

Clinical Trial Protocol

Iranian Registry of Clinical Trials

09 Jun 2026

The effectiveness of direct current stimulation (tDCS) and random noise stimulation (tRNS) on auditory hallucinations, depression and cognitive functions in patients with schizophrenia: a randomized, double-blind clinical trial

Protocol summary

Study aim

Determining the effectiveness of direct electric current stimulation (tDCS), random noise stimulation (tRNS) and sham stimulation in improving auditory hallucinations, depression and cognitive functions in people with schizophrenia

Design

A double-blind study with a cross-over design and a sample size of 36 patients with three intervention conditions: control, direct current stimulation (tDCS) and random noise current stimulation (tRNS).

Settings and conduct

The work will be carried out in the healing center. Patients and the principal investigator will be blinded in this study.

Participants/Inclusion and exclusion criteria

Having schizophrenia

Intervention groups

direct current stimulation (tDCS) and random noise stimulation (tRNS)

Main outcome variables

auditory hallucinations

General information

Reason for update

Acronym

tDCS, tRNS

IRCT registration information

IRCT registration number: **IRCT20180724040579N4**

Registration date: **2023-02-12, 1401/11/23**

Registration timing: **prospective**

Last update: **2023-02-12, 1401/11/23**

Update count: **0**

Registration date

2023-02-12, 1401/11/23

Registrant information

Name

Asgar Iranpour

Name of organization / entity

University of Mohaghegh Ardebili

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Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-02-20, 1401/12/01

Expected recruitment end date

2023-03-16, 1401/12/25

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effectiveness of direct current stimulation (tDCS) and random noise stimulation (tRNS) on auditory hallucinations, depression and cognitive functions in patients with schizophrenia: a randomized, double-blind clinical trial

Public title

The effectiveness of direct current stimulation (tDCS)

and random noise stimulation (tRNS) in patients with schizophrenia

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

patients with schizophrenia

Exclusion criteria:

Having other mental disorders

Age

No age limit

Gender

Male

Phase

N/A

Groups that have been masked

- Participant
- Investigator

Sample size

Target sample size: 36

Randomization (investigator's opinion)

N/A

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

Double blinded

Blinding description

During each week, patients will be placed in one of the control, tDCS, and tRNS conditions, but will not know which group they are in.

Placebo

Used

Assignment

Crossover

Other design features

Non

Secondary Ids

empty

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

Ethics Committee of Payam Noor University of Ardabil

Street address

University Street

City

Ardabil

Province

Ardabil

Postal code

5619913115

Approval date

2022-12-21, 1401/09/30

Ethics committee reference number

IR.PNU.REC.1401.446

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

schizophrenia

ICD-10 code

F20

ICD-10 code description

The schizophrenic disorders are characterized in general by fundamental and characteristic distortions of thinking and perception, and affects that are inappropriate or blunted. Clear consciousness and intellectual capacity are usually maintained although

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

auditory hallucinations

Timepoint

During brain stimulation intervention

Method of measurement

CANTAB software

Secondary outcomes**1****Description**

depression and cognitive functions

Timepoint

During brain stimulation intervention

Method of measurement

CANTAB software

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

Control group: No electrical stimulation of the brain

Category

N/A

2**Description**

Intervention group: direct current stimulation (tDCS)

Category

Treatment - Devices

3**Description**

Intervention group: random noise stimulation (tRNS)

Category

Treatment - Devices

Recruitment centers

1

Recruitment center

Name of recruitment center

Shafa Medical Center

Full name of responsible person

Akbar Atadokht

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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

Payam Noor University of Ardabil

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

Payam Noor University of Ardabil

Full name of responsible person

Eisa Jafari

Position

Associate professor

Latest degree

Ph.D.

Other areas of specialty/work

Psychology

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

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

Study Protocol

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

Statistical Analysis Plan

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

Informed Consent Form

Undecided - It is not yet known if there will be 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