



# FAMILY

“Running in the FAMILY – Understanding and predicting the intergenerational transmission of mental illness”

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## 3rd version of open science plan

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*Responsible partner:* Partner 01 ERASMUS MC , 07 FCRB

*Responsible author:* Gisela Sugranyes; Ryan Muetzel; Lisanne van Houtum

*Email:* [gernest@clinic.cat](mailto:gernest@clinic.cat); [r.muetzel@erasmusmc.nl](mailto:r.muetzel@erasmusmc.nl); [l.vanhoutum@erasmusmc.nl](mailto:l.vanhoutum@erasmusmc.nl)

*Contributors:* Neeltje van Haren

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### Dissemination Level

PU	Public — fully open (automatically posted online)	<input checked="" type="checkbox"/>
SEN	Sensitive — limited under the conditions of the Grant Agreement	<input type="checkbox"/>

\*This is a living document that is under continuous revision. It is uploaded at regular intervals to Keyways after substantial changes and approval by relevant stakeholders (e.g., work package leads).

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#### **Open Issues**

No:	Date	Issue	Resolved
1	02/10/2023	Guidance on pre-registration and registered reports	yes
2	02/10/2023	FAMILY GitHub repo	
3			
4			
5			

## **SUMMARY**

This document represents the third version of the Open Science Plan (OSP) of the FAMILY consortium.

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# 1 INTRODUCTION

## 1.1 Purpose and Scope

This document describes the third version of the open science plan (OSP). FAMILY strives to operate within an open science framework. The third objective of WP2 is to provide support and resources to facilitate open science practices within the FAMILY consortium (Task 2.3).

## 1.2 References to other FAMILY Documents

- FAMILY DoA

## 1.3 Definitions, Abbreviations and Acronyms

**Table 1 List of Abbreviations and Acronyms**

Abbreviation/ Acronym	DEFINITION
DRE	Digital Research Environment
EMC	Erasmus Universitair Medisch Centrum Rotterdam
ESCAP	European Society of Child and Adolescent Psychiatry
EUFAMI	European Federation of Associations of Families of people with Mental Illness
FCRB	Fundació Clínic per la Recerca Biomèdica
OSF	Open Science Framework
SOPs	Standard Operating Procedures
WP	Work Package

## 2 OPEN SCIENCE PRACTICES

### 2.1 Pre-registration and registered reports

FAMILY encourages all researchers to consider pre-registering their studies, to improve the credibility of research findings.

*What is a pre-registration?*

A pre-registration is a time-stamped research plan in advance of your study, i.e., either before data collection or before data analysis when analyzing existing data. Pre-registration prevents one to unintentionally test a hypothesis that came up only after exploring the data, which reduces the credibility of the findings (see e.g.: <https://doi.org/10.1073/pnas.1708274114>). A pre-registration at least contains (for examples, see: <https://osf.io/e6auq/wiki/Example%20Preregistrations/>):

- hypotheses
- methodology (design, sample, stopping rule, exclusion criteria, procedure, variables, etc.)
- analysis plan for hypothesis testing (statistical tests, transformations, assumption tests, etc.)
- inference criteria to confirm vs. reject hypotheses

*Why pre-registering?*

- clarify distinction between confirmatory and exploratory analysis and therefore prevent presenting exploration as hypothesized result; exploration is not discouraged however
- maintain transparency
- contribute to decreasing publication bias
- make your science better by increasing the credibility of your results
- allow to stake your claim to your ideas earlier
- safety net for your future self: once registered, just stick to your plan (and, if deviating from it, report this)

*How to create a pre-registration?*

- See this help guide: <https://help.osf.io/article/158-create-a-preregistration>
- Choose your template: <https://osf.io/zab38/wiki/home/>
- Pre-registration of secondary data analysis: A template and tutorial: <https://osf.io/preprints/psyarxiv/hvfmr>

*What is a registered report?*

Registered reports are pre-registrations that are peer reviewed by journals before results are known, i.e., prior to data collection, see below for a visualization of the process:



*Secondary registered reports* propose secondary analyses of existing data. This will require authors to supply sufficient evidence (e.g., self-certification; letter from independent gatekeeper) to confirm that they have had no prior access to the data in question.

