Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The Effect of ESI Triage Training Using the BOPPS-CBL Method on Nursing Students' Knowledge and decision-making Based on Kirkpatrick's Evaluation Model

Protocol summary

Study aim

To determine the effect of ESI triage training using the BOPPS-CBL method on nursing students' knowledge and decision-making, based on Kirkpatrick's evaluation model

Design

Randomized, parallel-group educational trial with a control group and blinded outcome assessment. Participants will be allocated to two arms: BOPPPS–CBL intervention and LBL control. Randomization will be performed using R software by an independent statistician, with allocation based on even or odd random numbers. The study will include 66 undergraduate nursing students, with 33 participants in each group. No drug phase applies.

Settings and conduct

This randomized parallel-group trial will be conducted at Qazvin University of Medical Sciences among 7th and 8th-semester nursing students. After informed consent, participants will be randomly assigned (1:1) by an independent researcher using R software (even-odd method) to either the BOPPPS-CBL intervention group or the LBL control group. The intervention includes two 60-minute sessions with clinical scenarios, while the control group receives traditional lectures. Outcomes will be assessed using Kirkpatrick's model via validated questionnaires.

Participants/Inclusion and exclusion criteria

The inclusion criteria for this study are undergraduate nursing students in their 7th and 8th semesters, willingness to participate in the study, and no prior participation in similar triage training courses before the study. The exclusion criteria are unwillingness to continue participation in the study and incomplete questionnaires or missing required research data (at least 5% missing data).

Intervention groups

The educational program in the intervention group will be conducted based on the BOPPPS-CBL model in two 60-minute sessions held on one day.

Main outcome variables

Nursing students' triage knowledge; Nursing students' triage decision-making skills.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20260713070159N1**
Registration date: **2026-07-26, 1405/05/04**
Registration timing: **prospective**

Last update: **2026-07-26, 1405/05/04**
Update count: **0**

Registration date

2026-07-26, 1405/05/04

Registrant information

Name

Mahsima Hasani

Name of organization / entity

Country

Iran (Islamic Republic of)

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+98 28 3333 6001

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-08-23, 1405/06/01

Expected recruitment end date

2026-09-23, 1405/07/01

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

Scientific title
The Effect of ESI Triage Training Using the BOPPS-CBL Method on Nursing Students' Knowledge and decision-making Based on Kirkpatrick's Evaluation Model

Public title
Training Nursing Students in ESI Triage Using the BOPPS-CBL Method
Purpose
Education/Guidance
Inclusion/Exclusion criteria
Inclusion criteria:
Undergraduate nursing students in their 7th or 8th semesters Willingness to participate in the research No prior experience or participation in similar triage training courses before the study
Exclusion criteria:
Withdrawal of consent or unwillingness to continue the study Incomplete questionnaires or insufficient data (defined as having more than 5% missing data)
Age
From **18 years** old
Gender
Both

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **33**
Randomization (investigator's opinion)
Randomized
Randomization description
After meeting the eligibility criteria, participants will be randomly assigned to either the intervention group (BOPPS–CBL) or the control group (LBL). Randomization will be performed by a statistician using R software. A block randomization or simple randomization method will be employed where generated random numbers will determine group assignment: even numbers will be allocated to the intervention group, and odd numbers to the control group. To ensure allocation concealment, the randomization sequence will be generated by an individual not involved in the research team. Blinding: Due to the educational nature of the intervention, blinding of participants and instructors is not feasible. However, to minimize assessment bias, the outcome assessors will be blinded to the group assignment (single-blind design).
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
Ethics Committee of Qazvin University of Medical Sciences
Street address
Ethics Committee Unit, Research Ethics Committee, Vice Presidency for Research and Technology, Qazvin University of Medical Sciences, 1st Floor, No. 16, Modat Alley, opposite Shahid Beheshti Park, before Valiasr Crossroads, Shahid Beheshti Blvd, Qazvin, Iran.
City
Qazvin
Province
Qazvin
Postal code
3415868487
Approval date
2026-06-07, 1405/03/17
Ethics committee reference number
IR.QUMS.REC.1405.077

Health conditions studied

1

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

Primary outcomes

1

Description
Nursing students' knowledge score regarding Emergency Severity Index triageNursing students' decision-making score regarding Emergency Severity Index triage
Timepoint
Before the intervention, one week after the intervention, and one month after the intervention
Method of measurement
Emergency Severity Index Knowledge QuestionnaireTriage Decision-Making Questionnaire

Secondary outcomes

empty

Intervention groups

1

Description

The intervention group will receive triage training based on the Emergency Severity Index using a combined six-stage instructional framework consisting of bridge-in, objectives, pre-assessment, participatory learning, post-assessment, and summary, integrated with scenario-based learning. The intervention will consist of two 60-minute educational sessions delivered on the same day by master's students in emergency nursing. The educational content will include the foundations of triage, the definition and history of triage, the need for and objectives of a triage unit, the role of triage personnel, resource-based triage, introduction to the five-level Emergency Severity Index system, and differences between the Emergency Severity Index and other triage systems. It will also cover the complete Emergency Severity Index algorithm, decision criteria, under-triage, over-triage, common errors, and prevention strategies. The training will be delivered before class, including motivation, learning objectives, and a short pre-assessment, and during class, including small-group participatory learning, analysis of clinical scenarios, determination of acuity levels and initial actions, group discussion, post-assessment, and summary. Five scenarios will be used in each session.

Category

Other

2

Description

Control group: The control group will receive triage training based on the Emergency Severity Index through the conventional lecture method. The educational content in this group will be similar to that of the intervention group and will include the foundations of triage, the definition and history of triage, the need for and objectives of a triage unit, the role of triage personnel, resource-based triage, introduction to the five-level Emergency Severity Index system, the Emergency Severity Index algorithm, decision criteria at points A to D, under-triage, over-triage, common decision-making errors, and prevention strategies. The training will be delivered in two 60-minute sessions. Educational materials will be provided to students before the session, and a short period will be allocated at the end of each session for reviewing key points, discussion, questions, and answers.

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Qazvin University of Medical Sciences

Full name of responsible person

Mojtaba Sanmar

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School of Nursing and Midwifery, Qazvin University of Medical Sciences, Bahonar Blvd., Qazvin, Iran

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

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Full name of responsible person

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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

Qazvin 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
Qazvin University of Medical Sciences

Full name of responsible person
Mojtaba Senmar

Position
Assistant Professor, School of Nursing and Midwifery, Qazvin

Latest degree
Ph.D.

Other areas of specialty/work
Nursery

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Other areas of specialty/work
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Person responsible for updating data

Contact

Name of organization / entity
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Full name of responsible person
Mahsima Hasani

Position
Master's Student in Emergency Nursing

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Bachelor

Other areas of specialty/work
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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
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
The final study results and data analysis report will be published in a peer-reviewed scientific journal. Individual participant data will not be shared to protect participant confidentiality.

When the data will become available and for how long
Access will be provided immediately upon the publication of the study results

To whom data/document is available
General public, researchers, faculty members, and students interested in nursing education and triage.

Under which criteria data/document could be used
The results are for scientific and educational purposes only. Citation of the original publication (authors and article title) is required when using the findings.

From where data/document is obtainable
For the full article or additional information, please contact the corresponding author, Mojtaba Senmar, via email at senmarmojtaba@gmail.com.

What processes are involved for a request to access data/document
Requests submitted via email will be reviewed, and if

available, the requested document will be sent within one working week.

Comments