open-science-practices → OSQ_Serienmail 12.05.2021, 14:35

Seite 01

I0

Thank you for clicking the link to this survey and welcome! It takes about 9 min of your time.

What is this survey about?

We are interested in the **usage of and familiarity with open science practices in human neuroimaging**. We would like to relate this information to biographical information such as state of career and region of residence. Your participation is extremely valuable to collect information on the state of open science practice in the field, namely **standardization**, **preregistration**, and **data sharing**. Results of this survey will be used to provide an overview of open science practices in neuroimaging research with focus on mental health research. Furthermore, based on the results, we hope to formulate recommendations on how to promote open science standards in the future. We will publish the results of this research in a peer-reviewed journal.

Who is behind this survey?

Responsible for this survey is Christian Paret (Central Institute of Mental Health, Mannheim, Germany). Russ Poldrack and Franklin Feingold (Center for Reproducible Neuroscience, Stanford University) helped create this questionnaire.

Who can participate? Voluntariness, data safety and anonymity

This survey addresses active **scientific researchers** who are **working with human neuroimaging data**. Participation in this survey is voluntary. If you do not want to participate or you want to cancel, you can do this at any time throughout the survey, without any disadvantage for yourself. At the end of the questionnaire, some socio-demographic questions such as age, gender and current position in research will be asked. The data will be anonymized when the last page of the questionnaire is reached. IP addresses are not recorded. If you end this survey prematurely, your email will be linked to the data you entered until you resume and finish it regularly, or until the survey is closed (max. 28 days after invitation emails were sent out). This is necessary to enable access to the survey via a personalized link received through the invitation. During this time, your email will be saved by the survey-platform provider and your data may be identifiable. We will not request this information from the provider. **The collected, anonymized data will be used for scientific analysis and exclusively for research purposes**. Anonymized data will be saved for at least for 10 years and may be uploaded to a server on the Open Science Framework in order to disseminate it to the research community for further use, where it will be accessible to the public for an unlimited time (OSF project webpage: https://osf.io/m67k5). **It will be impossible to identify participants based on the published data.**

At the end of this survey, you can leave your email so that we can inform you about the results of the survey with an information letter. The email address will be saved separately from the other information to guarantee anonymity and will be deleted after information letters have been sent out.

You can only participate in this survey if you consent to the above terms.

The data protection officer responsible for this study can be contacted via Zentralinstitut für Seelische Gesundheit, Datenschutzbeauftragte, Postfach 122120, D-68072 Mannheim, Germany; Email: Datenschutz@zi-mannheim.de.

You have the right to contact the regulatory authority: Der Landesbeauftragte für den Datenschutz und die Informationsfreiheit Baden-Württemberg, Postfach 102932, D-70025 Stuttgart, Germany, phone: +49711/6155410, EMail: poststelle@lfdi.bwl.de, Internet: http://www.baden-wuerttemberg.datenschutz.de

Informed consent

By clicking the „next“ button, I agree to participate in this survey and I consent to the processing of my data as described above.

Thank you very much for your participation!

Seite 02
GQ2

Collection of Human Neuroimaging Data

What neuroimaging modalities do you collect?

Choose one or more options.

- [ ] fMRI-BOLD
- [ ] MRI anatomical data
- [ ] fMRI-ASL
- [ ] EEG
- [ ] MEG
- [ ] fNIRS
- [ ] DTI
- [ ] PET
- [ ] Other, specify:

Seite 03
BIDS1

Brain Imaging Data Structure

Have you heard about the Brain Imaging Data Structure (BIDS) before?

- ◯ Yes
- ◯ No

Brain Imaging Data Structure

Neuroimaging experiments result in complicated data that can be arranged in many different ways. So far there is no consensus how to organize and share data obtained in neuroimaging experiments. Even two researchers working in the same lab can opt to arrange their data in a different way. Lack of consensus (or a standard) leads to misunderstandings and time wasted on rearranging data or rewriting scripts expecting certain structure. With the Brain Imaging Data Structure (BIDS), a simple and easy way is described to adopt organizing neuroimaging and behavioral data. (from bids.neuroimaging.io, with permission from author; for more information see Gorgolewski et al., Scientific Data 3(160044), 2016).

Do you use BIDS to structure your neuroimaging data sets?

