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NON-PHARMACOLOGICAL INTERVENTIONS FOR PAIN MANAGEMENT IN PALLIATIVE CARE PATIENTS: A LITERATURE REVIEW

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ABSTRACT

Pain is one of the most prevalent symptoms experienced by palliative care patients and significantly affects their quality of life. Although various interventions have been developed, pain management remains suboptimal, particularly regarding the implementation of evidence-based non-pharmacological interventions. Therefore, a literature synthesis is needed to identify effective and practical interventions for palliative nursing care. This study aimed to identify non-pharmacological interventions for pain management in palliative care patients. This study employed a Narrative Literature Review design guided by the PRISMA framework. Articles were searched through PubMed, ScienceDirect, and Google Scholar databases, covering publications from 2020 to 2026. The inclusion criteria included randomized controlled trials (RCTs) and quasi-experimental studies investigating the use of non-pharmacological interventions for pain management in palliative care patients. Article selection was conducted through identification, screening, and eligibility assessment stages. The data were analyzed descriptively using a narrative synthesis approach. A total of six articles meeting the inclusion criteria. The findings indicated that non-pharmacological interventions, including Progressive Muscle Relaxation (PMR), massage therapy, hot and cold compresses, and movement-based relaxation therapy, were effective in reducing pain intensity and improving the quality of life of palliative care patients. PMR demonstrated the most consistent effectiveness in reducing pain while improving sleep quality and daily functioning. Massage therapy and compress interventions also provided additional benefits by enhancing patient comfort. Non-pharmacological interventions are effective in managing pain among palliative care patients. A multimodal approach integrating both physical and psychological aspects is strongly recommended in nursing practice. PMR may be considered a primary intervention due to its effectiveness, ease of implementation, and ability to support patients' self-management of pain over the long term.

Keywords: non-pharmacological intervention; nursing intervention; pain management; palliative care

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INTRODUCTION

Palliative care is a comprehensive approach aimed at improving the quality of life of patients with life-threatening illnesses through the prevention and relief of suffering, including physical pain as well as psychosocial and spiritual problems. Globally, the demand for palliative care continues to increase in line with the growing prevalence of chronic and degenerative diseases. It is estimated that more than 56 million people worldwide require palliative care annually; however, only a small proportion of them actually receive such services (World Health Organization, 2020). Recent reports indicate that only approximately 14% of individuals in need of palliative care have adequate access to these services, reflecting a substantial gap in global healthcare systems (Peeler et al., 2025).

Pain is one of the most prevalent and complex symptoms experienced by palliative care patients, particularly those with terminal illnesses such as cancer, heart failure, and chronic respiratory diseases. Recent studies have shown that the prevalence of pain among patients nearing the end of life remains high, ranging from 57% to 81% depending on the underlying diagnosis, with severe pain affecting up to 35% of patients with cancer (Hedman et al., 2024). These findings suggest that

pain continues to be a major clinical challenge that has not been optimally addressed in practice. Furthermore, despite the availability of various therapeutic interventions, many patients still experience uncontrolled pain, which significantly affects their quality of life and dignity at the end of life.

Pain management in palliative care extends beyond pharmacological treatment and includes holistic non-pharmacological interventions. This approach is particularly important because pain in palliative care is multidimensional, involving physical, emotional, social, and spiritual components. Therefore, effective pain management strategies should incorporate integrated and patient-centered interventions. Recent evidence highlights that palliative care plays a significant role in reducing pain intensity and improving the quality of life of patients with chronic illnesses, including those with end-stage kidney disease (Szigeti et al., 2025).

Nevertheless, the implementation of pain management in palliative care continues to face numerous challenges, particularly in developing countries. Barriers such as limited resources, inadequate healthcare professional training, and restricted access to analgesic medications and palliative care services significantly affect the quality of care provided (Fadilah & Hidayat, 2024). In addition, disparities in service distribution and the insufficient integration of palliative care into healthcare systems further exacerbate these challenges. Based on these considerations, a comprehensive review of pain management interventions for palliative care patients is needed. This literature review aims to identify effective non-pharmacological interventions for pain management in palliative care patients and to provide an evidence-based foundation for the development of palliative nursing practice.

