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Interventions Supporting Nurses' Palliative Care Education Needs in Low-and-Middle-Income Countries: A Systematic Review

Abstract

Objective(s): A lack of palliative care training for nurses has been identified as a barrier to patients' access to palliative care services. Although nurses account for nearly 50% of the global healthcare workforce, those in low- and middle-income countries (LMICs) often lack sufficient training and education in palliative care. This review identified and synthesised literature on palliative care education for students and practicing nurses from LMICs

Methods : A systematic review approach with narrative synthesis was employed to review studies published in English from January 2002 to October 2022, focusing on training interventions in Palliative Care Education (PCE) programmes for nurses. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines guided this review. The study protocol was registered in PROSPERO.

Results: The review included 56 studies. Key topics in the PCE interventions focused on helping patients and their families understand disease processes, symptom management, empathetic communication, decision-making, cultural concerns, quality of life, breaking bad news, bereavement, and post-mortem care. The most common instructional materials were presentation slides. However, some programmes used e-learning resources, role-plays, high-fidelity simulation manikins, storytelling, reflection, riddles, and poems. Intervention outcomes included improved attitudes, confidence, and knowledge acquisition.

Conclusions : PCE interventions can effectively enhance nurses' knowledge and confidence in providing care to individuals needing such services. Findings suggest the need for further research and the implementation of practical innovative educational approaches in various regions, particularly Africa and Eastern Europe.

Keywords:

Education, low- and middle-income countries, nurses, palliative care training; systematic review

Introduction

All patients with life-threatening conditions should have access to palliative care. However, this can be particularly challenging in low- and middle-income countries (LMICs) due to a lack of resources, a weak healthcare system, and a shortage of medical professionals with the necessary training.[1,2] The need for palliative care, as measured by the prevalence of serious health or illness-related suffering, is increasing and is expected to nearly double by the year 2060. However, the ability of health services internationally to meet this need remains uncertain.[3,4] Currently, about 70% of palliative care services operate in high-income countries, while only 30% are in LMICs, despite more than 80% of people needing palliative care living in these regions. This discrepancy highlights an urgent need for significant efforts to develop palliative care in LMIC settings[5].

A priority area for improvement is the training of nurses, who constitute nearly 50% of the global healthcare workforce. [6] Limited access to palliative care training for nurses has been identified as a barrier to patients' access to these essential services. [7] Palliative care education interventions are defined as structured programmes designed to enhance the knowledge, skills, and competencies of nurses in delivering palliative care. These interventions may include workshops, online courses, mentorship programmes, and continuing education seminars tailored to the specific needs of healthcare professionals. As primary caregivers and advocates for patients and their families, nurses play a crucial role in delivering palliative care. However, evidence suggests that nurses in LMICs often lack sufficient training and education in palliative care, which restricts their ability to provide optimal care and support.[1] Familiarity with the principles and practices of palliative and supportive care is essential for providers caring for individuals living with chronic and life-threatening conditions.

To enhance nurses' knowledge, skills, and confidence in delivering high-quality palliative care in LMICs, it is necessary to investigate and assess the efficacy of palliative care education initiatives. Previous research has demonstrated the importance of educational interventions in enhancing palliative care outcomes across various healthcare settings, underscoring that education is a fundamental component of the WHO's conceptual model for palliative care development.[2,8,9,10] For instance, educational programmes for healthcare professionals, such as nurses, have demonstrated improvements in pain management,[9] enhanced communication skills,[11] and increased knowledge of palliative care principles.[12] However, there is a lack of comprehensive evidence on the availability and effectiveness of these educational interventions specifically for nurses in LMICs, and this gap underscores the need for targeted research.

