



THE ROLE OF NURSING INTERVENTION IN POSTOPERATIVE PAIN MANAGEMENT: A SCOPING REVIEW

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ABSTRACT

Surgical or perioperative procedures are always followed by anesthesia, which is a state without pain sensation. Patients who undergo perioperative procedures experience moderate to severe postoperative pain. Therefore, postoperative pain management in addition to analgesics is needed to help stabilize pain intensity. The purpose of this study is to determine the role of nurses in the implementation of pain management programs in postoperative patients. Methods: This study used the ScR scoping reviews approach and used PRISMA-ScR for article identification and screening. The articles were obtained from several databases, include Scopus, PubMed, ScienceDirect, and ProQuest. Articles published in the last 5 years (2019-2024) and using keywords related to the role of nurses, pain management, and postoperative. The review of 12 articles was conducted systematically with a data extraction process to identify aspects of research objectives, methods, samples, results and to find gaps or new findings that can be used as recommendations. Results: From the findings of 5,175 initial articles, 12 articles were produced that met the inclusion criteria. The analysis obtained several points of the role of nurses in postoperative pain management: (1) Pain management with relaxation in the form of guided imagery, benson relaxation and a combination of aromatherapy relaxation in postoperative patients; (2) Pain management with simple physical exercise techniques on the bed and mabulation support and effective cough breathing exercises (3) Multidisciplinary and complementary collaboration for complementary therapy of pain management with acupuncture techniques, foot and hand massage; (4) Electrical stimulation therapy, namely TENS as a stimulus for pain relief. Conclusions: These findings confirm the importance of the role of nurses to ensure continuity of care in postoperative pain management and invasive measures.

Keywords: nursing intervention; pain management; post operative pain

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INTRODUCTION

Postoperative pain is a major challenge in the care of patients who have recently undergone surgical procedures. The results showed that most patients experienced pain in the first 24 hours after surgery, with varying intensity depending on the type of surgery and the method of anesthesia used (Coll & Jones, 2020). Pain that is not handled properly can cause a variety of impacts and prognosis negative, including an increased risk of complications, prolonged hospitalization, as well as impaired physical and psychological recovery of patients. In addition, inadequate pain management can worsen the patient's quality of life, increase anxiety, as well as cause physiological impacts such as increased blood pressure, tachycardia, as well as disorders sleep (Deng et al., 2022). Therefore, effective pain management is a crucial component in postoperative care.

In terms of the scale of the problem, postoperative pain occurs in more than 75% of patients, especially after major surgical procedures such as orthopedics and cardiovascular (Zengin Aydin & Doğan, 2023). Another study revealed that 20% of patients with uncontrolled postoperative pain are at risk of developing prolonged chronic pain, which can impact their long-term health (Coll & Jones, 2020). In addition, the lack of awareness and skills of

healthcare workers in assessing and managing pain is often a major obstacle to the implementation of optimal analgesia strategies (Demir & Saritas, 2020).

From a historical perspective, postoperative pain management has undergone significant development. Initially, pain management approaches focused on pharmacological therapies, such as the administration of opioids and non-steroidal analgesics (NSAIDs). However, in some In the last decade, a multimodal approach has begun to develop, including non-pharmacological techniques such as music therapy, aromatherapy, guided imagery, as well as mindfulness-based psychological interventions (Hanley et al., 2023). Some studies have also shown that suggestive therapy during anesthesia can reduce the need for opioids and lower the level of pain in patients after surgery (Nowak et al., 2020). Additionally, treatment techniques performed by nurses, such as hand massage and therapeutic touch, have been shown to be effective in reducing the intensity of pain and anxiety in postoperative patients (Demir & Saritas, 2020).

Nurses play a crucial role in postoperative patient pain management, not only in administering medications, but also in the application of a holistic approach to reduce patient discomfort. Various nurse-led interventions, such as pain education, relaxation techniques, as well as other non-pharmacological approaches, have been shown to be effective in lowering pain levels and improving patient recovery (Zengin Aydin & Doğan, 2023). However, despite the availability of evidence-based interventions, there are still challenges in implementing pain management strategies in healthcare settings. Therefore, a deeper understanding of the role of nurses in postoperative pain management is urgently needed, in order to develop more effective and evidence-based treatment strategies. This scoping review aims to explore and analyse the various roles played by nurses in postoperative patient pain management. By reviewing various recent studies, this study is expected to provide a more comprehensive understanding of best practices, challenges faced, as well as recommendations to improve the effectiveness of nursing interventions in postoperative pain management.

