

Clinical Trial Protocol

Iranian Registry of Clinical Trials

27 Jun 2026

Investigating the effectiveness of video-based instruction compared to a combined video and game-based instruction on academic engagement and learning of operating room technology students at Shiraz University of Medical Sciences regarding the use of the pneumatic tourniquet device.

Protocol summary

Study aim

To compare the effects of video-based versus combined video and game-based instruction on academic engagement and learning of operating room students regarding the pneumatic tourniquet device.

Design

Educational intervention, pretest-posttest with active control, two parallel arms, single-blind, block randomized (blocks of four) on 32 students. Phase: Not applicable.

Settings and conduct

This study will be conducted at the Hazrat Fatemeh School of Nursing and Midwifery, Shiraz University of Medical Sciences. After obtaining informed consent, the pretest (Academic Engagement Questionnaire and knowledge test) will be administered one day before the intervention. Students will then be allocated to either the control group (video-based instruction) or the intervention group (combined video and game-based instruction) using block randomization. The posttest will be administered immediately after the intervention and repeated four weeks later. In this study, only the data analyst will be blinded to group allocation.

Participants/Inclusion and exclusion criteria

Inclusion: Second-semester operating room students at Shiraz, enrolled in surgical instruments course, no prior pneumatic tourniquet experience, no practical surgical equipment units passed, signed informed consent, commitment to 80% attendance. Exclusion: None.

Intervention groups

Control: Standard video instruction on pneumatic tourniquet in a two-hour session with an instructor.
Intervention: Combined video and interactive game instruction in a three-hour session with an instructor. The game is played collaboratively on the classroom display

after the video.

Main outcome variables

Academic engagement; Students' learning regarding the use of the pneumatic tourniquet device.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20260218068909N1**

Registration date: **2026-05-27, 1405/03/06**

Registration timing: **prospective**

Last update: **2026-05-27, 1405/03/06**

Update count: **0**

Registration date

2026-05-27, 1405/03/06

Registrant information

Name

Mahdiye Shahmoradi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 34 3422 6739

Email address

mah.shah3142@gmail.com

Recruitment status

recruiting

Funding source

Expected recruitment start date

2026-06-13, 1405/03/23

Expected recruitment end date

2026-07-11, 1405/04/20

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Investigating the effectiveness of video-based instruction compared to a combined video and game-based instruction on academic engagement and learning of operating room technology students at Shiraz University of Medical Sciences regarding the use of the pneumatic tourniquet device.

Public title

Investigating the effectiveness of video-based instruction compared to a combined video and game-based instruction on academic engagement and learning the use of the pneumatic tourniquet device.

Purpose

Education/Guidance

Inclusion/Exclusion criteria**Inclusion criteria:**

Be a second-semester student of operating room technology at Shiraz University of Medical Sciences. Have enrolled in the "Introduction to Surgical Instruments and Equipment" course. Have not passed any practical units related to surgical equipment in previous semesters. Have signed the written informed consent form. Be committed to attending at least 80% of the training sessions.

Exclusion criteria:

Other paramedical students. Have no previous practical experience with the pneumatic tourniquet device.

Age

No age limit

Gender

Both

Phase

N/A

Groups that have been masked

- Data analyst

Sample size

Target sample size: 32

Randomization (investigator's opinion)

Randomized

Randomization description

Participants will be selected from eligible students using simple random sampling by coin toss. They will then be allocated to either the intervention or control group using block randomization with blocks of four. The allocation sequence will be generated by the specialized website sealedenvelope.com. The randomization and allocation process will be carried out by a research colleague who has no direct involvement in the intervention or outcome assessment, ensuring allocation concealment. The unit of randomization is the individual.

Blinding (investigator's opinion)

Single blinded

Blinding description

Due to the nature of the educational intervention, blinding of participants, instructor, and outcome assessors is not feasible. However, to minimize bias in data analysis, the statistician will be blinded to group allocation. The data will be provided to the statistician with labels of Group 1 and Group 2, and they will remain unaware of which group is the intervention group and which is the control group.

Placebo

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

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

Nursing and Midwifery School, School of Management and Medical Informatics, Shiraz University of Med

Street address

Central Building of Shiraz University of Medical Sciences, Zand Blvd, Shiraz, Iran

City

Shiraz

Province

Fars

Postal code

1978_71345

Approval date

2026-04-11, 1405/01/22

Ethics committee reference number

IR.SUMS.NUMIMG.REC.1405.012

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

Training on the use of the pneumatic tourniquet device.

