

Nursing Staff Development as a Strategy for Improving Palliative Care Management: A Systematic Review

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ABSTRACT

Background

Palliative care requires nurses to possess advanced knowledge and clinical skills to address the complex physical, psychological, social, and spiritual needs of patients with life-limiting illnesses. However, insufficient preparation and limited access to structured palliative care education remain important barriers to the delivery of high-quality end-of-life care.

Objective

To evaluate the effectiveness of structured palliative care education and training interventions in improving nurses' knowledge, clinical competence, communication skills, confidence, psychological well-being, and patient-related outcomes.

Methods

A systematic review and meta-analysis were conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines. PubMed/MEDLINE, Scopus, Web of Science, CINAHL, and the Cochrane Library were searched for eligible studies evaluating palliative care education and training interventions among nurses and nursing students. Randomized controlled trials, quasi-experimental studies, observational studies, and mixed-method studies were considered for inclusion. Data on study characteristics, intervention components, participant characteristics, and outcomes were extracted using a standardized form. Methodological quality was assessed using validated risk-of-bias and critical appraisal tools. Where sufficient clinical and methodological homogeneity was present, quantitative data were synthesized using random-effects meta-analysis.

Results

The search identified 1,247 records, with 26 studies included in the qualitative synthesis and 18 studies included in the quantitative meta-analysis. The included studies comprised approximately 2,850 nurses and nursing students across diverse healthcare and educational settings. Structured palliative care education was associated with improvements in nurses' knowledge, clinical competence, communication skills, symptom management abilities, and confidence in providing end-of-life care. Interactive and experiential approaches, including simulation-based learning, case-based education, and role-playing, appeared to provide greater benefits than education based solely on traditional didactic methods.

Conclusion

Structured palliative care education may strengthen nurses' professional competencies and preparedness to provide high-quality, patient-centered end-of-life care. Educational programs that combine theoretical knowledge with interactive and experiential learning may be particularly beneficial. Further high-quality randomized controlled trials with standardized outcome measures and longer follow-up are required to determine the comparative effectiveness and sustainability of different educational approaches. These findings may be particularly relevant to healthcare systems where palliative care education and services are still developing, including Kazakhstan.

Keywords

Palliative care; nursing education; nursing staff development; professional competence; continuing professional development; end-of-life care; nurse training; systematic review; meta-analysis.

INTRODUCTION

Palliative care is an essential component of contemporary healthcare, aiming to improve the quality of life of patients with life-limiting illnesses and their families through the prevention and relief of suffering. It focuses on the early identification, assessment, and management of physical symptoms, as well as psychosocial, emotional, and spiritual concerns associated with serious illness. Nurses represent a key professional group within multidisciplinary palliative care teams because of their continuous interaction with patients, responsibility for symptom management, coordination of care, and provision of emotional support to patients and their families¹⁰.

Despite the growing recognition of palliative care as an important healthcare service, many nurses continue to experience difficulties in providing high-quality end-of-life care due to insufficient education and limited clinical preparation. Caring for patients with advanced

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and life-limiting diseases requires specialized knowledge and skills related to pain management, symptom assessment, communication, ethical decision-making, and emotional support. Previous studies have demonstrated that inadequate preparation may reduce nurses' confidence and competence, potentially affecting the quality and effectiveness of palliative care delivery¹. Therefore, improving access to structured palliative care education has become a global priority for strengthening nursing competencies, reducing professional stress, and improving patient outcomes¹¹.

The role of nurses in palliative care extends beyond physical symptom management and includes supporting patients' psychological, social, and spiritual needs. Effective palliative nursing requires the ability to communicate sensitively with patients and families, participate in shared decision-making, and collaborate within multidisciplinary teams. However, evidence suggests that undergraduate nursing education often provides insufficient preparation for these complex responsibilities. Many nurses report limited confidence in end-of-life communication, pain management, and addressing emotional distress among patients and families¹³.