METHOD

Study Design

This study uses a scoping review method to explore and map the role of nurses in postoperative pain management. We adopt the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) framework which provides comprehensive guidelines for identifying, screening and reporting results. The research process includes five main stages suggested by Levac et al. (2010): (i) identification of research questions, (ii) identification of relevant studies, (iii) study selection, (iv) data mapping, and (v) preparation and reporting of results.

Search Methods

This study used a combination of keywords ("*nurse*" OR "*nursing*" OR "*nurses*") AND ("*pain management*" OR "*postsurgical pain*" OR "*post operative pain*") AND ("*therapy*" OR "*recovery*" OR "*treatment*") AND ("*program*" OR "*intervention*" OR "*protocol*"). to access databases such as Scopus, PubMed, ScienceDirect, and ProQuest. The research question in this study is "What are the roles of nurses in implementing and managing pain management interventions in postoperative patients?" The inclusion and exclusion criteria are designed using the PICO (Population, Intervention, Comparison, Outcome) format to sharpen the focus of the research:

Population (P): Patients who underwent surgery and required postoperative pain management.

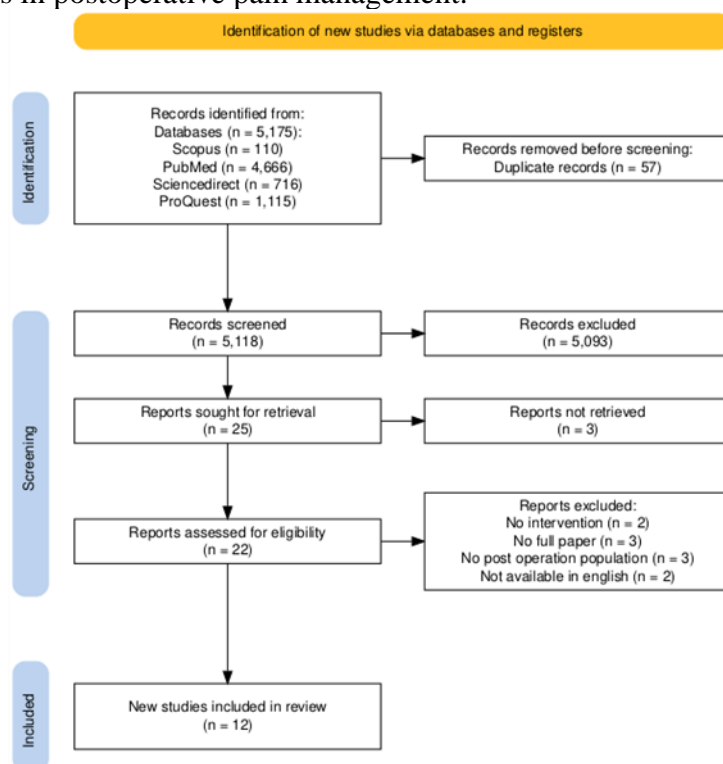
Intervention (I): The role of nurses in the implementation of pain management, including

the use of relaxation techniques, complementary therapies, and innovative technologies.
 Comparison (C): Studies that did not include nurse interventions in postoperative pain management were excluded.
 Outcome (O): The effectiveness of nurse interventions in reducing pain intensity and improving postoperative patient recovery.

The article used was full-text, in English, published in the last 5 years (2019–2024), with a randomized control trial (RCT) design, and involving the patient population in the postoperative stage.