METHOD

This study employed a literature review approach conducted regularly to identify scientific articles relevant to non-pharmacological interventions for pain management in palliative care patients. This approach was selected because it provides a comprehensive overview of various non-pharmacological interventions within the context of palliative care and allows for the integration of findings from different relevant research designs (Alghamdi et al., 2025). The literature search was conducted regularly in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency and reproducibility. Articles were retrieved from several accredited scientific databases, including PubMed, Google Scholar, and ScienceDirect, which are widely recognized as major sources of evidence-based health and nursing research (Alghamdi et al., 2025).

The search strategy utilized a combination of keywords and Boolean operators, including: “palliative care” AND “pain management” AND “intervention” OR “non-pharmacological therapy” OR “nursing intervention.” In addition, Medical Subject Headings (MeSH) terms were applied to improve search sensitivity. The publication period was restricted to the most recent six years (2020–2026) to ensure that the evidence included reflected current knowledge and contemporary clinical practice (Miranda, 2025). The inclusion criteria were: (1) peer-reviewed research articles; (2) studies addressing pain management interventions in palliative care patients; (3) studies employing Randomized Controlled Trial (RCT), quasi-experimental, or experimental research designs; (4) availability of full-text articles; and (5) publications in English or Indonesian. The exclusion criteria included editorials, opinion papers, case reports, and studies that did not specifically address pain management within the palliative care setting.

Article selection was conducted through several stages, including identification, screening, eligibility assessment, and final inclusion, following the PRISMA flow process. Initially, all articles retrieved from the databases were compiled, and duplicate records were removed. Subsequently, titles and abstracts were screened to assess their relevance to the research topic. Articles meeting the

eligibility criteria underwent full-text review to determine their suitability for inclusion in the final synthesis (Agustini et al., 2025). The methodological quality of the selected studies was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Tools, which evaluate methodological validity, potential sources of bias, and the relevance of study findings. The use of this appraisal tool ensured that only studies with adequate methodological quality were included in the review (Alghamdi et al., 2025).

Data from the included studies were extracted using a standardized format that included information on authors and publication year, study title, study design, objectives, target population, research methods and sample size, and key findings related to pain management. The extracted data were analyzed using a narrative synthesis approach, allowing findings to be grouped according to intervention type and effectiveness in reducing pain among palliative care patients. This approach was considered appropriate due to the heterogeneity of the included study designs, which precluded the use of quantitative meta-analysis (Hicks et al., 2025).

The literature review was conducted systematically following the PRISMA guidelines. Articles were searched in PubMed, Google Scholar, and ScienceDirect using relevant keywords related to palliative care, pain management, and non-pharmacological interventions. Studies published between 2020 and 2026 were screened based on predefined inclusion and exclusion criteria. Eligible articles underwent full-text review and methodological quality assessment using the Joanna Briggs Institute (JBI) Critical Appraisal Tools. Relevant data were then extracted and synthesized narratively to identify and evaluate the effectiveness of non-pharmacological interventions for pain management in palliative care patients.

RESULT

Based on the search and selection results, there were 222 articles found and 6 article that met the established inclusion and exclusion criteria. These journals were then further analyzed to provide a deeper understanding of non-pharmacological interventions in palliative care patients.

Article quality was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Tools according to their respective study designs. Of the six articles reviewed, two used a Randomized Controlled Trial (RCT) design and four used a quasi-experimental design. The appraisal results showed that all articles had good to excellent methodological quality. RCT articles scored 7–8 out of 10 JBI criteria (70–80%), while quasi-experimental articles scored 8 out of 9 JBI criteria (88.9%). No articles were found to be of low quality, thus all articles were deemed suitable for inclusion in the literature review synthesis. These findings indicate that the evidence used in the literature review has sufficient methodological validity to support conclusions regarding the effectiveness of nonpharmacological interventions in pain management in palliative patients.

Table 1.
The evidence used in the literature review

1	Writer	Design	JBI Score	Percentage	Quality
1	Anshasi et al. (2023)	RCT	8/10	80%	Good
2	Koc & Atar (2026)	RCT	7/10	70%	Good
3	Arafat et al. (2025)	Quasi-Experimental	8/9	88.9%	Very good
4	Tambunan et al. (2024)	Quasi-Experimental	8/9	88.9%	Very good
5	Mira et al. (2025)	Quasi Experimental	8/9	88.9%	Very good
6	Romadon & Rochmawati (2026)	Quasi Experimental	8/9	88.9%	Very good

