

Exploring the Global Landscape of Nurses' Knowledge, Attitude and Competence in Palliative Care: A Scoping Review

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ARTICLE INFO	ABSTRACT
<p>Manuscript Received: 10 Nov, 2025 Revised: 06 Jan, 2026 Accepted: 17 Feb, 2026 Date of Publication: 02 Apr, 2026 Volume: 9 Issue: 4 DOI: 10.56338/mppki.v9i4.9138</p>	<p>Introduction: In palliative care, nurses have essential roles in addressing complex needs of patients with palliative care needs that include physical, psychological, social and spiritual needs. Knowledge and competence are deeply interconnected, as both are critical to provide quality care to patients with life-limiting conditions. However, a comprehensive exploration of nurses' knowledge, attitude and competence in palliative care across regions remains lacking. The aim of this scoping is to systematically map the existing evidence regarding palliative care knowledge, attitude and competence among nurses.</p> <p>Method: This review followed scoping review framework from Arskey and O'Malley. The PCC framework (population, concept and context) was applied; Population – nurse; Concept- knowledge, competence and attitude; and Context – palliative care. A comprehensive search was conducted in several data bases: PubMed, SCOPUS, Science Direct, and ProQuest. The search criteria were restricted to studies published in English between 2000 and 2024. Thematic analysis was used to map themes.</p> <p>Results: Thirty studies were included in review, demonstrate a consistent pattern of nurses' insufficient knowledge and self-perceived competence in palliative care, particularly in psychological and spiritual domains. Across studies, assessment approaches were methodologically homogeneous, with a predominant reliance on cross-sectional designs and self-administered instruments. The Palliative Care Knowledge Test (PCKT) and the Palliative Care Quiz for Nurses (PCQN emerged as the most frequently used tools to measure knowledge, while the Palliative Care Nursing Self-Competence Scale was commonly employed to assess competence.</p> <p>Conclusion: The review identified nurses' knowledge ranged from low to moderate with lower competence reported in specific areas such as spiritual care. The findings emphasized the need to equip nurses with adequate knowledge and competencies in palliative care to ensure quality care for patients and family caregivers in palliative care setting.</p>
<p>KEYWORDS</p> <p>Attitude; Competency; Knowledge; Nurses; Palliative Care</p>	

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INTRODUCTION

Palliative care is an essential approach that focuses to improve quality of life for patients with life-limiting illness by addressing physical, psychological, emotional, and spiritual distress. The provision of palliative care is inherently multidisciplinary, and nurses are integral members of health care team (1). Nurses, as frontline healthcare professionals, play a central and irreplaceable role in the provision of palliative care (2). Their roles are multifaceted and essential for the effective delivery of palliative care services. As the primary healthcare providers at the bedside, nurses closely monitor patients' conditions, manage their symptoms, provide emotional support, and advocate for their needs (3,4).

In palliative care settings, nurses are responsible not only for physical care, that include administering medications for pain and symptom management, but also providing holistic support that addresses patient's needs on psychological, social, and spiritual aspects (2,5). Their ability to foster a compassionate environment, manage complex symptoms, and facilitate communication between patients, families, and the healthcare team is important for delivering high-quality palliative care (2). Moreover, nurses are frequently the primary contact for patients and families navigating the challenges of serious illness, making their knowledge, attitude and competence critical to ensuring that patients' preferences and values are respected.

In palliative care, knowledge and competence are deeply interconnected, as both are critical in the provision of quality care to patients with life-limiting conditions. Knowledge refers to an understanding philosophy and principles of palliative care, such as symptom management, communication, and ethical considerations, while competence involves the ability to apply this knowledge effectively in clinical practice. Nurses are therefore expected to possess knowledge and competencies to deliver quality palliative care. (6). Nurses' competence in palliative care encompasses a wide range of skills and knowledge areas, from clinical and communication skills to ethical and cultural understanding (3,6,7).

