Charting for Niso et al 2022

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Review for Niso-2022: Open and reproducible neuroimaging: From study inception to publication

Title of publication

- File:
- DOI: 10.1016/j.neuroimage.2022.119623
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Characteristics of the paper

- Type of paper (e.g., tips, example): guide (to conduct open science), review (of existing tools).
- Themes (e.g., tools, organization): organization.
- Other keywords (e.g., newcomers): all science cycle

Tools

Specific tools mentioned; their function; where in the research process used

The provide tools for each step in workflow. Here I highlight those that I find the most relevant.

protocolexchange - public example of Standard Operating Procedures (SOPs) OSF preregistration (aspredicted.org) MRIQC (monitoring quality) Hierarchical Event Descriptor (HED) - helps with naming conventions DataLad (similar to Github for handling data) Fuzzy: for multiverse analysis BrainLife: for derivatives that are a tad more complex in the field. Otherwise, other tools such as OSF. COBIDAS: pipelines for best practices of writing.

Organizational structure for open collaboration

None stated. This paper is purely focused on what researchers should do, but never states how it should be done with other people.

Workflow

Study inception and planning

Study preparation (highlighting piloting, that is, reviewing all data and methods necessary for the studies are ready for the analysis). Pre-registration Ethics and sharing plan Monitoring quality

Data acquisition

Human Connectome Project establishes frameworks and protocols to make reproducible and comparable data ascquisition, to some extent. This is the most important part of them all.

Data management

Set up organization standards: have the same framework (BIDS) Set up metadata and format conventions Set up format of saving the data and trace it back.

Data processing

With software and version control or desiging pipeline and workflows it all boils down to share clear code that ensures all of this is ensured.

They focus a lot on multiverse, that is, focus on the results that converge with different software or pipelines.

Research dissemination

Data sharing (and data should be organized in a standardized way) Preprints.

Educational perspectives

The paper tries to educate on best practices, but never focuses on the education per se.

Barriers

Barriers for open science

Utilizing private devices for data acquisition, which leads to black boxes and difficults comparision.
Struggle with derivative data sharing. Which format should be the best for data that we generate from the available raw standardized data? Here they propose BrainLife as an example, but in other fields this is a very interesting topic!

Bibliography