This systematic review aimed to identify and synthesise literature on palliative care education for both nursing students and qualified nurses from LMICs. Additionally, the review addressed sub-questions such as: (1) What specific palliative care education interventions are reported in the literature? and (2) What are the reported outcomes of these interventions? A narrative synthesis **w**as chosen to facilitate the exploration of diverse educational approaches and their impacts, thereby providing a broader understanding of the topic compared to a traditional quantitative meta-analysis. This approach enables the inclusion of varied methodologies and outcomes, which is particularly relevant given the limited data in this field. Therefore, addressing the urgent need for palliative care education in LMICs is crucial for improving health outcomes. Policymakers must recognise the importance of investing in training initiatives for nurses to enhance the quality of palliative care services. When these educational interventions are prioritised, stakeholders can contribute to meaningful changes that improve the lives of patients facing life-threatening conditions.

Methods

This systematic review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.[13] The protocol for the study was registered in PROSPERO.

Population

The review included studies on nurses with professional roles in education, research, and administration, nurses working in any clinical area irrespective of years of service, and nursing students in any learning institution. **"**Educational involvement" refers to any engagement in structured education or training programmes aimed at enhancing palliative care knowledge and skills. This includes formal courses, workshops, online training modules, and mentorship opportunities. Any study involving other healthcare professionals or students pursuing health programmes other than nursing was excluded to maintain focus on nursing education, which may limit the generalisability of findings but ensures a concentrated analysis of nursing-specific interventions.

Intervention

Any form of educational involvement with a set of curricula focused on training nurses and nursing students regarding death and dying, end-of-life care issues, and any palliative care course was included.

Outcomes

The included studies focused on any educational intervention aimed at providing education on palliative care and cited outcomes relating to nurses' views on the instructional approaches and the effects of the interventions on clinical practice.

Inclusion and Exclusion Criteria

Inclusion criteria: Qualitative/quantitative/mixed-methods studies and literature reviews containing content on palliative care education for nurses (students and qualified nurses) in low- and middle-income countries; published between January 2002 and October 2022; involving adults (>18 years); published in English.

Exclusion criteria: Paper types including general discussion papers, commentaries, opinion pieces, news articles, book chapters, and case reports with no empirical data or without a substantial literature review (i.e., no reported methods). The reference lists of the selected papers were also searched. Search terms used included: nurs*/student nurs*. Additional terms used include palliative care/palliative treatment/end-of-life care/terminal care/hospice/supportive care, and education/training/course.

Study Selection

Studies were selected using the inclusion and exclusion criteria set for the study. Following the team's agreement on search terms, the searches were conducted in the following databases: PubMed, CINAHL, Scopus, and Web of Science. Comprehensive research was conducted across all relevant fields to ensure that MeSH terms were included in the review. The studies were exported into EndNote version 21. The University of Sheffield Liaison Librarian for Medicine, Dentistry, and Health supported data management. One reviewer screened titles and abstracts of identified articles. Two reviewers independently screened 10% of all titles and abstracts, selected randomly, to ensure that the inclusion and exclusion criteria were applied with good agreement. An independent third review team member discussed and resolved disagreements between the reviewers. Following title and abstract screening, one reviewer screened all full-text articles, with six research team members conducting a second review. A third reviewer resolved disagreements between the two