Despite the need of providing quality palliative care, nurses knowledge and competence still become a challenging area, and yet synthesized evidence in the field is still limited. Previous reviews have primarily focused on nurses' palliative care knowledge and attitude (8-10), with limited synthesis addressing nurses' competence. Conducting a scoping review on nurses' knowledge and competencies in palliative care is therefore crucial for identifying gaps in the existing literature and practice. A scoping review can systematically map the available evidence, highlight the extent of knowledge and competencies nurses possess, and identify key areas where further research or interventions are needed. By identifying these gaps, nurses, higher education institution and healthcare organizations and policymakers can develop targeted strategies to strengthen nursing education and practice, ultimately leading to improved quality of palliative care and better improve patient outcomes.

METHODS

This review adopted the scoping review framework developed by Arskey and O'Malley (11). A scoping review was selected due to the diversity in the existing literature. A scoping review aims to systematically map and synthesise available evidence by summarizing, explaining and interpreting available studies to address the predefined review questions (12).

Formulating review questions

Arskey and O'Malley (11) define five essential steps in conducting a scoping review that involves: (a) formulating questions; (b) identifying relevant articles; (c) selecting studies; (d) data charting; and (e) collating, summarizing, and reporting findings.

A clearly articulated review questions facilitate a more focused and efficient review. Accordingly, this scoping review posed the following questions: 1) What tools are used to measure nurses' palliative care knowledge, attitude and competence? 2) How is knowledge and competence in palliative care among nurses? 3) What strategies or interventions are available to improve nurse's knowledge, competencies and attitude in palliative care?

Identifying relevant studies

Prior to identifying pertinent articles, the authors established keywords derived from the study topic. A literature search was conducted in the data bases including PubMed, Scopus, ProQuest and ScienceDirect up to

December 2024 to search relevant studies. The MeSH search terms utilized were: ‘nurse’, ‘palliative care’, ‘knowledge’, and ‘competency’. The keywords were searched individually. Following that, the search was conducting using combination of Boolean operators AND and OR, with search strings such as: nurse AND palliative care AND knowledge OR attitude OR competence. Manual searches were performed utilizing scan readings to locate specified journals and identified papers or reviews.

Study selection

A total of 2410 articles were identified in the first stage of literature search. All retrieved titles and abstracts were exported to Rayyan AI for preliminary screening. Following the removal of duplicate studies, each title and abstract was independently assessed by both authors for relevance based on predetermined inclusion criteria: (a) original studies involving nurses as the population; (b) studies addressing knowledge or attitude or competency as the concept; (c) studies conducted in a palliative care context; and (d) publications in English. (Table 1). Discrepancies in study selection were resolved through discussion and consensus.

Table 1. Inclusion and exclusion criteria

	Inclusion criteria	Exclusion criteria
Population	Nurses	Other healthcare professionals
Concept	Knowledge, attitude and competencies	Studies not focused on the knowledge and competencies in palliative care
Context	Palliative care	Studies not conducted in palliative care setting
Type of resources	Primary research articles, written in the English language and published after 2000	Review articles, theses

The two authors subsequently conducted independent readings of the full texts of the selected studies according to the established inclusion criteria. Following the individual review, both reviewers met to discuss the study the selection of full-text in relation to the inclusion criteria. Any discrepancies between the two reviewers at any stage were discussed and settled during the discussion.

Following a comprehensive review of the full text in relation to the review question, 30 articles were deemed appropriate for inclusion in the final dataset. The selection of relevant articles was guided by review questions, not a quality assessment process (11,12). Figure 1 illustrates the procedure employed for selecting the included papers.

Data mapping

The two authors thoroughly read the 30 included studies to extract all pertinent information and to ensure none essentials information was missed. The dataset for this study was developed by extracting findings pertinent to the research questions posed. The dataset was refined by assessing the consistency of the extracted data with the review questions and research objectives. The extracted data were categorized based on the author and year, study design, participants or samples, outcome measurement tools, and the results and were presented in a table (Table 1). The data charting framework was discussed and agreed upon by both authors to ensure completeness and consistency.

Compiling, summarizing and reporting the findings

According to Arskey and O'Malley (11), data in scoping review can be organized and summarised using various methods, including systematic management techniques such as thematic analysis. Thematic analysis enables researchers in identifying, analysing, and narrating patterns found within the dataset. Emerged themes reflect key concepts that recur throughout the text and addressing the posed questions (13).