- ◯ Yes, I used it at least in one of my projects.
- ◯ No

Brain Imaging Data Structure

How many subjects have you converted to BIDS format? Please enter a rough estimate:

What BIDS converter, if any, did you use to convert neuroimaging data to BIDS format?

Choose one or more options.

- [ ] AFNI BIDS-tools
- [ ] BIDS2ISATab
- [ ] BIDSto3col
- [ ] BIDS2NDA
- [ ] bidsify
- [ ] bidskit
- [ ] Data2Bids
- [ ] Dcm2Bids
- [ ] DCM2NIIx
- [ ] DICM2NII
- [ ] HeuDiConv
- [ ] OpenfMRI2BIDS
- [ ] ReproIn
- [ ] Bids2xar
- [ ] XNAT2BIDS
- [ ] Horos export plugin
- [ ] BIDS2NIDM
- [ ] BIDScoin
- [ ] MNE-BIDS
- [ ] EEGLAB plugin
- [ ] dac2bids
- [ ] Autobids
- [ ] Biscuit
- [ ] BiDirect_BIDS_Converter
- [ ] custom code
- [ ] Other, specify:
- [ ] I have not used any converter yet.

How long have you been using BIDS?

years

What BIDS-compatible software, if any, have you used before?

Choose one or more options.

- [ ] MRIQC
- [ ] QAP
- [ ] Automatic Analysis
- [ ] BIDSHandler
- [ ] Brainstorm
- [ ] C-PAC
- [ ] FMRIPREP
- [ ] OpenNeuro
- [ ] PyBIDS
- [ ] bids-matlab
- [ ] Other, specify:
- [ ] I have not used any of the above tools.

Are you going to use BIDS in the future?

- ◯ Extremly unlikely
- ◯ Somewhat unlikely
- ◯ Neither likely nor unlikely
- ◯ Somewhat likely
- ◯ Extremely likely

Seite 06

BIDS4

Brain Imaging Data Structure

Why did you not use BIDS?

Choose one or more options.

- [ ] I use a different standard format than BIDS. specify:
- [ ] Did not know about it before.
- [ ] Had no time to learn more about it.
- [ ] Had no time to implement it in my lab.
- [ ] Currently implementing it.
- [ ] Lacking technical expertise to get BIDS conversion running.
- [ ] Not relevant for me and my lab.
- [ ] Other, specify:

Seite 07

BIDS5

Brain Imaging Data Structure

Let’s say that a new tool for conversion of neuroimaging data into BIDS would become available that is directly operated through your preferred neuroimaging data analysis software: Would this increase your interest to use BIDS in the future?

- ◯ Extremely unlikely
- ◯ Somewhat unlikely
- ◯ Neither likely nor unlikely
- ◯ Somewhat likely
- ◯ Extremely likely

Seite 08

BIDS6

Brain Imaging Data Structure

Why would you not be interested?

Choose one option.

- ◯ I am not interested in using BIDS at all.
- ◯ The existing BIDS tools work good enough for me.
- ◯ Other reason

Seite 09
PR1

Preregistration

A preregistration is an online-document, explaining a planned study usually ahead of data collection, created by the investigator and submitted to an online platform or journal. Preregistrations report information such as background, hypothesis, and planned research methods. Once published online, the investigator cannot change it. Amendments may be possible, but are tracked and are transparent for the reader. Preregistration improves transparency about which hypothesis has been established a priori, which primary and secondary endpoints have been selected and where the researchers changed the original statistical analysis plan.

What preregistration formats, if any, have you used?

Choose one or more options.

- [ ] Registered report in a scientific journal
- [ ] Preregistration with Open Science Framework (OSF)
- [ ] Preregistration with ClinicalTrials.gov
- [ ] Preregistration with AsPredicted
- [ ] Other preregistration platform, specify:
- [ ] I have never preregistered a study.

Preregistration

How likely are you to preregister your next study in an online repository?

Choose one option.