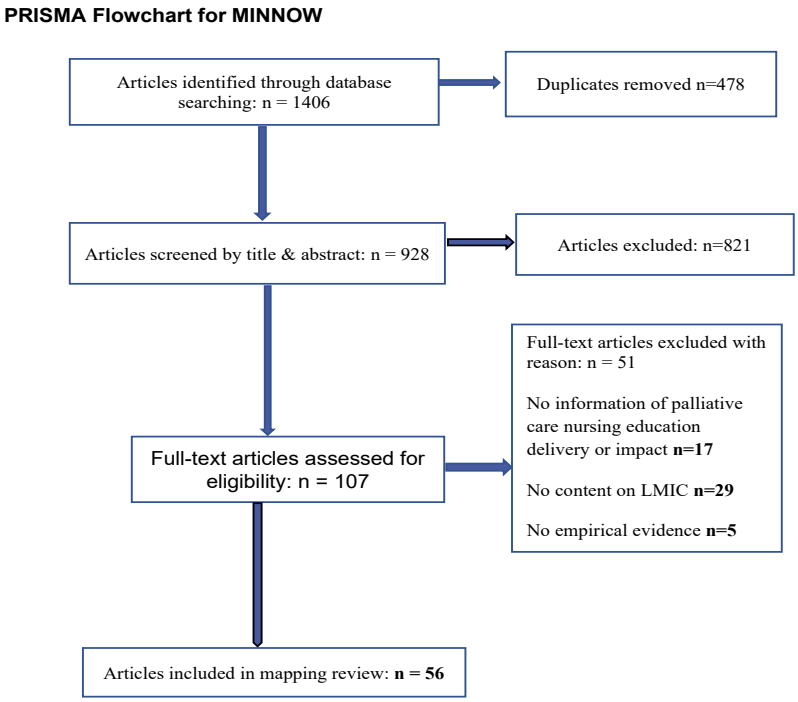
reviewers. The second reviewer was blinded to the first reviewer's decisions using a separate Excel spreadsheet. The process was documented using a PRISMA diagram.

The search terms were chosen to encompass the scope of palliative care education adequately, focusing on critical areas relevant to nursing practice. These terms align with the research questions posed, aiming to capture a wide range of educational interventions and outcomes.

For quality assessment, the Mixed Methods Appraisal Tool (MMAT) was selected due to its versatility in evaluating diverse study designs, which is crucial given the variety of methodologies included in this review. The handling of ratings of "cannot tell" involved discussions among team members to reach a consensus based on predefined criteria, ensuring a rigorous assessment process.

The narrative synthesis approach was chosen for its suitability in analysing diverse study types and outcomes. The specific methods employed included thematic analysis, where data were coded to identify recurring themes and patterns. A qualitative software tool, NVivo version 14 was utilised to assist in organising and coding the data, allowing for systematic theme development and ensuring rigour in the synthesis process.

The process was documented using a PRISMA diagram. (Figure1) PRISMA Flow Diagram.



Three team members completed a data extraction table for all papers. Main data fields include a. Publication details (author, journal, year) b. Country; c. Research aim; d. Study design; e. Study population: sampling, inclusion/exclusion criteria; f. Data collection methods g. Findings (1) Palliative care nursing education initiatives h. Findings (2) Evidence of effectiveness i. Limitations.

Table 1: Below is the data extracted from the articles

EXTRACTION TABLE.docx

The methodological quality of the full texts of the eligible papers was evaluated using the modified Mixed Methods Appraisal Tool (MMAT) Version 2018. [14] Study team members assessed the retrieved articles using 'yes', no', and 'cannot tell' to determine the eligibility of individual articles based on whether the study focused on Palliative Care Education. All studies unanimously coded 'yes' were qualified for further quality assessment, while studies

unanimously coded ‘no’ were removed. Those studies coded ‘cannot tell’ or with some disagreements were discussed among authors until an agreement was reached for either exclusion or inclusion.

To enhance transparency in the evaluation process, the number of reviewers who rated a study as “yes” divided by the total number of reviewers was used to calculate an agreement index for each study. Studies with an overall agreement index below 0.80 were deemed to have poor methodological quality. Low-quality methodological studies were not immediately eliminated, as the MMAT 2018 version recommended, but were instead reviewed and reevaluated to assess their potential contributions to the review. Following this re-evaluation, four papers were eliminated due to insufficient information regarding the research questions posed by the current study and an ambiguous design, ensuring that only studies with clear relevance and methodological rigour were included in the final analysis.

Data synthesis

A narrative synthesis was employed to analyse the extracted data, identifying differences and similarities in the findings across the various studies. This approach is particularly suitable for the diverse methodologies and outcomes of the included studies, allowing for a comprehensive understanding of the educational interventions. Patterns existing in the data were identified through a systematic process. The following steps were used in conducting the synthesis:

1. A preliminary synthesis of findings was developed to explore key aspects, including the target group for the educational interventions and the rationale behind their implementation.