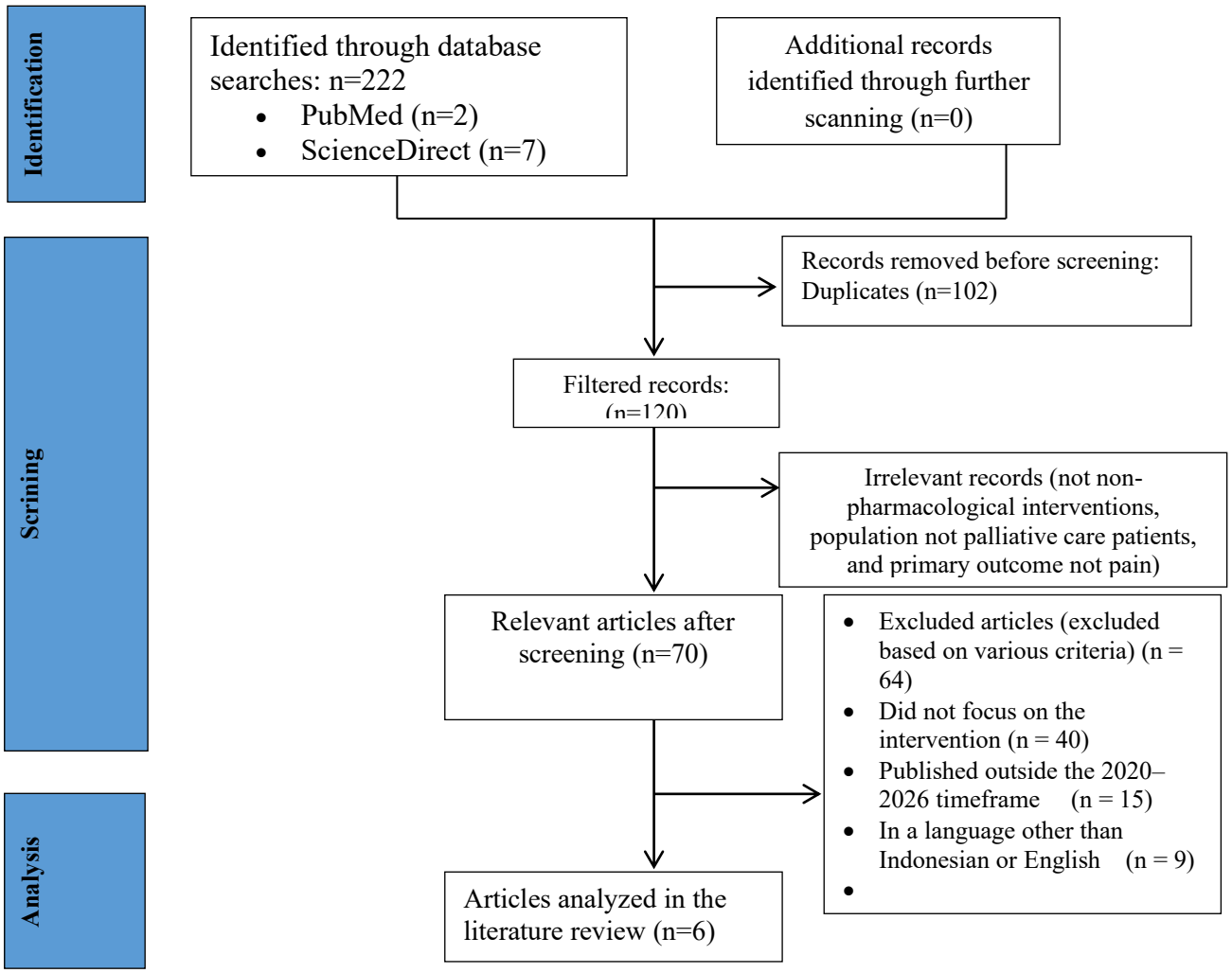

Chart 1. Article Search Process

Table 2.
Analysis Article

No	Author and Year	Study Title	Type of Study	Objective	Target Population	Research Methods and Sample Size	Research result
1	Anshasi et al. (2023)	The effectiveness of the progressive muscle relaxation technique in reducing cancer-related pain among palliative care patients	Randomized Controlled Trial (RCT)	Evaluating the effectiveness of PMR in reducing pain in palliative cancer patients .	Cancer patients in palliative care	RCT, n=148 (intervention vs control), 4-week PMR intervention	PMR significantly reduced pain intensity and impairment of daily living activities compared to controls ($p<0.05$)
2	Koc & Atar (2026)	The effect of hand massage on pain, comfort, and sleep quality in palliative care oncology patients	Randomized Controlled Trial	Assessing the effects of hand massage on pain, comfort, and sleep quality	Palliative cancer patients	RCT, n=76 (38 intervention, 38 control), 16 sessions over 4 weeks	Hand massage significantly reduces pain, improves comfort and sleep quality ($p<0.05$)
3	Arafat et al. (2025)	The Therapeutic Massage for Elderly Women with Colorectal	Quasi-experimental	Assessing the effectiveness of massage therapy on	Elderly woman with colorectal cancer	Quasi-experimental, n=60 (30 intervention,	Massage therapy significantly reduced pain