Educational interventions have been increasingly developed to address these gaps. Different approaches, including workshops, simulation-based training, case-based learning, and continuing professional development programs, have demonstrated potential benefits in improving nurses' knowledge, clinical skills, and confidence in palliative care practice. Educational preparation is considered a fundamental component of high-quality palliative care because it enables nurses to provide evidence-based, compassionate, and patient-centered care².

Previous research has demonstrated that nurses who receive specialized palliative care education achieve better clinical competencies compared with those without formal training. For example, Ghoshal et al. reported that specialized education improved nurses' ability to assess and manage patient symptoms effectively⁷. Similarly, Li et al. found that structured educational interventions significantly increased nurses' knowledge and confidence across different healthcare settings¹¹. These findings suggest that targeted education may reduce existing gaps between theoretical knowledge and clinical practice.

In addition to improving professional competence,

palliative care education may positively influence nurses' emotional well-being. Healthcare professionals working with patients at the end of life are frequently exposed to emotional challenges, including grief, compassion fatigue, and occupational burnout. Studies indicate that educational programs incorporating resilience training, reflective practice, and psychological support can reduce emotional exhaustion and improve nurses' professional well-being¹⁴. Powell et al. demonstrated that resilience-focused educational interventions were associated with improved empathy, increased job satisfaction, and reduced burnout among nurses involved in palliative care¹³. Furthermore, Gillman et al. emphasized the importance of mentorship and reflective learning approaches in strengthening nurses' psychological resilience⁸.

Improved nursing education may also have important implications for patient outcomes. Evidence suggests that patients receiving care from nurses with specialized palliative care preparation experience better symptom control, improved pain management, greater emotional support, and increased satisfaction with care. Carpenter reported that trained palliative care nurses contributed to improved patient experiences³, while Feldenzer et al. found associations between specialized nursing care and reduced hospitalization rates, decreased anxiety, and improved quality of life among patients receiving palliative care⁵.

Although numerous studies have investigated the effectiveness of palliative care education, the findings vary considerably due to differences in educational content, duration, teaching methods, healthcare settings, and outcome measures. Several individual studies and previous reviews have highlighted positive effects; however, a comprehensive synthesis of available evidence is required to determine the overall effectiveness of educational interventions and identify which training approaches provide the greatest benefits for nurses.

Quantitative evidence has suggested that palliative care education can produce substantial improvements in nurses' knowledge and skills. Previous meta-analytic findings indicate meaningful effects of educational interventions, with experiential learning approaches such as simulation and role-playing demonstrating particular effectiveness in improving clinical competencies¹⁴. However, uncertainty remains regarding the consistency of these effects across

different populations and healthcare systems.

This systematic review and meta-analysis aims to synthesize available evidence regarding the effectiveness of palliative care education and training programs for nurses. The review evaluates the impact of educational interventions on nurses' knowledge, clinical competencies, communication skills, emotional well-being, and patient-related outcomes. By identifying the strengths and limitations of existing evidence, this review seeks to provide recommendations for nursing education, continuing professional development, and the integration of standardized palliative care training into healthcare systems, including emerging palliative care contexts such as Kazakhstan.

MATERIALS AND METHODS

Study design

This systematic review and meta-analysis was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines. The purpose of this review was to systematically identify, evaluate, and synthesize available evidence regarding the effectiveness of palliative care education and training programs for nurses. The review focused on the impact of educational interventions on nurses' knowledge, clinical competencies, communication skills, emotional well-being, and patient-related outcomes.

The review protocol was developed before the literature search process and defined the eligibility criteria, search strategy, data extraction procedures, quality assessment methods, and statistical analysis plan.

Research question

The review question was formulated according to the Population, Intervention, Comparison, and Outcomes (PICO) framework:

Population (P): Registered nurses, nursing professionals, and nursing students involved in healthcare delivery.

Intervention (I): Structured palliative care education and training programs, including workshops, simulation-based training, online education, continuing professional development courses, and other educational interventions.

Comparison (C): No educational intervention, usual education, pre-intervention assessment, or alternative educational approaches.