2. The settings of the interventions were categorised to highlight contextual factors influencing the effectiveness of the programmes.
3. The educational approaches employed in each study were analysed, noting variations in methods such as workshops, online courses, and mentorship.
4. Finally, the effectiveness of the interventions was assessed by examining reported outcomes, such as improvements in knowledge, skills, and clinical practice among nurses and nursing students.

Throughout this process, coding was conducted to identify recurring themes and insights. This rigorous approach ensured that the synthesis captured the complexity of the educational interventions and their impact on palliative care education in LMICs.

Search Results

The literature search identified 1,408 articles from four databases. After screening for duplicates, 930 articles were reviewed by title and abstract. A total of 521 articles were excluded, and the full-text methodological quality assessment identified 107 articles as eligible for data extraction; however, 51 of these were further excluded because they did not meet the inclusion criteria. Of the studies included in the review (n = 56), there were both empirical studies (n = 49) and systematic review studies (n = 7). The seven review studies included between 9 and 184 studies each. The overall included studies were conducted in 28 out of the 136 lower and middle-income countries. The designs used in the included studies were: qualitative studies (n=8; Phenomenology 1, Ethnography 1, Case study 1, Exploratory Descriptive 4), mixed methods (n=6), and quantitative (n=33; Randomised Controlled Trials n=5, Pretest post-test n=6, post-test only n=1, Delphi n=1, observational n=1, and cross-sectional studies n=18).

Table 2: Country of Origin of Studies

Continent	Place	No. of Studies
Asia		26
	Southern Asia	12
	• Iran	6
	• India	4
	• Pakistan	2
	Eastern Asia	8
	• China	7
	• North Korea	1
	Western Asia	6
	• Turkey	6
Latin America		17
	Southern America	15
	• Brazil	13
	• Columbia	2
	Central America	1
	• Hondarus	1
	The Caribbean	1
	• Jamaica	1
Africa		12
	Eastern Africa	9
	• Kenya	4
	• Rwanda	2
	• Uganda	2
	• Tanzania	1
	Northern Africa	2
	• Egypt	1
	• Morocco	1
	Southern Africa	1
	• Botswana	1
Eastern Europe		1

Target Population and Sample Size of Included Studies

The main target group for most of the studies was students at various levels of study, [15-23,9] and qualified nurses. [24-28] A few studies also included students in medicine, physiotherapy, and medical doctors [26, 29, 30]. Studies targeting only student nurses numbered 18, while six papers focused on qualified nurses and other healthcare professionals. Among the studies that targeted qualified nurses, two focused on nursing educators, two on oncology nurses, 19 on

general nurse clinicians, and seven on the nursing staff mix. The total sample size of all the studies was 14,084, with individual study sample sizes ranging from 6 to 10,048 participants.

Study Designs

The designs used in the included studies were qualitative (n = 8), quantitative (n = 37), and mixed methods (n = 6); six of the studies were reviews (systematic with meta-analysis, n = 1; integrative review, n = 1; and scoping review, n = 1). Of the studies that employed a qualitative approach, five used an exploratory descriptive design, one employed a case study, one used a phenomenological method, and one used an ethnographic method. The quantitative studies employed randomised controlled trials (n = 5), pretest-posttest designs without control (n = 10), pretest-posttest designs with control (n = 4), post-test-only designs (n = 1), Delphi studies (n = 1), cross-sectional studies (n = 7), observational studies (n = 1), and longitudinal studies (n = 1). For studies that employed mixed-methods design, no specific mixed-methods design was specified; instead, they combined open-ended questions with closed-ended ones and conducted some interviews during data collection.

Using thematic analyses, three themes were identified from the data: (1) Palliative Care Training, (2) Educational Intervention Delivery, and (3) Evidence of Effectiveness. The data were systematically coded, and patterns were generated to understand the key areas.

