

# Reflections on adapting and promoting transparent and reproducible science practices for researchers engaged in secondary data analyses

PsychGen centre for genetics and mental Health

Nov 19, 2025

# Outline

- PsychGen center and its Working Groups (WG)
- Working Group Open and Reproducible Science (WG ORS)
  - Composition and goals
  - WG functions
    - Preregistration/RR
    - Open process
    - Open publishing
- Future directions

# PsychGe

PSYCHGEN CENTRE FOR GENETIC  
EPIDEMIOLOGY AND MENTAL HEALTH

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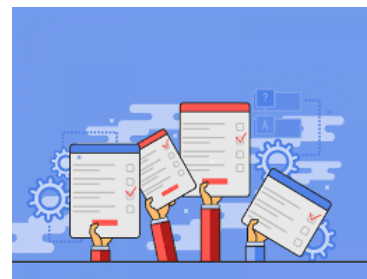
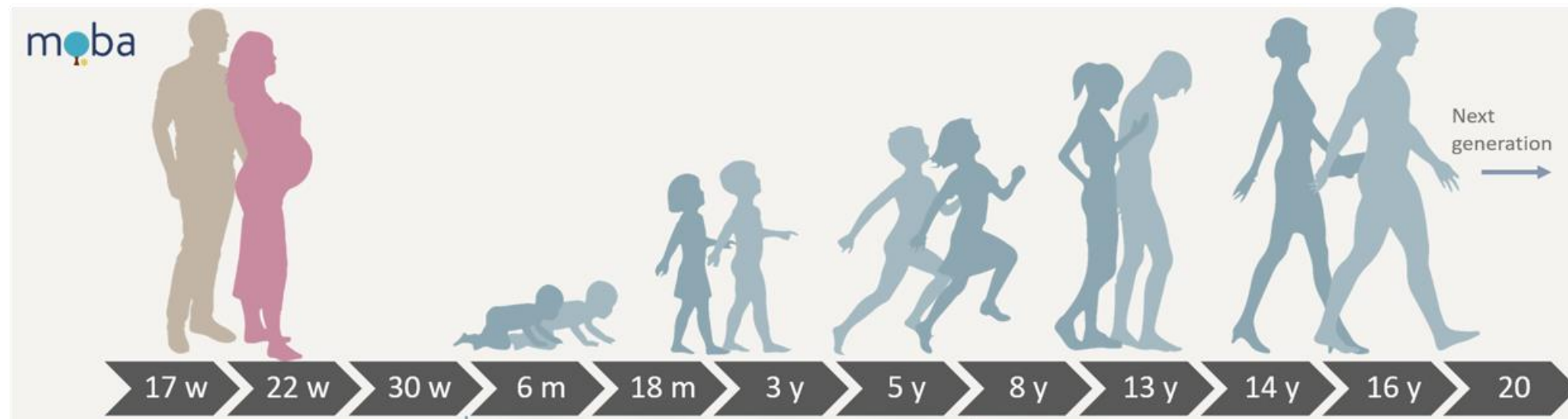
Lovisenberg  
Diakonale  
Sykehus



PsychGen Kick-Off symposium October 2023



# Norwegian Mother Father and Child Cohort Study



Large longitudinal population data

# Working groups at the PsychGen center



Participatory  
Research  
(Ingunn Olea /  
Anastasia)

Open and  
reproducible  
Science  
(Ben)

Methods, training,  
and consortium  
activities\*  
(Johanne  
/ Adrian)

Tools and  
infrastructure  
(Laurie)



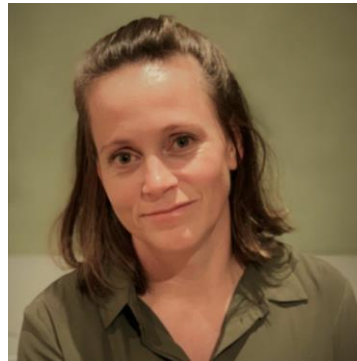
Research on minority and  
underrepresented groups\*  
(Alex / Anastasia)



# WG Open and Reproducible Science (ORS)



Laurie Hannigan



Helga Ask



Pia Myklebust  
Johannessen



Torunn Graftås



Bernt Glaser



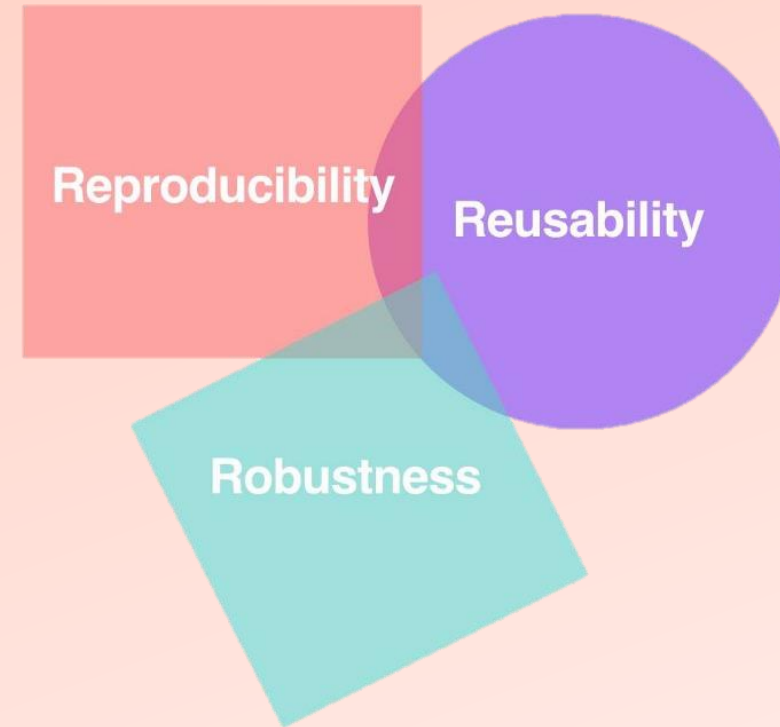
Meseret Mamo  
Bazezew

# ORS WG Mission and goals



- To foster a culture of transparency, integrity, and collaboration in scientific research.
- Goals are
  - Promoting Good Habits and Enthusiasm: good scientific practices, improve literacy and cultivate enthusiasm for ORS.
  - Resource Hub: Strive to be a valuable resource for PsychGen community.
    - PsychGen Lab meetings
    - Create guidelines: Wiki page and an OSF project
    - Celebrate open science practices