This highly reduces publication bias: at ‘Stage 1 peer review’, results are not yet known, so manuscripts cannot be accepted or rejected based on results. After Stage 1, when the pre-registration has received an ‘In Principle Acceptance’, data collection (if needed), data analysis, and manuscript writing can take place. Most manuscripts receiving ‘In Principle Acceptance’ will also get accepted in Stage 2, if the authors follow through with the registered methodology. For an overview of all journals accepting registered reports, see:

[https://docs.google.com/spreadsheets/d/1D4\\_k-8C\\_UENTRtbPzXfhjEyu3BfLxdOsn9j-otrO870/edit#gid=0](https://docs.google.com/spreadsheets/d/1D4_k-8C_UENTRtbPzXfhjEyu3BfLxdOsn9j-otrO870/edit#gid=0)

*Resources:*

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

<https://www.cos.io/initiatives/registered-reports>

<https://doi.org/10.1371/journal.pcbi.1010571>

## 2.2 Open access

FAMILY will ensure the compliance with HORIZON rules regarding Open Access to scientific publications, by making all scientific publications generated within FAMILY freely accessible. FAMILY will publish as much as possible of its work in peer-reviewed open-access journals (preferably gold open access). All partners have included funds in their budgets to do so. Additionally, institutional repositories, such as EMC’s Pure Repository (<https://pure.eur.nl/>), and RUMC’s Radboud Repository (<https://repository.ubn.ru.nl/>), meet all the requirements established by the European Commission within the framework of (green) open-access publishing. FAMILY researchers will have early full-text access to any new publication arising from FAMILY through the password-protected project intranet. Whenever possible, the full text of published articles or corresponding accepted manuscript will also be made available on the project website ([Publications - FAMILY](#); responsibility of WP9) and spread out through concomitant updates on the relevant social media channels upon publication, particularly BlueSky, LinkedIn and ResearchGate.

## 2.3 Open data and methods

Data from all participating cohorts in FAMILY will be made available to interested researchers and the scientific community at large by placing it in the Digital Research Environment (DRE) hosted by the FAMILY consortium for use by others. The DRE offers an excellent solution allowing data use by external researchers while assuring full control by those partners who are responsible for the data. However, in studies involving human subjects, the principles of open science must be balanced with

the need for data protection and privacy. WP2 will explicitly formulate the principles and procedures for maximizing open science in studies with human subjects in the current document, i.e., FAMILY's Open Science Plan, and will continuously monitor their implementation. Given that the informed consent that is provided by participants differ between cohorts, data sharing or data accessibility abilities will also differ between cohorts. Data sharing procedures are explained in the Data Management Plan, which can be found [here](#). Where relevant, FAMILY's methodology will be made available on GitHub and on the FAMILY website. In publications, reports and presentations using the methods, researchers will be referred to e.g. their GitHub or website. In this way, code from FAMILY projects can be openly shared with detailed version histories available.

## 2.4 Research integrity & reproducibility of scientific results

Researchers in FAMILY will adhere to relevant standards for good research practices. A mentoring program where young researchers are linked with senior researchers in the consortium (but who are not directly involved in the young researcher's project) has been put in place as part of the training program, where issues related to research integrity can be raised and solved. Reproducibility of scientific findings will be facilitated in several ways. To facilitate sharing and long-term use of FAMILY's data, the following formats will be chosen: pdf, txt, csv, sql, dat (SPSS), RData, DICOM, NIfTI. All files will be marked with explicit dates (YYYY-MM-DD) and version numbers, where appropriate and provenance information will be documented in the Knowledge Base: [FAMILY Wiki - FAMILY](#). FAMILY will use standardized variable names linked to metadata in a data dictionary, which can be found [here](#). In cases where possible, metadata will be included inside of files (e.g. attributes within RData structures). Industry-standard data structures will be utilized for brain imaging data (Gorgolewski et al., 2016) and standardized processing pipelines will be applied to imaging and -omics data, in many cases within Singularity containers to ensure consistent and reproducible processing is applied uniformly to all data (Kurtzer et al., 2017). Further, the DRE platform allows for virtual machines to be generated and cloned, using precisely the same hardware and software infrastructure, ensuring all researchers work within the same environment, avoiding any platform-dependent biases. Version control and data provenance mechanisms (e.g. GitHub) will allow for consortium partners to track, archive, and publish their code in a transparent fashion. Data management and harmonization plans will be developed and documented on the web portal, and data provenance clearly established for all datasets.

