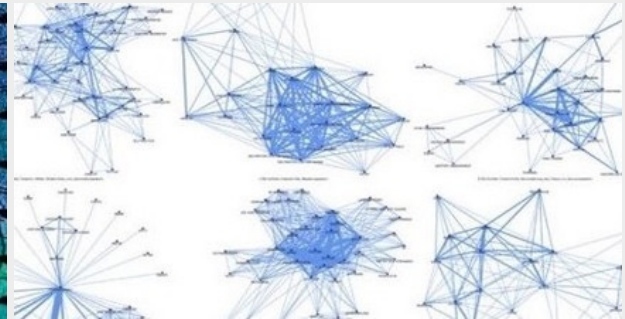
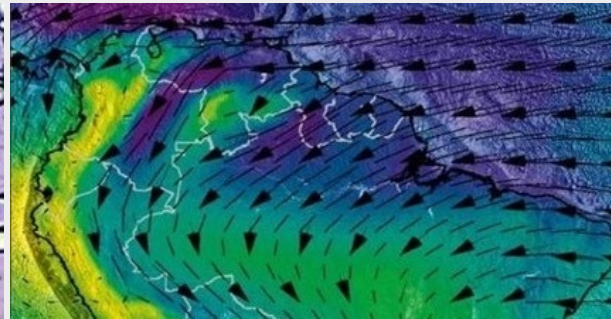
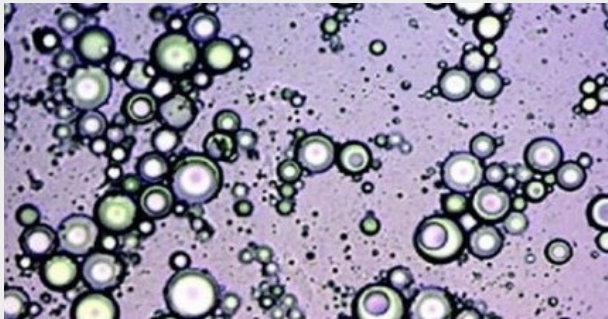


Präregistrierung hypothesen-basierter Studien **Love Data Week 2022**

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FDM-BB, FDM-Team von UB und ZIM (UP)



Was ist eine Präregistrierung?

- Registrierung des Forschungsplans einer Studie vor Beginn der Datenerhebung
 - bei Fachzeitschrift (mit Peer Review)
 - Veröffentlichung in einem Repository (ohne Peer Review)



The screenshot shows a Guardian article page. At the top right is the Guardian logo. Below it is a navigation bar with categories like UK, world, sport, football, opinion, culture, business, lifestyle, fashion, environment, tech, travel. The article is in the 'Science' section, 'Head quarters'. The title is 'Psychology's 'registration revolution''. The byline is 'Chris Chambers' with a Twitter handle '@chrisdc77'. The date is 'Tuesday 20 May 2014 07:15 BST'. The main image is a painting of a person in a white shirt holding a glowing yellow sphere. Below the image is a caption: 'Study registration helps scientists avoid fooling themselves into seeing what they want to see. Photograph: Images.com/Corbis'. The article text starts with 'I'm the first to admit that the "registration revolution" sounds less like a banner for reforming science and more like the march of a thousand bureaucrats, clipboards and pens at the ready. But let's look past the "boring ass word" for a minute. As I wrote back in January, registration of scientific research is one of a set of transparency initiatives that have been staring at us in the face for over 50 years. The reasoning behind it is simply this: that by having scientists state at least part of what they're going to do before they do it, registration gently but firmly compels us to stick to the scientific method.'

On the right side, there is a 'Most popular' section with four items:

- Mysterious object confirmed to be from another solar system
- Russia reports radioactivity 986 times the norm after nuclear accident claim
- Nigeria mosque attack: teenage suicide bomber kills at least 50
- Zimbabwe's ousted vice-president calls for Robert Mugabe to quit
- After the liberation of Mosul, an orgy of killing

Warum präregistrieren?

- Erhöht wissenschaftliche **Transparenz**
- Vermeidet **fragwürdige Forschungspraktiken** (z.B., *multiple testing*, *HARKing*)
- Reduziert **Publication Bias** (nur bei Präregistrierung in Fachzeitschriften)

Chambers et al. (2014), Nosek et al. (2018a, 2018b), Open Science Collaboration (2015)



Transparenz

Vorteile:

- Beseitigt Unklarheiten
- Ermöglicht Replikationsstudien

Präregistrierung trägt zur Transparenz bei, ist allein aber nicht ausreichend: Bei Veröffentlichung einer Studie sind dazu ebenfalls gut dokumentierte Daten und Analysecode notwendig (benötigt für analytische Reproduzierbarkeit, Meta-Studien).