# Focus Areas of Working Group for ORS



# Preregistration


# Preregistration

- Transparency and credibility
  - Avoiding natural biases and selective reporting
- Distinguishing between generating and testing hypotheses
  - Keeping from presenting exploratory analyses as confirmatory
- Robust planning - communicating plan to colleagues and supervisors

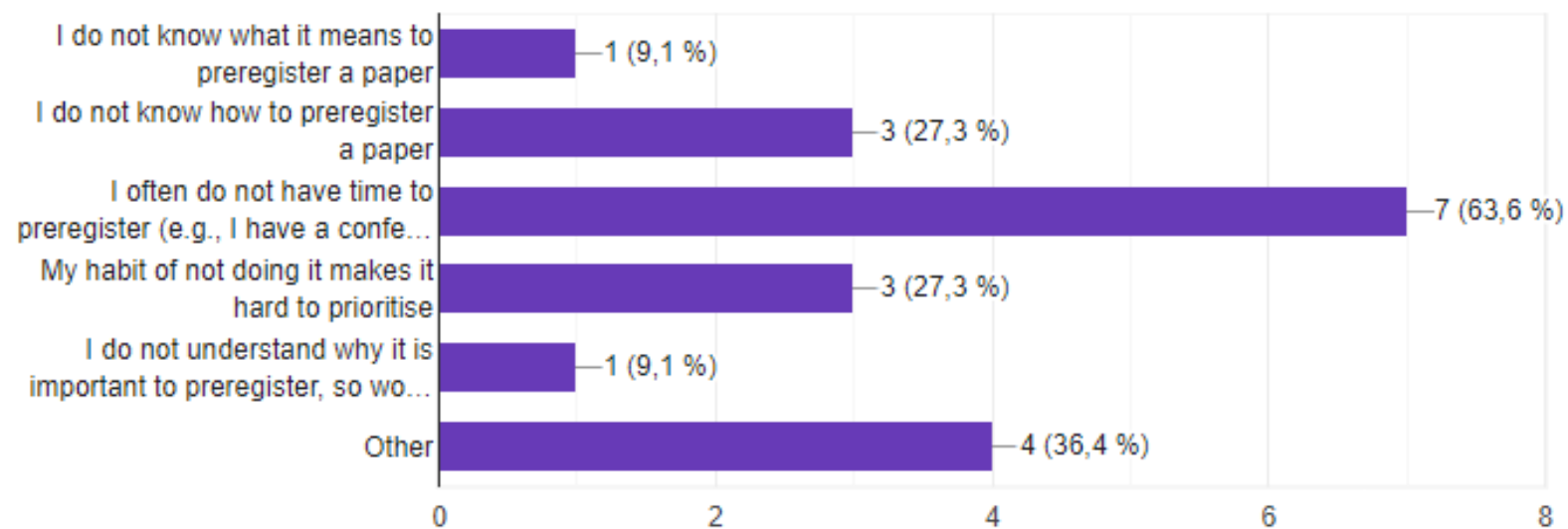
# Preregistration

- A preregistration is:
  - Time-stamped
  - Created before data collection and/or analysis
  - Submitted to a public registry (but can be kept “private”)

About preregistration. What obstacles do you see in the process of getting your papers preregistrated? (Select all that apply)

 [Kopier](#)

11 svar



# Preregistration



- Developed template for preregistration that could easily be understood and replicated by researchers.



- Home
- Search OSF
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- Projects
  - Project details
  - Overview
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  - Files**
  - Wiki
  - Registrations
  - Analytics
  - Linked Services
- Registries
- Preprints
- Meetings
- Institutions
- Donate

# PsychGen Preregistration Template.Docx

Details Revisions Keywords

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PsychGen Preregistration Template

**Title: [Project title]**

*Note: Text in italics throughout this document is guidance intended to help you fill out this document and should be deleted before submission*

Authors: [List of authors]

Summary: [Project summary]

**1. Research Questions**

- RQ1: [Primary research question]
- *Clearly differentiate between hypothesis-driven and exploratory questions*

**2. Hypotheses**

- H1: [Main hypothesis]
- *List all your hypotheses here. If you are running similar analyses with different exposures/outcomes, each model needs a separate hypothesis (specific to exposures/outcomes). If you do not know which direction you expect the effect to be in, the listed hypotheses do not need to be directional (e.g. "the COVID-19 pandemic influenced the employment status of mothers").*

**3. Sample and Measures**

**Dataset**

- Source: [If MoBa: We will use data from the Norwegian Mother, Father and Child Cohort Study (MoBa). MoBa is a population-based pregnancy cohort study conducted by the Norwegian Institute of Public Health. Participants were recruited from all over Norway from 1999-2008. The women consented to participation in 41% of the pregnancies. The cohort now includes 114.500 children, 95.200 mothers and 75.200 fathers. The analyses will be based on version 12 of the quality-assured data files released for research in January 2019.  
If MBRN: We will use data from the Medical Birth Registry (MBRN), which is a national health registry containing information about all births in Norway.  
If NPR: We will incorporate data on psychiatric diagnoses in specialist healthcare from the Norwegian Patient Registry (NPR).  
If KUHR: We will incorporate data on psychiatric diagnoses in primary healthcare

OSF

## File Metadata



## Project Metadata

### Title

Preregistration

### Description

Digital resources on conducting preregistrations when using secondary (already existing) data, such as from the Norwegian Mother, Father, and Child Cohort Study