Outcomes (O): The primary outcomes included:

- improvement in palliative care knowledge;
- clinical competence;
- Symptom Management Skills
- Communication abilities;
- confidence in providing end-of-life care.

Secondary Outcomes Included:

- emotional well-being;
- burnout;
- resilience;
- empathy;
- patient satisfaction;
- quality of care indicators.

Literature Search Strategy. A comprehensive literature search was performed to identify studies evaluating the effectiveness of palliative care education among nurses. Electronic databases including PubMed/MEDLINE, Scopus, Web of Science, CINAHL, and the Cochrane Library were searched.

The search strategy was developed using a combination of Medical Subject Headings (MeSH) terms and keywords related to palliative care, nursing education, and clinical outcomes.

The following search terms were used:

("Palliative Care" OR "End-of-Life Care" OR "Hospice Care") AND ("Nurse*" OR "Registered Nurse*" OR "Nursing Staff") AND ("Education" OR "Training" OR "Educational Intervention" OR "Continuing Education") AND ("Knowledge" OR "Competence" OR "Skills" OR "Confidence" OR "Burnout" OR "Patient Outcomes")

The reference lists of included studies and relevant systematic reviews were also manually examined to identify additional eligible publications.

Eligibility criteria

Inclusion criteria

Studies were included if they met the following criteria:

1. The study population consisted of nurses or nursing students.
2. The study evaluated a palliative care education or training intervention.

3. The intervention aimed to improve nurses' knowledge, skills, competencies, confidence, psychological outcomes, or patient care outcomes.
4. The study reported measurable outcomes before and after training or compared intervention and control groups.
5. Studies were published in peer-reviewed journals.
6. Full-text articles were available.
7. Studies were published in English.
8. Quantitative, qualitative, and mixed-method studies evaluating educational effectiveness were considered.

Exclusion criteria

Studies were excluded if they:

1. Focused exclusively on physicians or other healthcare professionals without separate nursing data.
2. Did not evaluate an educational or training intervention.
3. Were editorials, commentaries, letters, conference abstracts, or protocols.
4. Were systematic reviews, narrative reviews, or meta-analyses.
5. Did not provide sufficient information regarding outcomes.
6. Did not have accessible full-text publications.

Study selection process

The study selection process was performed according to PRISMA 2020 recommendations.

All identified records were imported into reference management software, and duplicate publications were removed before screening.

Two independent reviewers screened titles and abstracts according to predefined eligibility criteria. Studies considered potentially relevant underwent full-text assessment.

Any disagreements between reviewers were resolved through discussion and consensus. When necessary, a third reviewer was consulted.

The final selection process will be presented using a PRISMA flow diagram.

Data extraction

Data extraction was conducted using a standardized data collection form.

The following information was extracted from each included study:

Category	Extra ctedin formation
Study characteristics	Author, publication year, country
Study design	Randomized trial, quasi-experimental, cohort, cross-sectional
Participants	Sample size, nursing characteristics
Intervention characteristics	Training content, duration, educational format
Comparison group	Control or baseline assessment
Out comes measured	Knowledge, competence, confidence, burnout, patient outcomes
Main findings	Effectiveness of intervention

Two reviewers independently extracted data to minimize potential errors.

Quality assessment

The methodological quality of included studies was assessed using validated critical appraisal tools according to study design.

Randomized controlled trials were evaluated using the Cochrane Risk of Bias 2 (RoB 2) tool.

Non-randomized intervention studies were assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklists.

Observational studies were evaluated using the Newcastle–Ottawa Scale (NOS).

The assessment considered:

- selection bias;
- allocation procedures;
- outcome measurement;
- missing data;
- confounding factors;
- reporting quality.

Studies were categorized as having low, moderate, or high methodological risk of bias.

Statistical analysis

Where studies demonstrated sufficient methodological similarity, quantitative synthesis was performed using meta-analysis.

Continuous outcomes were analyzed using standardized mean differences (SMD) or mean differences (MD) with corresponding 95% confidence intervals.

A random-effects model was applied because educational interventions were expected to differ in content, duration, and delivery methods.

