Plan Overview

A Data Management Plan created using DMPonline.be

Title: The neural basis of thermoception

Creator: Aïcha Boutachkourt

Principal Investigator: n.n.

Data Manager: Aïcha Boutachkourt

Project Administrator: Aïcha Boutachkourt

Affiliation: KU Leuven (KUL)

Funder: Fonds National de la Recherche Scientifique (FNRS)

Template: KU Leuven BOF-IOF

Principal Investigator: n.n. n.n.

Data Manager: Aïcha Boutachkourt

Project abstract:

Thermoception refers to the sensation of temperature differences derived from heat flux. It is a particular modality of interoception, which covers all sensations related to the state of the body. There is accumulating evidence that interoception contributes to how social cues are perceived and interpreted, i.e. social cognition. Deficits in social cognition are a hallmark of frontotemporal dementia (FTD), a neurodegenerative disorder characterized by behavioral changes but also thermoceptive deficits. Importantly, all these concepts (thermoception, interoception, social cognition and FTD) share a neuroanatomical basis in which the insular cortex plays a key role. This project will investigate thermoception by means of intracerebral electroencephalography (iEEG) in epileptic patients with electrodes implanted in the insula (performed at UCLouvain). This sample of epileptic patients and a new sample of FTD patients will also take part in a task-based functional magnetic resonance imaging (fMRI) and behavioral assessment of interoception and social cognition (performed at UCLouvain/KU Leuven). This combination of center-specific techniques and expertise allows obtaining optimal focal temporal and spatial resolution, together with coverage of neural responses across the whole brain. The project will provide innovative insights into the neural mechanisms underlying thermoception, the role of thermoception and interoception in social cognition, and the pathophysiology of FTD. Furthermore, the project may lay the basis for a long term collaboration between the respective research groups.

ID: 210845

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End date: 04-10-2027

Last modified: 12-11-2024

The neural basis of thermoception

Research Data Summary

List and describe all datasets or research materials that you plan to generate/collect or reuse during your research project. For each dataset or data type (observational, experimental etc.), provide a short name & description (sufficient for yourself to know what data it is about), indicate whether the data are newly generated/collected or reused, digital or physical, also indicate the type of the data (the kind of content), its technical format (file extension), and an estimate of the upper limit of the volume of the data.

Dataset name / ID	Description	New or reuse	Digital or Physical data	Data Type	File format	Data volume	Physical volume
		Indicate: ***N****(ew data) or* ***E****(xisting data)*	Indicate: **D**(igital) or **P**(hysical)	Indicate: **A**udiovisual **I**mages **S**ound **N**umerical **T**extual **M**odel **SO**ftware Other (specify)		Indicate: <1GB <100GB <1TB <5TB >5TB NA	
Questionnaire	Assessment of interoception and social cognition abilities	***N****(ew data)*	**P**(hysical)	**N**umerical and **T**extual	.xlsx .sav	<100 GB	
Behavioural	Thermonociceptive and social cognition ratings	***N****(ew data)*	**D**(igital)	**N**umerical	.xlsx	<1TB	
Electrophysiological	iEEG signal	***N****(ew data)*	**D**(igital)	**N**umerical	.edf	>5TB	
Neuroimaging	fMRI signal	***N****(ew data)*	**D**(igital)	**I**mages	DICOM	>5TB	

If you reuse existing data, please specify the source, preferably by using a persistent identifier (e.g. DOI, Handle, URL etc.) per dataset or data type:

Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? If so, refer to specific datasets or data types when appropriate and provide the relevant ethical approval number.

- Yes, human subject data (Provide SMEC or EC approval number below)

Ethical approval recieved from UCLouvain (host university of the Phd). This project involves human participants including healthy volunteers and hospital in- and outpatients with frontotemporal dementia It will be submitted to the UPC-KU Leuven local ethics committee and the UZ Leuven EC

Will you process personal data? If so, please refer to specific datasets or data types when appropriate and provide the KU Leuven or UZ Leuven privacy register number (G or S number).

- Yes (Provide PRET G-number or EC S-number below)

Personal data relating to study participants including name and date-of-birth will be collected for ID purposes during data collection. This information will only be available to researchers directly involved in recruitment, screening, and planning of data collection (e.g. MR scanning and neuropsychological assessments). For the remainder of the study, all derivative data will be coded and thus pseudonymized. The file linking the code and personal identifiers age/dob will only be accessible to authorized individuals and stored in restricted access, secure environment managed by the KU Leuven/UZ Leuven ICT facility.

Does your work have potential for commercial valorization (e.g. tech transfer, for example spin-offs, commercial exploitation, …)? If so, please comment per dataset or data type where appropriate.