Palliative Care Training

Nineteen studies identified training interventions focused on developing competencies for nurses in palliative care. [12, 20, 27, 30-39, 40-45] These studies covered a range of topics essential for effective palliative care, including:

- Patient education on medication, nutrition, exercise, and weight monitoring
- Holistic palliative care, providing an overview of objectives and principles

- Understanding the disease process and complex symptom management, including pain assessment and management
- Empathetic communication, decision-making, cultural concerns, and quality-of-life considerations. Additionally, the curriculum included content addressing later stages of palliative care, such as breaking bad news, bereavement care, and postmortem care.

Eltaybani et al.[37] found that nurse educators primarily covered the physical (94.3%) and psychological (87.2%) aspects of care, with spiritual and existential care being addressed less frequently (36.0%). Notably, end-of-life care was the least taught topic (19.6%), indicating a significant gap in training. Studies assessing the training content emphasised the need for improved delivery methods and supplementary materials, suggesting that enhanced resources would better equip nurses to provide effective palliative care**.** However, few interventions focused on critical areas such as patient assessment, basic nursing care, and education for patients and families on pain management techniques, opioid use, symptom management, and the complexities of family involvement in care.

Educational and training needs assessments conducted by various authors identified crucial areas for improvement, such as approaches to death and loss, interventions with patients' families, pain management, and the development of therapeutic communication skills. For instance, Nouhi et al.,[46] assessed the palliative care needs of Iranian nurses, advocating for greater emphasis on evaluating clinical competence and educational needs. Their findings indicated a high priority for education on psychological and spiritual aspects, while the social dimension of care received the lowest scores.

Furthermore, Sadhu et al.[22] aimed to determine the palliative care needs of Indian undergraduate healthcare students. Their study revealed that many healthcare professionals, including nurses and students, felt unprepared to confront death and dying. They highlighted

the inadequate inclusion of palliative care training in educational curricula, stressing the need for healthcare professionals to handle end-of-life care sensitively and competently.

One study underscored institutional and practical challenges in delivering palliative care training, noting issues such as insufficient hours for theoretical instruction, a lack of practical experience opportunities, and inadequate training preparation for staff within both educational and clinical settings.[1]

These findings collectively underscore the urgent need to enhance palliative care training programs, ensuring that they are comprehensive, contextually relevant, and capable of equipping nurses with the necessary skills to provide high-quality end-of-life care.[47-51] The implications of these findings suggest that educational frameworks for nursing should integrate comprehensive training on both the technical and emotional aspects of palliative care.[52-54] By aligning these content areas with existing nursing curricula, educators can enhance nurses' preparedness to handle complex end-of-life issues.

Educational Intervention Delivery

The review identified various approaches to delivering palliative care education, including both face-to-face and virtual teaching methods. Content was frequently delivered through PowerPoint presentations, lectures, and occasionally high-fidelity simulation manikins, which were noted for their effectiveness in enhancing practical skills.

Eltaybani et al.[37] surveyed 95 nursing educators to assess the palliative care education provided to Egyptian student nurses. The results indicated that lectures were the most commonly utilised instructional technique (77.7%), followed by clinical field practice (53.6%) and group discussions (37%). This reliance on traditional teaching methods underscores the need for diversification in pedagogical approaches.

The studies employing simulation-based interventions reported promising outcomes.[25, 42, 47, 55] Hamdoune and Gantare[55] evaluated simulation-based learning among nursing students in Morocco, aiming to replicate the psychological assistance provided to patients during bereavement. Their findings demonstrated that simulation significantly enhanced learners' understanding of psychological support in the grieving process. Similarly, Kang et al.[42] used a quasi-experimental design with recently hired oncology nurses to assess the effectiveness of palliative care simulations involving standardized patients. The simulation group exhibited significantly higher proficiency in pain management, communication in complex scenarios, and critical thinking compared to the control group. Correspondingly, Rattani et al.[47] explored the use of high-fidelity simulation to teach end-of-life care at the Aga Khan University School of Nursing and Midwifery in Pakistan. The study found that simulation interventions improved nursing students' attitudes toward caring for patients nearing the end of life. Additionally, Kurji et al.[25] employed tele-simulation (TS) to teach the SPIKES model for disclosing bad news. Their findings indicated that tele-simulation was effective in training nurses in palliative care, with participants reporting that the simulation exercises were engaging and beneficial; most interns noted it as their favourite part of the end-of-life module.

