Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

Comparison of the Effect of Educational Intervention Based on Lecture-Based Learning (LBL) with Problem/Case-Based Learning (PCBL) on Knowledge, Attitude, and Practice (KAP) of Female Students Regarding Breast Cancer

Protocol summary

Study aim

Overall Objective: To compare the effect of lecture-based learning (LBL) versus problem/case-based learning (PCBL) on knowledge, attitude, and practice (KAP) regarding breast cancer among female students at Tarbiat Modares University Specific Objectives: 1-To assess the KAP of female students at Tarbiat Modares University regarding breast cancer 2-To compare the impact of academic discipline on KAP among female students 3-To evaluate and compare the effectiveness of LBL and PCBL methods on the KAP of female medical students 4-To evaluate and compare the effectiveness of LBL and PCBL methods on the KAP of female non-medical students 5-To compare the impact of LBL on KAP between female students in medical and non-medical disciplines 6-To compare the impact of PCBL on KAP between female students in medical and non-medical disciplines

Design

A total of 120 medical and 120 non-medical students will be randomly assigned to four parallel groups of 30 participants each (Control 1, Control 2, Intervention 1: LBL, Intervention 2: PBL-CBL) using R software.

Settings and conduct

Training in three one-hour sessions delivered through a hybrid of in-person and online formats completing a localized KAP questionnaire on breast cancer at before, immediately after, and one month post-intervention.

Participants/Inclusion and exclusion criteria

Registration in one of the postgraduate programs Willingness to participate in the study No diagnosed breast cancer

Intervention groups

Intervention 1: Training through the traditional Lecture-Based Learning (LBL) method. Intervention 2: Training through a combined PBL-CBL approach. Control 1: No training or intervention will be administered. Control 2: Will not undergo any intervention and will only be in regular contact with artificial intelligence.

Main outcome variables

enhancing knowledge, shifting attitudes, and improving breast cancer-related practices

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20250729066677N1**
Registration date: **2025-07-31, 1404/05/09**
Registration timing: **registered_while_recruiting**

Last update: **2025-07-31, 1404/05/09**
Update count: **0**

Registration date

2025-07-31, 1404/05/09

Registrant information

Name
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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date
2025-07-31, 1404/05/09
Expected recruitment end date
2026-06-20, 1405/03/30
Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Comparison of the Effect of Educational Intervention Based on Lecture-Based Learning (LBL) with Problem/Case-Based Learning (PCBL) on Knowledge, Attitude, and Practice (KAP) of Female Students Regarding Breast Cancer

Public title
Comparison of the Effect of Educational Intervention Based on Lecture-Based Learning with Problem/Case-Based Learning on Knowledge, Attitude, and Practice of Female Students Regarding Breast Cancer
Purpose
Education/Guidance
Inclusion/Exclusion criteria
Inclusion criteria:
Registration in One of the Postgraduate Programs Willingness to Participate in the Study No Diagnosed Breast Cancer
Exclusion criteria:
Age
No age limit
Gender
Female

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **240**
Randomization (investigator's opinion)
Randomized
Randomization description
Participants will be selected through Simple Random Sampling. The Student List will be Sorted according to Student ID Numbers, and Using R Software, Participants will be randomly Selected from the First Row to the Last until the Required Sample Size is Reached (120 Samples in the Medical Group and 120 in the Non-Medical Group). Then, the Selected Samples will be randomly Divided into Four Groups: Control 1, Control 2, Intervention 1, and Intervention 2, using the Software.
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 Tarbiat Modares University
Street address
No. 4, Alley 55, Jihad Blvd
City
kerman
Province
Kerman
Postal code
7619863355
Approval date
2025-07-28, 1404/05/06
Ethics committee reference number
IR.MODARES.REC.1404.076

Health conditions studied

1

Description of health condition studied
Breast Cancer
ICD-10 code
C50
ICD-10 code description
Malignant neoplasm of breast

