Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

Comparison of The Effect of Team-Based Learning and Jigsaw on The Knowledge And Self-Efficacy of Nursing Students in Palliative Care

Protocol summary

Study aim

The study aims to compare the effects of Jigsaw and Team-Based Learning methods on nursing students' knowledge, self-efficacy, and satisfaction in palliative care.

Design

A randomized, parallel group, controlled, semi-experimental clinical trial in phase 2. A total of 48 undergraduate nursing students were randomly assigned into three equal groups: Jigsaw education group, Team-Based Learning group, and control group with no intervention. Stratified randomization was performed using the RAND function in Microsoft Excel.

Settings and conduct

This semi-experimental study with a parallel-group design and stratified randomization will be conducted at the Faculty of Nursing and Midwifery, Islamic Azad University, Karaj. Forty-eight nursing students will be randomly assigned to Jigsaw, Team-Based Learning, or control groups. Both intervention groups will receive four sessions of identical palliative care content. Data will be collected through self-report questionnaires at three time points. The data analyst will be blinded to group allocation.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Nursing students from semesters 3 to 6; at least one term of clinical experience; signed informed consent; no prior palliative care training. Exclusion criteria: Incomplete questionnaires; absence in more than one session; withdrawal at any stage.

Intervention groups

The first group receives education using the Jigsaw method; The second group receives education using the Team-Based Learning method; The third group serves as the control group and receives no educational intervention. Both intervention groups are trained over four sessions with identical content related to palliative care.

Main outcome variables

Knowledge; self-efficacy; satisfaction with educational methods in palliative care at three time points: before, after, and one month post-intervention.

General information

Reason for update

Acronym

TJL-PaN(مخفف: Team-based & Jigsaw Learning in Palliative Nursing)

IRCT registration information

IRCT registration number: **IRCT20250415065345N1**
Registration date: **2025-05-31, 1404/03/10**
Registration timing: **prospective**

Last update: **2025-05-31, 1404/03/10**
Update count: **0**

Registration date

2025-05-31, 1404/03/10

Registrant information

Name

Reza Jamshidi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 28 3365 5713

Email address

zeighami@kiau.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2025-06-08, 1404/03/18

Expected recruitment end date

2025-06-22, 1404/04/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of The Effect of Team-Based Learning and Jigsaw on The Knowledge And Self-Efficacy of Nursing Students in Palliative Care

Public title

Effect of Team-Based Learning and Jigsaw on Knowledge and Self-Efficacy of Nursing Students in Palliative Care

Purpose

Education/Guidance

Inclusion/Exclusion criteria

Inclusion criteria:

Undergraduate nursing students Currently enrolled in semesters 3 to 6 At least one semester of clinical experience Willingness to participate in the study Completion of written informed consent form No prior participation in palliative care training courses

Exclusion criteria:

No clinical experience. Previous participation in palliative care training courses Unwillingness to participate in the study. Failure to complete the written informed consent form Enrollment in semesters other than 3 to 6 (i.e., semesters 1–2 or beyond 6)

Age

From **19 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Data analyser

Sample size

Target sample size: **48**

Randomization (investigator's opinion)

Randomized

Randomization description

Stratified randomization will be used to ensure balanced distribution of background variables such as academic semester, GPA, and gender across the study groups. The unit of randomization is the individual student. Participants will be first categorized into strata based on their semester, GPA, and gender. Within each stratum, random allocation to one of the three groups—Jigsaw, Team-Based Learning, or Control—will be performed. The random sequence will be generated using statistical software (e.g., SPSS or R). Allocation concealment will be ensured by having an independent person, not involved in the implementation of the intervention, manage the randomization list. The allocation sequence will be stored in a secured file and only accessed after participant enrollment to prevent selection bias.

Blinding (investigator's opinion)

Single blinded

Blinding description

In this study, due to the educational nature of the interventions, participants were aware of the group they were assigned to (Jigsaw, Team-Based Learning, or Control). The researcher, intervention instructors, and outcome assessors were also aware of the intervention type. However, in order to reduce bias in data interpretation, the data analyst was blinded to the group assignments, and statistical analysis was conducted using anonymized, coded datasets. No Data Safety and Monitoring Board (DSMB) was established for this study. While participants were not blinded, the presence of blinding at the data analysis level provides a single level of blinding in the study.

