

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

21 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)

##### Phone

+98 21 5121 5080

##### Email address

z.khodakarami@modares.ac.ir

##### 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 Infiniti (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**  
Tarbiat Modares University  
**Full name of responsible person**  
Yaghoob Fathollahi  
**Street address**  
Vice Chancellor for Research and Technology, Tarbiat  
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res@modares.ac.ir  
**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  
**Latest degree**  
Master  
**Other areas of specialty/work**  
Medical Engineering

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## Person responsible for scientific inquiries

#### Contact

**Name of organization / entity**  
Tarbiat Modares University  
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Mohammad Firoozabadi  
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Professor  
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Ph.D.  
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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**