### Date created

October 23, 2023

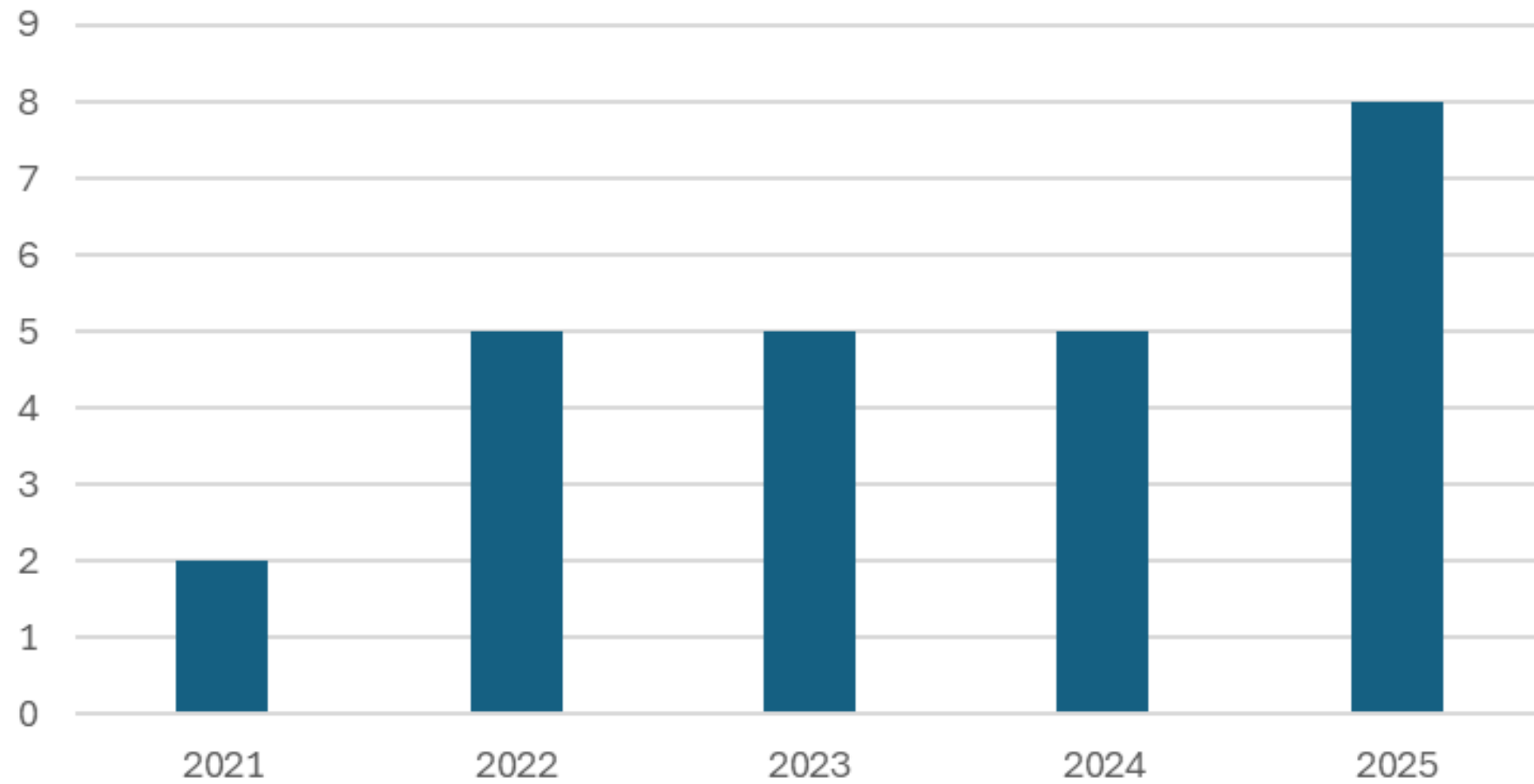
### Date modified

January 17, 2025

### Contributors

[Adrian Dahl Askelund](#), [Laurie John Hannigan](#), [Helga Ask](#), [Pia Jensen](#),  
[Meseret Mamo Bazezew](#), [Torunn Graftås](#), [Viktoria Birkenæs](#), [Bernt Damian Glaser](#)

## Number of PsychGen preregistrations



# Journal reviewers attention pre-registration ever than before

- R1: "Another positive element of the study is the fact that it was pre-registered, and the authors include a table describing all deviations from the pre-registered analysis plan, which increases transparency. "
- R2: "I want to commend you on the preregistration, stating of hypotheses, code sharing, and clear specification of the deviations from the preregistration"
- R3: "the paper is well-written and organized, and the pre-registration reinforces how much care the authors have taken with this work. "

# Registered report



Askelund et al. *BMC Medicine* (2024) 22:155  
<https://doi.org/10.1186/s12916-024-03361-8>