Placebo

Not used

Assignment

Parallel

Other design features

This study is a quasi-experimental, three-arm trial (two intervention groups and one control group) using stratified randomization. Educational interventions are delivered through two innovative teaching methods: Jigsaw and Team-Based Learning. Importantly, the educational content, duration, classroom environment, and instructor are kept identical across both intervention groups to ensure that only the teaching method serves as the independent variable. Additionally, questionnaires are administered at three time points (pre-test, post-test, and one-month follow-up) to assess the sustainability of the educational impact. The control group receives no educational intervention and is included solely for comparison and to control for potential confounding factors.

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Islamic Azad University, Karaj Branch

Street address

Shahid Moazen Boulevard

City

Karaj

Province

Alborz

Postal code

3149968111

Approval date

2024-11-26, 1403/09/06

Ethics committee reference number

IR.IAU.K.REC.1403.174

Health conditions studied

1

Description of health condition studied
Palliative care, Advanced chronic diseases, Cancer, End-of-life

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description
Score of knowledge in palliative care measured by the Palliative Care Quiz for Nurses (PCQN) developed by Ross et al. (1996), consisting of 20 multiple-choice items (true, false, do not know); higher scores indicate greater knowledge. Assessment occurs at three time points: before the intervention, immediately after, and one month later.Score of self-efficacy in palliative care measured by the Palliative Care Self-Efficacy Scale developed by Phillips et al. (2011), evaluating students' perceived ability to manage symptoms and provide psychosocial support; higher scores indicate higher self-efficacy. Measured at three time points: before the intervention, immediately after, and one month later.

Timepoint
Measurements will be conducted at three time points: before the start of the educational intervention, immediately after the completion of the sessions, and one month after the intervention.

Method of measurement
The level of knowledge will be measured using the "Palliative Care Quiz for Nurses" developed by Ross and colleagues in the year nineteen ninety-six.The level of self-efficacy will be assessed using the "Palliative Care Self-Efficacy Scale" developed by Phillips and colleagues in the year two thousand eleven.The level of educational satisfaction will be measured using the "Satisfaction with Teaching Method Questionnaire" developed by Sadeghnejad and colleagues in the year two thousand thirteen.

Secondary outcomes

1

Description
The students' satisfaction score with the received teaching method will be measured using the "Satisfaction with Teaching Method Questionnaire" developed by Sadeghnejad and colleagues in the year two thousand thirteen; higher scores indicate greater satisfaction with the instructional approach.

Timepoint
The level of satisfaction with the teaching method will be measured immediately after the completion of the educational sessions in both intervention groups.

Method of measurement
The level of students' satisfaction with the teaching method will be measured using the "Satisfaction with Teaching–Learning Strategy Questionnaire" developed by Sadeghnejad and colleagues in the year two thousand thirteen. Higher scores indicate greater satisfaction with the teaching method.

Intervention groups

1

Description
Intervention Group 1: Training is delivered using the Jigsaw method in four sessions. The educational content covers the basics of palliative care and is provided through booklets and oral presentations by the researcher. Each session includes small group formation, topic division, individual study, peer teaching, and researcher-led summarization. Each session lasts between sixty and ninety minutes.

Category
Behavior

2

Description
Control Group: Participants in this group will not receive any educational intervention related to palliative care. They will only complete the study questionnaires at three time points: before the intervention, immediately after, and one month later. To ensure ethical considerations, the educational content will be provided to control group participants in digital format after data collection is completed.

Category
N/A

3

Description
Intervention Group 2: Training is conducted using the Team-Based Learning method in four similar sessions. In this approach, students first study the material individually, then collaborate in groups to solve problems and answer questions. The researcher concludes each session with a summary and clarification. The content, timing, and session structure are identical to Group 1.

