Clinical Trial Protocol
Iranian Registry of Clinical Trials

13 Nov 2026

Comparison of the Effect of an Interactive vs Non-Interactive Educational Mobile Application on Nursing Students' Knowledge, Self-Efficacy, and Skills in Weaning, Extubation, and Re-intubation techniques for Mechanically Ventilated Patients

Protocol summary

Study aim

The comparison of interactive vs non-interactive mobile application on the knowledge, self-efficacy and skills of nursing students regarding weaning techniques, extubation and re-intubation of patients under mechanical ventilation.

Design

The present research is a semi-experimental study conducted on 70 nursing students of Mashhad University of Medical Sciences (semester seven, entries of Mehr and Bahman of the year 1399). The research sample is randomly selected from all students (about 120 people). For creating a random list, the Stata software will be used, using block randomization.

Settings and conduct

The study will be conducted on the students of the 7th semester of Mashhad Nursing and Midwifery College. They will be randomly divided into two control and intervention groups to use interactive and non-interactive applications.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Students who voluntarily wish to participate in the study. Having an educational mobile phone is also one of the inclusion criteria. They should not have prior experience using the related educational applications (weaning, extubation, and reintubation).

Intervention groups

The intervention group, consisting of educational content WENING, EXTOBASION, and ENTUBASION, receives content through an interactive application and responds to questions. If the answers are correct or incorrect, they receive a brief explanation. The control group also receives educational content through a non-interactive application and answers questions. In the case of a correct or incorrect response, they receive an appropriate emoji.

Main outcome variables

knowledge, skill and self-efficacy

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20231001059571N1**
Registration date: **2023-11-27, 1402/09/06**
Registration timing: **prospective**

Last update: **2023-11-27, 1402/09/06**
Update count: **0**

Registration date

2023-11-27, 1402/09/06

Registrant information

Name

Alireza Samimi Sarangi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 51 3876 2354

Email address

samimisa2@mums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-12-21, 1402/09/30

Expected recruitment end date

2024-05-19, 1403/02/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of the Effect of an Interactive vs Non-Interactive Educational Mobile Application on Nursing Students' Knowledge, Self-Efficacy, and Skills in Weaning, Extubation, and Re-intubation techniques for Mechanically Ventilated Patients

Public title

Comparison of the Effect of an Interactive vs Non-Interactive Educational Mobile Application on Nursing Students' Knowledge, Self-Efficacy, and Skills in Weaning, Extubation, and Re-intubation techniques for Mechanically Ventilated Patients

Purpose

Education/Guidance

Inclusion/Exclusion criteria

Inclusion criteria:

Students who voluntarily want to participate in research Students who do not have previous experience using the relevant educational applications (weaning, extubation and reintubation) Having an educational mobile phone is also one of the conditions for participating in the research

Exclusion criteria:

Age

No age limit

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **70**

Randomization (investigator's opinion)

Randomized

Randomization description

Random allocation of individuals to two groups, intervention and control, will be performed using STATA software (version 17) by a statistical expert. This software provides a random sequence of 70 letters, A and B, in a 1:1 ratio (35 A's and 35 B's). In the subsequent phase, 35 A cards and 35 B cards will be prepared in line with the sequence generated by the software, placed in sealed dark envelopes, and numbered from 1 to 70. As each participant arrives, based on the number assigned to them, the corresponding envelope will be opened, determining the volunteer's 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

Ethics Committee of Mashhad University of Medical Sciences

Street address

Daneshgah Ave, Ghoreishi Building

City

Mashhad

Province

Razavi Khorasan

Postal code

9178154653

Approval date

2023-10-18, 1402/07/26

Ethics committee reference number

IR.MUMS.NURSE.REC.1402.084

Health conditions studied

1

Description of health condition studied

موضوع مطالعه بیماری نمیباشد

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

knowledge

Timepoint

Before intervention and seven days after using the application

Method of measurement

MCQ

2

Description

self efficacy

Timepoint

Before intervention and seven days after using the application

Method of measurement

self efficacy questionnaire

3

Description

skill

Timepoint
Before intervention, seven days after using the application, and during the ICU internship (encountering real patients under mechanical ventilation)."

Method of measurement
OSCE exam before and after the intervention, and the logbook of ICU internship to assess skills during the internship

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: In the interactive application group, After registration and receiving their username and password, students can log into the application and access educational content related to weaning, extubation, and reintubation. They then answer questions on the same topic, which are presented as short videos of patients from the intensive care unit, within a specified time frame. In case of choosing the wrong answer, in addition to displaying a message about the wrong choice, without referring to the correct option, a short explanation will be given about why the chosen answer is wrong. But if the correct option is selected, in addition to encouraging the student, a brief explanation is given to emphasize the correct option and confirm the student's learning, and a point is also considered for him. If they need more information, students can contact the research team by writing a comment. If 60% of the questions of each stage are answered correctly, the student can enter the next stage. Also, students can compare their scores with other students and see their rank in the group at any time. This game is available to students for a week and during the week, a reminder message is sent to them to use the application. According to the counter embedded in the application, the number of times and duration of participation can be determined for each person, and if the duration of the student's participation in the game is less than the defined amount (one third of the required time), he/she will be removed from the game. The study was deleted.

Category
Other

2

Description
Control group: In the non-interactive application group, After registration and receiving their username and password, students can log into the application and access educational content related to weaning, extubation, and reintubation. They then answer questions on the same topic, which are presented as short videos of patients from the intensive care unit, within a specified time frame. In case of choosing the wrong or correct answer, they can see different emojis. If 60% of the questions of each stage are answered correctly, the student can enter the next stage. This game is available to students for a week and during the week, a reminder message is sent to them to use the application. According to the counter embedded in the application, the number of times and duration of participation can be determined for each person, and if the duration of the student's participation in the game is less than the defined amount (one third of the required time), he/she will be removed from the game. The study was deleted.

Category
Other

Recruitment centers

1

Recruitment center

Name of recruitment center
Imam Reza Hospital

Full name of responsible person
Alireza Samimi Sarangi

Street address
Imam Reza Squ.

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Mashhad University of Medical Sciences

Full name of responsible person
Mohsen Tafaghodi

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Ghoreishi Building, Daneshgah Street

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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

Mashhad 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
Mashhad University of Medical Sciences

Full name of responsible person
Razie Froutan

Position
Associate Professor

Latest degree
Ph.D.

Other areas of specialty/work
Nursery

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Person responsible for scientific inquiries

Contact

Name of organization / entity
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Full name of responsible person
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Position
Associate Professor

Latest degree
Ph.D.

Other areas of specialty/work
Nursery

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Person responsible for updating data

Contact

Name of organization / entity
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Student

Latest degree
Bachelor

Other areas of specialty/work
Nursery

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD
There is no further information

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
No - There is not 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