

Clinical Trial Protocol

Iranian Registry of Clinical Trials

16 Sep 2026

Comparison of ventilator training with simulator and electronic flash card on knowledge and performance of nursing students

Protocol summary

Examining the knowledge and performance of nursing students in the field of ventilator training

Study aim

Comparison of ventilator training with simulator and electronic flash card on the knowledge and performance of nursing students

Design

The clinical trial has two intervention groups without a control group in parallel, no blinding, randomized, performed on 60 nursing students, using the Randomizer.org site for randomization.

Settings and conduct

Nursing and midwifery faculty Nursing students of the 7th and 8th semesters are randomly divided into 2 equal groups for training using simulator software and electronic flash cards. Before starting the training, an informed consent form and then a pre-test, including a knowledge check based on the researcher's questionnaire and performance based on the researcher's checklist, will be taken from the students. In a session, each group is given training on how to use both softwares. During 10 days, two groups are trained by the software. At the end of 10 days, all the groups will be given a post-test, which will include knowledge and performance, which will be in-person and practical, and after a month, a re-test will be taken to check the validity of the information taught.

Participants/Inclusion and exclusion criteria

7th semester nursing students and those 8th semester nursing students who did not complete ICU internship, informed consent, no experience of working as a student in the intensive care unit

Intervention groups

7th and 8th semester nursing students are selected based on the entry criteria. Then they are divided into two groups for intervention. In one group, ventilator training is given using flash card software, and in another group, training is given with simulator software. At the end of the training period, a test will be conducted to check the level of knowledge and performance.

Main outcome variables

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230426057999N1**

Registration date: **2023-05-31, 1402/03/10**

Registration timing: **registered_while_recruiting**

Last update: **2023-05-31, 1402/03/10**

Update count: **0**

Registration date

2023-05-31, 1402/03/10

Registrant information

Name

vahid ghorbani

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 56 3283 3095

Email address

ghorbaniv4001@mums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-05-27, 1402/03/06

Expected recruitment end date

2023-11-21, 1402/08/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of ventilator training with simulator and electronic flash card on knowledge and performance of nursing students

Public title

Investigating the effect of using simulator software on students' learning

Purpose

Education/Guidance

Inclusion/Exclusion criteria**Inclusion criteria:**

7th semester nursing students and those 8th semester nursing students who did not complete ICU internship informed consent no experience of working as a student in the intensive care unit

Exclusion criteria:

Acquaintance with the ventilator Work experience in Intensive departments Apprenticeship in the Intensive department

Age

From **18 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **60**

Randomization (investigator's opinion)

Randomized

Randomization description

Blocked, allocation concealment method: packet in packet, random sequence will be determined using Randomizer.org site for two study groups. The random sequence will be in blocks of four without permutation. To create a random sequence according to the two groups and the number of studied samples, the random sequence will be extracted from this site. This sequence is written on small cards and kept in a closed envelope. Whenever one of the research units is found to meet the study criteria, the envelope is opened and based on the code on the sheet (the first intervention group and the second intervention group)) will be entered into the relevant 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**

Mashhad University of Medical Sciences

Street address

5 Imam Hossein Street, Zibashahr Town

City

Tabas

Province

South Khorasan

Postal code

9791774531

Approval date

2023-02-21, 1401/12/02

Ethics committee reference number

IR.MUMS.NURSE.REC.1401.116

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

Investigating the impact of education on students' knowledge and performance

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

Examining the knowledge of nursing students in the field of ventilator training

Timepoint

Checking knowledge and performance before starting the study and on the 10th day of the study

Method of measurement

Examination of knowledge according to the questionnaire made by the researcher

2**Description**

Examining the performance of nursing students in the field of ventilator training

Timepoint

Performance review before the start of the study and on the 10th day of the study

Method of measurement

examination of performance based on the checklist made by the researcher

Secondary outcomes

empty

Intervention groups

1

Description

The first intervention group: flash card software training in 7th and 8th semester nursing students who have not completed ICU training. The content of the electronic flash card software is based on the EDP ventilator catalog, the questions will be written on the flash card and their answers will be written on the back of the flash card so that the student can study at the designated time intervals. During 10 days, students will receive the necessary training based on the schedule that includes how to study and work with the software and is provided to them. Then, at the end of 10 days, the test will be done from this group, and a month later, the test will be done again in order to preserve the information.

Category

Behavior

2

Description

The second intervention group: training simulator software in 7th and 8th semester nursing students who have not completed ICU training. The educational content of the simulator software is based on the EDP ventilator catalog, and the design of the simulator software is such that the student will feel that he is in the real environment of working with the ventilator, so that all the actions that are taken in the real environment when facing the ventilator does will also do in this software, among these actions can be mentioned the selection of breathing modes, their adjustment, how to manage alarms, etc. During 10 days, students will receive the necessary training based on the schedule that includes how to study and work with the software and is provided to them. Then, at the end of 10 days, the test will be done from this group, and a month later, the test will be done again in order to preserve the information.

Category

Behavior

Recruitment centers

1

Recruitment center

Name of recruitment center

Faculty of Nursing and Midwifery, Mashhad University of Medical Sciences

Full name of responsible person

Vahid Ghorbani

Street address

University Street, Doctor's Crossroad, Ibn Sina Street, Faculty of Nursing and Midwifery

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Razavi Khorasan

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9137913199

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+98 51 3859 1511

Email

nms.pr@mums.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Mashhad University of Medical Sciences

Full name of responsible person

Vice President of Research and Technology

Street address

The border between Shahid Javan and Al Shahidi square, Shahid Fakuri Blvdn Square and Al Shahidi Square

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99191 91778

Phone

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Email

p.relations@mums.ac.ir

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

Vahid Ghorbani

Position

Masters student

Latest degree

Bachelor

Other areas of specialty/work

Nursery

Street address

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Person responsible for scientific inquiries**Contact****Name of organization / entity**

Mashhad University of Medical Sciences

Full name of responsible person

Vahid Ghorbani

Position

Masters student

Latest degree

Bachelor

Other areas of specialty/work

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Person responsible for updating data**Contact****Name of organization / entity**

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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

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

No - There is not a plan to make this available

Data Dictionary

No - There is not a plan to make this available