BMC Medicine

**REGISTERED REPORT**

**Open Access**



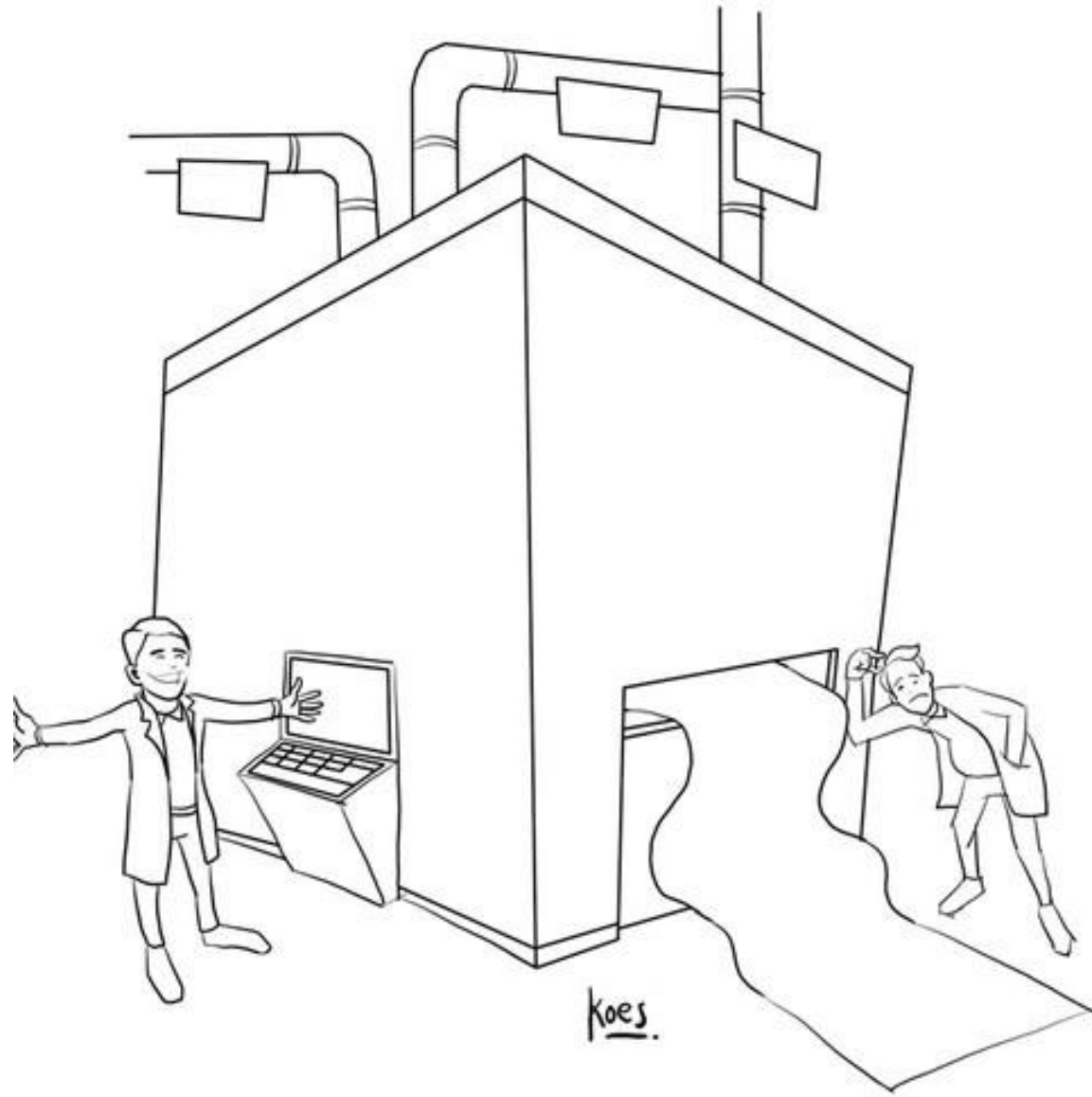
## Assessing causal links between age at menarche and adolescent mental health: a Mendelian randomisation study

Adrian Dahl Askelund<sup>1,2,3\*</sup>, Robyn E. Wootton<sup>2,3,4,5</sup>, Fartein A. Torvik<sup>1,6</sup>, Rebecca B. Lawn<sup>7</sup>, Helga Ask<sup>3,8</sup>, Elizabeth C. Corfield<sup>2,3</sup>, Maria C. Magnus<sup>6</sup>, Ted Reichborn-Kjennerud<sup>3,9</sup>, Per M. Magnus<sup>6</sup>, Ole A. Andreassen<sup>10,11</sup>, Camilla Stoltenberg<sup>12,13</sup>, George Davey Smith<sup>4</sup>, Neil M. Davies<sup>14,15,16</sup>, Alexandra Havdahl<sup>2,3,4,8</sup> and Laurie J. Hannigan<sup>2,3,4\*</sup> 

