Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Nov 2026

The Effect of Virtual Reality and Augmented Reality Training in Coronary Artery Bypass Grafting (CABG) Surgery on Undergraduate Students' Learning and Anxiety

Protocol summary

Study aim

Assessment of the Impact of Combined Virtual Reality and Augmented Reality Training in CABG Surgery on Undergraduate Students' Learning and Anxiety

Design

In this clinical trial, 35 undergraduate students of operating room technician are randomly selected. Participants are randomly divided into two parallel groups by double-blind randomization based on the last digit of the student number (even or odd).

Settings and conduct

This study is performed on operating room undergraduate students in Isfahan University of Medical Sciences. Initially, convenience sampling method is used to select the participants. then Random Allocation is used to assigned participants into control and intervention groups. In the intervention group, the training is done by watching 3D movies using virtual glasses, Training in the control group is done through routine internship. Then students' performance is evaluated in two groups.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Informed consent to participate in the research; Undergraduate students undergoing cardiac surgery technology theory course. Exclusion criteria include : Give up participation in research due to any reason; dissatisfied to continue at any stage of the research; failed to see the film in the intervention group; Having clinical anxiety and stress.

Intervention groups

Control group: Includes students undergoing routine training (internship) Intervention group: Includes students watching 360-degree video, CABG surgery, and operating room environment through the virtual glasses.

Main outcome variables

In this study, learning (performance) and anxiety levels are compared in two groups.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20150715023216N6**
Registration date: **2020-03-30, 1399/01/11**
Registration timing: **registered_while_recruiting**

Last update: **2020-03-30, 1399/01/11**
Update count: **0**

Registration date

2020-03-30, 1399/01/11

Registrant information

Name

Said Amini Rarani

Name of organization / entity

Isfahan University of Medical Sciences

Country

Iran (Islamic Republic of)

Phone

+98 31 3522 6158

Email address

ghadami@mui.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-12-22, 1398/10/01

Expected recruitment end date

2020-06-21, 1399/04/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title
The Effect of Virtual Reality and Augmented Reality Training in Coronary Artery Bypass Grafting (CABG) Surgery on Undergraduate Students' Learning and Anxiety

Public title
The Impact of Virtual Reality and Augmented Reality Training in Coronary Artery Bypass Grafting (CABG) Surgery on Learning and Anxiety

Purpose
Education/Guidance

Inclusion/Exclusion criteria

Inclusion criteria:
Students have informed consent to participate in the research. Undergraduate students. select the cardiac surgery technology theory course

Exclusion criteria:
Give up participation in the research due to any reason; dissatisfied at any stage of the research; failed to see the film in the intervention group; Having clinical anxiety and stress.

Age
No age limit

Gender
Both

Phase
N/A

Groups that have been masked

- Investigator
- Outcome assessor
- Data analyser

Sample size
Target sample size: **35**

Randomization (investigator's opinion)
Randomized

Randomization description
Simple randomization: participants are randomly divided into two groups in parallel groups, based on the last digit of students' number (odd or even). Even numbers are placed in the intervention group and odd numbers in the control group.

Blinding (investigator's opinion)
Double blinded

Blinding description
The person doing the data collection and the person doing the statistical analysis are kept blind.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics committee of Esfahan University of Medical Sciences

Street address
Hazar Jarib Street

City
Esfahan

Province
Isfehan

Postal code
۸۱۷۴۶۷۳۴۶۵

Approval date
2020-02-19, 1398/11/30

Ethics committee reference number
IR.MUI.RESEARCH.REC.1398.661

Health conditions studied

1

Description of health condition studied
education

ICD-10 code
Z55.8

ICD-10 code description
Other problems related to education and literacy

Primary outcomes

1

Description
In this study, the amount of learning (Function) was measured in two groups of students.

Timepoint
after intervention

Method of measurement
Checklist developed by the researcher

2

Description
In this study, the amount of anxiety was measured in two groups of students.

Timepoint
Before and after intervention

Method of measurement
Spielberger State Anxiety Inventory (STAI)

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Includes students watching 360 degree video, CABG surgery and operating room environment through the virtual glasses.
Category
N/A

2

Description
Control group: Includes students undergoing routine training (internship)
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Faculty of Nursing and Midwifery, Isfahan University of Medical sciences
Full name of responsible person
Ahmad Ghadami
Street address
Hezar Jarib street
City
Isfahan
Province
Isfehan
Postal code
8174673465
Phone
+98 31 3792 7561
Email
ghadami@nm.mui.ac.ir

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Esfahan University of Medical Sciences
Full name of responsible person
Shaghayegh Haghju
Street address
Hezar Jarib Steet
City
Isfahan
Province
Isfehan
Postal code
81746-73461
Phone
+98 31 3668 0048
Email
research@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
Dr Ahmad Ghadami
Position
Assistant professor
Latest degree
Ph.D.
Other areas of specialty/work
Nursery
Street address
Hezar Jarib Street
City
Isfahan
Province
Isfehan
Postal code
8174673465
Phone
+98 31 3792 7533
Email
ghadami@nm.mui.ac.ir

Person responsible for scientific inquiries

Contact
Name of organization / entity
Esfahan University of Medical Sciences
Full name of responsible person
Dr Ahmad Ghadami
Position
Assistant professor
Latest degree
Ph.D.
Other areas of specialty/work
Nursery
Street address
Hezat Jarib Street
City
Isfahan

Province
Isfehan
Postal code
8174673465
Phone
+98 31 3792 7533
Email
ghadami@nm.mui.ac.ir

Person responsible for updating data

Contact
Name of organization / entity
Esfahan University of Medical Sciences
Full name of responsible person
Dr Ahmad Ghadami
Position
Assistant professor
Latest degree
Ph.D.
Other areas of specialty/work
Nursery
Street address
Hezar Jarib Street
City
Isfahan
Province
Isfehan
Postal code
8174673465
Phone
+98 31 3792 7533
Email
ghadami@nm.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
No - There is not a plan to make this available
Statistical Analysis Plan
No - There is not a plan to make this available
Informed Consent Form
No - There is not 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
No - There is not a plan to make this available
Data Dictionary
No - There is not a plan to make this available