ICD-10 code**ICD-10 code description****Primary outcomes****1****Description**

Students' learning score regarding the use of the pneumatic tourniquet device, measured by a researcher-made multiple-choice test.

Timepoint

Before the intervention, immediately after the intervention, and one month after the intervention

Method of measurement

A researcher-made multiple-choice test whose face validity, content validity, and reliability will be designed and psychometrically evaluated based on the Polit and Beck method.

Secondary outcomes

1

Description

Students' academic engagement score measured by the Student Engagement Scale.

Timepoint

Before the intervention, immediately after the intervention, and one month after the intervention

Method of measurement

Student Engagement Scale by Gunuc et al. 2015, translated and validated by Barghi Irani et al. 2019, with 48 items and 6 subscales on a five-point Likert scale.

Intervention groups

1

Description

Control group: Video-based instruction consisting of a standard educational video on the pneumatic tourniquet device, developed based on the GREET guideline and prepared under the supervision of the Virtual School, the national center of excellence for advanced e-learning in medical sciences. The video will be presented in a single two-hour session in the classroom with an instructor present as a facilitator. Students may ask questions and receive clarifications during the video presentation. No game-based activity will be conducted after the video.

Category

Behavior

2

Description

Intervention group: Combined instruction consisting of a standard educational video on the pneumatic tourniquet device, developed based on the GREET guideline, followed by an interactive educational game designed on the Genially platform. Both contents are prepared under the supervision of the Virtual School, the national center of excellence for advanced e-learning in medical sciences. The intervention will be delivered in a single three-hour session in the classroom with an instructor present. The educational video is presented first, then the game is played on the central classroom display, with all students completing the game stages collaboratively and simultaneously through group discussion. The game includes scenarios, questions, and interactive activities related to the content and provides immediate feedback.

Category

Behavior

Recruitment centers

1

Recruitment center

Name of recruitment center

School of Nursing and Midwifery, Shiraz, Iran

Full name of responsible person

Mina Amiri Doreh

Street address

Central Building of Shiraz University of Medical Sciences, Zand St, Shiraz, Iran

City

Shiraz

Province

Fars

Postal code

1978_71345

Phone

+98 917 738 9781

Email

minaamiri753@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shiraz University of Medical Sciences

Full name of responsible person

Mina Amiri Dore

Street address

Central Building of Shiraz University of Medical Sciences, Zand Blvd, Shiraz, Iran

City

Shiraz

Province

Fars

Postal code

1978_71345

Phone

+98 917 738 9781

Email

minaamiri753@gmail.com

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

+98 917 738 9781

Email

minaamiri753@gmail.com

Person responsible for general inquiries

Contact

Name of organization / entity

Shiraz University of Medical Sciences

Full name of responsible person

Mina Amiri Doreh

Position

Assistant professor

Latest degree

Ph.D.

Other areas of specialty/work

Nursery

Street address

Central Building of Shiraz University of Medical Sciences, Zand Blvd, Shiraz, Iran

City

Shiraz

Province

Fars

Postal code

1978_71345

Phone

+98 917 738 9781

Email

minaamiri753@gmail.com

Person responsible for scientific inquiries

Contact

Name of organization / entity

Shiraz University of Medical Sciences

Full name of responsible person

Mina Amiri Doreh

Position

Assistant professor

Latest degree

Ph.D.

Other areas of specialty/work

Nursery

Street address

Central Building of Shiraz University of Medical Sciences, Zand Blvd, Shiraz, Iran

City

Shiraz

Province

Fars

Postal code

71345-1978

Phone

Person responsible for updating data

Contact

Name of organization / entity

Shiraz University of Medical Sciences

Full name of responsible person

Mina Amiri Doreh

Position

Assistant professor

Latest degree

Ph.D.

Other areas of specialty/work

Nursery

Street address

Central Building of Shiraz University of Medical Sciences, Zand St, Shiraz Iran

City

Shiraz

Province

Fars

Postal code

1978_71345

Phone

+98 917 738 9781

Email

minaamiri753@gmail.com

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

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