Open and  
reproducible  
Science

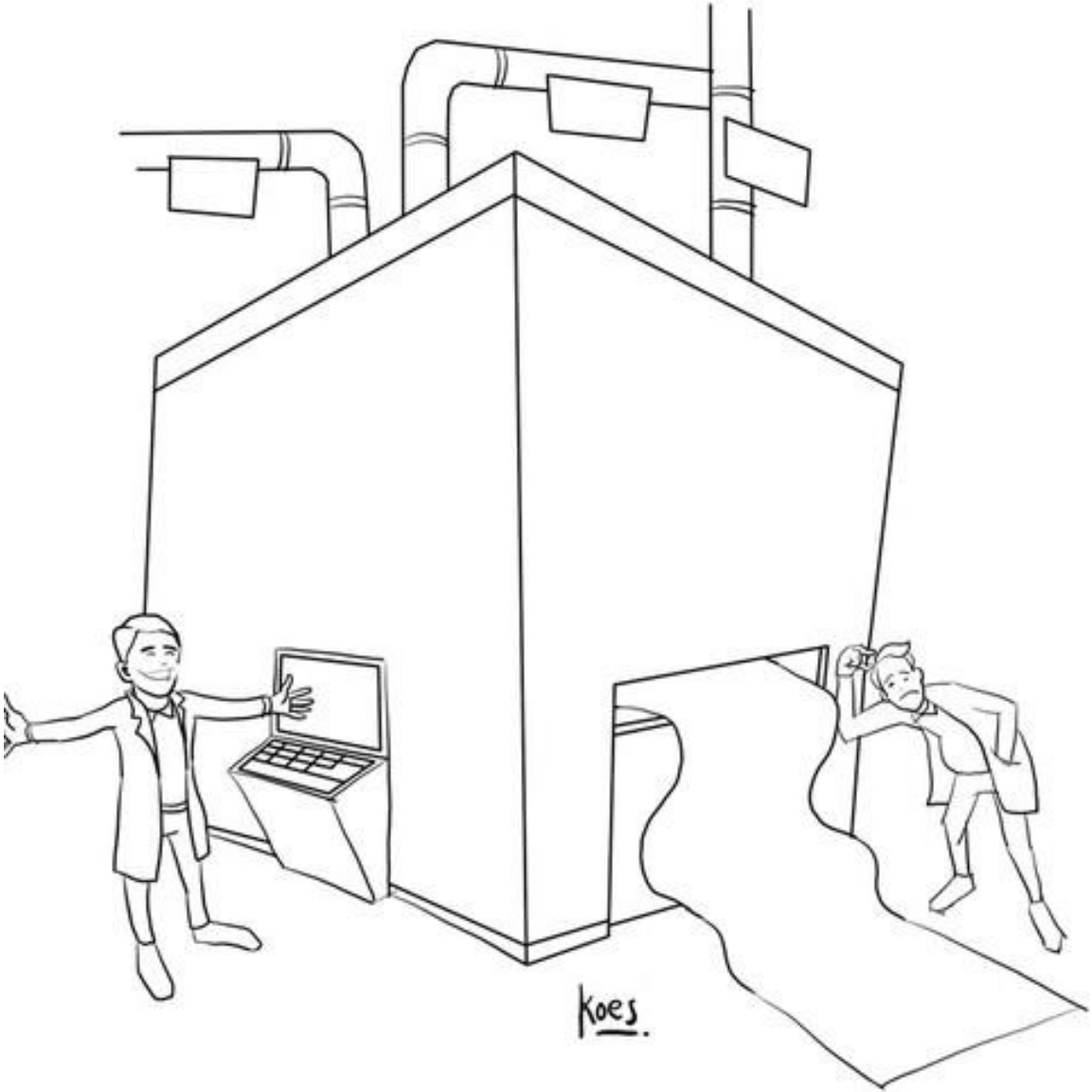


# Open process



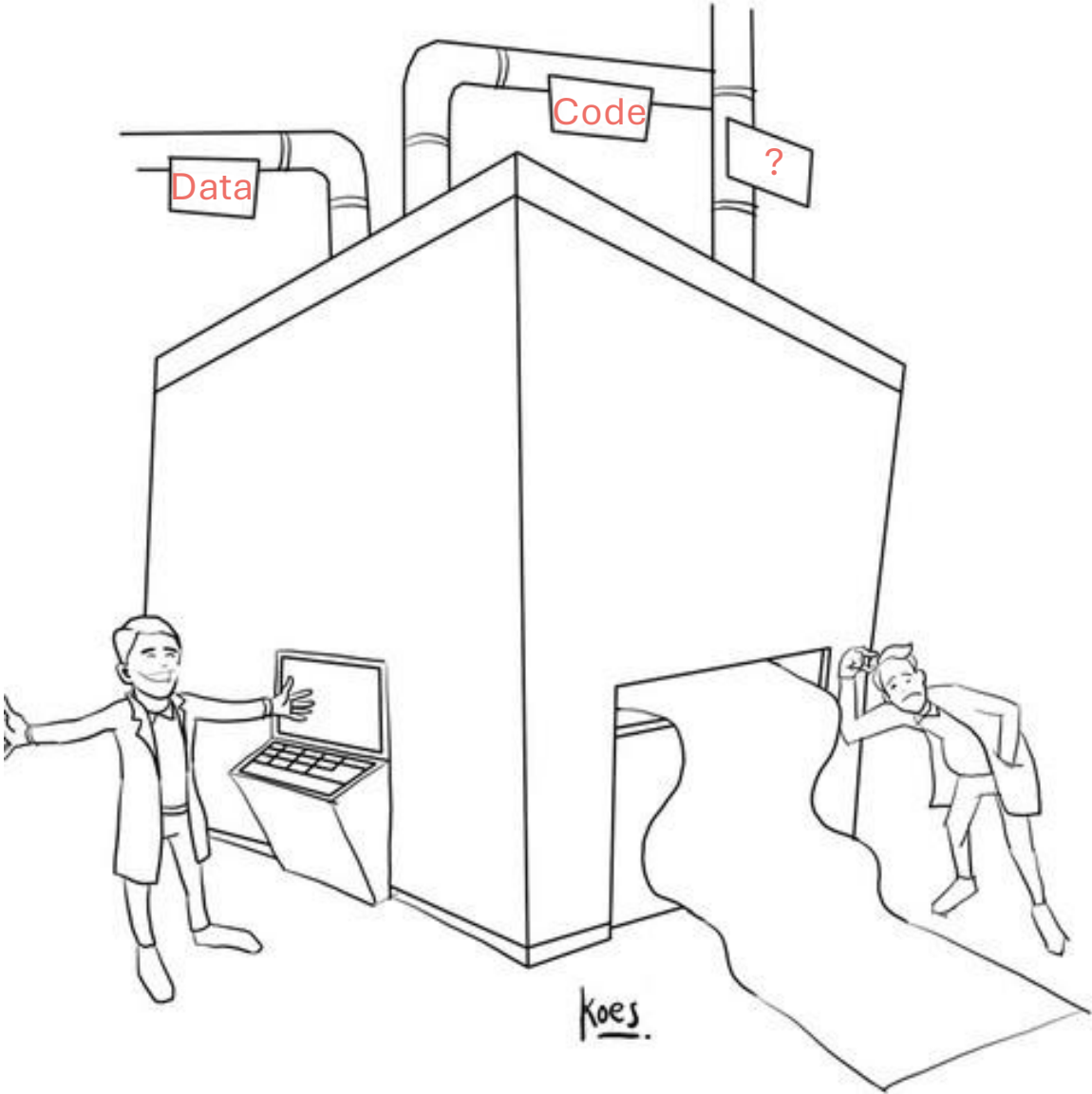
Koes.