RESULTS

The initial database search yielded 2410 records for consideration. After removing 311 duplicates, 2079 studies remained for initial review. In the first screening, titles and abstracts were scrutinized for their eligibility, resulted in the selection of 46 records for full-text evaluation. Ten studies were unable to be retrieved. Six were

excluded due to contextual eligibility (n= 4) and concept eligibility (n=2). Consequently, a total of 30 articles were included (Figure 1).

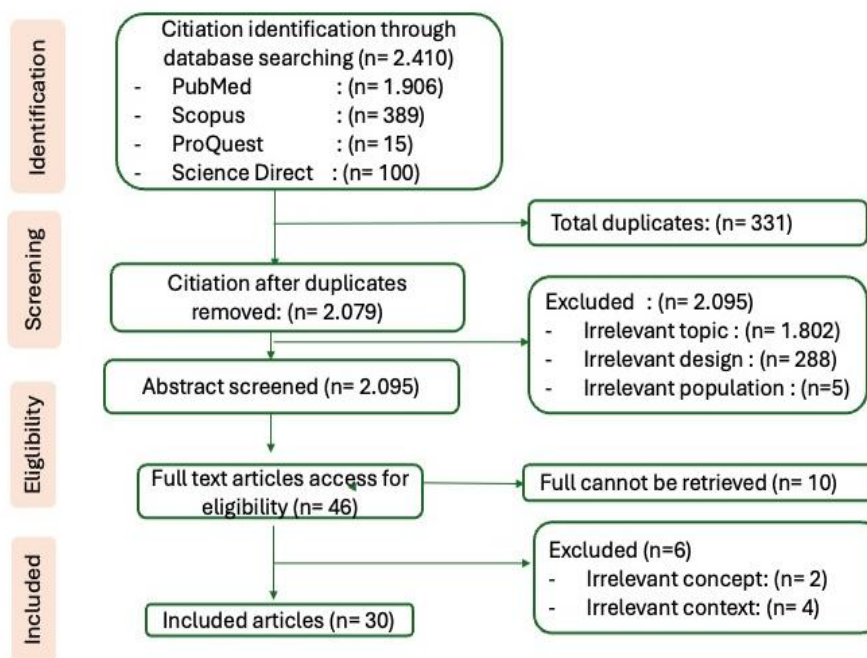


Figure 1. PRISMA Flowchart

Included studies

The current scoping review included a total of 30 published studies conducted across 19 countries. . The highest number of studies conducted in Spain (n=4), followed by Jordan (n=3), Ethiopia (n=3), Japan (n=2), Ireland (n=2), Vietnam (n=2), Iran (n=2). Single study each from China, Israel, Italy, Indonesia, Turkey, Canada, Lebanon, Nigeria, Taiwan, Australia, and Qatar (table 2).

The included studies were predominantly cross-sectional studies (n=29), with one observational analysis, one consultation service, and one mixed methods study also identified. The scoping review included a total of total of 19,469 nurses, representing diverse clinical setting, comprising oncology ICU, palliative care units, surgical wards, general wards and other nursing practice area.

Table 2. Data extraction of included studies

No	Author (year); Study Country	Design	Sample Size	Outcomes and outcome measurement	Results	Implications
1	Altarawneh, Masa'deh (14) Jordan	Cross Sectional	288 nurses from four different hospitals (Oncology Unit, Adults, Ward Medical Adults, Ward Surgery Adult, Adult ICU)	Knowledge nurse measured with the PCKT with 20 question items.	Low level of PC knowledge and moderate attitude to patient.	Findings studies suggest the need of management to equip nurses with training program to enhance nurse's knowledge and competencies in palliative care