More creative methods, such as storytelling, theatrical performances, reflection exercises, riddles, and poems, have also been employed to deliver palliative care education. According to qualitative interviews, introducing storytelling improved students' attitudes and made them more accepting of death, significantly reducing their fear of dying.[44] Malloy et al.[26] suggested that incorporating small group work, role-play to enhance communication skills, and increased use of case studies could further improve palliative care delivery. Online delivery methods, such as e-modules and webinars, have shown potential for effective education as

well. Hao et al.[39] implemented an e-learning solution for teaching palliative care, finding significant improvements in participants' attitudes and knowledge.

However, several challenges in online training approaches were reported.[1, 25, 56, 57] For example, Cassum et al.[56] explored issues in delivering a palliative care online model via Microsoft Teams for nursing student interns, noting that 43% faced poor internet connectivity while 10% reported electricity problems. In Kurji et al.[25] study, participants encountered technical difficulties that delayed their access to simulation sessions, complicating the instructors' ability to engage effectively.

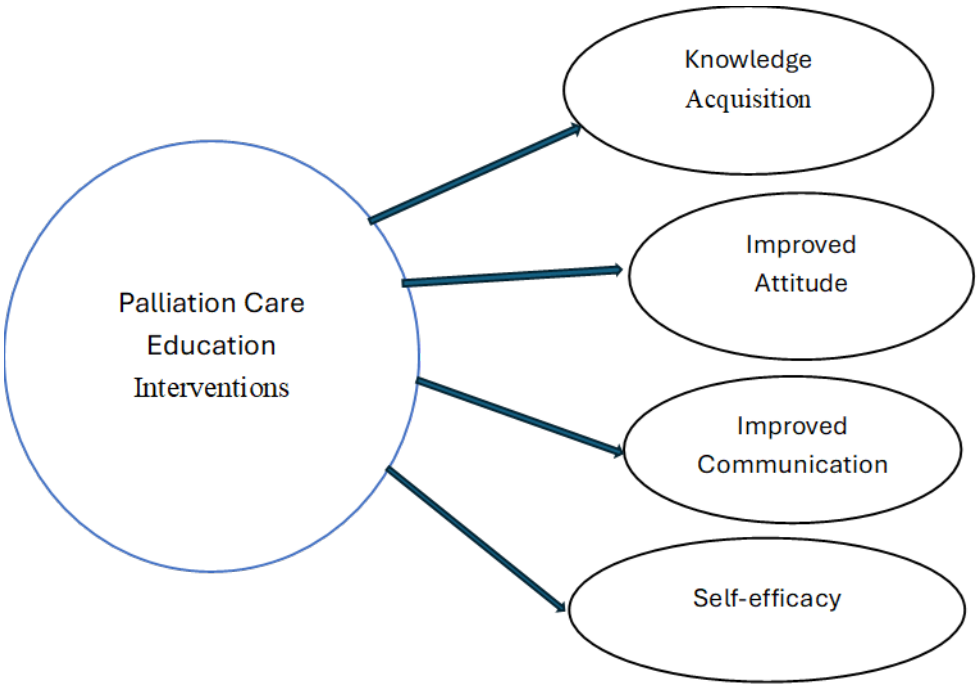
The literature collectively discusses various methods for providing palliative care education, highlighting their positive impact on healthcare personnel's knowledge, skills, and attitudes. Combining technology, immersive learning experiences, real-world practice, and traditional didactic education can significantly improve patient outcomes and enhance the overall delivery of palliative care.