Preregistration



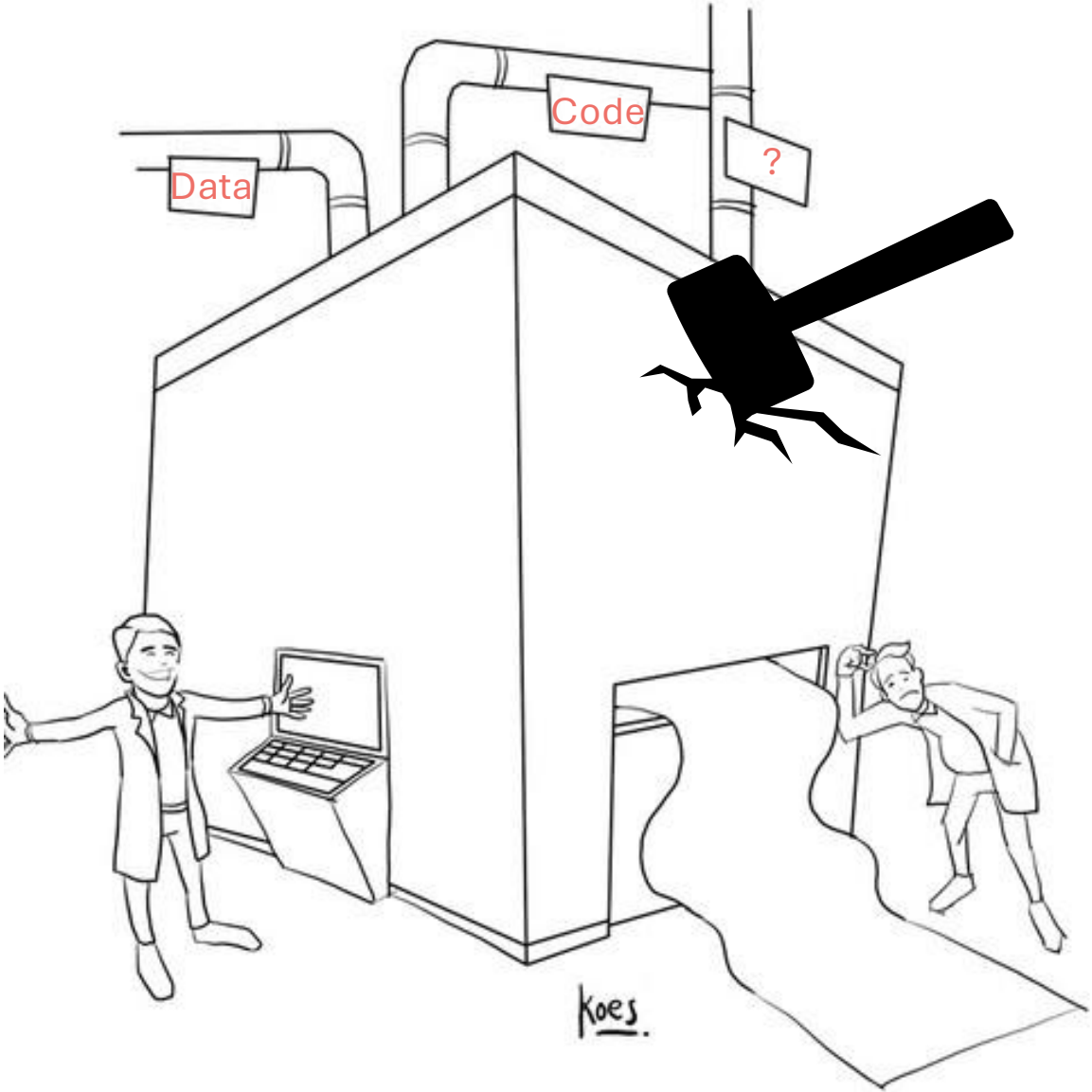
Open access  
manuscript

Preregistration

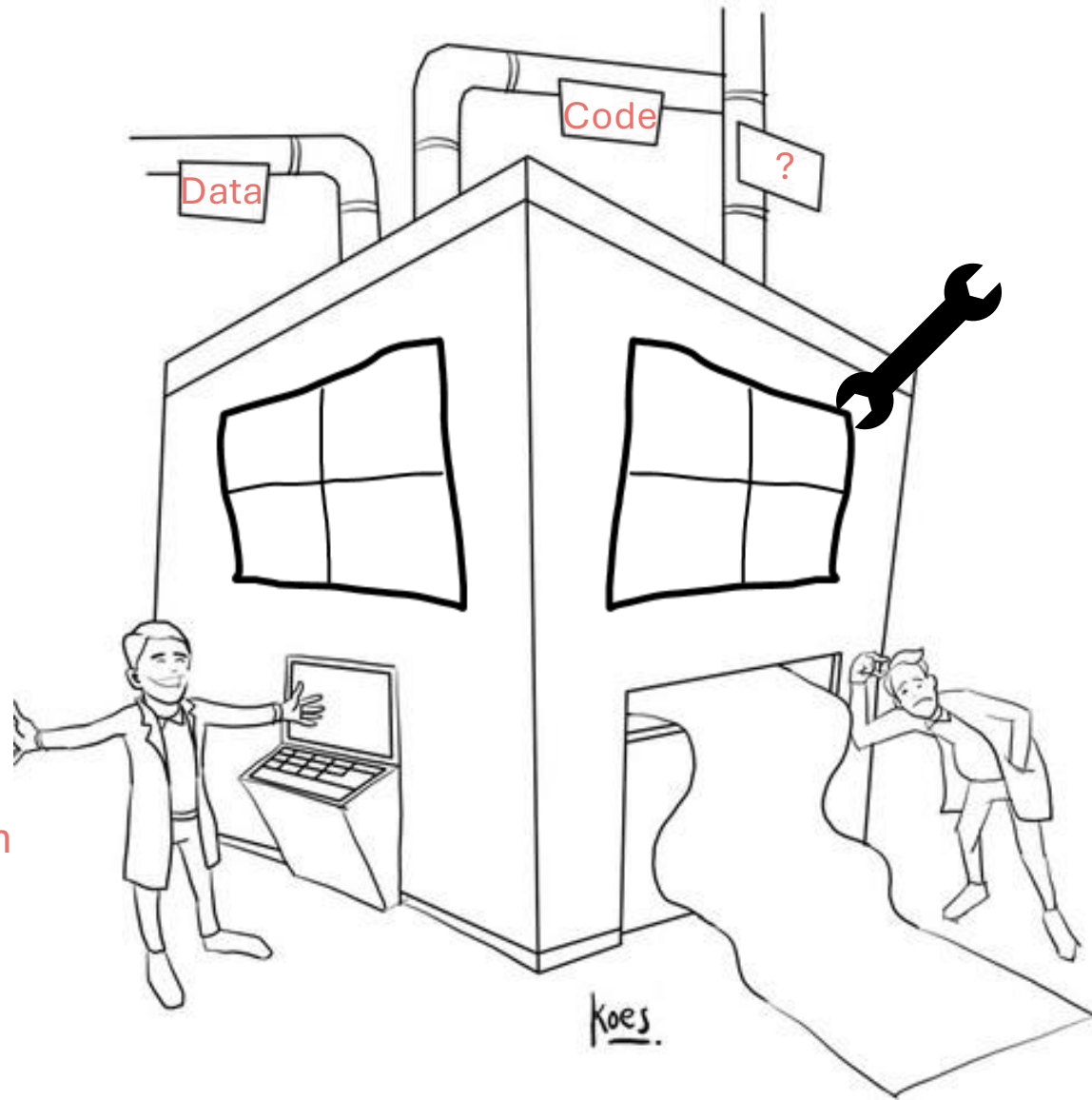


Open access manuscript

Preregistration



Open access manuscript

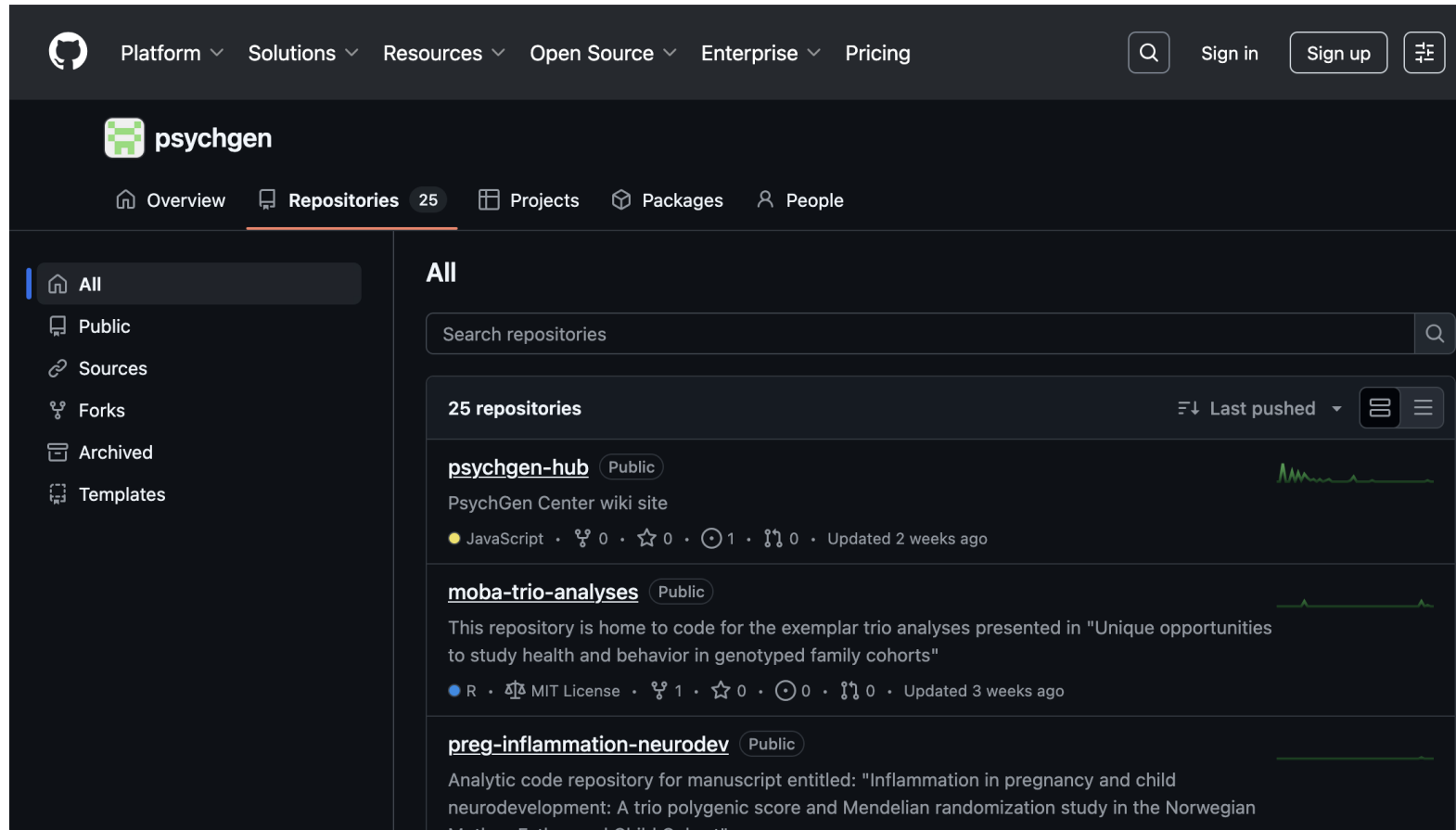


Preregistration

Open access  
manuscript

# Open process

## Code Sharing



The screenshot shows the GitHub interface for the 'psychgen' organization. The top navigation bar includes links for Platform, Solutions, Resources, Open Source, Enterprise, and Pricing, along with search, sign in, and sign up buttons. The main header displays the 'psychgen' logo and navigation tabs for Overview, Repositories (25), Projects, Packages, and People. A left sidebar lists repository filters: All, Public, Sources, Forks, Archived, and Templates. The main content area, titled 'All', features a search bar and a list of 25 repositories, sorted by 'Last pushed'. The visible repositories are:

- psychgen-hub** (Public): PsychGen Center wiki site. JavaScript · 0 forks · 0 stars · 1 commit · 0 issues · Updated 2 weeks ago.