No	Author (year); Study Country	Design	Sample Size	Outcomes and outcome measurement	Results	Implications
2	Scheinberg-Andrews and Ganz (15), Israel	Cross Sectional	126 nurses (79 oncology and 47 ICU nurses)	Use online survey for collect data however no details of measurement tools provided	Nurse oncology and ICU nurses have moderate knowledge on PC, but have a lower attitude	The need to have training program to improve on specific topics in palliative care
3	Albanesi, Piredda (16), Italy	Cross-sectional Survey	454 nurses	Knowledge nurse measured with the PCKT questionnaire with 20 question items about knowledge and attitude.	Nurse show level adequate knowledge about principle maintenance palliative and provision (<i>artificial nutrition and hydration</i>) ANH.	It is crucial to provide a training program to improve knowledge and awareness in palliative care.
4	Etafa, Wakuma (17), Ethiopia	A multicenter cross-sectional study	422 nurses from 15 public hospitals	Knowledge data collection use the adopted questionnaire from the <i>PCQN</i>	88% of nurses have inadequate level of palliative care knowledge	There is a need to educate and support nurse who provide palliative care
5	Kurnia, Trisyani (18), Indonesia	Cross Sectional	127 nurses	Collection use questionnaire, namely PCKT, which contains 18 statements and Beliefs self-nurse measured use questionnaire survey, namely the PCNSC	Most of nurses have lack of knowledge about management symptoms and nursing care psychosocial PC, but have a sense of trust high self.	Hospital management needs to provide introduction session and training regarding palliative care for all ICU nurse
6	Getie, Wondmieneh (19), Ethiopia	Cross Sectional	229 nurses	No details on measurement tool is provided	Research result show that 59.7% of respondents to have moderate level of knowledge in palliative care	Better knowledge is associated with education. It is important to integrate palliative care in nursing training program
7	Martínez-Sabater, Chover-Sierra (20), Spain	A Cross-sectional Survey	829 respondents	<i>The PCQN</i>	Nurse have moderate to lower-level knowledge on palliative care. Those who have experience have a higher	There is a need to implement strategies for professional training for nurses in palliative care

No	Author (year); Study Country	Design	Sample Size	Outcomes and outcome measurement	Results	Implications
8	Fadaei, Azizzadeh Forouzi (21), Iran	Descriptive-comparative cross-sectional study	300 nurses (150 ICU, 150 general wards)	The PCKT	level of knowledge No significantly difference on total knowledge score nurse palliative or efficacy self between nursing unit nurse intensive and ward general that has knowledge currently.	More efforts are suggested to improve the nurses' knowledge and self-efficacy, especially nurses working in ICU department to deliver palliative care
9	Kim, Lee (22), South Korea	A Cross-sectional descriptive	90 (nurse in the ICU dan cardiovascular unit)	The PCQN	Research result show low reported knowledge level. This related with readiness for practice.	Training programs could be established to enhance the knowledge, confidence of nurses, that could lead to a quality palliative care for patient with non-cancer illness and their family caregiver.
10	Wilson, Avalos (23), Ireland	A Cross-sectional Survey	61 nurses (nurses staff and nurse managers)	The PCQN	A significant correlation between knowledge and attitude on provide palliative care (p=0.007), which highlights that along with higher knowledge reflect more positive attitude.	Palliative care training should be the focus area to improve knowledge of nurses
11	Razban, Iranmanesh (24), Iran	A Cross-sectional descriptive	140 nurses oncology and nursing intensive	The PCQN	Nurses have a lower level of palliative care knowledge	Findings This show that knowledge nurse about maintenance palliative can improved with establish a care unit special For focus on care end life. Formation This

No	Author (year); Study Country	Design	Sample Size	Outcomes and outcome measurement	Results	Implications
						require merger curriculum education nursing end life to in studies nursing level bachelor.
12	Nakazawa, Kato (25), Japan	Analysis observational	8,865 nurses	The PCKT	Nurse's palliative care knowledge from 2008 to 2015 is improved	Improvement of nurses' palliative care knowledge is important that could be conducted with training or other educational program.
13	Sato, Inoue (26), Japan	A cross-sectional survey	2,378 nurses (1345 nurses work in the center cancer, 856 at community hospital and 177 at the station nurse district)	No information on specific questionnaire that is used.	Nurses' knowledge who work in community hospital is lower compared to those who work in the district service	Expert support, education, and sufficient clinical experiences is needed to enhance nurse's knowledge and provide quality palliative care.
14	Pérez-Ros, Cauli (27), Spanish	A descriptive, cross-sectional survey	290 nurses	Palliative Care for Advanced Dementia Questionnaire (qPAD -SV).	Nurses have moderate level of knowledge and attitude in palliative care	This study shows the need of providing nurses additional training program and education in caring patients for palliative care needs
15	Eleke, Azuonwu (28), Nigeria	Cross-sectional study	415	The PCQN	A low level of palliative care knowledge among nurses is found	A specific training program on palliative care is needed to improve nurses' knowledge in palliative care
16	Doğan, Doğan (29), Turkey	A cross-sectional study	182 nurses in the clinic surgery	No information on specific questionnaire that is used.	Nurses have moderate level of palliative care surgery	It is suggested to improve nurses' knowledge by providing training program.
17	White, Agbana (30), Ireland	A mixed method	36	Quantitative phase using questionnaire but no specific information is provided. Qualitative phase was conducted using interview	Low competencies in palliative care	The study has important implication on providing palliative care training and education for nurses

