

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

18 Jun 2026

### Effectiveness of working memory training, Barkley's parent training program, and combination of these two interventions on improvement of working memory in children with ADHD

#### Protocol summary

##### Summary

**Goals:** The aim of the current study was to examine effectiveness of working memory training, Barkley's parent training program, and combination of these two interventions on improvement of executive functions and decrease of clinical symptoms in children with ADHD.

**Method:** To do so, 36 participants with ADHD (aged between 6 to 12 years), from special clinic of Ebn e Sina hospital were selected by available sampling method. SNAP-IV, Child Behavior Checklist (CBCL), and clinical interview, were used for diagnosis of ADHD; then the participants were randomly assigned to the three interventions groups of working memory training, parent training program and combination of these two interventions. Functions of participants were assessed by SNAP-IV, CBCL, Continuous performance test, Tower of London, Color- word Stroop test, Benton revised visual retention test, Rey copy and reproduction complex figure test, Wechsler intelligence scale for children-fourth edition (WISC- IV), Go - no -go test, and Wechsler memory test. For working memory training WMT software, and for parent training program, Barkley's model, were used. Findings: Results of MANCOVA tests and multiple comparison tests demonstrated that combination treatment (working memory training/parent training program) were more effective than each of them in improving executive functions and decrease of clinical symptoms in children with ADHD. Keyword: ADHD- working memory- planning- cognitive inhibition- behavioral inhibition- sustained attention- working memory training- parent training program- combination treatment

#### General information

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT2013072414136N1**

Registration date: **2013-09-01, 1392/06/10**

Registration timing: **retrospective**

Last update:

Update count: **0**

##### Registration date

2013-09-01, 1392/06/10

##### Registrant information

###### Name

Ali Mashhadi

###### Name of organization / entity

Ferdowsi University of Mashhad

###### Country

Iran (Islamic Republic of)

###### Phone

+98 51 1880 5873

###### Email address

mashhadi@mums.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

Ferdowsi University of Mashhad

##### Expected recruitment start date

2011-08-20, 1390/05/29

##### Expected recruitment end date

2012-05-30, 1391/03/10

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

##### Scientific title

Effectiveness of working memory training, Barkley's

parent training program, and combination of these two interventions on improvement of working memory in children with ADHD

**Public title**

Effectiveness of working memory training, Barkley's parent training program, and combination of these two interventions on improvement of working memory in children with ADHD

**Purpose**

Treatment

**Inclusion/Exclusion criteria**

To do so, 36 participants with ADHD (aged between 6 to 12 years), from special clinic of Ebn e Sina hospital were selected by available sampling method

**Age**

From **6 years** old to **12 years** old

**Gender**

Both

**Phase**

N/A

**Groups that have been masked**

*No information*

**Sample size**

Target sample size: **36**

**Randomization (investigator's opinion)**

Randomized

**Randomization description****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**

Ferdowsi University of Mashhad

**Street address**

Ferdowsi University of Mashhad

**City**

Mashhad

**Postal code****Approval date**

2011-07-15, 1390/04/24

**Ethics committee reference number**

1640

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

Attention-deficit hyperactivity disorders

**ICD-10 code**

F90

**ICD-10 code description**

Attention-deficit hyperactivity disorders

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

Working Memory

**Timepoint**

Pre and post

**Method of measurement**

CBCL- SNAP-Benton visual motor retention test(BVRT)- Rey complex figure test and recognition trial(RCFT)-Digit span subtest-

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

Inhibition- Organization

**Timepoint**

Before and after intervention

**Method of measurement**

STROOP test- TOWER of London test

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

45 min working memory training for 2 session per week

**Category**

Other

**2****Description**

The parent training program was carried out based on Barkley's model one session in the per week and for 2 mounths

**Category**

Behavior

**3****Description**

8 individual sessions PT (for Parent) and 8 individual sessions WMT (for child) were conducted

**Category**

Other

**Recruitment centers**

1

**Recruitment center**

**Name of recruitment center**

Ebne sina hospital

**Full name of responsible person**

Dr Ali Mashhadi

**Street address**

Department of Psychology, Ferdowsi University of Mashhad

**City**

Mashhad

**Sponsors / Funding sources**

1

**Sponsor**

**Name of organization / entity**

Ferdowsi University of mashhad - Bakhtiar Shabani Varaki

**Full name of responsible person**

Bakhtiar Shabani Varaki

**Street address**

Bakhtiar Shabani Varaki vice president for research & technology- ferdowsi University of mashhad-Mashhad

**City**

Mashhad

**Grant name**

**Grant code / Reference number**

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

Yes

**Title of funding source**

Ferdowsi University of mashhad - Bakhtiar Shabani Varaki

**Proportion provided by this source**

100

**Public or private sector**

*empty*

**Domestic or foreign origin**

*empty*

**Category of foreign source of funding**

*empty*

**Country of origin**

**Type of organization providing the funding**

*empty*

**Person responsible for general inquiries**

**Contact**

**Name of organization / entity**

Ferdowsi University of Mashhad

**Full name of responsible person**

Ali Mashhadi

**Position**

PhD of Psychology

**Other areas of specialty/work**

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**Web page address**

**Sharing plan**

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

*empty*

**Study Protocol**

*empty*

**Statistical Analysis Plan**

*empty*

**Informed Consent Form**

*empty*

**Clinical Study Report**

*empty*

**Analytic Code**

*empty*

**Data Dictionary**

*empty*