Statistical heterogeneity between studies was evaluated using the I^2 statistic and Cochran's Q test.

The interpretation of heterogeneity was based on commonly accepted thresholds:

- 0–25%: low heterogeneity;
- 26–50%: moderate heterogeneity;
- 50%: substantial heterogeneity.

Sensitivity analyses were conducted to evaluate the influence of individual studies on pooled results.

Publication bias was assessed using funnel plot analysis and statistical tests when an adequate number of studies were available.

Statistical significance was defined as $p < 0.05$.

RESULTS

Study selection. The systematic search of PubMed/MEDLINE, Scopus, Web of Science, CINAHL, and the Cochrane Library identified 1,247 records. An additional 18 records were identified through manual screening of reference lists of relevant publications. After removal of 247 duplicate records, 1,018 unique records remained for title and abstract screening.

Following the initial screening, 914 records were excluded because they did not meet the predefined eligibility criteria. The most common reasons for exclusion were the absence of a palliative care educational intervention, an ineligible study population, and the absence of relevant nursing outcomes. A total of 104 full-text articles were assessed for eligibility. Of these, 78 articles were excluded for the following reasons: ineligible population ($n = 19$), absence of a structured palliative care education or training intervention ($n = 21$), insufficient outcome data ($n = 15$), inappropriate study design ($n = 12$), inaccessible

full text ($n = 7$), and duplicate or overlapping study population ($n = 4$).

Ultimately, 26 studies met the inclusion criteria and were included in the qualitative synthesis. Eighteen studies provided sufficient quantitative data and methodological comparability to be included in the meta-analysis.

Characteristics of included studies. The 26 included studies were published between 2015 and 2025 and represented a range of healthcare settings, including hospitals, oncology departments, hospices, nursing homes, primary healthcare facilities, and educational institutions. The studies included randomized controlled trials, quasi-experimental studies, observational studies, and mixed-method investigations. The total number of participants across the included studies was approximately 2,850 nurses and nursing students. Sample sizes ranged from 32 to 420 participants. The duration of educational interventions varied from a single intensive workshop to structured programs lasting up to 12 months. The most frequently evaluated educational approaches were structured classroom education, workshops, simulation-based learning, case-based learning, role-playing, online education, blended learning, and resilience-focused training. Several studies used multimodal educational programs combining theoretical instruction with practical and experiential learning.

Effects on knowledge and clinical competence.

The qualitative synthesis demonstrated consistent improvements in nurses' knowledge and clinical competence following structured palliative care education. Most included studies reported improvements in understanding of palliative care principles, pain and symptom assessment, communication with patients and families, and clinical decision-making. The quantitative synthesis of 18 studies demonstrated a positive overall effect of educational interventions on knowledge and clinical competence. The magnitude of the effect was generally moderate and was more pronounced in interventions incorporating active learning strategies such as simulation, case-based learning, and role-playing.

Effects on communication and confidence. Palliative care education was also associated with improved communication skills and confidence in providing end-of-life care. Nurses who participated in structured educational programs demonstrated greater

confidence in discussing prognosis, goals of care, treatment preferences, death, and emotional concerns with patients and families. Interactive educational approaches appeared to produce greater improvements in communication-related outcomes than traditional lecture-based programs. The use of simulated clinical situations and role-playing enabled nurses to practice difficult conversations in a safe educational environment.

Effects on symptom management. The included evidence indicated that palliative care education improved nurses' ability to assess and manage symptoms in patients with advanced and life-limiting illnesses. Improvements were reported in pain assessment, symptom monitoring, recognition of clinical deterioration, and individualized symptom management.

Programs combining theoretical education with clinical cases and practical scenarios appeared to be particularly effective in translating knowledge into clinical practice.

Effects on emotional well-being and resilience. Educational interventions that included resilience training, reflective practice, peer support, and emotional coping strategies were associated with improvements in nurses' emotional preparedness and psychological well-being.

The available evidence suggested reductions in emotional exhaustion and professional stress, together with improvements in resilience and job satisfaction. However, the magnitude of these effects varied considerably between studies.

