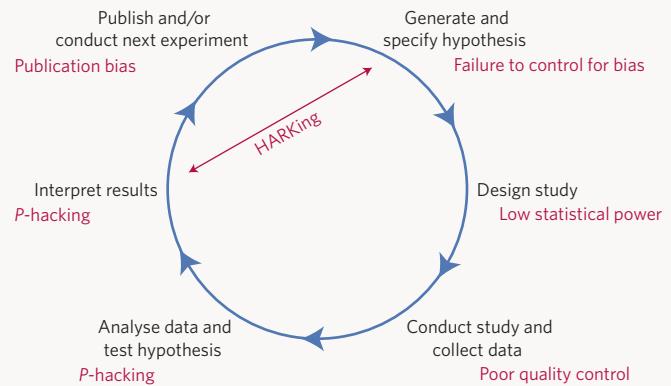


Preregistration

Why?

Status quo:

- ▶ publish or perish
- ▶ high-ranking journals demand novelty and "successful" evidence in favour of exciting, counterintuitive (= *a priori* improbable) theories/experiments
- ▶ null results rarely reported/published
 - HARKing/hypotheses after results are known; confusing exploratory vs. confirmatory research
- ▶ leads to
 - questionable research practices (e.g., p-hacking, ...)
 - lead to
 - ▶ replication crisis (especially in psychology/social and behavioral sciences)



Munafó et al. 2017, Nature Human Behavior

Myths and Facts and Opinions

Preregistration does not limit!

- ▶ properly label exploratory vs. confirmatory
- ▶ application for research that is more
 - transparent
 - reproducible
 - trustworthy
 - open



Quotes by supporters

I think there's a widespread misunderstanding of pre-registration. Its main function is to distinguish hypothesis-testing analyses from exploratory analyses. It should not stop exploratory research, but should make it clear what is exploratory and what is not.

Prof D. Bishop, Oxford

Restraint reveals the true master.

J. W. von Goethe, Weimar

Pre-registration just eliminates the ability to fool yourself into thinking some post-hoc decision was actually an *a-priori* one. Specifying a plan in advance just means that you actually did plan your "planned" analyses.

Prof D. Simons, Illinois

Especially in 'hot' research areas, which are at a higher risk of increased Type 1 errors (Ioannides, 2005), pre-registration will greatly facilitate our understanding of how likely it is things are true

D. Lakens, Eindhoven

How?

Example 1: Clinical trial registries, to some extent grant apps

Example 2: Registered Reports (Chambers et al., 2012, Cortex)

- ▶ differentiate between exploratory and confirmatory work
- ▶ hypotheses and methods are peer reviewed and registered before data collection, and given *in principle acceptance*
- ▶ given *in principle acceptance*, publication is guaranteed
- ▶ available at many journals

Also see various methods at osf.io, aspredicted.org, ...