Evidence of Effectiveness

From the studies reviewed, 25 articles evaluated palliative care education interventions. The majority of the papers assessed the effects of training on participants (n=13).[11, 30, 31,33,35,36,40,41,51,58,59,60,61] The impact of training on participants' work (n=3),[61,30,11] and the evaluation of teaching approaches (n=9).[29,37,42,12,44-47,55]

Moreover, three studies highlighted shifts in perceptions and attitudes toward death and the care of terminally ill patients due to training interventions (n=3).[35, 38, 41]

Figure 2 below illustrates the relationship between palliative care education interventions and their outcomes.



Consistently, evidence indicates that palliative care education intervention programmes for nurses are effective. [12, 40, 51, 60] For instance, following a training intervention based on simulation, Cheng et al.[51] and Daubman et al.[36] saw statistically significant improvements in the total scores obtained in knowledge, attitude, and self-efficacy related to palliative care. In other studies, perceptions and perspectives towards death and the care of terminally ill patients changed positively due to training.[35,38,41] Similarly, Dehghani et al.[1] saw improvements in nurses' self-efficacy, psychosocial support, and symptom management.

To underscore the importance of palliative care educational programmes, Paal et al. [59] assessed the impacts of a postgraduate palliative care training programme. They discovered promising effects, identifying facilitators and barriers to establishing effective palliative care services. This highlights the critical role of targeted training in fostering a supportive environment for palliative care practice**.** Most of the data points to significant benefits of educational interventions for enhancing nurses' performance, attitudes, knowledge, and communication skills when caring for patients with chronic debilitating illnesses and those

who are dying. Downing et al.[30] evaluated the impact of a modular HIV/AIDS palliative care education program in rural Uganda using a case study approach. The programme's impacts were evident not only in patient care but also within the community, showcasing the broader implications of effective palliative care education. Additionally, Downing et al. [61]assessed another palliative care programme, noting an increase in access to care for people living with HIV/AIDS, a stigma reduction, and improved attitudes among healthcare workers toward these individuals. Gupta et al.[11] evaluated the impact of the End-of-Life Nursing Education Consortium (ELNEC) on the knowledge and attitudes of nurses in India regarding palliative care and care for the dying. Their findings demonstrated notable improvements in both knowledge and attitude, reinforcing the effectiveness of structured educational interventions.

Overall, these studies collectively emphasize the importance of well-designed palliative care education programmes in improving clinical outcomes, fostering positive attitudes, and enhancing the quality of care provided to patients at the end of life**.**[19,20,32, 34, 38] Future research should continue to identify effective educational strategies and assess their long-term impact on both healthcare professionals and patient care.

Discussion

This systematic review identified and synthesized literature on palliative care education for students and qualified nurses in low- and middle-income countries (LMICs). The findings revealed a range of training strategies with varying degrees of effectiveness. While traditional didactic methods, such as lectures and PowerPoint presentations, remain prevalent, the literature strongly suggests that more interactive and experiential approaches are crucial for effective learning. For example, simulation-based learning emerged as a particularly promising strategy, enabling nurses to develop clinical skills, practice communication techniques, and enhance their decision-making abilities in a safe environment**.**[23, 25, 42, 47, 55]

These methods not only improve knowledge retention but also prepare nurses for real-world scenarios they may encounter in palliative care settings.

A central theme from the review was the need to identify nurses' training needs, which were consistently highlighted across studies.[22,33,36,53,54] Specifically, the need for deeper understanding in areas such as pain and symptom management, communication and interpersonal skills,[49,53,54,63,64] ethical and spiritual considerations,[65,66] and family support was identified. For example, studies indicated that effective pain management training correlates directly with improved patient comfort. [29,32-39,49,53,54,63,64]

Enhanced communication skills were shown to foster better interactions between patients and families, emphasizing the direct impact of these competencies on patient care.