Study Selection and Data Management

The selection process for this scoping review began with the initial identification of 5,175 articles from four major databases: Scopus, PubMed, ScienceDirect, and ProQuest. After removing 57 duplicates, there are 5,118 articles left that are further filtered by title and abstract. Of the total, 5,093 articles were eliminated because they did not meet the initial inclusion criteria or because they were irrelevant to the topic of postoperative pain management by nurses. This leaves 25 further sought-after articles for full-text recovery. However, 3 of the articles were inaccessible, so the number further assessed was reduced to 22 articles. Furthermore, of the 22 articles, 4 articles were eliminated because they did not speak English, and 3 because they did not provide full text. The other two articles did not cover the postoperative patient population, and 3 articles did not cover interventions relevant to the role of nurses in pain management. Only 12 studies ended up meeting all the rigorous and relevant inclusion criteria to be incorporated in the review. The review of 12 articles was conducted systematically with a data extraction process to identify aspects of research objectives, methods, samples, results and to find gaps or new findings that can be used as recommendations. This systematic and detailed selection process ensures that only the most qualified and relevant data are used to produce reliable findings regarding the effectiveness of nurse interventions in postoperative pain management.



RESULT

Data Extraction

Data extraction was done manually using a table that included information: title, author, year, sample, design, country, intervention, instrument, and study results, see table 3.

Quality Appraisal

The article quality assessment used the Joanna Briggs Institute (JBI) instrument based on 13 question items for the RCT design. Scores above 75% are considered to meet the quality criteria (Table 1).

Tabel 1.
Critical Appraisal with JBI

No	Author	Design	JBI (%)
1	(Zengin Aydin & Doğan, 2023)	Randomized Controlled Trial	10/13 = 77 %
2	(Hanley et al., 2023)	Randomized Controlled Trial	11/13= 84 %
3	(Laframboise-Otto et al., 2021)	Randomized Controlled Trial	10/13=77%
4	(Özbaş et al., 2024)	Randomized Controlled Trial	10/13 = 77%
5	(Erdemir & Şenturan, 2020)	Randomized Controlled Trial	11/13 = 84%
6	(Nowak et al., 2020)	Randomized Controlled Trial	13/13 = 100%
7	(Bagheri et al., 2020)	Randomized Controlled Trial	12/13 = 92%
8	(Wei et al., 2021)	Randomized Controlled Trial	10/13 = 77%
9	(Huffman et al., 2024)	Randomized Controlled Trial	10/13 = 77%
10	(Demir & Saritas, 2020)	Randomized Controlled Trial	11/13 = 84%
11	(Pishgooie et al., 2020)	Randomized Controlled Trial	10/13 = 77%
12	(Leftovers & Erden, 2024)	Randomized Controlled Trial	10/13 = 77%

Data Analysis

The data was analyzed descriptively by reading, summarizing, and classifying articles based on inclusion and exclusion criteria. The results of the analysis are presented to describe the various educational approaches used and their effectiveness in preparing patients for surgical procedures.

FINDINGS

A thorough and comprehensive search yielded a total of 5,175 articles. Then, identifying and removing 57 duplicates, the article screening process is outlined in the PRISMA review flowchart (Figure 1). Initial articles were obtained from the Scopus (n = 110), PubMed (n = 4,666), Science Direct (n = 716) and ProQuest (n = 1115) databases. The initial screening was carried out in collaboration between two researchers (M.D.B.A.S and N.S.A.P.M), resulting in the exception of 5093 articles based on abstract and title. Thus, the remaining 25 articles become a full-text review based on the inclusion criteria set previously. Of these, 3 articles were excluded because there was no complete text. So only 22 articles can be continued for in-depth analysis and synthesis review. Finally, 12 study articles were selected that met the strict inclusion criteria and were included in the data extraction in this review (Table 2).

The quality of the research article study was included and assessed using JBI's critical assessment tool, with articles scoring at least 75% in terms of criteria and relevance to the topic (Table 1). The final table of 12 articles specifically focuses on the role of nurses in postoperative patient pain management.

