

Clinical Trial Protocol

Iranian Registry of Clinical Trials

25 Oct 2026

Comparative Study of the Efficacy of Repetitive Transcranial Magnetic Stimulation (rTMS) in the Two Anatomical Regions of the Right DLPFC and the SMA on the Symptoms of Patients With Obsessive-Compulsive Disorder

Protocol summary

Study aim

The aim of this study is to compare the effect of repetitive Transcranial Magnetic Stimulation (rTMS) on the Right Dorsolateral Prefrontal Cortex (DLPFC) and the Supplementary Motor Area (SMA) on reducing symptoms in patients with Obsessive-compulsive Disorder (OCD), and to help develop a more precise and effective adjunctive treatment protocol for OCD.

Design

This is an open-label, randomized clinical trial without a control group. Participants are allocated to two intervention groups (DLPFC and SMA) using randomized blocks, with assignment determined by the last digit of the national ID and a random number.

Settings and conduct

This study takes place at the psychiatry clinic of the Isfahan University of Medical Sciences, Khorshid Hospital. Eligible OCD patients, after informed consent, undergo rTMS targeting either DLPFC or SMA.

Participants/Inclusion and exclusion criteria

Inclusion Criteria: Adults between 18 and 65 years old, diagnosed with OCD based on the Diagnostic And Statistical Manual (DSM 5) who are capable of providing informed consent. Exclusion Criteria: Participants who have a history of seizure, or metal implants in or near the head, or significant neurological or psychiatric disorders, or history of substance abuse within the past 6 months, or individuals who are currently pregnant or lactating.

Intervention groups

Intervention Group 1 (DLPFC Group): Participants in this group receive rTMS on the right DLPFC. Intervention Group 2 (SMA Group): Participants in this group receive rTMS on the SMA.

Main outcome variables

Decreasing symptoms of OCD

General information

Reason for update

Acronym

DLPFC-SMA-OCD

IRCT registration information

IRCT registration number: **IRCT20260519069451N1**

Registration date: **2026-07-22, 1405/04/31**

Registration timing: **registered_while_recruiting**

Last update: **2026-07-22, 1405/04/31**

Update count: **0**

Registration date

2026-07-22, 1405/04/31

Registrant information

Name

Faranak Zakizadeh

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 31 3662 7821

Email address

faranak@med.mui.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-06-22, 1405/04/01

Expected recruitment end date

2026-09-23, 1405/07/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparative Study of the Efficacy of Repetitive Transcranial Magnetic Stimulation (rTMS) in the Two Anatomical Regions of the Right DLPFC and the SMA on the Symptoms of Patients With Obsessive-Compulsive Disorder

Public title

Effect of Magnetic Brain Stimulation in Two Different Regions on OCD Symptoms

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Adults aged between 18 and 65 years old Individuals with a confirmed diagnosis of OCD based on DSM-5 criteria Individuals who are capable of providing informed consent

Exclusion criteria:

Participants who have a history of seizure or epilepsy
Participants who have metal implants in or near the head
Participants who have significant neurological or psychiatric disorders (e.g., schizophrenia, bipolar disorder)
Participants who have a history of substance abuse within the past 6 months
Participants who are currently pregnant or lactating

Age

From **18 years** old to **65 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **64**

Randomization (investigator's opinion)

Randomized

Randomization description

In the sampling method, 32 randomized blocks of two are used. In this way, every two individuals who enter the study according to the inclusion and exclusion criteria form a block of two. The participant with the lower national ID number is assigned the number 1, and the other participant is assigned the number 2. Then, we receive a random number from a calculator; if the number 0, 1, 2, 3, or 4 is received, participant number 1 will be assigned to the DLPFC group, and participant number 2 will be assigned to the SMA group. If the numbers 5, 6, 7, 8, or 9 are received, participant number 1 will be assigned to the SMA group, and participant number 2 will be assigned to the DLPFC group.

Blinding (investigator's opinion)

Not blinded

Blinding description**Placebo**

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

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

Research Ethics Committees of School of Medicine - Isfahan University of Medical Sciences

Street address

Isfahan Medical School, Isfahan University of Medical Sciences, Hezar Jerib Avenue, Isfahan, Isfahan, Iran

City

Isfahan

Province

Isfahan

Postal code

8174673461

Approval date

2025-11-22, 1404/09/01

Ethics committee reference number

IR.MUI.MED.REC.1404.336

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

Obsessive-Compulsive Disorder (OCD) is a chronic psychiatric disorder characterized by the presence of obsessions (recurrent, intrusive, and unwanted thoughts, urges, or images) and/or compulsions (repetitive behaviors or mental acts performed to reduce anxiety or distress). OCD can significantly impair social, occupational, and academic functioning and reduce quality of life. Although pharmacotherapy and cognitive behavioral therapy are effective for many patients, a considerable proportion of individuals experience persistent symptoms, highlighting the need for alternative treatment approaches such as repetitive transcranial magnetic stimulation (rTMS).

ICD-10 code

F42

ICD-10 code description

Obsessive-compulsive disorder

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

Decreasing of obsessive compulsive symptoms

Timepoint

Before the intervention, immediately after the final session of the intervention, and 4 weeks after the final session

Method of measurement

Yale Brown obsessive compulsive scale

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: the right DLPFC group; individuals receiving rTMS on the right DLPFC area. The intervention will be delivered in 15-minute sessions, five times a week for 10 sessions. All patients will receive routine pharmacological treatment for obsessive-compulsive disorder.

Category

Treatment - Other

2

Description

Intervention group: the SMA group; individuals receiving rTMS on the SMA area. The intervention will be delivered in 15-minute sessions, five times a week for 10 sessions. All patients will receive routine pharmacological treatment for obsessive-compulsive disorder.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Khorshid Hospital

Full name of responsible person

Ali Shariat

Street address

Khorshid Hospital, Ostandari St., Isfahan, Isfahan, Iran

City

Isfahan

Province

Isfahan

Postal code

8174673461

Phone

+98 31 3668 0048

Email

nour@mui.ac.ir

Web page address

<http://nour.mui.ac.ir>

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Esfahan University of Medical Sciences

Full name of responsible person

Gholamreza Asgari

Street address

Isfahan University of Medical Sciences, Hezarjarib Ave., Isfahan, Isfahan, Iran

City

Isfahan

Province

Isfahan

Postal code

8174673461

Phone

+98 31 3668 0048

Email

international@mui.ac.ir

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Esfahan University of Medical Sciences

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

Esfahan University of Medical Sciences

Full name of responsible person

Faranak Zakizadeh

Position

Associate Professor

Latest degree

Specialist

Other areas of specialty/work

Psychiatrics

Street address

Isfahan Medical School, Isfahan University of Medical Sciences, Hezarjarib Ave., Isfahan

City

Isfahan

Province

Isfahan

Postal code

8174673461

Phone

+98 31 3792 8134

Email

faranak@med.mui.ac.ir

Person responsible for scientific inquiries

Contact

Name of organization / entity

Esfahan University of Medical Sciences

Full name of responsible person

Faranak Zakizadeh

Position

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Phone

+98 31 3792 8134

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faranak@med.mui.ac.ir

Person responsible for updating data

Contact

Name of organization / entity

Esfahan University of Medical Sciences

Full name of responsible person

Faranak Zakizadeh

Position

Associate Professor

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faranak@med.mui.ac.ir

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

No - There is not a plan to make this available

Clinical Study Report

No - There is not 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

No - There is not a plan to make this available