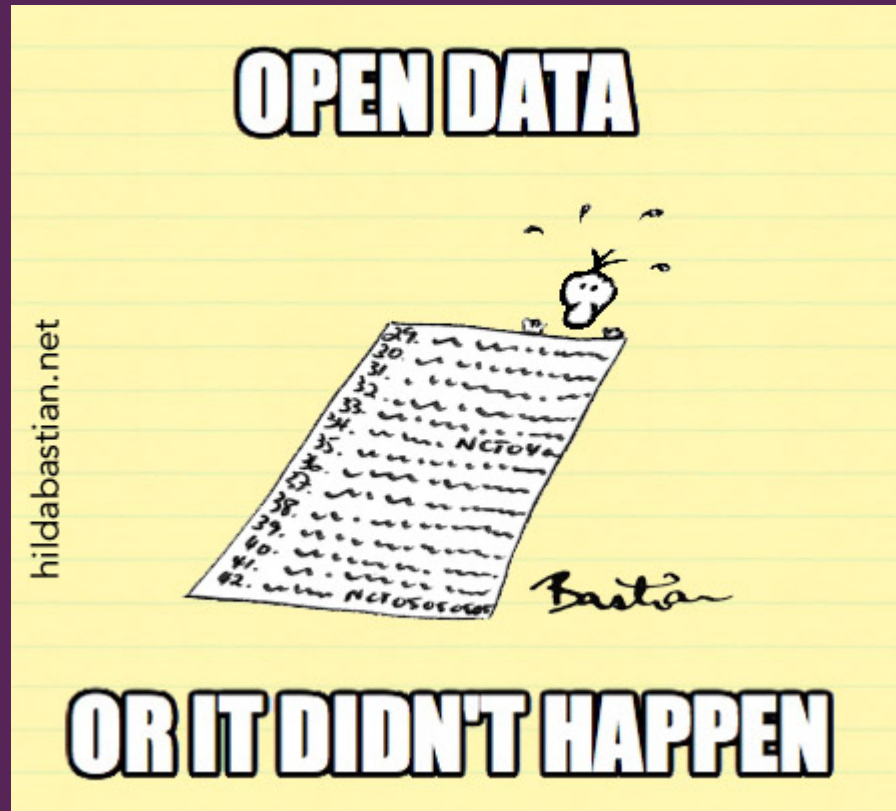
[1] See [Lin \(2018\)](#)

[2] The context of this criticism is a massive increase of the number of meta-analytic study from 1986 to 2015, yet the studies were mostly sponsored by large industries with high potential of conflict of interest. See [Ioannidis \(2016\)](#)

File-Drawer Problems



How can we improve it?



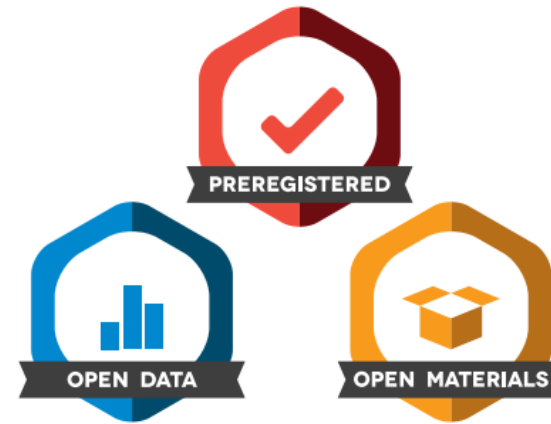
A Manifesto for Reproducible Science*

- Protecting against (our own) cognitive biases (because even scientists *are not free* from biases)
- Improving methodological training (this is what we *truly* need)
- Independent methodological support (do we need independent science critics?)
- Collaboration and team science (definitely, no more competition! we are **bad** at it)
- Promoting study **pre-registration**

[*] Munafo et al. (2017)

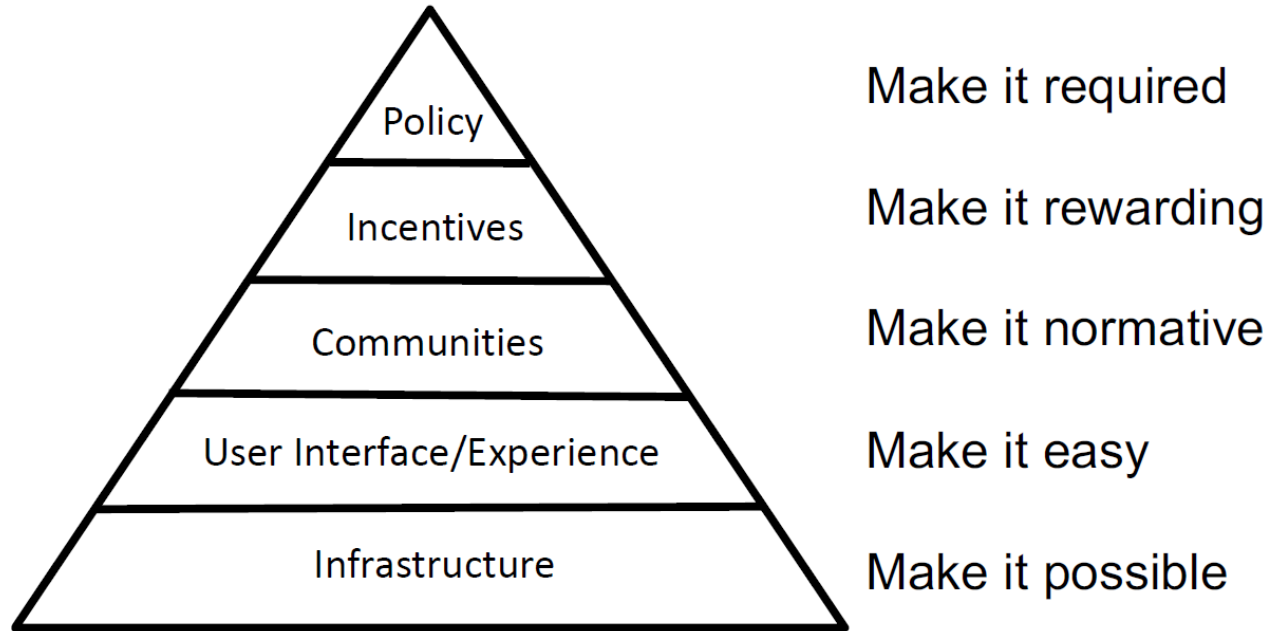
A Manifesto for Reproducible Science*

- Improving the quality of reporting (complete & reproducible)
- Protecting against conflicts of interest
- Encouraging transparency and open science
 - Share materials and data, use open-source, reproducible software (R, Python and many more)
- Diversifying peer review (why not make it open?)
- Rewarding open and reproducible practices (not relying on crude metrics)



[*] Munafo et al. (2017)

Changing research culture*



[*] As presented by [Brian Nosek \(2019\)](#)

#OpenScience is just (good) science*

Soon, #OpenScience...

- ..will become the norms
- ..will be only called science
- ..will transform our community and works



[*] Watson, 2015

Many thanks!

Slides created via the R package `xaringan` using `R-Ladies` template and fonts.

The chakra comes from `remark.js`, `knitr`, and R Markdown.