Clinical Trial Protocol
Iranian Registry of Clinical Trials

18 Nov 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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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

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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
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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