No	Author and Year	Study Title	Type of Study	Objective	Target Population	Research Methods and Sample Size	Research result
		Cancer: Effects on Pain, Fatigue, and Anxiety		pain, fatigue, and anxiety		30 control)	and anxiety in the intervention group.
4	Tambunan et al. (2024)	The effectiveness of hot and cold compresses on neuropathic pain in post-chemotherapy breast cancer patients	Quasi-experimental	To determine the effectiveness of hot vs. cold compresses on neuropathic pain .	Breast cancer patients post chemotherapy	Quasi-experimental, n=60 (2 groups) detailed in the protocol.	Hot compresses are more effective than cold compresses in reducing pain.
5	Mira et al. (2025)	Effectiveness of Progressive Muscle Relaxation on Pain and Sleep Quality in Lung Cancer Patients	Quasi-experimental	Analyzing the effectiveness of PMR on pain and sleep quality	Lung cancer patients	Quasi-experimental, n=60 (30 intervention, 30 control)	PMR significantly reduced pain and improved sleep quality ($p<0.05$)
6	Romadon & Rochmawati (2026)	Effectiveness of Movement-Based Relaxation and Positive Affirmation Therapy in Reducing Anxiety and Pain	Quasi-experimental	Assessing the effectiveness of movement-based and affirmation-based relaxation therapy	Cancer patients	Quasi-experimental, n=48 (24 intervention, 24 control)	Therapy significantly reduced pain and anxiety with a large effect.

DISCUSSION

The findings of this literature review indicate that pain management interventions in palliative care patients are predominantly based on non-pharmacological approaches, which have been shown to be effective in reducing pain intensity and improving patients' quality of life. These findings are consistent with the principles of palliative care, which emphasize a holistic approach encompassing physical, psychological, and emotional dimensions of pain management (Peeler et al., 2025). A holistic approach is essential because pain experienced by palliative care patients is multidimensional and can adversely affect quality of life, social functioning, and emotional well-being (Hedman et al., 2024).

One of the interventions that demonstrated the most consistent effectiveness was Progressive Muscle Relaxation (PMR). Studies conducted by Anshasi et al. (2023) and Mira et al. (2025) reported that PMR significantly reduced pain intensity while improving activity-related functioning and sleep quality. The consistency of findings across studies with different research designs (RCT and quasi-experimental) strengthens the evidence supporting PMR as an evidence-based nursing intervention. Physiologically, PMR works by reducing sympathetic nervous system activity and enhancing parasympathetic activation, resulting in reduced muscle tension, lower stress hormone levels, and increased feelings of relaxation and comfort (Maritescu et al., 2025). These effects contribute to reduced pain perception, anxiety, and sleep disturbances, which are commonly experienced by palliative care patients. Furthermore, PMR supports the mind–body connection theory, which suggests that psychological conditions are closely associated with pain perception and overall quality of life. A systematic review by Fang et al. (2022) further confirmed that PMR effectively improves several health outcomes among cancer patients, including pain, anxiety, and sleep quality.

Touch-based interventions, particularly massage therapy, also demonstrated significant effectiveness in pain reduction. Studies by Koc and Atar (2026) and Arafat et al. (2025) found that

both hand massage and therapeutic massage significantly reduced pain intensity while improving patient comfort and sleep quality. Physiologically, massage therapy promotes increased blood circulation, stimulates endorphin release, and reduces stress hormones such as cortisol. In addition, therapeutic touch provides emotional benefits by fostering feelings of comfort, security, and support, which are especially important in palliative care settings. These findings suggest that simple and low-cost interventions can provide meaningful clinical benefits for patients receiving palliative care (Murdiningsih et al., 2022).