- moba-trio-analyses** (Public): This repository is home to code for the exemplar trio analyses presented in "Unique opportunities to study health and behavior in genotyped family cohorts". R · MIT License · 1 fork · 0 stars · 0 commits · 0 issues · Updated 3 weeks ago.
- preg-inflammation-neurodev** (Public): Analytic code repository for manuscript entitled: "Inflammation in pregnancy and child neurodevelopment: A trio polygenic score and Mendelian randomization study in the Norwegian Mother, Father and Child Cohort".

# Open process

## Code Sharing

- Readable and self-contained code
- Synthetic data
- Code review



# Open process

## How not to do it

```
## Load the data
load("//somewhere/only/I/can/go/data/mydata.RData")

## Source a script
source("//another/location/unique/to/mypc/important_script.R")
```

Absolute paths

## How to do it

```
## Load the data
load("./data/mydata.RData")

## Source a script
source("./scripts/important_script.R")
```

Relative paths using reference  
file

# R packages promoting open process



Poster

Open publication

# Open dissemination

- Making sense of the open publishing landscape
  - APC agreements

OSFHOMME

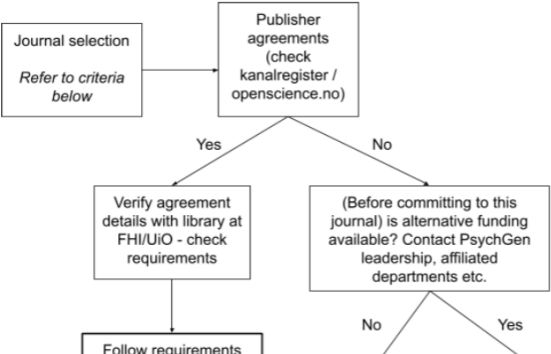
Open publishing

A pragmatic guide to Open Access publishing from t...