Moreover, the review emphasized the importance of addressing nurses' emotional and psychological well-being, as confronting end-of-life issues can be emotionally demanding. Effective support measures, such as peer support and institutional counseling, have proven beneficial in mitigating psychological distress among healthcare workers. For instance, programmes that incorporate peer-led support groups have shown promise in providing emotional relief and fostering resilience among nurses facing high-stress situations. [20, 40-42]

The role of formal education and training at both undergraduate and graduate levels is significant in building the capacity of all nurses, particularly in palliative care contexts. However, the review highlighted challenges regarding the varied quality of training received by students and professionals. This inconsistency is concerning, as it directly affects the quality of palliative care provision in LMICs. Standardising palliative care policies is essential to enhance professional training and increase competencies among practitioners, ensuring consistency across institutions.[61,63]

The content and delivery mode of palliative care education were found to be inconsistent across studies. To address this issue**,** developing national guidelines and protocols for palliative care education will be crucial in enhancing the standard of training provided. This standardization will improve care quality for patients.[20, 24, 36] Additionally, it is imperative that students and nurse practitioners are familiarized with ethical considerations associated with palliative care to guide their practice effectively.

Cultural, religious, and spiritual beliefs significantly influence the design and implementation of palliative care educational programs for nurses in LMICs.[65,66] These factors shape perceptions of illness, death, and caregiving, which in turn influences how nurses approach palliative care principles and interventions.[67-68] For example**,** cultural norms may dictate familial roles in caregiving, potentially conflicting with Western approaches that emphasize patient autonomy.[64] Therefore, training nurses in culturally and spiritually sensitive care is essential**.** This not only enhances their ability to provide holistic support but also fosters trust and collaboration with patients and their families, which is critical in LMIC settings where resources are often limited.

The review identified two major challenges in palliative care education in LMICs: healthcare system-based challenges and cultural and societal challenges. Healthcare system-based challenges include limited essential medical supplies and inadequate funding for palliative care.[2,4, 6] The lack of skilled professionals further exacerbates these issues.[4,6,7] Establishing sustainable funding sources through partnerships with NGOs or government initiatives is essential to address these challenges. Healthcare professionals can leverage Self-directed learning opportunities available to build capacity**.** [69] Institutional constraints, such as limited training budgets and inadequate staff resources, often hinder effective training implementation.[2,4]

Culturally, issues of stigma associated with terminal illness and societal norms present additional barriers.[67] Public health education initiatives grounded in social communication and behaviour change theory are recommended to address these cultural barriers.[15,16,18] Collaborating with community leaders, healthcare organisations, and educational institutions can facilitate the development of effective public health campaigns that educate society about palliative care and reduce stigma.

The strengths of this systematic review include the large scope of studies and populations from 28 LMICs. The review included both qualitative and quantitative studies with designs involving phenomenological studies to randomised controlled trials. The study, therefore, provides comprehensive information on educational interventions for palliative care among students and practicing nurses in LMICs. Therefore, our review makes a novel contribution to the area of palliative care education. A second potential limitation is that a meta-analysis was not performed to determine the combined effect of the interventions being provided on palliative care in LMICs. This review offers valuable insights into the current state of palliative care training for nurses in LMICs. By addressing the identified challenges, learning from best practices, and adopting innovative training strategies, we can empower nurses to provide high-quality, compassionate care to patients facing life-limiting illnesses, ultimately improving the quality of life for both patients and their families.

Conclusion

This systematic review has highlighted the pressing need for improved palliative care training for nurses in LMICs. It emphasises the need for novel, experiential learning opportunities, including simulation-based training, in combination with education in pain management, communication, and psychological support. The review underlines the need for culturally appropriate education that is respectful of different beliefs and practices. Working with

LMICs to solve systemic problems in education and public health is critical. Creating standardised education and supportive learning environments allows us to empower clinicians to deliver person-centred, high-quality care to patients with life-limiting illnesses, thereby improving the quality of life for this special cohort and their families.

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