ESR 2

THE PROJECT

Psychobiological predictors of comorbid depression and anxiety in chronic pain in multiple longitudinal cohorts: focus on sensory, motivational and emotional factors.

Objectives

1/ To determine sensory profiles, emotional reactivity and stress-related factors predicting pain comorbid with depression and anxiety based on four longitudinal and cross-sectional cohorts of chronic pain patients and those at risk for chronic pain.

2/ To cross-validate the role of these factors in a multivariate approach in available cohort considering gender as a moderating factor defining brain-emotion and –brain-sensation susceptibility and resilience factors.

3/ To analyse the impact of pharmacological treatments and their relation to sensory, motivational and emotional mechanisms.

Methodology

We will integrate data on sensory testing including central sensitization and conditioned pain modulation, brain imaging and behavioral data on reward sensitivity and emotional reactivity, and psychophysiological stress reactivity data and related genetic/epigenetic data. We will use multivariate pattern analysis, machine learning approaches and latent class growth analysis to determine the predictive value of the neurobehavioral and psychophysiological signatures and cross-validate the results across cohorts.

Expected Results

Information on sensory and emotional and stress-related multimodal predictors of differential and common comorbidity factors for depression and anxiety in chronic pain with a determination of the relative weight of these variables in a gender-dependent manner. ESR will get knowledge on multimodal imaging and neuroplasticity, stress markers, indicators of emotional and motivational responses and integration and cross-validation of large data sets and computational analysis.

Supervisors and host organisations

Main supervisors and recruiting organisation:
Herta Flor[1] and Frauke Nees[2]
[1]Zentralinstitut fuer Seelische Gesundheit, Institute of Cognitive and Clinical Neuroscience, Heidelberg, Germany
[2]Institute of Medical Psychology and Medical Sociology, University Medical Center Schleswig-Holstein (UKSH), Kiel University, Kiel, Germany**Co-supervisor (clinical unit):**
Didier Bouhassira and Nadine Attal,
Université de Versailles-Saint Quentin-en-Yvelines

Co-supervisor (company):
Matthieu Charvériat,
Theranexus, Paris,
France

Planned mobility track and secondments:

Host 1: ZI, Germany: M5-20, M37-40: Compute predictions related to the sensory-motivational and stress system from available cohorts for chronic pain with and without depression and anxiety in males and females.

Host 2: UVSQ, France *(DB, NA)*, M24-36: Cross-validate data on patients from DOLORisk.

Host3: Theranexus, France: 21-24: Participate in the development of strategies for "bench to bedside.

Enrolment in Doctoral degrees:

University of Heidelberg and Université de Versailles-Saint-Quentin-en-Yvelines,
/ Joint Diploma (upon further discussions).

THE POSITION

Duration

36 mo

Salary

Exact salary will be confirmed upon and will be based on a Living Allowance (salary) of €3171,90 Euros per month brutto. The net salary will depend on taxation and social (including pension) contribution deductions based on national and company regulations that will apply.

Allowance

There is a mobility allowance of €600/month. Additionally, researchers may also qualify for a family allowance of €500/month depending on the family situation.

THE CANDIDATE PROFILE

Academic prerequisite

Excellent Master in psychology (obtained at the application date) or another natural science

Knowledge on specific topics

Knowledge and interest in experimental psychology and neuroscience; solid background in functional imaging and programming skills.

The candidate is advised to have knowledge in the basics and clinical and therapeutic aspects of pain including pharmacotherapy through university diploma, master or equivalent

Knowledge of statistics, methodology and programming will be valued (see below)

Technical skills

Good methodological (statistics, experimental design); Good English language skills.

Prior experience with handling of large data sets and using statistical methods including multivariate analyses and familiarization with statistical databases (eg SPSS, SAS, R…) will be valued in the evaluation.

Some knowledge in the data required for full phenotyping of pain using patient reported outcome measures (pain, anxiety, depression, impact of pain…) and quantitative sensory testing (evoked pains, sensory deficits) is required.

Exclusion criteria

Nationality is not a criterion: Researchers can be of **any nationality**. Rather the location of the researcher's residence or main activity during the 3 years prior to their recruitment is determining. Indeed, the candidate **must not have resided** or carried out their main activity (work, studies, etc.) **in Germany** (the country of the recruiting beneficiary) for more than 12 months in the 3 years immediately before the recruitment date. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status under the Geneva Convention1 are not taken into account.

The candidate shall, at the time of recruitment, be in the **first four years** (full-time equivalent research experience) of their research careers and **have not been awarded a doctoral degree**.

Apply for this position at https://happy-form.u-strasbg.fr/
before the 1st of August, 2021