

Clinical Trial Protocol

Iranian Registry of Clinical Trials

06 Aug 2026

Evaluating the effectiveness of Augmented Reality based patient training on acceptability of spirometry test in respiratory patients

Protocol summary

Study aim

The purpose of this study is to compare the effect of face-to-face training and training based on augmented reality on the quality of spirometry test of patients with respiratory diseases.

Design

Quasi-experimental, double-blind, randomized study on 80 patients

Settings and conduct

After passing the training phase, patients enter the spirometry unit testing room to perform the test. The form for assessing the duration of the test and the number of repetitions is completed by the nurse. Patient anxiety questionnaire is completed in both intervention and control groups by intern. After the procedure, the pulmonologist evaluates the interpretability of the test. The educational content prepared for patient education includes brief explanations about respiratory diseases, introduction of spirometry test and the correct procedure for performing it, and common mistakes leading to errors in test results.

Participants/Inclusion and exclusion criteria

Among people with indications to evaluate pulmonary function tests, people with smartphones are included in this study.

Intervention groups

Patients are divided into two groups; the first group receives routine face-to-face training by the unit nurse. The second group watches augmented reality based education on their mobile phones.

Main outcome variables

duration of spirometry test; the frequency of repeating the spirometry test; Interpretability of spirometry test results; Anxiety score

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20220628055299N1**

Registration date: **2022-08-20, 1401/05/29**

Registration timing: **prospective**

Last update: **2022-08-20, 1401/05/29**

Update count: **0**

Registration date

2022-08-20, 1401/05/29

Registrant information

Name

Ali Nouranian

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 38 3222 0016

Email address

st-nouranian.a@skums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-08-23, 1401/06/01

Expected recruitment end date

2022-09-01, 1401/06/10

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Evaluating the effectiveness of Augmented Reality based patient training on acceptability of spirometry test in respiratory patients

Public title

Evaluating the effectiveness of Augmented Reality based patient training on acceptability of spirometry test in respiratory patients

Purpose

Education/Guidance

Inclusion/Exclusion criteria**Inclusion criteria:**

Indications for evaluating pulmonary function tests
Possessing a smartphone Good mental health and absence of anxiety and depression disorders Consent to participate in research and cooperation

Exclusion criteria:**Age**

No age limit

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: 80

Randomization (investigator's opinion)

Randomized

Randomization description

Simple randomization will be done individually. From the start date of sampling, all the people who visit the treatment center will be given a brief description of the plan and if they want to participate in the plan, they will receive a sealed envelope randomly selected from 80 envelopes. In 40 envelopes, the intervention group is written, and in the other 40 envelopes, the control group is written. Sampling continues until 80 people enter the study.

Blinding (investigator's opinion)

Not blinded

Blinding description**Placebo**

Not used

Assignment

Factorial

Other design features**Secondary Ids**

empty

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

Ethics committee of Shahrekord University of Medical Sciences,

Street address

University Headquarter, Kashani Blvd.

City

Shahr-e-kord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

8815713471

Approval date

2021-10-26, 1400/08/04

Ethics committee reference number

IR.SKUMS.REC.1400.174

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

COPD

ICD-10 code

J44

ICD-10 code description

Other chronic obstructive pulmonary disease

2**Description of health condition studied**

ATHMA

ICD-10 code

J45

ICD-10 code description

Asthma

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

Quality of spirometry test

Timepoint

The effectiveness of patient education based on augmented reality on the quality of spirometry testing of respiratory patients after viewing the educational content and performing the test.

Method of measurement

Spirometry quality checklist based on duration, repetitions and interpretability of results

2**Description**

Anxiety score

Timepoint

The effectiveness of patient education based on augmented reality on the anxiety score of respiratory patients at the beginning of the study (before the start of the intervention) and after performing the spirometry test.

Method of measurement

Spielberger overt and covert anxiety questionnaire

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: receives spirometry training at the time of referral for testing through augmented reality multimedia content. This content includes 4 sections: "The introduction of spirometry test and its applications, the necessary preparations before the test, the correct way to perform the procedure and how to use the respiratory spray" which can be watched on the client's mobile phone.

Category

N/A

2

Description

Control group: receives spirometry training at the time of referral for testing through face-to-face explanations. Necessary trainings for correct test and use of respiratory spray are provided orally by the nurse of the spirometry unit to the clients.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Spirometry Unit of Shahr-e-kord Hajar educational and medical center

Full name of responsible person

Dr. Zahra Habibi

Street address

Parastar st.

City

Shahr-e-kord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

000000000

Phone

+98 38 3222 5505

Email

habibi.z@skums.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shahre-kord University of Medical Sciences

Full name of responsible person

Esfandiar Heydarian

Street address

Research and Technology Vice-Chancellor,
Shahrekord University of Medical Sciences, Kashani
Blvd.

City

Shahr-e-kord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

۸۸۱۵۷۱۳۴۷۱

Phone

+98 38 3333 0061

Email

heidarian46@yahoo.com

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Shahre-kord 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

Shahre-kord University of Medical Sciences

Full name of responsible person

Ali Nouranian

Position

Student

Latest degree

Medical doctor

Other areas of specialty/work

General Practitioner

Street address

Hajar Hospital, Parastar Ave

City

Shahr-e-kord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

000000000

Phone

+98 38 3222 5505

Fax

Email

st-nouranian.a@skums.ac.ir

Person responsible for scientific inquiries

Contact

Name of organization / entity

Shahre-kord University of Medical Sciences

Full name of responsible person

Dr. Zahra Habibi

Position

Associate professor

Latest degree

Subspecialist

Other areas of specialty/work

Internal Medicine

Street address

Parastar st.

City

Shahr-e-kord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

000000000

Phone

+98 38 3222 5505

Email

habibi.z@skums.ac.ir

Person responsible for updating data

Contact

Name of organization / entity

Shahre-kord University of Medical Sciences

Full name of responsible person

Ali Nouranian

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Student

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General Practitioner

Street address

Hajar Hospital, Parastar Ave

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Shahr-e-kord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

000000000

Phone

+98 38 3222 5505

Fax

Email

st-nouranian.a@skums.ac.ir

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

There is no further information

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