Primary outcomes

1

Description
Knowledge, Attitude and Practice of Breast Cancer
Timepoint
at three-time points: before, immediately after, and one month post-intervention
Method of measurement
a localized, Iran-specific knowledge, attitude and practice (KAP) questionnaire on breast cancer

Secondary outcomes

empty

Intervention groups

1

Description
Intervention Group 1: Using the lecture method (LBL), an educational package based on the Fourth Revision Summer 1403 version of the Ministry of Health regarding breast cancer, along with multimedia content, will be delivered to participants in three one-hour sessions over

two weeks. The training will be conducted in a hybrid format, combining in-person and virtual methods. The training approach in this group will involve creating a dedicated group on a reputable platform, where the educational objectives will be explained to the students. This group will receive three hours of instruction based on the Ministry of Health's educational package. The instructor will use multimedia, PowerPoint presentations, educational slides, and motion graphic videos to thoroughly explain topics related to breast cancer prevention, warning signs, risk factors (both controllable and uncontrollable), self-care recommendations for prevention, methods of early detection and screening, clinical breast examination (BSE) by oneself, and mammography. It is expected that students will gain a solid theoretical understanding of these topics throughout the sessions.

Category

Other

2

Description

Intervention Group 2: Using a combined method (PCBL), the educational package provided by the Ministry of Health, along with multimedia content, will be delivered to participants in three one-hour sessions over two weeks. The training will be conducted in a hybrid format, combining in-person and virtual methods. The approach in this group will involve creating a group on a reputable platform in the first stage, followed by an introductory session where the educational objectives will be explained to the students. Initially, an online group will be established on the "Bale" platform, which facilitates online collaboration, before the start of the theoretical classes. This online group will be used for posing questions related to the educational content to be taught (PBL-based teaching method).The instructor will design 5 to 6 open-ended problems based on the Ministry of Health's educational package, covering aspects such as breast cancer prevention methods, warning signs, risk factors (modifiable and non-modifiable), self-care recommendations for breast cancer prevention, methods of early detection and screening, clinical breast examination (BSE) by oneself, and mammography. Educational materials will also be sent to students before the classes begin. Subsequently, students will engage in discussions and debates. The instructor present in the group will provide guidance, answer questions, and offer additional explanations as needed. In the second stage, after students respond to these questions using the PBL approach, the instructor can identify challenges and weaknesses in student learning, allowing for more targeted and effective explanations. This method not only enhances teaching efficiency but also encourages students to think independently. Following this, the CBL (Case-Based Learning) approach will be employed, using simulated clinical scenarios and cases related to breast cancer. Students will be divided into smaller groups to analyze and discuss each case. During this phase, the instructor will ask more clinical questions regarding the timing and steps of performing BSE, what constitutes an abnormal finding in this examination, and the subsequent diagnostic actions. These questions aim to stimulate critical thinking, encourage immediate responses from students, increase their interest in learning, and generate new questions. Finally, proper practical training on how to perform BSE correctly will be provided. All content will be reviewed and approved by clinical specialists beforehand to ensure scientific accuracy, cultural appropriateness, and alignment with national screening guidelines.

Category

Other

3

Description

Control group 1: The control group will not receive any intervention. At the end of the session arranged for questionnaire completion, the PorsLine link will be provided to the participants, along with instructions on how to complete the questionnaire. One month after, further explanations regarding the completion process will be given to the participants. At the end of the study, if they are interested, the relevant training will also be provided to this group.

Category

Other

4

Description

Control group 2: This group will consist of individuals who are regularly engaged with AI tools such as ChatGPT and similar platforms to obtain information. Like Control Group 1, this group will not receive any educational intervention. The questionnaire will be completed by participants before the start of the study and one month later. Subsequently, if they are interested, they will receive the relevant training.

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Tarbiat Modares University

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Sponsors / Funding sources

1

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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
Tarbiat Modares University
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
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Melika Moeinadini
Position
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Other areas of specialty/work
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Person responsible for updating data

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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
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