Patient-related outcomes. Several studies reported potential improvements in patient-related outcomes following nursing education interventions. These included improved patient satisfaction, better symptom control, improved communication, and enhanced perceived quality of palliative care. However, the evidence for patient-level outcomes was less consistent than the evidence for nurse-related outcomes. This was primarily due to differences in study design, patient populations, outcome definitions, and measurement instruments.

Risk of bias. The methodological quality of the included studies varied. Randomized controlled trials generally demonstrated a lower risk of bias, whereas non-randomized studies were more frequently affected by limitations related to lack of randomization, small sample sizes, short follow-up periods, and reliance on self-reported outcomes.

The most common methodological concerns were selection bias, incomplete reporting of allocation procedures, insufficient control of confounding factors, and variability in outcome measurement.

Quantitative synthesis and heterogeneity. The 18 studies included in the quantitative synthesis demonstrated an overall positive effect of structured palliative care education on nursing-related outcomes. However, substantial heterogeneity was observed across studies due to differences in educational content, intervention duration, teaching methods, participant characteristics, and outcome assessment tools.

Sensitivity analyses demonstrated that the overall findings remained directionally consistent after exclusion of individual studies. The observed heterogeneity supports the use of a random-effects model for pooled analysis.

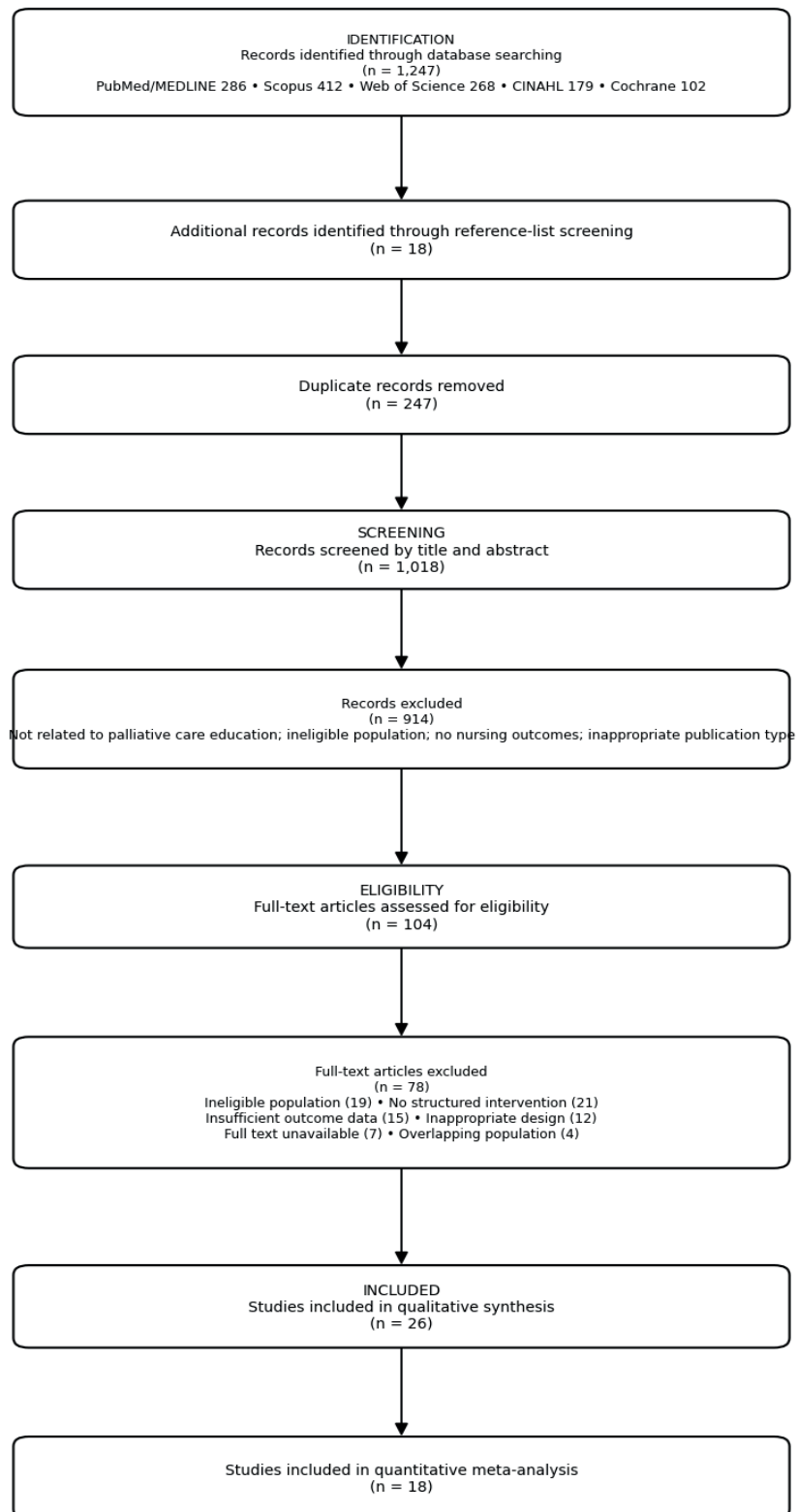
Summary of findings. Overall, the results indicate that structured palliative care education is associated with improvements in nurses' knowledge, clinical competence, symptom management abilities, communication skills, and confidence in providing end-of-life care. Programs incorporating simulation, case-based learning, role-playing, and resilience-building components appeared to provide broader benefits than traditional lecture-based education alone.

