ISSN Print: 2581-8546 ISSN Online: 2582-2934

Original Article

Assessment of Pain Management Strategies in Postoperative Patients : A Comparative Study

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Abstract

Introduction : Postoperative discomfort continues to rank among the most common issues in surgical care. Effective pain management strategies are essential for lowering complications, enhancing quality of life, and hastening patient recovery.

Methodology : A comparative cross-sectional study was conducted among 60 postoperative patients selected through purposive sampling. Setting was ramsnehi hospital bhilwara for this study. Tools included a socio-demographic and clinical data sheet, Numeric Pain Rating Scale (NPRS), and a checklist for pain management strategies. Data were analyzed using descriptive and inferential statistics.

Results : Majority of patients reported moderate to severe pain during the first 24 hours postoperatively. Pharmacological methods such as opioids (62%) and NSAIDs (48%) were most commonly used. Non-pharmacological methods like deep breathing (35%) and positioning (28%) were also employed. Patients receiving combined pharmacological and non-pharmacological strategies had significantly lower pain scores (mean = 3.1 ± 1.4) compared to those receiving only pharmacological management (mean = 4.8 ± 1.6) ($p < 0.01$).

Conclusions : According to the study's findings, postoperative pain was lessened by a combination of pharmacological and non-pharmacological interventions than by pharmacological approaches alone.

Keywords : Postoperative pain, Pain management, Pharmacological, Non-pharmacological, Comparative study.

How to cite this article : Tripathi MK, Kant K, Yadav VK, Kaushal N. Assessment of Pain Management Strategies in Postoperative Patients: A Comparative Study. Glob. Nurs. J. India 2025; 8: II: 848-851.
Submitted : 10/08/2025, Modification : 25/08/2025, Accepted : 01/09/2025, Published : 07/09/2025

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Introduction

One of the most upsetting symptoms that patients feel following surgery is pain, which is a basic human sensation. Inadequate management of postoperative pain can result in a longer hospital stay, delayed wound healing, physiological stress reactions, and a lower quality of life[1]. Studies continue to show that 40-80% of patients have moderate to severe postoperative pain, even with improvements in surgical methods and anesthetic care.[2]

Pain is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage," according to the International Association for the Study of Pain (IASP).[3]. Good postoperative pain management is seen as a basic human right and a necessary part of high-quality medical care. ?. In addition to causing suffering, inadequate pain management raises morbidity because of consequences like chronic pain syndromes, deep vein thrombosis, and reduced pulmonary function.[5]

Pharmacological and non-pharmacological treatments are the two main categories into which pain management techniques can be divided. Opioids, non-steroidal anti-inflammatory medications (NSAIDs), local anesthetics, and multimodal analgesia are examples of pharmacological therapies.[6] However, depending just on pharmaceutical treatments is frequently linked to negative side effects like dependence, nausea, constipation, and respiratory depression.[7]

Effective supplements to medication therapy include non-pharmacological approaches such deep breathing, posture, music therapy, guided imagery, relaxation techniques, and the use of cold or heat packs. These techniques are affordable, secure, and enable patients to take an active role in their own healing?. According to research, combining pharmaceutical and non-pharmacological approaches reduces pain more effectively than using just one of them.[9]

Postoperative pain treatment techniques vary greatly in India, where many hospitals continue to primarily on pharmaceutical approaches[1]?. To create thorough pain management protocols, it is necessary to evaluate present procedures and contrast the efficacy of various approaches.

Hence, this study was undertaken to assess and compare the effectiveness of pharmacological and non-pharmacological pain management strategies among postoperative patients admitted to Ram Snehi Hospital, Bhilwara. The findings are expected to contribute to improved postoperative care practices and patient outcomes.

Objectives

1. To assess the level of postoperative pain among patients.
2. To identify the pharmacological and non-pharmacological pain management strategies used.
3. To compare the effectiveness of pharmacological versus combined (pharmacological + non-pharmacological) interventions.
4. To find the association between demographic/clinical variables and pain scores.

Hypotheses

- **H_0 :** There is no significant difference in postoperative pain scores between patients receiving pharmacological methods alone and those receiving combined methods.
- **H_1 :** Patients receiving combined pharmacological and non-pharmacological strategies will have significantly lower postoperative pain scores.

Methodology

Research Design : Comparative cross-sectional study.

Setting : Ram Snehi Hospital, Bhilwara (a 300-bedded multispecialty hospital with surgical wards).

Sample : 60 postoperative patients (general surgery, orthopedic, and gynecology cases).

Sampling Technique : Purposive sampling.

Inclusion Criteria :

- Adult patients (≥18 years).
- Within 24-72 hours of surgery.
- Willing to participate.

