

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

03 Jul 2026

### Evaluating the effect of digital game-based nutrition education on iron deficiency anemia indicators in adolescent girls

#### Protocol summary

##### Study aim

The aim of this study is to evaluate the effect of a nutrition education program on markers of iron status in adolescent girls with iron deficiency anemia (IDA).

##### Design

Clinical trial with control group, parallel groups, randomized,

##### Settings and conduct

176 adolescent girls living in Saravan, Sistan and Baluchestan province, who have iron deficiency anemia, will be randomly allocated into two groups of intervention and control. Adolescent girls will undergo training with computer games (intervention group) or receiving nutritional recommendations via PowerPoints and pamphlets (control group) for 14 weeks. Laboratory tests related to iron deficiency anemia and the knowledge, attitude and practice about Iron deficiency anemia will be measured at the beginning and end of the study.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: Adolescent girls (19-10 years old) who can use smart phone Participants with this condition were not included in the study : Having cardiovascular disease or other chronic diseases severe monthly bleeding during menstruation Having infection or fracture Students who have been treated with iron supplements or other vitamin or mineral supplements during the study

##### Intervention groups

Adolescent girls in the intervention group will participate in a nutrition education program using an online game for 14 weeks, while those in the control group will only receive nutritional recommendations for Iron deficiency anemia (IDA).

##### Main outcome variables

Hemoglobin, ferritin, transferrin, serum iron, Total Iron Binding Capacity (TIBC)

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20190610043857N1**

Registration date: **2019-06-30, 1398/04/09**

Registration timing: **retrospective**

Last update: **2019-06-30, 1398/04/09**

Update count: **0**

##### Registration date

2019-06-30, 1398/04/09

##### Registrant information

##### Name

Omid Sabetghadam

##### Name of organization / entity

##### Country

Iran (Islamic Republic of)

##### Phone

+98 54 3763 1166

##### Email address

sayans194@gmail.com

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2018-10-23, 1397/08/01

##### Expected recruitment end date

2019-02-20, 1397/12/01

##### Actual recruitment start date

2018-12-11, 1397/09/20

##### Actual recruitment end date

2019-06-10, 1398/03/20

##### Trial completion date

2020-03-20, 1399/01/01

##### Scientific title

Evaluating the effect of digital game-based nutrition education on iron deficiency anemia indicators in adolescent girls

#### Public title

Effect of nutrition education on the status of iron deficiency anemia

#### Purpose

Treatment

#### Inclusion/Exclusion criteria

##### Inclusion criteria:

Adolescent girls (19-10 years old) who can use smart phones

##### Exclusion criteria:

Having Cardiovascular disease or other chronic diseases  
Severe monthly bleeding during menstruation  
Having Infection or Fractures  
Students who have been treated with iron supplements or other vitamin or mineral supplements during the study

#### Age

From **10 years** old to **19 years** old

#### Gender

Female

#### Phase

N/A

#### Groups that have been masked

*No information*

#### Sample size

Target sample size: **176**

Actual sample size reached: **176**

#### Randomization (investigator's opinion)

Randomized

#### Randomization description

Randomized balanced block: Eligible people will be randomly assigned into two groups: randomized block randomization will be done with a fixed block size of four.

#### 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

Ethics committee of Shiraz University of Medical Sciences

###### Street address

Center building of Shiraz University of Medical Sciences , in front of felestin street, zand avenue, Shiraz.

###### City

Shiraz

###### Province

Fars

###### Postal code

71348-14336

###### Approval date

2018-10-27, 1397/08/05

###### Ethics committee reference number

IR.SUMS.REC.1397.726

### Health conditions studied

#### 1

##### Description of health condition studied

Iron deficiency anemia

##### ICD-10 code

D50

##### ICD-10 code description

Iron deficiency anemia

### Primary outcomes

#### 1

##### Description

Ferritin

##### Timepoint

Baseline and after 14 weeks of intervention

##### Method of measurement

ELISA method

#### 2

##### Description

Transferrin

##### Timepoint

Baseline and after 14 weeks of intervention

##### Method of measurement

Calorimetry

#### 3

##### Description

Hemoglobin

##### Timepoint

Baseline and after 14 weeks of intervention

##### Method of measurement

Cell counter

#### 4

##### Description

Serum Iron

##### Timepoint

Baseline and after 14 weeks of intervention

##### Method of measurement

Calorimetry

#### 5

##### Description

Total Iron Binding Capacity (TIBC)