No	Author (year); Study Country	Design	Sample Size	Outcomes and outcome measurement	Results	Implications
18	Sawatzky, Roberts (31), Canada	cross-sectional	1468 nurses from hospital, home care, and residential care	The PCNSC	Self-perceived competence was highest for physical and functional needs, and lowest for spiritual and social needs and ethical and legal issues.	Nurses in all care settings require training to improve their knowledge, skills, and abilities to confidently integrate a palliative approach within their scopes of practice.
19	Abu-Saad Huijer, Dimassi (32), Lebanon	Cross-sectional descriptive survey	645	Questionnaire with 50 question items (not mentioning research instruments in a way specific)	A moderate level of nurses' knowledge in palliative is identified	There is a need to have a formal education in palliative care in addition to develop palliative care services.
20	Pan, Shih (33), Taiwan	Across-sectional study	282 nurses (oncology and ward)	Questionnaire <i>KAP</i> with 35 question items	Higher level of palliative care knowledge is associated with place of working, and participation in related education with maintenance palliative	More education is needed to improve knowledge of nurses in providing palliative care
21	Kassa, Murugan (34), Ethiopia	Cross sectional study	355 nurses (ward medical and ward surgery)	Questionnaire <i>FATCOD</i> scale, and PCQN	The majority of nurses have lower level of attitude and knowledge in palliative care	Findings of the study demonstrate the need to provide training on palliative care for nurses
22	Hamdan, Al-Bashaireh (35), Jordan	cross-sectional study	182 nurses (ICU and intensive care nurses) palliative)	Measurement online measured use PCQN questionnaire with 20 question items	ICU Nurse have inadequate knowledge and poor attitudes on palliative care, particularly in communication	Findings studies highlight the need to enhance basic knowledge on palliative care
24	Nguyen, Yates (36); Vietnam	Cross-sectional	251 oncology nurses	Measurement knowledge use PCQN questionnaire with 18 question items,	Nurses have lower level of knowledge managing pain and other	It is imperative to provide oncology nurses with education and training program on palliative care.

No	Author (year); Study Country	Design	Sample Size	Outcomes and outcome measurement	Results	Implications
				measurement attitude nurse to care of the dying person is evaluated with Attitude Scale To Maintenance People who Frommelt's Dying Questionnaire (FATCOD) consists of 30 question items.	symptoms. discomfort in end-of-life care discussion and low-level competence in social and spiritual care	
25	Al-Kindi, Zeinah (37), Qatar	Cross-sectional	115 oncology nurses	Self-constructed questionnaire with 29 questions divided into four Category Question 9 training and knowledge previously in PC, assessment competence self in handle patient dying cancer and management symptoms, as well as attitude)	Nurses shows a lower level of knowledge in palliative care	Formal training in palliative care nursing is required which can be conducted the form of short training and emphasis on multidisciplinary communication.
26	Saleh, Alrawaili (38), Jordan	A descriptive study	124 nurses	Questionnaire (no mentioning research instruments in a way specific)	A lower level of knowledge in palliative care among nurses is found	Education for nurses working in geriatric setting is needed to improve their knowledge on pain and psychological management.
27	Shen, Nilmanat (39);China	cross-sectional	220 Nurses	Knowledge nurse about maintenance palliative measured with the PCQN questionnaire with 20 question items, Attitudes nurse to maintenance palliative measured with scale Attitude To Maintenance Palliative (ATPC), PCNSC	Nurses perceived of having a low level of competencies in palliative care.	Research result highlights the need improvement competence maintenance palliative in between nurse oncology. Optimization condition home learning Sick recommended as strength important in strengthen competence.

