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Coping with psychosocial stress situations in patie

Submission date
26/06/2025

Recruitment status
Recruiting

Registration date
04/09/2025

Overall study status
Ongoing

Last Edited
04/09/2025

Condition category
Mental and Behavioural Disorders

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol

Background and study aims
Depression is a serious mental health condition that affects many people around the world. While scientists have made progress in understanding the brain, we still don't fully know what causes depression or how to best treat it. This study aims to explore how people with and without depression respond to stress, especially when they've experienced "social pain"—like seeing someone else suffer. The researchers want to understand how age, gender, and past experiences affect how people cope with stress. They'll also use animal models to help uncover what's happening in the brain and body during these experiences.

Who can participate?
The study will include both adolescents and adults, with and without depression. Participants of all genders will be involved. Specific eligibility criteria will be shared during the recruitment phase.

What does the study involve? (for participants)
Participants will take part in stress-related tests, including one called the "cold pressor test," which involves placing a hand in cold water while being observed. This helps measure how the body reacts to stress. Researchers will also collect saliva samples to measure hormone levels and assess thinking and memory skills. Participants may be asked about their past experiences with social pain, such as witnessing others in distress.

What are the possible benefits and risks of participating?
Taking part in the study may not directly benefit participants, but it will help improve understanding of depression and stress. This could lead to better treatments in the future. Risks are minimal but may include temporary discomfort during stress tests or emotional discomfort when discussing past experiences.

Where is the study run from?
Grant Agency of Ministry of Education, science, research and sport of the Slovak Republic and the Slovak Academy of Science.

When is the study starting and how long is it expected to run for?
May 2023 to December 2028

Who is funding the study?
Univerzita Komenského v Bratislave (Comenius University Bratislava; Slovakia)
Slovenská Akadémia Vied (Slovak Academy of Sciences; Slovakia)

Who is the main contact?
Assoc. Prof. Ľubomíra Izáková, PhD (lubomira.izakova@gmail.com)
Prof. Pharm Dr. Daniela Ježová, DrSc. (daniela.jezova@savba.sk)

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Additional identifiers

Protocol serial number
VEGA 1/0644/23

Study information

Scientific Title
Coping with psychosocial stress situations in patients with depressive disorder in relation to age ar

Acronym
PsychoSocStress

Study objectives
1. Coping with psychosocial stress situations is more affected by depressive disorder during adolescence compared to adulthood. Thus, bigger differences in the neuroendocrine response to an acute stressor between patients with depressive disorder and healthy volunteers can be expected in adolescent subjects compared to adults.
2. The observation of severe suffering of other people represents a form of “social pain” that can negatively affect both mental state and stress coping. It is expected that the influence of social pain will be manifested more strongly in patients with depressive disorder than in healthy subjects. Alterations at the level of cognition can also be expected.
3. The mechanisms mediating the influence of experienced observation of the suffering of others on coping with stress situations depend on age. To approach this aim, an animal model of social pain will be developed and the markers of brain plasticity will be evaluated in adolescent and adult rats.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 16/05/2023, Ethics Commission of Bratislava Self-Governing Region (Sabinovská 16, Bratislava, 820 05, Slovakia; +4212 48 264 111; podatelna@region-bsk.sk), ref: Reference number not provided

Primary study design
Observational

Study design
Observational case-control study and experimental study

Study type(s)
Other

Health condition(s) or problem(s) studied
Biological stress, inflammation markers and psychocial stress in depressive disorder

Interventions
The research will include patients diagnosed with an acute depressive episode and healthy volunteers of the same age without a history of mental disorder and severe physical illness. The cohort will consist of 60 adult (40-55 years) and 60 adolescent (15-18 years) patients with an acute depressive episode according to ICD-10 and 60 healthy adults and 60 adolescents. In adult patients, the diagnosis will be assessed at the Psychiatric Clinic of LFUK and UN Bratislava, and in adolescents at the Department of Child Psychiatry LFUK and NÚDCH.

Participants who take part in the research are divided into 4 groups according to the following characteristics:
1. Group of participants with a history of depressive disorder experiencing empathic pain (group DS);
2. Group of participants with a history of depressive disorder not experiencing empathic pain (group D0) ;
3. Group of healthy volunteers with a negative psychiatric history experiencing empathic pain (KS group) ;
4. Group of healthy volunteers with a negative psychiatric history and no history of experiencing empathic pain (K0 group)

Healthy volunteers will be matched by age, sex, and BMI to the patients.

The study will include two sessions. During the FIRST VISIT, a structured interview will be conducted, assessment scales will be administered in order to assess the severity of depressive symptoms and psychosocial stress conditions (Beck Depression Inventory, Holmes-Rahe Stress Inventory). The SECOND VISIT, namely the examination of coping with stressful situations, will be performed at the Research Clinic of the BMC SAS. In women, examinations will be performed in the follicular phase. Probands will fill out questionnaires focused on anxiety and stress coping (State-Trait Anxiety Inventory). After performing control measurements and sampling, subjects will be exposed to a socially evaluated cold pressor test. Before, immediately after, and in the post-stress phase, saliva samples will be collected and measurement of blood pressure, heart rate, and its variability (HRV) will be done. Subsequently, the probands will be exposed to the Stroop test as a mental stressor and saliva collection and measurement of hemodynamic parameters will be repeated. The Stroop test represents a stress stimulus, but also allows you to assess attention and cognitive performance based on the speed of the test performance and the number of errors made. As the primary output of this part of the project, the presence of social pain affecting the mental state as a covariate in the statistical analysis will be used.