Tabel 2.
Summary of findings

No.	Title/Author	Design	Country	Sample	Intervention	Instrument	Result
1.	The Effect of Guided Imagery on Postoperative Pain Management in Patients Undergoing Lower Extremity Surgical Operations (Leyla Zengin Aydın, Aysel Dog̃an, 2023)	RCT	Turkey	60 patients	Guided Imagery	Visual Analog Scale (VAS)	Guided Imagery in patients undergoing lower extremity surgery is an effective method for managing postoperative pain. Guided Imagery is used as a complementary therapy in conjunction with routine analgesia protocols to support postoperative pain management in patients in the intervention group. Generalization is limited because it is only focused on 1 country of Turkey, patients have undergone different types of surgeries so the post-operative protocols also vary.
2.	The Analgesic Effects of NurseLed, UltraBrief Mindfulness Interventions: A Randomized Controlled Trial (Hanley et al 2023)	RCT	USA	127 patients	Mindfulness Interventions	The instruments used to measure outcomes included an 11-point numerical scoring scale to assess pain intensity and discomfort, as well as a patient-reported measure of the desire to use pain medication	The three-minute MBI intervention did not significantly affect postoperative physical function, there was an immediate benefit in pain management, which was in line with previous findings that a longer MBI (15-20 minutes) had a positive effect on acute pain intensity and the desire to use pain medication. In addition, it is said that this study highlights that short mindfulness practices can be applied in clinical settings, providing greater accessibility for patients
3	A Randomized Controlled Trial of Music for Pain Relief after Arthroplasty Surgery (Laframboise-Otto et al., 2021)	Randomized control trial	USA	50 patients	Music as a pain distraction of post operative arthroplasty	Numerical Rating Scale (NRS)	Participants in the 30-minute music intervention group reported significantly lower changes in pain intensity that could be implemented independently when the patient was in further care at home.

No.	Title/Author	Design	Country	Sample	Intervention	Instrument	Result
4.	Effect of Transcutaneous Electrical Nerve Stimulation on Patients with Total Knee Replacement: A Randomized Controlled Trial (Ozbas, 2024)	Randomized Controlled Trial	Turkey	52 patients	Transcutaneous Electrical Nerve Stimulation (TENS)	Visual Analog Scale (VAS), the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), Quality of Life Scale (SF-36)	TENS therapy with multidisciplinary integration of nurses was shown to provide a significant reduction in pain intensity scores and improvement in range of motion on day 5 and day 7 of treatment.
5.	The Effect of Position Support During Orthopedic Surgery on Postoperative Pain: A Randomized Controlled Trial (Soyer, 2020)	Randomized Controlled Trial	Turkey	100 patients	Ambulation support carried out by nurses in supporting position mobilization in bed.	McGill Melzack Pain Questionnaire, Visual Analogue Scale (VAS)	The implementation of positional support can be a nurse's step for postoperative pain management. Reduce dependence on pharmacological analgesics, particularly opioids. Able to improve comfort and prevent soft tissue injury during long surgeries.
6.	Effect of therapeutic suggestions during general anaesthesia on postoperative pain and opioid use: multicentre randomised controlled trial (Nowak, 2020)	Randomized Controlled Trial	Germany	385 patients	Audio recordings of therapeutic suggestions as a nursing intervention in improving comfort during invasive surgery	Visual Analog Scale (VAS), Numerical Rating Scale (NRS)	Significant reduction in postoperative pain scores and reduced dependence on opioids and the risk of their side effects.
7.	The Effects of Inhalation Aromatherapy Using Lavender Essential Oil on Postoperative Pain of Inguinal Hernia: A Randomized Controlled Trial (Bagheri, 2020)	Randomized Control trial	Turkey	90 patients	Aromatherapy massage in post-mastectomy patients by comparing three types of oils to manage acute arm pain and anxiety: sesame oil, sesame-lavender oil, paraffin oil	Numerical Rating Scale (NRS), State Anxiety Scale	Aromatherapy massage using a sesame-lavender oil mixture will be more effective in reducing pain and anxiety than sesame oil alone or paraffin oil.
8.	Effect of comprehensive high-quality nursing care on postoperative complications, degree of pain, and nursing satisfaction in gallstone	Parallel randomized control trial	China	77 patients	Comprehensive high quality nursing care (positioning and bed activity, monitoring vital sign, distraction with music,	Visual analogue scale (VAS), World Health Organization Quality of Life-BREF (WHOQOL-BREF)	The pain level in the intervention group was lower than in the control group (p <0.05) after 6 hours, 24 hours and 48 hours in patients with gallstones after arthroplasty.