No	Author (year); Study Country	Design	Sample Size	Outcomes and outcome measurement	Results	Implications
28	Vu, Nguyen (40) Vietnamese	cross-sectional	124	The PCKT Questionnaire	The majority of nurses show lack of palliative care knowledge.	Training intensive about maintenance geriatrics, with focus on symptom management should be done to improve quality palliative care especially in nurses
29	Chover-Sierra, Martínez-Sabater (41), Spain	A descriptive cross-sectional study	159 nurses	The PCQN	Participant show sufficient knowledge in palliative care	A specific training program is required to improve mistaken concepts in palliative care
30	Sesma-Mendoza, Aranguren-Sesma (42), Spain	A descriptive cross-sectional study	68 nurses	The PCQN	Moderate level of knowledge in palliative care	A training program is needed to improve knowledge in controlling symptoms in palliative care patient

Palliative Care Knowledge Test (PCKT); The Palliative Care Quiz for Nurses (PCQN); Palliative Care Nursing Self Competence Scale Competency Palliative (PCNSC; Frommelt's Attitude Toward Care of the Dying (FATCOD; Knowledge, attitude, and practice (KAP); Palliative Care Quiz for Nursing (PCQN)

DISCUSSION

Knowledge, attitudes and competencies measurement tools

Our scoping review identified several common questionnaires used to measure palliative care knowledge across different healthcare settings (Table 3). These instruments are used to evaluate nurses understanding of core concepts in palliative care including symptom management, pain control, communication between nurses and patients and families, and ethical decision-making during end-of-life care. The two most frequently used instruments identified in our review are the PCQN and the PCKT.

The most frequently used questionnaire is the PCQN which used in 12 studies (17, 20, 22, 23, 34-36, 39, 41-43). The PCQN includes a combination of true/false and multiple-choice questions which allow to measure basic knowledge and understanding of palliative care principles. The PCQN a widely used instrument developed by Ross et al. (1996) to measure knowledge in palliative care among nurses (44). It consists of 20 true/false items with a “don’t know” option, covering questions on palliative care philosophy, spiritual and psychosocial care, and symptom management. The PCQN is a valid and reliable instrument with its internal consistency reliability, has been reported at approximately 0.78 in the original study and ranges from 0.65 to 0.85 across adapted versions. The PCQN has been translated and culturally adapted in multiple countries using standard forward-backward translation procedures, supporting its reliability and applicability in diverse settings, although it primarily measures knowledge rather than clinical competence (41, 45, 46).

Table 3. Instruments used to measure knowledge, attitude and competence

Instruments	No of studies
The PCQN	12 studies
The PCKT	6 studies
Other instrumets: (PCNSC), self-developed questionnaire; KAP; PSNSC; Palliative Care for Advanced Dementia Questionnaire	6 studies
No specific measurement was described	6 studies

Palliative Care Knowledge Test (PCKT); The Palliative Care Quiz for Nurses (PCQN); Palliative Care Nursing Self Competence Scale Competency Palliative (PCNSC); Knowledge, attitude, and practice (KAP); Palliative Care Quiz for Nursing (PCQN)

Another most commonly used questionnaire in this review is the PCKT. It is a multiple-choice questionnaire that evaluate knowledge of healthcare professionals including nurses on various palliative care concepts, such as symptom management, end-of-life care, and ethical decision-making. The PCKT is used in the six included studies (14, 15, 18, 21, 25, 26, 40). In addition, Questionnaire on knowledge and attitudes in providing artificial nutrition and hydration for patient with terminal cancer was used in one study (16), while the other included studies did not provide details on the measurement instruments used.

