Plan Overview

A Data Management Plan created using DMPonline

Title: EXPECTPERCEPT - How our expectations can make us hallucinate: the neural mechanisms underlying perception

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EXPECTPERCEPT - How our expectations can make us hallucinate: the neural mechanisms underlying perception

Summary

Project Acronym

EXPECTPERCEPT

Project Number

948548

Provide a dataset summary

This DMP covers the data that will be acquired during the EXPECTPERCEPT project. Participants will perform visual detection and discrimination tasks while their brain activity is measured using MEG or fMRI. For most studies the participants will be healthy volunteers, and for some studies they will consist of early stage psychosis patients or healthy volunteers prone to hallucinations. For these studies, participants will fill out questionnaires pertaining to their clinical symptoms and/or hallucination proneness. For each study within EXPECTPERCEPT, a new dataset will be generated. This primarily consists of neuroimaging data (MRI or MEG) and behavioural responses. Subjects will need to provide explicit consent to the use of this data, as per GDPR legislation. This is included in the participant information sheet and consent provided, which all subjects will receive a copy to keep. Anonymised neuroimaging and behavioural data will be shared for reference. This will allow to replicate all reported findings.

FAIR data and resources

1. Making data findable

We will create datasets for all studies on open-access public repositories, such as the Open Science Framework (OSF). These datasets will be coupled to persistent and unique identifiers, i.e. DOIs. Links to these datasets will be included in the publications, so that they are easily found by interested researchers.

2. Making data openly accessible

We intend to make as much data as possible openly accessible. This will entail anonymised behavioural responses and neuroimaging data, as well as metadata. This pertains to processed neuroimaging data, such as region of interest timecourses, since raw MRI data contain potentially identifiable personal data. These processed neuroimaging data, as well as the behavioural and metadata, are anonymised and can thus be used by researchers outside the Centre when required. At no point will potentially identifiable personal data be made publicly available, or shared with researchers outside the team. We will obtain participant consent for data sharing prior to data collection, as part of the informed consent procedure. Participants can request their data be destroyed at any point. We plan to deposit the data, and provide all task and analysis code, on public repositories (e.g. OSF). These are openly accessible repositories and well established in the field. The public repositories into which we will upload our neuroimaging data have established protocols for curating and sharing research data in an open and regulated way.

3. Making data interoperable

Behavioural performance data will be stored in Matlab '.mat' files, and questionnaire data will be stored in '.xlsx' spreadsheet files. MEG data will be stored in CTF '.meg4' file formats, and fMRI data in DICOM images. The metadata consists of information of the timing of events (e.g. the presentation of images on screen, or button presses) with respect to the brain imaging data, stored in '.mat' Matlab files. These formats are the industry standard, and are suitable for long-term storage and sharing.

4. Increase data reuse

Neuroimaging data, behavioural performance data, and corresponding metadata will remain re-usable indefinitely for reproducibility and discovery purposes. The anonymised data provided on public repositories will be licensed under CC BY to maximise reuse.

All neuroimaging will be collected with full radiographer support using standard Centre procedures to ensure safety and data quality. All scanning protocols are documented, and notes are kept of any out of the ordinary occurrences (e.g. scanner errors). Participants' head motion is monitored throughout, and eye-trackers are used when possible to ensure participants keep fixation. All neuroimaging instruments undergo regular quality assessment measurements to ensure data quality is optimised.

5. Allocation of resources and data security

The targeted repositories are currently free of costs for users. This may change for long-term storage or in a changing financial situation. Costs will be estimated in case repositories will no longer be free of charge.

The data will be pseudo-anonymised at source. Pseudonymisation will take place immediately as we will store each participant's data onto computers systems identified only by a numerical identifier, omitting any personal data such as the participant's name, gender, and date of birth. Any personal data such as contained in consent forms (e.g., age, gender) will also be pseudonymised, using a separate numerical identifier. These numerical identifiers will be stored in a secure spreadsheet document, linking the neuroimaging data to the personal data (age, gender). Only permitted individuals working directly on the study will have access to this linking document. To further ensure written personal data cannot be linked with neuroimaging data in any way consent forms and neuroimaging data records will be stored separately and securely at the Wellcome Centre for Human Neuroimaging (WCHN). Pseudonymised data will be stored on password-protected computers at the WCHN, in line with Data Protection Act and the local data protection protocols. All data protection measures are covered by approved UCL Data Protection Protocols. The link between participant personal data and MRI data will be retained at WCHN for three years to allow any possible follow up studies but after 3 years all personal data that can link individuals to their data will be destroyed.

Data storage and backup are provided by the Centre IT team on secure dedicated servers. All original neuroimaging data is stored indefinitely, with one copy being stored on site, and backups on two other systems on LTO tapes, one on site and one off site.