Page: 1 of 4 Automatic Zoom

## A pragmatic guide to Open Access publishing from the PsychGen Centre

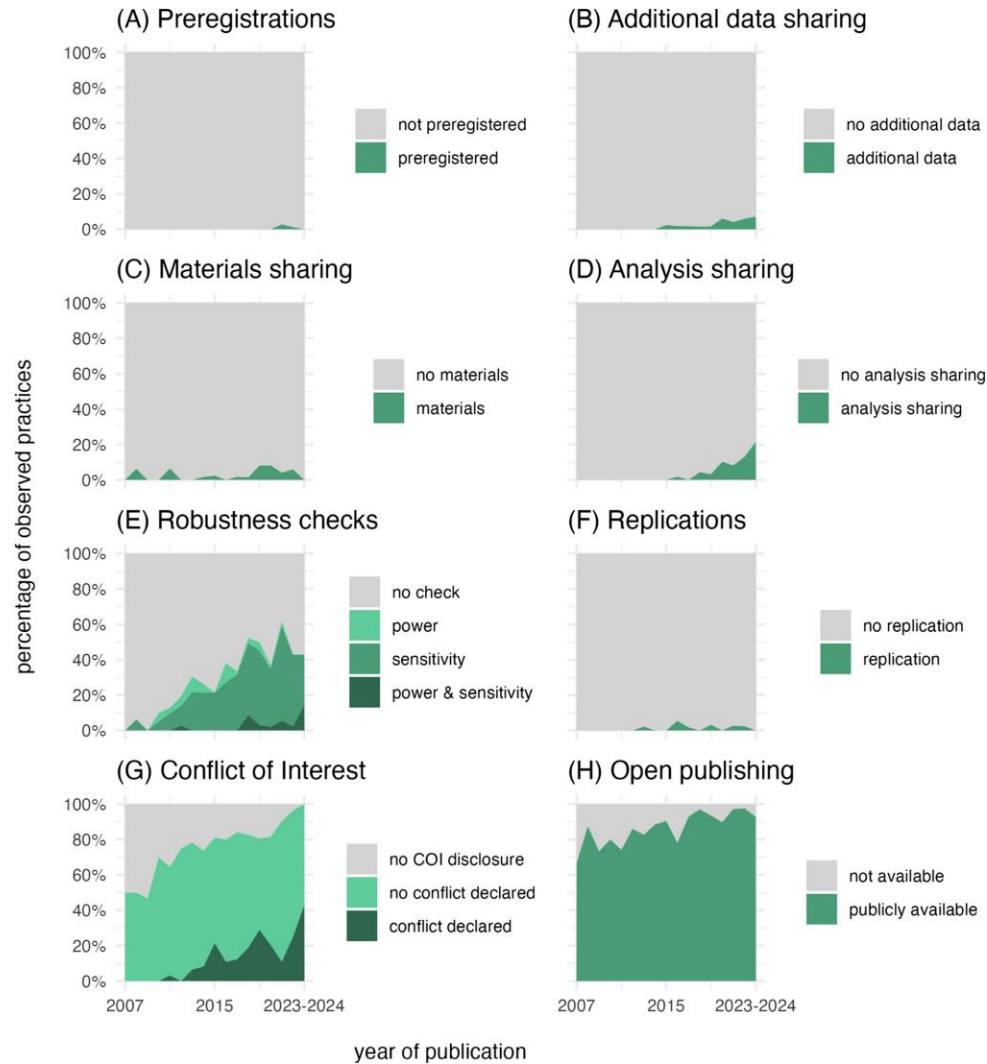
### Open access publishing workflow



```
graph TD; A[Journal selection  
Refer to criteria below] --> B[Publisher agreements  
(check kanairegister / openscience.no)]; B -- Yes --> C[Verify agreement details with library at FHI/UIO - check requirements]; C --> D[Follow requirements]; B -- No --> E["(Before committing to this journal) is alternative funding available? Contact PsychGen leadership, affiliated departments etc."]; E -- No --> F[ ]; E -- Yes --> G[ ]
```

The flowchart illustrates the open access publishing workflow. It begins with 'Journal selection' (refer to criteria below), leading to 'Publisher agreements (check kanairegister / openscience.no)'. If 'Yes', the next step is 'Verify agreement details with library at FHI/UIO - check requirements', which leads to 'Follow requirements'. If 'No', the next step is '(Before committing to this journal) is alternative funding available? Contact PsychGen leadership, affiliated departments etc.'. From this decision point, a 'No' leads to an empty box, and a 'Yes' leads to another empty box.

# Open practices in MoBa



Poster

# Open practices in MoBa

- Toy example
  - Preregistration
  - Code repository
  - Deviation table

**Demo Pre-Registration MoBa Open Science.Pdf**

Details Revisions Keywords

[Back to list of files](#) [Add community Metadata](#) [Download](#) [Share](#) [Trash](#)

OSF

**File Metadata** [Download](#) [Edit](#)

**Project Metadata**

**Title**  
Preregistration of Toy Example

**Date created**  
November 26, 2024

**Date modified**  
December 12, 2024

**Contributors**  
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*This preregistration relates to the exemplar analysis of simulated MoBa data performed as part of "Reproducible research practices in epidemiological data analysis – the case of the Norwegian Mother, Father and Child Cohort Study (MoBa)". It is intended to illustrate the form of a minimally informative preregistration for a hypothetical study to be performed in the MoBa sample, or data from a similar source. This example can be used as template or guide to preregister analyses using real MoBa data.*

**1. Study Information**

**1.1 Authors**  
*Names and affiliations of pre-registration authors*

**1.2 Research questions**  
Does age predict height across childhood?  
Does breastfeeding duration predict height across childhood?  
Are there sex differences in the prediction of height by age and breastfeeding duration across childhood?

**1.3 Hypotheses**  
**H1:** Higher age predicts taller height across childhood.  
**H2:** Longer breastfeeding duration will be associated with taller height across childhood.  
**H3:** The effect of age on height across childhood differs between males and females.  
**H4:** The effect of breastfeeding duration on height across childhood differs between males and females.  
*See "Inference criteria" below for details of how hypotheses will be evaluated*

# Closing thoughts

- Culture of open and reproducible working
- Open practices have become ubiquitous
- No one-size-fits-all approach

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