## 3 OPEN SCIENCE EDUCATION AND SKILLS

FAMILY researchers are offered access to education to develop the necessary skills and support to apply open science research routines and practices, see <https://osf.io/vr6ng/>, lectured during PARADISE meetings. In most institutions that participate in FAMILY, Open Science Communities are in place and/or Open Science Officers are employed (e.g. LIR, EMC, RUMC, UCL). FAMILY researchers will be encouraged to participate in activities that are organized locally. The EMC, coordinator of FAMILY, is home to the Reproducible Interpretable Open Transparent (RIOT) Science Club Rotterdam (<https://www.riotscience.nl/>), which originated from King's College London. The

RIOT Science Club is a seminar series that raises awareness and provides training in Reproducible, Interpretable, Open & Transparent science practices. The initiative is entirely early career researcher-led and has now expanded beyond King's College to a growing number of sites (e.g. EMC, UCL) and is partnered with the UK Reproducibility Network. All presentation slides are stored on an Open Science Framework page: <https://osf.io/8y7h2/>, and recordings are uploaded to the RIOT Science Club YouTube channel: <https://www.youtube.com/c/riotscienceclub>. The FAMILY website refers to these outlets and will stimulate its researchers to take full advantage of its content, see: <https://family-project.eu/meetings-trainings/riot-science-club/>.

## 4 CITIZEN SCIENCE

WP8 seeks active engagement of family members, patients, and mental health care professions, who can be reached via the European Federation of Associations of Families of people with Mental Illness (EUFAMI) and the European Society of Child and Adolescent Psychiatry (ESCAP), both involved in WP9. EUFAMI and ESCAP support FAMILY with dissemination to their established communication channels. EUFAMI will reach 32 family organizations in 21 countries throughout Europe and ESCAP has 34 national member societies from 33 European countries. They will greatly facilitate direct access to relevant stakeholders for their contribution to WP8 as well as uptake of new knowledge by the clinical, scientific, policy making communities.

## 5 USEFUL LINKS

<https://rosie-project.eu/> ROSiE UL (involved WP leader: Signe Mezinska): Developing tools to ensure ethics and research integrity in open science. The tools will be applied for responsible practice of open science within the FAMILY consortium.

<https://www.riotsciencenl.com/> The R.I.O.T. Science Club is a scientific community providing training in Reproducible, Interpretable, Open, and Transparent Science, promoting the accessibility of information and learning to all, be it scientists, clinicians, or the public, and striving for reproducible, and easily interpretable results, analyses and codes.

<https://www.openscience-rotterdam.com/> The Open Science Community Rotterdam (OSCR) comprises academics and support staff working at Erasmus University Rotterdam (EUR) and EMC. The common goal is to discuss, learn, promote, and adopt open and transparent scientific practices at every stage of the research cycle, from the initial idea to the final product.

<https://openscience-nijmegen.nl/> The Open Science Community Nijmegen (OSCN) is a community of scholars and other academic workers devoted to maintaining and developing scientific practices that ensure transparency, rigor, and reproducibility of research and related academic work.

[OSF | Open Science Initiative in Psychology @LMU](https://osf.io/8y7h2/) This OSF project collects documents, presentations, etc. from the Open Science Initiative at the psychology department of the Ludwig-Maximilians-Universität München.

## OSF | Open Science Crash Course (everything in 5 hours) Open Science Workshop Materials of the LMU Open Science Center

<https://forrt.org/clusters/>