No.	Title/Author	Design	Country	Sample	Intervention	Instrument	Result
	patients during perioperative period (Wei et al., 2021)	trial			diet monitoring)		
9.	Nurse initiated auricular acupressure for post-operative pain control inpatients undergoing TKA or THA: A randomized controlled trial (Huffman, 2024)	Randomized Control Trial	USA	60 Participants	Battlefield Auricular Acupressure (BAA) protocol-based auricular acupressure to control postoperative pain in patients undergoing Total Knee Arthroplasty	visual analogue scale (VAS)	The results of this article show that auricular acupressure (ear acupressure) is well tolerated by postoperative patients of TKA and THA, with a high level of patient satisfaction. Most patients adhere to the intervention protocol, although there is seed loss in some cases. Although the group receiving acupressure (BAA) showed lower mean pain scores than the control group, there was no significant difference in opioid use between the two groups. The time it takes for nurses to perform acupressure procedures is about 12.85 minutes per patient.
10.	Effect of hand massage on pain and anxiety in patients after livertransplantation: A randomised controlled trial (Demir, 2020)	Randomized Control Trial	Turkey	80 Patients	Hand massage with classic techniques that include petrissage, friction, and kneading on both hands of the patient	Visual Analogue Scale (VAS), State Anxiety Inventory (STAI-S)	Hand massage after liver transplantation, the average score of pain intensity and anxiety level was lower, with statistical significance in the experimental group compared to the control group in all measurements before and after hand massage. As a result, hand massage applied to liver transplant patients has a positive impact and reduces pain severity and anxiety levels.
11.	Effects of Relaxation Techniques on Acute Postlaminectomy Pain: A Three-Arm Randomized Controlled Clinical Trial (Hosein, 2020)	Randomized Control Trial	Iran	93 patients	Benson's relaxation and progressive muscle relaxation	visual analog scale (VAS)	Benson's relaxation and progressive muscle relaxation resulted in a significant reduction in pain severity compared to the control group at all three measurement times (except at time 1 in the progressive muscle relaxation group). However, no significant differences were

No.	Title/Author	Design	Country	Sample	Intervention	Instrument	Result
							found between Benson's relaxation and progressive muscle relaxation at all three times. The results showed that Benson's technique and progressive muscle relaxation could reduce acute pain.
12.	The Effect of Breathing and Coughing Exercises and Oxygen Therapy on Shoulder Pain and Analgesic Consumption After Laparoscopic Cholecystectomy: A Randomized Controlled Study (Leftovers & Erden, 2024)	Randomized Controlled Trial	Turkey	105 patients	Breathing and cough exercise combined with O2 treatment (2 lpm)	Numerical pain scale (NPS), Pulse oximetry	A statistically significant difference was found in the intervention group in pain levels at 12 hours postoperatively (P <0.05). There was a statistically significant negative and significant difference between pain level and SpO2 value in all groups (P <0.05). Non-opioids were consumed in lower amounts in the intervention group (P > 0.05)

Study Characteristics

The study produced an article with a Random Control Trial (RCT) design. The geographical scope of the included study includes the USA (3), Iran (1), Germany (1) and Turkey (6) China (1). Detailed characteristics of the literature are presented in Table 3.

Table 3
Characteristics of literature

No	Author	Sample	Design	Country	Population	Mean Age	Gender %
1	(Zengin Aydin & Doğan, 2023)	60	RCT	Turkey	Post on Extermitas bawah	18-41	F: 21 (35%) M: 39 (65%)
2	(Hanley et al., 2023)	127	RCT	USA	Post on Extermitas bawah	64.27	F: 65 (51%) M: 62 (49%)
3	(Laframboise-Otto et al., 2021)	50	RCT	USA	Post Arthroplasty Surgery	66.64	F: 29 (58%) M: 21 (32%)
4	(Özbaş et al., 2024)	52	RCT	Turkey	Pasien Total Knee Replacement	56-76 54-76	F: 32 (61%) M: 20 (39%)
5	(Erdemir & Şenturan, 2020)	100	RCT	Turkey	Patients with surgical procedures	31-63 34-64	F: 54 (54%) M: 46 (46%)
6	(Nowak et al., 2020)	385	RCT	Germany	Post op patients with total anesthesia	43-62 46-62	F: 225 (58%) M: 160 (42%)
7	(Bagheri et al., 2020)	90	RCT	Turkey	Patients undergoing	44.30-42.56	F: 5 (10%) M: 81 (90%)