- ◯ Extremely unlikely
- ◯ Somewhat unlikely
- ◯ Neither likely nor unlikely
- ◯ Somewhat likely
- ◯ Extremely likely

These statements relate to possible barriers for and fears of preregistration.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Preparing a preregistration is too time consuming for me.	◯	◯	◯	◯	◯	◯	◯
The analyses I do are too complex to preregister.	◯	◯	◯	◯	◯	◯	◯
I have never learned to preregister a project.	◯	◯	◯	◯	◯	◯	◯
There is not sufficient reward for preregistration.	◯	◯	◯	◯	◯	◯	◯
I have never thought about preregistering a project.	◯	◯	◯	◯	◯	◯	◯
I know too little about suitable preregistration platforms.	◯	◯	◯	◯	◯	◯	◯
I am afraid that my preregistered hypotheses may turn out false.	◯	◯	◯	◯	◯	◯	◯
I am afraid that my preregistered methods may turn out suboptimal or inadequate.	◯	◯	◯	◯	◯	◯	◯
My boss does not support preregistration.	◯	◯	◯	◯	◯	◯	◯
It is necessary to register studies with an explorative research question.	◯	◯	◯	◯	◯	◯	◯

Data Sharing

Sharing primary research data with other researchers is necessary for assessing robustness of scientific results and for further analysis. In neuroimaging, primary research data would be the "raw" data from each subject from the recording device, before it has been subject to preprocessing, while suitable de-identification is acceptable. In BOLD-fMRI neuroimaging, for example, the brain volumes which have been collected during an experiment and have been saved e.g. in DICOM format, or have been converted to e.g. NIFTI format, are considered primary research data.

Have you shared raw neuroimaging data with researchers outside your department?

- ◯ Yes
- ◯ No

Data Sharing

How likely are you to share primary research data for your next neuroimaging paper in an online repository?

- ◯ Extremely unlikely
- ◯ Somewhat unlikely
- ◯ Neither likely nor unlikely
- ◯ Somewhat likely
- ◯ Extremely likely

Think of a typical neuroimaging experiment of yours: How much do you agree on statements regarding possible options of sharing primary research data?

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I prefer to share via an online repository with unrestricted open access.	◯	◯	◯	◯	◯	◯	◯
I prefer to share via a managed online repository with restricted access.	◯	◯	◯	◯	◯	◯	◯
I prefer to share upon personal request, e.g. via direct data transfer from my institution's server to the server of the recipient.	◯	◯	◯	◯	◯	◯	◯
I prefer to share under a data sharing agreement to be signed by the recipient.	◯	◯	◯	◯	◯	◯	◯
Researchers with reasonable interest can work with my raw data, but this work needs to be done on the server of my home institution.	◯	◯	◯	◯	◯	◯	◯
I prefer not to give other researchers access to my raw data.	◯	◯	◯	◯	◯	◯	◯

This question relates to legal constraints connected to data sharing.

I am not allowed to share my primary neuroimaging research data.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
◯	◯	◯	◯	◯

Data Sharing

Why are you not allowed to share your primary neuroimaging research data?

Choose one or more options.

- [ ] My Institutional Review Board does not allow me to share my data.
- [ ] The consent form states that data will not be shared.
- [ ] Anonymity cannot be guaranteed if the data is shared.
- [ ] Stakeholder (e. g. company or institution) interests prohibit data from being shared.
- [ ] My funder/advisor/boss does not allow me to share my data.
- [ ] Other, specify:

Although the former questions pertained to legal constraints, the remainder of this questionnaire has been compiled without regard to any legal constraints relating to the sharing of data.

Data Sharing

If in your field legal constraints prohibit data sharing, please disregard this as an issue when answering the rest of the questionnaire.

These statements relate to possible barriers for and fears of data sharing.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Preparing data to make it suitable for online sharing is too time consuming for me.	○	○	○	○	○	○	○
I lack funding to make data suitable for online sharing.	○	○	○	○	○	○	○
My data set is too big to share.	○	○	○	○	○	○	○
My data set is too complex to share.	○	○	○	○	○	○	○
I have never learned to share my research data online.	○	○	○	○	○	○	○
I have never thought about sharing my research data online.	○	○	○	○	○	○	○
I know too little about suitable repositories.	○	○	○	○	○	○	○
My boss does not support online data sharing.	○	○	○	○	○	○	○
I am afraid that I will not get proper recognition for sharing my data.	○	○	○	○	○	○	○
I am afraid that other researchers will perform alternative analyses on my data and argue that my conclusions are invalid.	○	○	○	○	○	○	○
I am afraid that other researchers will discover errors in my data.	○	○	○	○	○	○	○
I am afraid of being scooped: that other researchers may publish results from my data set before I can.	○	○	○	○	○	○	○

Experience with Neuroimaging Data Analysis Software

To relate open data practices to experience with and preferences of different kind of software, we ask you to answer the questions below.