Of the 30 included studies, only three studies examined nurses' competence in palliative care. All three studies used the PCNSC (18, 31, 39). The instrument is used to assess a nurse's perceived self-competence in delivering palliative care across multiple domains, that include symptom management, communication, ethic and legal aspect and interprofessional collaboration.

Nurses' knowledge, attitude and competencies in palliative care

Of the 30 included studies, 22 focus on nurses' knowledge, five studies examined knowledge and attitude, and three studies measure nurses' competence in palliative care (table 4). Twelve studies published from 2013-2023 reported lower levels of nurses' knowledge in palliative care (14, 17, 18, 22, 24, 26, 28, 34-38, 40). The majority of these studies were conducted in resource-limited settings such as Nigeria, Ethiopia, and Vietnam.

Table 4. Synthesis of variables of included studies

Variable of included studies	Studies
Knowledge on palliative care	Albanesi et al. (2021) (16); Etafa et al. (2020) (17); Kurnia et al., (2020) (18); Geti et al (2021) (19); Martinez-Sabater et al., (2021) (20); Fadaei et. al (2024) (21); Kim et al. (2021) (22); Razban et al (2013)(24); Nakazawa et al (2018) (25); Sato et al., (2014) (26); Eleke et al., (2020) (28); Dogan et al., (2024) (29); Abu-Saad Huijjer et al., (2009) (32); Pan et al., (2017) (33); Kassa et al., (2014) (34); Nguyen et al., (2014) (36); Al Kindi et al, (2014) (37); Saleh et al., (2022) (38); Vu et al. (2019) (40); Chover-Sierra et al., (2017) (41); Sesma-Mendoza et al., (2022) (42)
Knowledge and attitude in palliative care	Altarawneh et al., (2023) (14); Scheinberg-Andrews & Ganz (2020) (15); Wilson et al., (2021) (23); Perez-Roz et al. (2022) (27); Hamdan et al (2023) (35)
Competence in palliative care	White et al (2021) (30); Sawatsky et al., (2021) (31); Shen et al., (2019) (39)

Eleven studies demonstrate a moderate level of knowledge in palliative care among nurses (15, 20, 21, 23, 27, 29, 32, 33, 39, 42, 47). Most of these studies were conducted in the high-income countries. Only three studies shows nurses have sufficient knowledge in palliative care (16, 19, 27). These studies were undertaken in well-resourced countries and published within the last seven years.

Regarding nurses' attitude toward, palliative care, only two studies shows nurses having a positive attitude in palliative care (14, 23), while four studies found that nurses still have a moderate level of attitude toward palliative

care (15, 17, 21, 22). Attitudes were influenced by several factors particularly knowledge with nurses who had a higher level of palliative care knowledge demonstrating more positive attitudes (23, 36). Five studies suggest that nurses perceived lower level of knowledge and competence particularly in psychological and spiritual care (31, 36, 39), as well as in legal and ethics issues (39) and end-of-life discussion (30).

Of the three studies that assessed nurses' competence in palliative care, two reported a low level of overall competence (30, 39). One study shows that nurses perceived higher competence in meeting patient's physical and functional needs, while reporting a lower competence in addressing spiritual and social needs (31).

The need of formal education and training to improve nurses' knowledge, attitude and competencies

All included studies highlighted the importance and urgency of further training program or education in palliative care. Several studies emphasise the need to integrate palliative care in nursing curricula or formal education programs (19, 24, 32, 37). Other studies highlighted the need to provide introduction or basic training on palliative care for nurses (18, 35). Additionally, three studies recommended targeted training in specific palliative care domains, based on assessments of nurses' knowledge, attitude and competence (15, 28, 41).

DISCUSSION

The scoping review aimed to systematically map the existing evidence on studies exploring nurses' knowledge, attitude and competence in palliative care. Arksey and O'Malley's framework (11) was adopted to collate and synthesise key characteristics the included studies. These features include, (a) knowledge, attitude and competence measurement tool; (b) nurse's knowledge, attitude and competencies on palliative care and (c) The need of formal education and training to improve nurses' knowledge, attitude and competencies.