No	Author	Sample	Design	Country	Population	Mean Age	Gender %
					inguinal hernia surgery		
8	(Wei et al., 2021)	77	RCT	China	Post gallstone surgery	41.83 – 42.24	F: 42 (54.5%) M: 35 (45.5%)
9	(Huffman et al., 2024)	60	RCT	USA	Total Knee Arthroplasty (TKA) atau Total Hip Arthroplasty (THA)	66	F: 39 (65%) M: 21 (35%)
10	(Demir & Saritas, 2020)	80	RCT	Turkey	Liver transplant	46-69	F: 18 (22.5%) M: 62 (77.5%)
11	(Pishgooie et al., 2020)	93	RCT	Iran	Patients with laminectomy surgery	40.96-45.06	F: 25 (27%) M: 68 (73%)
12	(Leftovers & Erden, 2024)	105	RCT	Turkey	Pasien Post Op Laparoscopy Cholecystomy	51.0	F: 54 (51%) M: 51 (49%)

Outcome

An analysis of the included studies revealed that nurses have an important role in pain management in patients after surgery or surgery. Table 3 illustrates that there are several findings related to the role of nurses in pain management and the use of pain management instruments implemented in postoperative patients. Nurses can be educators in pain management for postoperative patients by conducting relaxation education to manage postoperative pain, including guided imagery, benson relaxation and a combination of aromatherapy can lower cortisol so that stressors or pain causes will gradually decrease so that there is a positive effect on pain intensity (Hanley et al., 2023; Pishgooie et al., 2020; Zengin Aydin & Doğan, 2023). Nurses are also able to have the competence to perform complementary therapy in pain management using certain massage tools or techniques, such as acupuncture techniques, hand massage or with electrical nerve simulation therapy which can stimulate the release of the body's endocrine and affect the central nervous system increasing neurotransmitters that function well as natural analgesics of the body (Bagheri et al., 2020; Momeni et al., 2020; Özbaş et al., 2024). The use of tools such as audio music aids in pain management in the operating room has shown positive results. The role of nurses in providing music distraction relaxation interventions as well as suggestion audio recordings that work by providing sensory distraction stimuli can distract patients from the pain and anxiety of perioperative patients (Nowak et al., 2020).

There are key intervention findings in the literature which can be seen in table 4. First, pain management uses relaxation and distraction techniques, including guided imagery techniques, mindfulness therapy, music and audio visuals, progressive muscle relaxation and benson breath relaxation (Artıklar & Erden, 2024; Hanley et al., 2023; Laframboise-Otto et al., 2021; Nowak et al., 2020; Pishgooie et al., 2020; Wei et al., 2021; Zengin Aydin & Doğan, 2023). Second, with light and simple physical exercises in postoperative patients with the form of exercises on the bed such as learning to shift from the bed and tilting right and left and doing breathing exercises and coughing effectively to reduce pain (Leftovers & Erden, 2024; Erdemir & Şenturan, 2020; Wei et al., 2021). The third finding is related to complementary pain management with the collaboration of nurses with other medical teams, namely a team of doctors and therapists to implement on postoperative patients, namely

aromatherapy, acupuncture, and hand massage (Bagheri et al., 2020; Erdemir & Şenturan, 2020; Huffman et al., 2024). The last is non-invasive therapy using electrical stimulation, namely TENS therapy (Özbaş et al., 2024).

Tabel 4.

thematic synthesis based on type of nursing post operative pain management intervention

Post operative pain Management	Key Themes	Source
Relaxation and Distraction	guided imagery, mindfulness therapy, music and audiorecord distraction, benson breathing relaxation, progressive muscle relaxation	(Artıklar & Erden, 2024; Hanley et al., 2023; Laframboise-Otto et al., 2021; Nowak et al., 2020; Pishgooie et al., 2020; Wei et al., 2021; Zengin Aydin & Doğan, 2023)
Exercise	bed exercise ambulation and mobilitation, cough and breathing exercise	(Leftovers & Erden, 2024; Erdemir & Şenturan, 2020; Wei et al., 2021)
Complementary	aromatherapy massage, auricular accupressure, hand massage	(Bagheri et al., 2020; Erdemir & Şenturan, 2020; Huffman et al., 2024)
Electrical Stimulation	transcutaneous electrical nerve stimulation	(Özbaş et al., 2024)