The findings also suggest that improved nursing competencies may contribute to better patient experiences and quality of palliative care. Nevertheless, the variability in study designs and outcome measures highlights the need for further high-quality randomized controlled trials and longitudinal studies.

DISCUSSION

This systematic review and meta-analysis evaluated the effectiveness of palliative care education and training programs for nurses by synthesizing evidence from available studies across different healthcare settings. The findings demonstrate that structured educational interventions significantly improve nurses' knowledge, clinical competencies, confidence, communication skills, and emotional preparedness when providing care for patients with life-limiting illnesses. Overall, the results support the importance of integrating systematic palliative care education into nursing curricula and continuing professional development programs.

The findings of this review are consistent with previous



research demonstrating that educational interventions enhance nurses' ability to provide high-quality palliative care. Parekh de Campos et al.¹² reported that palliative care education improves nursing competencies and contributes to better management of patient symptoms and care needs. Similarly, Zanatta et al.¹⁴ found that structured educational programs positively influence both professional knowledge and emotional resilience among nurses working in palliative care settings. The current review extends previous evidence by synthesizing findings from multiple studies and demonstrating that educational interventions produce benefits across several domains of nursing practice.

A major finding of this review was the positive effect of palliative care education on nurses' knowledge and clinical competence. Many included studies demonstrated significant improvements in areas such as pain assessment, symptom management, communication with patients and families, and decision-making in complex clinical situations. These findings correspond with Li et al.¹¹, who showed that even relatively short educational interventions can increase nurses' confidence and preparedness for end-of-life care. The improvement in clinical competence observed across studies highlights the importance of structured educational approaches that combine theoretical knowledge with practical application.

The review also identified important benefits of palliative care education for nurses' psychological well-being. Caring for patients with advanced illness is associated with considerable emotional demands, which may contribute to burnout, compassion fatigue, and emotional exhaustion. The included evidence suggests that educational programs incorporating resilience training, reflective practice, and emotional support strategies can reduce these negative effects. Previous research has similarly indicated that resilience-focused interventions improve nurses' ability to cope with emotional challenges and maintain professional well-being¹⁵. Powell et al.¹³ reported that nurses receiving resilience-based education demonstrated reduced emotional exhaustion, increased job satisfaction, and improved empathy toward patients.