In experimental part – animal model of social pain will be assessed. Females of rats will be kept in pairs, with one female being a "pain demonstrator" and given a formalin solution in her hind paw (in adolescents on PND42, in adults on PND91). The second female will be an "observer of pain and suffering”. In both series 3 experimental groups will be used. On days 7 to 11 after formalin administration, rats will be exposed to a battery of behavioral tests. On day 12, the rats will be exposed to a stress stimulus in the form of an EPM test. Only half of the animals in each group will be exposed to EPM, as this test will also be used for stress response evaluation. The second half will be unstressed controls. Changes in behavior, secretion of hormones, and immune parameters in response to stress stimulus will be examined. Neurochemical parameters with an emphasis on cell proliferation and other parameters related to brain plasticity will be investigated in selected brain structures.

Intervention Type
Other

Primary outcome(s)
1. Depressive symptoms severity is measured using The Beck Depression Inventory (BDI) at a single time point.
2. The Amount of stress of individuals experiences is assessed using by Holmes-Rahe Stress Inventori (HRSI) at a single time point.
3. The capacity of individuals empathy is measured using The Basic Empathy Scale (BSE) at a single time point.

Key secondary outcome(s)
1. Activation of sympathetic nervous system and hypothalamus-hypophysis-adrenal gland axis is measured by socially evaluated cold pressor test at a single time point.
2. Cognitive performance is evaluated by Stroop test (also a social stress stimulus) at a single-time point.
3. Aldosterone levels in saliva will be determined using an own modified method (Hlavacova et al. 2013) at specified times pre-, during and after exposure of stress stimulus.
4. Cortisol in saliva and in hair sample is measured by ELISA using commercial kit at specified times pre-, during and after exposure of stress stimulus.
5. Alpha-amylase in saliva is measured by ELISA using commercial kit at specified times pre-, during and after exposure of stress stimulus.
6. IL-1β in saliva is measured by ELISA using commercial kit at specified times pre-, during and after exposure of stress stimulus.
7. Blood preassure and heart-frequency and its variability is measured by certified chest belt pre-during and post stress exsposure.
8. Anxiety-like behaviour in female rats is assessed using The Elevated Plus Maze Test (EPM test) at a single time point.
9. Depression-like behaviour in female rats is assessed using The Sucrose Preference Test (Hlavacova et al. 2012) at a single time point.
10. Cognitive performance in female rats is assessed using The Novel Object Recognition Test (Hlavacova et al. 2015) at a single-time point.
11. The novel object recognition test is used as a working memory task to assess cognitive performance as described previously (Hlavacova et al. 2015) at a single-time point.
12. 5-bromo-2-deoxyuridine (BrdU) as a marker of cell proliferation and neurogenesis in female rats are measured by ELISA using commercial kit in selected brain structures, particularly in the hippocampus at a single time point
13. Changes on molecural level in female rats are investigated at the protein level by Western blot analysis and at gene expression level using RT-PCR and real-time PCR at a single time point

Completion date
31/12/2028

Eligibility

Key inclusion criteria
1. Adults (18-55 years) and adolescents (15-18 years)
2. BMI 18.5-26.5 kg/m²
3. History of depressive disorder with or without empathic pain
4. Healthy volunteers with a negative psychiatric history with or without empathic pain

Participant type(s)
Healthy volunteer, Patient

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit

15 Years

Upper age limit
55 Years

Sex
Female

Key exclusion criteria
1. Severe somatic disease
2. Endocrinopathy
3. Organic CNS damage
4. No substance abuse

Date of first enrolment
01/08/2025

Date of final enrolment
31/12/2026

Locations

Countries of recruitment
Slovakia

Study participating centre
Faculty of Medicine, Comenius University Bratislava
Špitálska 24, 813 72 Bratislava 1
Bratislava 1
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813 72

Study participating centre
Institute of Experimental Endocrinology, Biomedical Research Center of SAS
Dúbravská cesta 9
Bratislava
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845 05

Sponsor information

Organisation

Grant Agency of Ministry of Education, science, research and sport of the Slovak Republic and the Slovak Academy of Science

Funder(s)

Funder type
University/education

Funder Name
Univerzita Komenského v Bratislave

Alternative Name(s)
Univerzita Komenského, Comenius University in Bratislava, Comenius University

Funding Body Type
Government organisation

Funding Body Subtype
Local government

Location
Slovakia

Funder Name
Slovenská Akadémia Vied

Alternative Name(s)
Slovak Academy of Sciences, SAV

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
Slovakia

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/ or analysed during the current study will be available upon request after the project is completed from Assoc. Prof. Ľubomíra Izáková, PhD (lubomira.izakova@gmail.com) or Prof. PharmDr. Daniela Ježová, DrSc. (daniela.jezova@savba.sk).

IPD sharing plan summary

Available on request