DISCUSSION

In all of the methods mentioned in the 12 identified study articles, the majority displayed significant results of nurses in reducing the intensity of postoperative pain in patients. In general, these techniques involve physiological and psychological approaches that aim to improve the patient's quality of life through effective pain management. These interventions involve the role of nurses in a variety of capacities, including the provision of relaxation techniques, complementary therapies, and innovative technologies. Research conducted by (Zengin Aydin & Doğan, 2023) It shows that guided imagery is one of the effective relaxation techniques in reducing pain in patients after lower extremity surgery. This technique works by lowering cortisol levels, which in turn reduces the patient's stress levels. Statistically, the results of this study showed a significant effect on the decrease in pain intensity (Beta=0.411, $p < 0.001$). In addition, the use of Benson's relaxation techniques and progressive muscle relaxation also provided significant results in reducing pain severity in patients after laminectomy, as reported by (Pishgooie et al., 2020). Both techniques were effective, although no significant difference was found between the two in terms of reduction in pain intensity (Beta=0.119, $p < 0.05$).

In addition, complementary therapies such as hand massage and Transcutaneous Electrical Nerve Stimulation (TENS) also showed positive results. Research conducted by (Özbaş et al., 2024) showed that TENS provided a significant reduction in pain scores in patients undergoing total knee replacement, especially on day 5 to day 7 postoperatively (Beta=0.183, $p < 0.05$). Meanwhile, the research (Erdemir & Şenturan, 2020) reported that hand massage using classical techniques such as petrissage, friction, and kneading significantly lowered pain intensity in post-liver transplant patients. Other research conducted by (Bagheri et al., 2020) highlighting the importance of the combination of physical stimulation and aromatherapy in pain management. Aromatherapy massage using a mixture of lavender oil and sesame oil has been proven to be more effective than sesame oil alone in reducing pain and anxiety in

postoperative patients. This shows that the combination of physical therapy and aroma has a synergistic effect that supports the reduction of pain symptoms.

In addition, suggestion-based interventions also provide significant results. Research by (Nowak et al., 2020) showed that the audio recordings of therapeutic suggestions were able to significantly lower the patient's pain score postoperatively, while reducing dependence on opioid analgesics. Thus, this method not only helps manage pain but also reduces the risk of side effects from drug use. Ambrose support therapy and physical exercise have been shown to be effective in lowering pain in postoperative patients, especially through mechanisms of increased blood circulation, endorphin release, and reduction of muscle stiffness (Harikesavan et al., 2019). Amblution support allows patients to start moving earlier with help, which not only helps in preventing complications such as deep vein thrombosis, but also accelerates the recovery of body functions (Ding et al., 2023). Targeted physical exercise, such as light movements or breathing exercises, can improve muscle flexibility and reduce the inflammatory response, thereby lowering the perception of pain (Leftovers & Erden, 2024). Studies show that this approach also provides psychological benefits by increasing patients' self-confidence and independence, which contributes to a reduction in anxiety and pain that is psychosomatic in nature. Therefore, this combination of therapies should be an integral part of an individualized postoperative rehabilitation program to maximize the patient's recovery (Simsek Yaban et al., 2023).

CONCLUSION

Based on the analysis of various studies, it was found that postoperative pain management methods involving the role of nurses provide significant benefits in improving the quality of life of patients. Pain management techniques in the form of relaxation, simple physical exercises, complementer therapy and electrical stimulation therapy showed effective results in reducing the intensity of pain and anxiety in postoperative patients. In addition, the use of aromatherapy and therapeutic suggestions also has a positive impact in supporting patient recovery. Interventions involving nurses not only focus on physiological aspects but also include psychological approaches that aim to improve patient comfort and well-being holistically. Overall, various pain management techniques applied by nurses have shown significant effectiveness in improving postoperative patient comfort. A multidimensional approach involving a combination of relaxation techniques, complementary therapies, and innovative technologies provides optimal benefits. Based on the results of this study, it can be said that the role of nurses is very important in ensuring the success of postoperative pain management through holistic, collaborative and evidence-based interventions.

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