Clinical Trial Protocol
Iranian Registry of Clinical Trials

09 Nov 2026

A comparative study of the effects of two educational methods, escape room game and jigsaw method, on knowledge, satisfaction with the educational method, and team learning of operating room students

Protocol summary

Study aim
Comparison of escape room and jigsaw methods on knowledge, satisfaction, and teamwork in operating room students.

Design
A phase 2 educational trial with parallel, randomized groups was conducted on 32 operating room students. Randomization was performed using Excel software.

Settings and conduct
Undergraduate semester 2 operating room students at Hazrat Fatemeh Nursing and Midwifery Faculty in Shiraz will be sampled. They will be assigned to the escape room or jigsaw group using permuted block randomization. Knowledge will be assessed in both groups before and immediately after the intervention using a knowledge questionnaire. Satisfaction with the teaching method and team learning will be evaluated immediately after the intervention. To prevent information sharing and study contamination, both methods will be conducted simultaneously

Participants/Inclusion and exclusion criteria
Inclusion Criteria: Enrollment in the second semester of the Bachelor's program in Operating Room, Registration in the course "Introduction to Operating Room Instruments and Equipment", Completion of a written informed consent form Exclusion Criteria: Absence from the educational process due to illness or other reasons, Withdrawal from the academic program or dropping the course "Introduction to Operating Room Instruments and Equipment", Incomplete completion of the questionnaires

Intervention groups
Students in the escape room group participated in a 90-minute in-person digital escape room session using university systems. Students in the jigsaw group attended a 90-minute in-person session using the jigsaw method. Both groups completed pre- and post-intervention knowledge tests, as well as satisfaction and team learning questionnaires after the intervention

Main outcome variables
Knowledge؛ Satisfaction with the Teaching Method؛ and Team-Based Learning

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20180923041101N5**
Registration date: **2025-06-09, 1404/03/19**
Registration timing: **prospective**

Last update: **2025-06-09, 1404/03/19**
Update count: **0**

Registration date
2025-06-09, 1404/03/19

Registrant information

Name
Majid Najafi Kalyani

Name of organization / entity

Country
Iran (Islamic Republic of)

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+98 71 3647 4251

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najafikalyani@sums.ac.ir

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2025-06-17, 1404/03/27

Expected recruitment end date
2025-06-26, 1404/04/05

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
A comparative study of the effects of two educational methods, escape room game and jigsaw method, on knowledge, satisfaction with the educational method, and team learning of operating room students

Public title
A comparative study of the effects of two educational methods, escape room game and jigsaw method, on knowledge, satisfaction with the educational method, and team learning
Purpose
Education/Guidance
Inclusion/Exclusion criteria
Inclusion criteria:
Enrollment in the second semester of the Bachelor's program in Operating Room Registration in the course "Introduction to Operating Room Instruments and Equipment" Completion of a written informed consent form
Exclusion criteria:
Absence from the educational process due to illness or other reasons Withdrawal from the academic program or dropping the course "Introduction to Operating Room Instruments and Equipment"
Age
No age limit
Gender
Both

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **32**
Randomization (investigator's opinion)
Randomized
Randomization description
The individual students served as the randomization units. Randomization was performed using the permuted block method with a block size of four, generating a total of eight blocks (32 participants in total). A randomization list was created based on all possible permutations of group assignments within each block, including combinations such as AABB, BBAA, BABA, ABAB, ABBA, and BAAB. According to the generated sequence, students were assigned to either the Jigsaw group or the Escape Room group
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
Research Ethics committee of school of nursing and midwifery, management and medical information sci
Street address
Building of Central Administration, Opposite Palestine St., Zand St., Shiraz
City
Shiraz
Province
Fars
Postal code
7134814336
Approval date
2025-04-26, 1404/02/06
Ethics committee reference number
IR.SUMS.NUMIMG.REC.1404.015

Health conditions studied

1

Description of health condition studied
Level of knowledge
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
Students' knowledge regarding the principles of pneumatic tourniquet operation and the names and applications of orthopedic surgical instruments
Timepoint
Before the intervention and immediately after the intervention
Method of measurement
Researcher-made questionnaire for assessing knowledge

2

Description
The students' satisfaction score on the teaching method satisfaction questionnaire
Timepoint
Immediately after the intervention
Method of measurement
Teaching Method Satisfaction Questionnaire

3

Description
Students' Team-Based Learning
Timepoint
Immediately after the intervention
Method of measurement
Berso et al.'s Team-Based Learning Questionnaire

Secondary outcomes

empty

Intervention groups

1

Description
Jigsaw group: In the Jigsaw group, students will first complete a knowledge pre-test. Then, they will participate in a face-to-face educational session where the instructional content will be delivered using the Jigsaw method. At the end of the session, they will complete the knowledge post-test, as well as the team-based learning and teaching method satisfaction questionnaires
Category
Other

2

Description
Educational escape room group:In the Escape Room group, students will first complete a knowledge pre-test. Then, they will be divided into groups, with each group assigned to a computer station in the faculty's computer lab. The link to the digital escape room game will be provided to them. At the end of the session, students will complete the knowledge post-test, as well as the team-based learning and teaching method satisfaction questionnaires.
Category
Other

Recruitment centers

1

Recruitment center
Name of recruitment center
School of Nursing and Midwifery (Fatemeh-e- Zahra School of Nursing and Midwifery)
Full name of responsible person
Dr. Majid Najafi Kalyani
Street address
School of Nursing and Midwifery, Nemazee Hospital, Nemazee Sq., Shiraz, Iran
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nurs_midwif@sums.ac.ir
Web page address
https://nurs-midwif.sums.ac.ir/

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Shiraz University of Medical Sciences
Full name of responsible person
Dr. Hamid Mohammadi
Street address
Vice Chancellor for Research and Technology, 7th Floor, Central Administration Building, Zand St., Shiraz University of Medical Sciences, Shiraz
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Postal code
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Phone
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Email
vcrdep@sums.ac.ir
Web page address
https://research.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
Dr. Majid Najafi Kalyani
Position
Professor

Latest degree
Ph.D.
Other areas of specialty/work
Nursery
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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available
Study Protocol
Yes - There is a plan to make this available
Statistical Analysis Plan
Yes - There is a plan to make this available
Informed Consent Form
Yes - There is a plan to make this available
Clinical Study Report
Yes - There is a plan to make this available
Analytic Code
Yes - There is a plan to make this available
Data Dictionary
Yes - There is a plan to make this available
Title and more details about the data/document
A portion of the data, such as information related to the primary outcome or similar matters, can be shared
When the data will become available and for how long
Access to the data will commence six months after the publication of the results.
To whom data/document is available
The data will only be available to researchers affiliated with medical universities.
Under which criteria data/document could be used
Statistical analysis.
From where data/document is obtainable
An email should be sent to the principal investigator of this study.
What processes are involved for a request to access data/document
A request should be submitted to the principal investigator, followed by obtaining approval from the ethics committee; finally, after receiving the committee's approval, the data will be made available to the individual.
Comments