Category
Behavior

Recruitment centers

1

Recruitment center

Name of recruitment center
Faculty of Nursing and Midwifery, Islamic Azad University, Karaj Branch

Full name of responsible person
Sharareh Zeyghami Mohammadi

Street address
No. 1, Moazen Boulevard, Rajaei Shahr, Karaj

City
Karaj

Province

Alborz
Postal code
3149968111
Phone
+98 26 3420 3590
Email
info@karaj.iau.ir

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Islamic Azad University, Karaj Branch
Full name of responsible person
Dr.Reza Ezzati
Street address
Vice Chancellor for Research and Technology, Islamic Azad University, Karaj Branch, Moazen Boulevard, Rajaei Shahr, Karaj
City
Karaj
Province
Alborz
Postal code
۳۱۴۹۹۶۸۱۱۱
Phone
+98 26 3420 3590
Email
info@karaj.iau.ir
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Islamic Azad University, Karaj Branch
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
Islamic Azad University, Karaj Branch
Full name of responsible person
Sharareh Zeyghami Mohammadi
Position
Assistant Professor
Latest degree
Ph.D.
Other areas of specialty/work
Nursery
Street address
Islamic Azad University, Karaj Branch, Moazen Boulevard, Rajaei Shahr, Karaj
City
Karaj
Province
Alborz
Postal code
3149968111
Phone
+98 26 3420 3590
Email
rezajamshidi2018@gmail.com

Person responsible for scientific inquiries

Contact
Name of organization / entity
Islamic Azad University, Karaj Branch
Full name of responsible person
Sharareh Zeyghami Mohammadi
Position
Assistant Professor
Latest degree
Ph.D.
Other areas of specialty/work
Nursery
Street address
Islamic Azad University, Karaj Branch, Moazen Boulevard, Rajaei Shahr, Karaj
City
Karaj
Province
Alborz
Postal code
3149968111
Phone
+98 26 3420 3590
Email
rezajamshidi2018@gmail.com

Person responsible for updating data

Contact
Name of organization / entity
Islamic Azad University, Karaj Branch
Full name of responsible person
Sharareh Zeyghami Mohammadi
Position
Assistant Professor
Latest degree
Ph.D.
Other areas of specialty/work
Nursery
Street address
Islamic Azad University, Karaj Branch, Moazen Boulevard, Rajaei Shahr, Karaj
City
Karaj
Province

Alborz

Postal code

3149968111

Phone

+98 26 3420 3590

Email

rezajamshidi2018@gmail.com

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

Undecided - It is not yet known if there will be 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

De-identified individual participant data related to the primary outcome variables, including knowledge, self-efficacy, and satisfaction scores. These data will be shared in Excel format upon written request and approval by the ethics committee. Additional documents such as the full study protocol and statistical analysis plan will also be available upon request.

When the data will become available and for how long

Access to the data will begin three months after publication of the main study results and will remain available for a period of two years to qualified researchers with a valid written request.

To whom data/document is available

Access to the data will be granted to researchers affiliated with universities, academic institutions, and research centers. Requests must be accompanied by an official letter of introduction and approval from the applicant's institutional ethics committee.

Under which criteria data/document could be used

The data may only be used for scientific and research purposes; commercial use is not permitted. Analyses must align with the original objectives of the study, and misleading or unrelated analyses are not allowed. Applicants must submit a research proposal, an official letter of introduction, and ethics committee approval from their institution. Data use will be subject to signing a data sharing agreement.

From where data/document is obtainable

Applicants seeking access to the study data or documents may contact the principal investigator, Ms. Sharareh Zeyghami Mohammadi, via email. The request must include a research proposal, an official letter of introduction, and ethics committee approval. Contact Person: Sharareh Zeyghami Mohammadi Position: Faculty Member, Faculty of Nursing and Midwifery, Islamic Azad University, Karaj Branch Postal Address: Faculty of Nursing and Midwifery, Islamic Azad University, Moazen Boulevard, Rajaei Shahr, Karaj, Postal Code: 3149968111 Email: sharareh.zeyghami@iau.ac.ir Phone: +98 26 34203590

What processes are involved for a request to access data/document

After submitting a written request including a research proposal, an official letter of introduction, and ethics committee approval from the applicant's institution, the request will be reviewed by the research team within 2 weeks. If approved, a data sharing agreement will be sent to the applicant for signature. Once the signed agreement is received, the requested data or documents will be shared via email or a secure cloud platform within a maximum of 2 weeks. The entire process typically takes 3 to 4 weeks.

Comments