- No

Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material or Data transfer agreements, Research collaboration agreements)? If so, please explain in the comment section to what data they relate and what restrictions are in place.

- No

Are there any other legal issues, such as intellectual property rights and ownership, to be managed related to the data you (re)use? If so, please explain in the comment section to what data they relate and which restrictions will be asserted.

- No

Documentation and Metadata

Clearly describe what approach will be followed to capture the accompanying information necessary to keep data understandable and usable, for yourself and others, now and in the future (e.g. in terms of documentation levels and types required, procedures used, Electronic Lab Notebooks, README.txt files, codebook.tsv etc. where this information is recorded).

Questionnaires :

- Data will be stored in the internal network of KU Leuven
- iEEG data :README.txt file is added to each iEEG dataset to ensure the understanding of the data.
- MRI : README.txt is added to each fMRI dataset to ensure the understanding of the data.

Will a metadata standard be used to make it easier to find and reuse the data?
If so, please specify which metadata standard will be used.

If not, please specify which metadata will be created to make the data easier to find and reuse.

- Yes

Metadata of the numerical dataset will be created manually based upon commonly used
terminology in the fields of neuroimaging, psychiatry and biostatistics. For brain imaging data we will work with the BIDS format, which standardizes directory structure and additional metadata.

Data Storage & Back-up during the Research Project

Where will the data be stored?

- Large Volume Storage

The data pertaining to one of the PhD candidates -- Aïcha Boutachkourt -- is stored on two separate systems:
1) a work laptop on which the code is developed,
3) a server located in a private space, on which all the data are saved
Master copies of the neuroimaging and neuropsychological data will be kept on our secure research unit central storage facility, and time-version stamped. Copies can be made and kept on personal devices in accordance with the level of authorisation of the user and the data security level of their device. 2. Sensitive personal data concerning the study participants will be stored in a KUL/UZ secure environment. 3. MR imaging data will be stored on the UZ Leuven data drive, and reconstructed files will be transferred to the hospital PACS system. We will use KUL/UZ managed storage and file-sharing facilities as well as the REDCap platform for active use of the data during the project.

How will the data be backed up?

- Standard back-up provided by KU Leuven ICTS for my storage solution

Is there currently sufficient storage & backup capacity during the project?

If no or insufficient storage or backup capacities are available, explain how this will be taken care of.

- Yes

How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

The identifiable neuroimaging,electrophysiological and neuropsychological data files from this study will be managed, processed, and stored in a secure environment (KUL/UZ).

What are the expected costs for data storage and backup during the research project? How will these costs be covered?

The expected costs for data storage and back up (REDcap, KUL, UZ data) are estimated to be up to €2000 covered by available funds.

Data Preservation after the end of the Research Project

Which data will be retained for 10 years (or longer, in agreement with other retention policies that are applicable) after the end of the project?

In case some data cannot be preserved, clearly state the reasons for this (e.g. legal or contractual restrictions, storage/budget issues, institutional policies...).

- All data will be preserved for 10 years according to KU Leuven RDM policy
- All data will be preserved for 25 years according to CTC recommendations for clinical trials with medicinal products for human use and for clinical experiments on humans

Where will these data be archived (stored and curated for the long-term)?

- KU Leuven RDR

What are the expected costs for data preservation during the expected retention period? How will these costs be covered?

2000eu, covered by available funds.

Data Sharing and Reuse

Will the data (or part of the data) be made available for reuse after/during the project?
Please explain per dataset or data type which data will be made available.

- No (closed access)

If access is restricted, please specify who will be able to access the data and under what conditions.

Question not answered.

Are there any factors that restrict or prevent the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)?

Please explain per dataset or data type where appropriate.

- No

Where will the data be made available?

If already known, please provide a repository per dataset or data type.

- KU Leuven RDR (Research Data Repository)

When will the data be made available?

- Upon publication of research results

Which data usage licenses are you going to provide?

If none, please explain why.

None, in line with ethical approval.

Do you intend to add a persistent identifier (PID) to your dataset(s), e.g. a DOI or accession number? If already available, please provide it here.

- No

What are the expected costs for data sharing? How will these costs be covered?

None

Responsibilities

Who will manage data documentation and metadata during the research project?

The PhD candidate working ont the project

Who will manage data storage and backup during the research project?

The PhD candidate working on the project

Who will manage data preservation and sharing?

This responsibility will lie with the supervisor, as this requires a long term commitment most likely extending beyond the tenure of the PhD candidate.

Who will update and implement this DMP?

The end responsibility for updating and implementing the DMP is with the supervisor (promotor). To this end, the PhD candidate commit themselves to keeping the supervisor informed about the status of their respective data backup and preservation.