What operating system do you primarily use to work with neuroimaging data?

Choose one option.

- ◯ Windows
- ◯ Linux
- ◯ Mac/Apple
- ◯ Other, specify:

What is your preferred neuroimaging data analysis software?

Choose one option.

- ◯ SPM
- ◯ FSL
- ◯ AFNI
- ◯ BrainVoyager
- ◯ ANTs
- ◯ Other, specify: Please specify only one software.

How would you describe your knowledge level in working with your preferred neuroimaging data analysis software?

Choose one option.

- ◯ Expert user
- ◯ Advanced user
- ◯ Practically experienced user
- ◯ Novice

Do you have practical experience with other neuroimaging analysis software?

- ◯ Yes
- ◯ No

Seite 16
NA2

Experience with Neuroimaging Data Analysis Software

On the previous slide you said you are experienced with other software. Which software?

Choose one or more options.

- [ ] SPM
- [ ] FSL
- [ ] AFNI
- [ ] BrainVoyager
- [ ] ANTs
- [ ] Other, specify:

What is your knowledge level with this/these software(s)? If you selected more than one option, think about your second favorite software.

Choose one option.

- ◯ Expert user
- ◯ Advanced user
- ◯ Practically experienced user
- ◯ Novice

Seite 17
NA3

Experience with Neuroimaging Data Analysis Software

I prefer to operate neuroimaging analysis software...

Choose one option.

- ◯ ...via graphical user interface.
- ◯ ...via command/batch interface.
- ◯ I don’t operate such software myself.

Experience with Stimulus Presentation Software

What software do you use to present stimuli to study participants during functional neuroimaging?

Choose one or more options.

- [ ] Presentation
- [ ] E-prime
- [ ] Psychtoolbox
- [ ] Open Sesame
- [ ] PsychoPy
- [ ] Other, specify:
- [ ] I never present stimuli.

Sociodemographic Information

We ask you to answer questions below on sociodemographic information and professional experience.

What is your age?

_____ years

Gender:

- ◯ Male
- ◯ Female
- ◯ Diverse

My country of residence is

- ◯ in the European Union.
- ◯ outside of the European Union.

If you want to, you may indicate your country of residence here:

_____

I have been trained as

- ◯ Biologist
- ◯ Engineer
- ◯ Medical doctor
- ◯ Physicist
- ◯ Clinical Psychologist (Psychotherapy training)
- ◯ Psychologist, other
- ◯ Other, specify: _____

For how long have you been working in research?

_____ years

What is your field of study? Please select the best match.

- ◯ Psychiatry
- ◯ Clinical psychology
- ◯ Cognitive neuroscience
- ◯ Neurology
- ◯ Biology
- ◯ Physics
- ◯ Medicine, other discipline, specify:
- ◯ Psychology, other discipline, specify:

What is your current position?

- ◯ Research Assistant
- ◯ PhD Student
- ◯ Technical Assistant
- ◯ Lab Manager
- ◯ Post-Doc (1-3 years)
- ◯ Asisstant Professor/Post-Doc (4 years or longer)
- ◯ Associate Professor/Reader/Lecturer
- ◯ Full Professor
- ◯ Other, specify:

What is your primary affiliation?

- ◯ With university hospital/medical faculty
- ◯ With university/psychology faculty or similar
- ◯ With university/other faculty
- ◯ With governmental institution
- ◯ With industry
- ◯ Other

My current research involves

- ☐ healthy participant data.
- ☐ data from individuals affected with a mental disorder.
- ☐ data from individuals affected with a physical disorder.

Seite 20

If you want to, you can submit your comments to the authors via this field.

If you are interested in the results of this survey, you can enter your email address here. We will use your email address to distribute information on the progress of this project such as publication and data availability. Email addresses will be saved separately from your answers in the questionnaire and will not be shared. There is no direct link between your answers and your email address.

☐ I am interested in the results of this survey.

Letzte Seite

You have completed this survey.

Thank you for your participation!

Christian Paret, Central Institute of Mental Health, Mannheim