**Timepoint**

Baseline and after 14 weeks of intervention

**Method of measurement**

Calorimetry

**Secondary outcomes**

**1**

**Description**

Score of knowledge

**Timepoint**

Baseline and after 14 weeks of intervention

**Method of measurement**

Questionnaire on Knowledge of Adolescent Girls about Iron Deficiency Anemia

**2**

**Description**

Height

**Timepoint**

Baseline and after 14 weeks of intervention

**Method of measurement**

Stadiometer

**3**

**Description**

Weight

**Timepoint**

Baseline and after 14 weeks of intervention

**Method of measurement**

Digital scale

**4**

**Description**

Score of attitude

**Timepoint**

Baseline and after 14 weeks of intervention

**Method of measurement**

Questionnaire on attitude of adolescent girls about iron deficiency anemia

**5**

**Description**

Score of performance

**Timepoint**

Baseline and after 14 weeks of intervention

**Method of measurement**

Questionnaire on the performance of adolescent girls about iron deficiency anemia

**Intervention groups**

**1**

**Description**

Intervention group :Adolescent girl in the intervention

group will participate in a nutrition education program using an online game for The 14 weeks. The computer game is consisted of seven different levels, in which each level will be opened every single week for students, so that the whole game will be played during the 14 weeks

**Category**

Lifestyle

**2**

**Description**

control group :Girls in the control group will receive only nutritional recommendations for iron deficiency anemia through PowerPoint and Pamphlet.

**Category**

Lifestyle

**Recruitment centers**

**1**

**Recruitment center**

**Name of recruitment center**

Secondary schools and high schools

**Full name of responsible person**

Omid sabetghadam

**Street address**

Shahid Rajaei street, Saravan city

**City**

Saravan

**Province**

Sistan-va-Balouchestan

**Postal code**

9951774497

**Phone**

+98 54 3763 1166

**Email**

sayans194@gmail.com

**Sponsors / Funding sources**

**1**

**Sponsor**

**Name of organization / entity**

Shiraz University of Medical Sciences

**Full name of responsible person**

Younes Ghasemi

**Street address**

Central buliding of Shiraz University of Medical Sciences, in front of Felestin avenue, Zand stree.

**City**

Shiraz

**Province**

Fars

**Postal code**

71348-14336

**Email**

Ghasemiy@sums.ac.ir

**Grant name**

**Grant code / Reference number**

**Is the source of funding the same sponsor**

**organization/entity?**

Yes

**Title of funding source**

Shiraz 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**

Shiraz University of Medical Sciences

**Full name of responsible person**

Omid sabetghadam

**Position**

Master of science student

**Latest degree**

Bachelor

**Other areas of specialty/work**

Nutrition

**Street address**

School of Nutrition and Food Sciences of Shiraz, Razi street, Modares Blvd.

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**Province**

Fars

**Postal code**

7153675541

**Phone**

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**Email**

sayans194@gmail.com

**Person responsible for scientific inquiries****Contact****Name of organization / entity**

Shiraz University of Medical Sciences

**Full name of responsible person**

Zahra Sohrabi

**Position**

Assistant Professor

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Nutrition

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**Person responsible for updating data****Contact****Name of organization / entity**

Shiraz University of Medical Sciences

**Full name of responsible person**

Omid Sabetghadam

**Position**

Master of science student

**Latest degree**

Bachelor

**Other areas of specialty/work**

Nutrition

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**Email**

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

No - There is not a plan to make this available

**Justification/reason for indecision/not sharing IPD**

before publishing the article, we don't agree to share our results with others.

**Study Protocol**

Yes - There is a plan to make this available

**Statistical Analysis Plan**

No - There is not a plan to make this available

**Informed Consent Form**

Yes - There is a plan to make this available

**Clinical Study Report**

No - There is not a plan to make this available

**Analytic Code**

No - There is not a plan to make this available

**Data Dictionary**

No - There is not a plan to make this available

**Title and more details about the data/document**

Until the publishing of the article, we wouldn't share any other data.

**When the data will become available and for how long**

after the publishing of the article and for an unlimited time

**To whom data/document is available**

for all people

**Under which criteria data/document could be used**

with considering the rights for the responsible person

**From where data/document is obtainable**

Results will be added to this part.

**What processes are involved for a request to access data/document**

It will be shown for all people.

**Comments**