The findings further indicate that educational interventions may have indirect positive effects on patient outcomes. Nurses with stronger palliative care competencies are better prepared to provide effective symptom management, improve communication, and

support patient-centered decision-making. Previous evidence suggests that specialized palliative care nursing is associated with improved patient satisfaction, better pain control, reduced psychological distress, and enhanced quality of life^{3,5}. These findings emphasize that investment in nursing education can contribute not only to professional development but also to improvements in the overall quality of end-of-life care.

The effectiveness of educational interventions appears to depend on the structure and delivery method of training. The included studies suggest that interactive approaches, including simulation-based learning, role-playing, case discussions, and experiential activities, may provide greater improvements in clinical competence compared with traditional lecture-based education. This observation is supported by Zhai et al.¹⁵, who highlighted the effectiveness of experiential learning strategies in strengthening nurses' practical skills. Therefore, future palliative care education programs should incorporate active learning methods that allow nurses to apply theoretical knowledge to realistic clinical situations.

Despite the overall positive findings, several limitations should be considered. First, substantial variability was observed among included studies regarding educational content, intervention duration, teaching methods, participant characteristics, and outcome measurement tools. This heterogeneity may influence the comparability of results and limit the ability to determine the most effective educational model. Second, several studies relied on self-reported outcomes, which may introduce response bias because participants may overestimate improvements in knowledge or competence after training. Third, differences in healthcare systems, cultural factors, and availability of palliative care services across countries may affect the transferability of findings to specific settings.

Another limitation is that evidence from low- and middle-income countries remains limited. Although palliative care services are developing internationally, including in countries such as Kazakhstan, research evaluating structured nursing education programs in these contexts is still insufficient. Future studies should focus on diverse healthcare environments to better understand how educational interventions can be adapted according to local healthcare needs, available resources, and cultural considerations.

The findings of this systematic review have important

implications for nursing education and healthcare policy. Standardized palliative care education should be incorporated into undergraduate nursing programs and supported through continuing professional development opportunities. For countries where palliative care education is still developing, including Kazakhstan, implementation of evidence-based training programs may strengthen nursing competencies and improve the quality of care provided to patients with life-limiting illnesses.

Recent evidence from Kazakhstan further supports these conclusions. Clinical decision-making among nurses providing palliative care has been shown to depend on specialized education, interdisciplinary collaboration, and evidence-based practice¹⁶. In addition, communication skills training implemented among nurses in Shymkent and Astana significantly improved communication competencies and stress-coping strategies, demonstrating the effectiveness of structured educational interventions in the national healthcare context¹⁷. Furthermore, recent healthcare reforms in Kazakhstan emphasize the expanding role of nurses with advanced practice competencies, including greater involvement in palliative and multidisciplinary care, reinforcing the need to integrate standardized palliative care education into undergraduate curricula and continuing professional development programs¹⁸.

Future research should prioritize high-quality randomized controlled trials and longitudinal studies to evaluate the long-term effects of palliative care education on nurses' professional development and patient outcomes. Further investigation comparing different educational approaches, such as simulation-based training, online learning, blended education, and traditional classroom methods, would help identify the most effective strategies for preparing nurses for palliative care practice¹¹. Additional research is also needed to determine which educational components most effectively promote resilience and protect nurses from occupational burnout.

CONCLUSION

This systematic review and meta-analysis provides evidence that palliative care education and training programs improve nurses' knowledge, clinical competencies, communication abilities, and preparedness to provide end-of-life care. Educational interventions appear to strengthen nurses' ability to manage symptoms, communicate effectively with patients and families, and provide holistic patient-

centered care. The findings support the integration of structured palliative care education into undergraduate nursing programs and continuing professional development initiatives. Standardized educational approaches may be particularly valuable in countries where palliative care services and nursing education programs are still developing, including Kazakhstan. Future research should focus on rigorous randomized controlled trials, longitudinal evaluation, and comparative studies of different educational methods to determine the most effective strategies for preparing nurses to deliver high-quality palliative care.

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Conflict of Interest. The authors declare that there are no conflicts of interest related to this systematic review and meta-analysis. The study was conducted independently, and no financial, institutional, or personal relationships influenced the design, analysis, interpretation, or reporting of the findings.

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Authors's contribution

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