Multiple testing

- Bsp.: Durchführung statistischer Analysen eines Datensatzes bis ein statistisch signifikantes Ergebnis produziert wird

z.B. von der Malsburg & Angele (2017)

- selektives Berichten dieses Ergebnisses



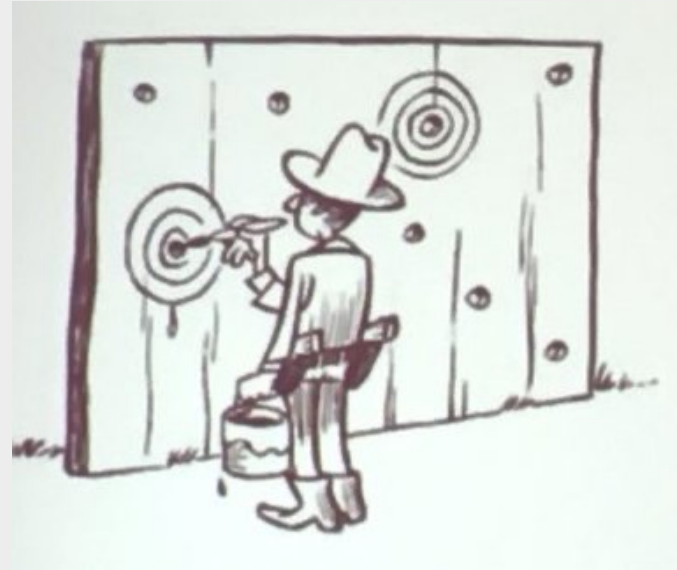
HARKing (Hypothesizing After the Results are Known)

- Hypothese wird erst nach Inspizieren der Daten aufgestellt und als *a priori*-Hypothese präsentiert.

Simmons et al. (2011), Kerr (1998)

- Präregistrierung:
Registrierung der *a priori*-Hypothese;
klare Trennung confirmatorischer und
explorativer Analysen und Ergebnisse

de Groot (1956/2014), Chambers (2019)

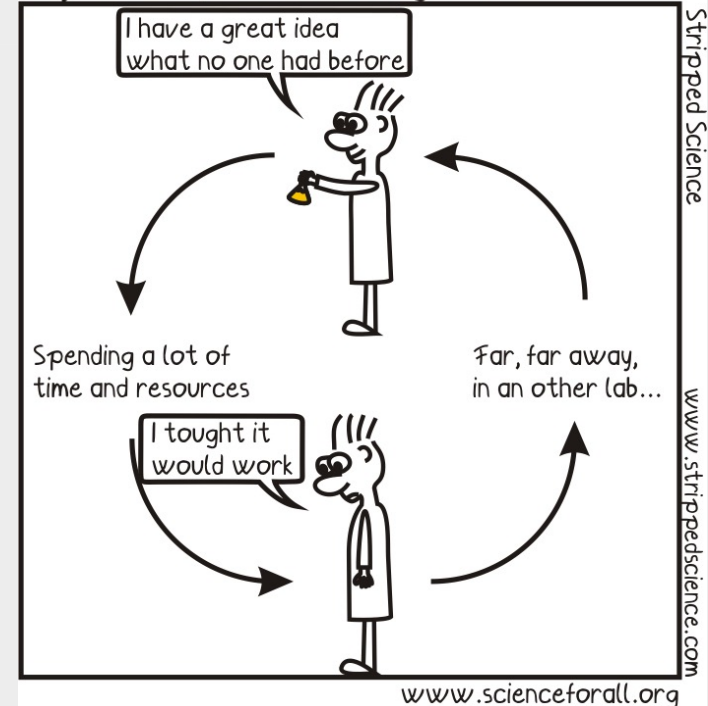


Publication bias

- Fachzeitschriften tendieren dazu, Manuskripte mit negativen o. uneindeutigen Ergebnissen abzulehnen.
- Präregistrierung (in Fachzeitschriften): Entscheidung über Publikation fällt *bevor* Ergebnisse bekannt sind
- Publikation basierend auf Qualität der geplanten Studie, unabhängig von Ergebnissen.

Chambers (2019)

Why we need journals with negative result



Was wird präregistriert?

