

Clinical Trial Protocol

Iranian Registry of Clinical Trials

16 Sep 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	Isfahan
Postal code	81۷۴۶۷۳۴۶۵
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

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Esfahan University of Medical Sciences

Full name of responsible person

Shaghayegh Haghju

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81746-73461

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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

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Person responsible for updating data

Contact

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Other areas of specialty/work
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Street address
Hezar Jarib Street
City
Isfahan
Province

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