Hot and cold compress therapy was also found to be effective in pain management, particularly for neuropathic pain. The study by Tambunan et al. (2024) reported that hot compresses were more effective than cold compresses in reducing pain intensity. The effectiveness of heat therapy can be explained by its vasodilatory effects, which increase blood flow and reduce muscle spasms, thereby reducing pain signal transmission (Suprianti et al., 2024). These findings are supported by the literature review conducted by Clijsen et al. (2022), which concluded that local heat application positively affects pain reduction, physical functioning, and quality of life among patients with various musculoskeletal pain conditions. Similarly, Freiwald et al. (2021) reported that continuous heat therapy provides significant pain relief, improves tissue flexibility, and enhances physical functioning. More recent evidence by Zanoli et al. (2024) suggests that thermotherapy reduces pain through vasodilation, increased local blood circulation, activation of thermal receptors, and modulation of pain perception. These findings are clinically relevant because heat compress therapy is easy to administer by healthcare professionals and family caregivers, is cost-effective, safe, and can be used as a complementary intervention in palliative pain management (Pugh et al., 2021).

In addition to physical interventions, mind–body therapies such as movement-based relaxation combined with positive affirmation have also demonstrated significant benefits. Romadon and Rochmawati (2026) reported that this intervention significantly reduced both pain and anxiety levels. These findings reinforce the understanding that pain in palliative care is multidimensional and requires interventions that address both physical and psychological aspects. Integrating physical and psychological interventions appear to produce more favorable outcomes than single-modality interventions (Daly & Drain, 2024). Mind–body therapies exert their effects through emotional regulation, enhanced relaxation, and activation of the parasympathetic nervous system, which contribute to reduced pain perception and improved coping abilities among patients (Raharyani et al., 2023). Therefore, these therapies should not merely be considered supportive interventions but rather integral components of holistic palliative care aimed at improving quality of life. Recent meta-analytic evidence further indicates that mindfulness-based interventions significantly reduce anxiety and depression among palliative care patients, highlighting the importance of integrating psychological interventions into evidence-based palliative pain management (Saragih et al., 2026).

Overall, the findings of this literature review suggest that a multimodal approach represents the most effective strategy for pain management in palliative care. The combination of pharmacological and non-pharmacological interventions, together with the integration of physical, psychological, and educational components, appears to produce superior outcomes. This finding is consistent with evidence-based practice recommendations that emphasize individualized and patient-centered approaches to care (NCP, 2018). Nevertheless, several limitations were identified among the reviewed studies, including variations in research design, relatively small sample sizes in some studies, and limited generalizability because most studies focused on patients with cancer. Therefore, further research employing more rigorous methodologies and more diverse patient populations is needed to strengthen the evidence base for palliative pain management.

Among the six studies included in this review, PMR emerged as the most promising intervention due to several unique advantages that make it highly relevant and applicable in palliative nursing practice. PMR is a non-invasive intervention that can be taught by nurses and performed

independently by patients without requiring specialized equipment, making it particularly suitable for resource-limited settings. Unlike massage therapy, which often requires trained personnel or caregiver assistance, and compress therapy, whose effects tend to be localized and temporary, PMR simultaneously addresses both physiological and psychological mechanisms by reducing muscle tension and activating the parasympathetic nervous system involved in pain modulation. Furthermore, PMR may provide sustained benefits by empowering patients to regulate their stress responses and pain experiences independently. Given its consistent effectiveness across the reviewed studies, PMR has strong potential to be recommended as a primary non-pharmacological intervention for pain management in palliative care patients.

CONCLUSION

Based on the synthesis of the six articles included in this review, non-pharmacological interventions were found to be effective in reducing pain intensity and improving the overall quality of life of palliative care patients. Interventions such as Progressive Muscle Relaxation (PMR), massage therapy, hot and cold compresses, and movement-based relaxation therapy demonstrate positive effects on patients' physical, psychological, and functional well-being. These findings emphasize that a multimodal and multidimensional approach is the most appropriate strategy for pain management in palliative care, as pain is influenced not only by biological factors but also by emotional and social dimensions. Among the interventions reviewed, PMR showed the most consistent effectiveness and offered practical advantages, including ease of implementation, cost-effectiveness, and the promotion of patient self-management. Furthermore, the effectiveness of pain management interventions depends largely on the competence of healthcare professionals, particularly nurses, in conducting comprehensive assessments and implementing appropriate therapeutic strategies. Therefore, the integration of evidence-based non-pharmacological interventions into palliative nursing practice is strongly recommended to enhance the quality of care and support the long-term well-being of palliative care patients.

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