The review identified several questionnaires used to assess palliative care knowledge, attitude and competencies. The most frequently used instruments to measure the knowledge and attitude were the validated and culturally adapted PCKT and PCQN, while for competence was primarily assessed using the PSNSC. These instruments consist a range of question, such as multiple-choice, true/false, and scenario-based questions. This allows for the comprehensive evaluation of both theoretical knowledge and the practical application of palliative care principles in clinical situations (48). Our review suggests that the use of such instruments are essential for both identifying nurse's knowledge and competency, and evaluating the effectiveness of educational programs on symptoms and addressing the psychological, and spiritual needs of patients at their end of life.

We found the majority of included studies reported lower to moderate level of palliative care knowledge among nurses. Our findings are in line with two previous systematic review that identified insufficient palliative care knowledge among nurses (8, 49). Our review demonstrates that nurses perceived themselves of having low to moderate palliative care competence, particularly in the provision of psychological and spiritual care. This is consistent with earlier study that demonstrate the lower score of hospice nurses in the assessment and implementation of spiritual care (50). In addition, competence related to in legal and ethics issue and end-of-life discussion is also reported as limited. Considering these insufficiencies, all the included studies emphasise the need of training or education for nurses. Integrating palliative care in undergraduate nursing curricula is suggested and consistent with findings from previous study (8, 51, 52). Additionally, training that focuses on particular competencies such as communication is suggested as it demonstrates to have significant impact in nurses' clinical performance (53). Evidence also indicates that nurses who received palliative care training showed marked improvements in their knowledge and ability to deliver quality palliative care (54-56)

The included studies also reported a low level of nurses' self-perceived competence in palliative care. The knowledge gaps identified in our review can be more clearly understood when interpreted through established nursing competency frameworks. According to Benner's *Novice to Expert* model, the persistent deficits in psychological and spiritual care suggest that many nurses remain at the novice or advanced beginner level in palliative care practice (57). This level is particularly in domains requiring experiential learning and reflective practice.

Our review provides a comprehensive picture of the available studies conducted on nurses' knowledge, attitude and competency in palliative care over time. We included studies from a variety of clinical setting and geographical contexts highlights the consistency of these challenges across regions. This diverse representation suggests that gaps in palliative care knowledge and competence are a global issue rather than context-specific. The

findings from this review offers a valuable insight into the educational and training needs of nurses across multiple healthcare systems and regions.

The results of this scoping review also highlight important implications for nursing policy, practice and education. Nurses in their different palliative care setting should improve their knowledge, attitude and competency to improve quality of palliative care. Consequently, it is important to adequately train bachelor nursing students to be competent on palliative care. In addition, hospital managers and leaders should equip nurses with sufficient knowledge and competency in palliative care by providing continuous professional development or formal education or training. This is to ensure they are well-prepared to address the complex needs of patients and their families in palliative care service.

The scoping review has limitations. First studies published in other languages than English were excluded which lead to potentially excluding pertinent studies in other languages. The studies included in the review were not assessed for their quality, however this practice is widely accepted for scoping reviews. In addition to nurses, some of the studies included physicians and other healthcare personnel.

CONCLUSION

This scoping review provides evidence that the majority of nurses with have insufficient knowledge and competence in palliative care. A total of 30 empirical studies over a 20-year period indicate that knowledge, attitude and competency is associated with working experiences and training or education. Nurses who possess a strong foundation of knowledge and competency in palliative care are better equipped to manage complex symptoms and provide support for both patients and their families. Therefore, it is essentials to improve knowledge, attitude and competency in palliative care by integrating palliative care into undergraduate nursing curricula particularly at the undergraduate level. In addition to this, the provision of structured and continues palliative care training program for practising nurses is also important to be conducted to strengthen their capacity to deliver high-quality palliative care.

AUTHOR CONTRIBUTION STATEMENT

Study design: AH, ER

Data collection: AH

Data analysis: AH, ER

Study supervision: ER

Manuscript writing: AH, ER

Critical revisions for important intellectual content: AH, ER

CONFLICTS OF INTEREST

No conflicts of interest has been declared by the authors.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work, the authors used Grammarly to assist with sentence restructuring and grammar improvement. After utilizing this tool, the authors thoroughly reviewed and edited the content as necessary and take full responsibility for the final version of the published article.

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