Genauere Beschreibung (während der Planungsphase)

- Forschungsfrage(n)
- theoretische Vorhersage(n)
- experimentelle Methode(n)
- Forschungsdesign
- Materialien
- Stichprobe(ngroße, stat. Teststärke)
- Abhängige Variablen
- Analyseplan
- Weitere wichtige Details

Registered Reports (inkl. Peer Review)

- Seit Mai 2013 (Fachzeitschrift *Cortex*, viele weitere folgten)
- Peer Review registrierter Manuskripte **vor** Datenerhebung
- Positiver Peer Review des Forschungsplans
- → „*in principle acceptance*“

The screenshot shows a Guardian article titled "Trust in science would be improved by study pre-registration". The article is categorized under "Peer review and scientific publishing". Below the title is an illustration of a hand holding a document. An orange banner below the illustration reads: "Open letter: We must encourage scientific journals to accept studies before the results are in". The article is by Chris Chambers, Marcus Munafò and more than 80 signatories, dated Wednesday 5 June 2013 12:45 BST. The main image is a blue-tinted illustration of a human head in profile, showing the brain and spine. Below the image is a caption: "The quest: a better understanding of nature. Photograph: Sebastian Kaulitzki/Alamy". The article text begins: "In an ideal world, scientific discoveries would be independent of what scientists wanted to discover. A good researcher would begin with an idea, devise a method to test the idea, run the study as planned, and then decide". To the right of the article is a "Most popular" section with four items: "Interstellar object confirmed to be from another solar system", "Russia reports radioactivity 986 times the norm after nuclear accident claim", "Nigeria mosque attack: teenage suicide bomber kills at least 50", and "Zimbabwe's ousted vice-president calls for Robert Mugabe to quit".

Registered Reports (inkl. Peer Review)

Registered Reports

Peer review before results are known to align scientific values and practices



Please see the Registered Reports website (<https://cos.io/rr>) for up to date information about this publishing format, including detailed information for editors, a current list of [participating journals](#), and a comprehensive [FAQ](#).

<https://osf.io/8mpji/wiki/home/>

Präregistrierung ohne Peer Review



Open Science Framework (OSF) Open source project management tool, entwickelt vom Center for Open Science (COS)

- <https://osf.io/>
- <https://www.cos.io/initiatives/prereg>



AsPredicted

- <https://aspredicted.org/>



Präregistrierung ohne Peer Review

- Manuskript-Form oder Template (OSF, AsPredicted)
- mit Zeitstempel versehenes, nicht-editierbares Manuskript
- Sofort veröffentlichen oder mit Embargo belegen (z. B. bis zur Publikation).
- Präregistrierung zurückziehen:
 - Metadaten (Titel, Autoren, Beschreibung, Grund für die Rücknahme der Registrierung) bleiben öffentlich zugänglich

OSF Templates

Register

Registration creates a frozen version of the project. Your original project remains editable and will have the registration linked. Things to know about registration:

- Registrations cannot be edited or deleted.
- Withdrawing a registration removes its contents, but leaves behind basic metadata: title, contributors, date registered, date withdrawn, and justification (if provided).
- Registrations can be public or embargoed for up to four years. Embargoed registrations will be made public automatically when the embargo expires.
- Registrations are archived on Internet Archive and a link to the archived copy will be added to the registration metadata.

Continue your registration by selecting a registration form:

- OSF Preregistration** ⓘ
- Open-Ended Registration** ⓘ
- Qualitative Preregistration** ⓘ
- Secondary Data Preregistration** ⓘ
- Registered Report Protocol Preregistration** ⓘ
- OSF-Standard Pre-Data Collection Registration** ⓘ
- Preregistration Template from AsPredicted.org** ⓘ
- Replication Recipe (Brandt et al., 2013): Post-Completion** ⓘ
- Replication Recipe (Brandt et al., 2013): Pre-Registration** ⓘ
- Pre-Registration in Social Psychology (van 't Veer & Giner-Sorolla, 2016): Pre-Registration** ⓘ

Cancel

Create draft

OSF Templates

New registration

● Metadata

○ Study Information

○ Design Plan

○ Sampling Plan

○ Variables

○ Analysis Plan

○ Other

○ Review



Registration Metadata

This metadata applies only to the registration you are creating, and will not be applied to your project.

Title *

Description *

Next →

Auto-saved:
a few seconds ago

Delete Draft

ⓘ Caution

Only one person is able to edit a registration draft at a time. Be sure to coordinate with any other contributors.

OSF Templates

Study Information

Hypotheses *

List specific, concise, and testable hypotheses. Please state if the hypotheses are directional or non-directional. If directional, state the direction. A predicted effect is also appropriate here. If a specific interaction or moderation is important to your research, you can list that as a separate hypothesis.

[Show example](#)

Präregistrierung ohne Peer Review

- Keine „garantierte“ Veröffentlichung (\neq RR)
- keine Vermeidung von Publication Bias (\neq RR)
- Erfolg hängt von Qualität der Implementierung ab

Aber...

- Besonders interessant für PhDs/ECRs? (Kein langes Warten auf Peer Review)
- Erleichtert eigene Planung, identifiziert mögliche Unklarheiten, erleichtert Schreiben des Papers, erhöht wissenschaftliche Transparenz, vermeidet unbewusste *Researcher Biases* (wenn korrekt implementiert).





Vielen Dank.

Haben Sie Fragen?