

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

EEG-based emotion recognition during visual learning process in healthy females

Protocol summary

Study aim

Comparison of EEG signals before and after visual learning process corresponding to emotions experienced by individuals during the learning, in order to design an emotion recognition system during learning using brain signals.

Design

Quasi-experimental clinical trial, Before-after design, One intervention group with 20 healthy subjects.

Settings and conduct

This study focuses on recognizing emotions involved in the learning process using biological signals, at Tarbiat Modares University of Iran. The procedure: 1. Identifying individuals with visual learning style to participate in the experiments, using a psychological personality questionnaire, 2. EEG signal acquisition from the participants before and during the visual learning process, 3. Evaluating the learning performance of the subjects based on a written test, 4. Assessing emotions experienced by the subjects during the learning process based on self-report questionnaires, 5. Assigning subjects to two groups of with effective learning (good learning with positive emotions according to stage 3 and 4, respectively) and with ineffective learning (poor learning with negative emotions according to stage 3 and 4, respectively), 6. Within-group and between-group comparison of recorded EEG signals before and during the learning process, to design an EEG-based emotion recognition system. In this step, we will focus on statistical analysis and classification methods.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Female, aged between 25 to 31 years, healthy individuals, university-graduated or student, visual learning style. Exclusion criteria: History of mental disorders, medication use, visual impairment, hearing impairment.

Intervention groups

Intervention group: A visual learning task, while recording EEG signals.

Main outcome variables

Brain neural activity

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200212046473N4**

Registration date: **2020-06-18, 1399/03/29**

Registration timing: **retrospective**

Last update: **2020-06-18, 1399/03/29**

Update count: **0**

Registration date

2020-06-18, 1399/03/29

Registrant information

Name

Zeynab Khodakarami

Name of organization / entity

Country

Iran (Islamic Republic of)

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+98 21 5121 5080

Email address

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2015-11-22, 1394/09/01

Expected recruitment end date

2015-12-21, 1394/09/30

Actual recruitment start date

2015-11-22, 1394/09/01

Actual recruitment end date

2015-12-21, 1394/09/30

Trial completion date

2015-12-21, 1394/09/30

Scientific title

EEG-based emotion recognition during visual learning process in healthy females

Public title

Emotion recognition during learning process using brain signals

Purpose

Supportive

Inclusion/Exclusion criteria**Inclusion criteria:**

Aged between 25 to 31 years Healthy individuals
University-graduated or student Visual learning style

Exclusion criteria:

History of mental disorders Medication use Visual impairment Hearing impairment

Age

From **25 years** old to **31 years** old

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **20**

Actual sample size reached: **20**

Randomization (investigator's opinion)

N/A

Randomization description**Blinding (investigator's opinion)**

Not blinded

Blinding description**Placebo**

Not used

Assignment

Single

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Research Ethics Committee of Tarbiat Modares University

Street address

Tarbiat Modares University, Nasr Bridge, Jalal-Ale-Ahmad

City

Tehran

Province

Tehran

Postal code

14115-111

Approval date

2015-11-09, 1394/08/18

Ethics committee reference number

IR.TMU.REC.1394.138

Health conditions studied**1****Description of health condition studied**

Emotional states experienced during learning

ICD-10 code

R45.89

ICD-10 code description

Other symptoms and signs involving emotional state

Primary outcomes**1****Description**

Brain neural activity

Timepoint

Before the intervention at the beginning of the session,
During the learning process

Method of measurement

Recording EEG signals

Secondary outcomes

empty

Intervention groups**1****Description**

Intervention group: A visual learning task, while recording EEG signals. The device FlexComp Infinity (Thought Technology Ltd, Montreal, QC), along with the golden electrodes, will be used to record EEG signals.

Category

Other

Recruitment centers**1****Recruitment center****Name of recruitment center**

Tarbiat Modares University

Full name of responsible person

Zeynab Khodakarami

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
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Grant name
Grant code / Reference number
**Is the source of funding the same sponsor
organization/entity?**
Yes
Title of funding source
Tarbiat Modares University
Proportion provided by this source
100
Public or private sector
Public
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
Academic

Person responsible for general inquiries

Contact

Name of organization / entity
Modares Science and Technology Park
Full name of responsible person
Zeynab Khodakarami
Position
Researcher
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Other areas of specialty/work
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Person responsible for updating data

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Sharing plan**Deidentified Individual Participant Data Set (IPD)**

Yes - There is a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available

Title and more details about the data/document

All participants' data, after anonymization, will be shared through local and international biosignal online databases. The study protocol, statistical analysis map and informed consent can also be shared.

When the data will become available and for how long

Data and documents will be available once the results are published for an unlimited period.

To whom data/document is available

University researchers

Under which criteria data/document could be used

Commitment to mention the source of data and the name of principal investigator for any use, commitment not to use for clinical purposes

From where data/document is obtainable

Correspondence with the representative of principal investigator, Zeynab Khodakarami, with email address: z.khodakarami@gmail.com

What processes are involved for a request to access data/document

Request review by the representative of principal investigator (2 weeks), sharing the application with the principal investigator (2 weeks), final statement by the representative of principal investigator

Comments