Exclusion Criteria :

- Patients with cognitive impairment or communication difficulties.
- Patients with chronic pain disorders or on long-term analgesic therapy.

Tools Used:

1. Socio-demographic and Clinical Proforma :

- Age, gender, type of surgery, duration of surgery, type of anesthesia, postoperative day, etc.

2. Numeric Pain Rating Scale (NPRS) :

- 0 = No pain, 10 = Worst possible pain.

DOI:10.46376/GNJI/8.II.2025.848-851

- Categories : 0-3 = Mild, 4-6 = Moderate, 7-10 = Severe.

3. Pain Management Strategies Checklist :

- Pharmacological: opioids, NSAIDs, paracetamol, regional anesthesia.
- Non-pharmacological: relaxation, deep breathing, positioning, music therapy, hot/cold application.

Data Collection Procedure :

- Pretested tools were validated by experts (content validity).
- Ethical clearance obtained from institutional ethics committee.
- Written consent taken from patients.
- Pain assessment carried out twice daily (morning & evening) for 3 consecutive days postoperatively.
- Data recorded regarding strategies used by patients and nurses.

Data Analysis :

- Descriptive statistics: frequency, %, mean, SD.
- Inferential statistics: independent t-test, chi-square test & Significance at $p < 0.05$.

Results

Table 1: Demographic and Clinical Characteristics of Patients (N = 60)

Variable	Category	f	%
Age (years)	18-30	14	23.3
	31-45	20	33.3
	46-60	16	26.7
	>60	10	16.7
Gender	Male	28	46.7
	Female	32	53.3
Type of Surgery	Abdominal	24	40.0
	Orthopedic	18	30.0
	Gynecological	12	20.0
	Others	6	10.0
Type of Anesthesia	General	34	56.7
	Regional/Spinal	26	43.3

Figure 01- Demographic and Clinical Characteristics of Patients

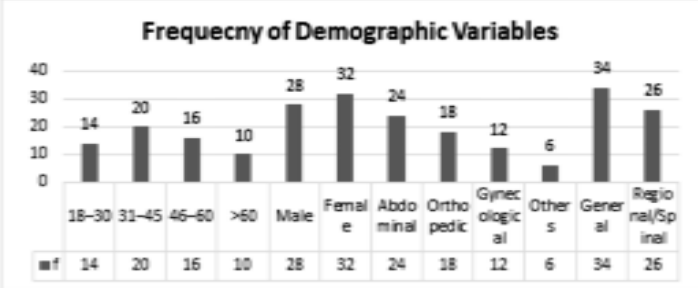

Table 2 : Distribution of Patients by Pain Intensity (NPRS Scores)

Pain Intensity	Prevalence (f)	Percentage (%)
Mild (0-3)	12	20.0
Moderate (4-6)	30	50.0
Severe (7-10)	18	30.0

Table 3: Pain Management Strategies Used by Patients (N = 60)

Strategy Type	Methods Used	f	%
Pharmacological	Opioids	37	61.7
	NSAIDs	29	48.3
	Paracetamol	20	33.3
Non-Pharmacological	Deep Breathing Exercises	21	35.0
	Positioning	17	28.3
	Music Therapy	10	16.7
	Hot/Cold Application	8	13.3

Table 4: Comparison of Pain Scores between Groups

Group	Mean ± SD	t-value	p-value
Pharmacological only (n = 34)	4.8 ± 1.6		
Combined methods (n = 26)	3.1 ± 1.4	3.21	0.002**

**Significant at $p < 0.01$

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Table 5 : Association of Pain Scores with Selected Variables

Variable	χ^2 value	df	p-value	Result
Age	2.35	3	0.44	NS
Gender	0.89	1	0.34	NS
Type of Surgery	4.12	2	0.12	NS
Type of Anesthesia	5.21	1	0.02	S*

*S = Significant, NS = Not Significant

Discussion

According to the current study, 80% of postoperative patients reported pain that was more than light, indicating that moderate to severe pain was very common. These results are in line with earlier research that shows that postoperative pain is not adequately managed in clinical settings.

In accordance with typical hospital procedures, pharmacological therapies (NSAIDs and opioids) were most commonly employed. Patients who received both pharmaceutical and non-pharmacological treatments, however, reported much lower pain levels, confirming previous findings that multimodal pain management enhances patient comfort and healing.[8,9]

No significant associations were found between pain scores and demographic variables, indicating that postoperative pain is a universal experience irrespective of age or gender. Though, patients getting regional anesthesia reported slightly lower pain scores compared to those with general anesthesia, aligning with other studies on anesthesia-related pain outcomes[10].

Conclusions

The study concluded that postoperative pain is a common and distressing problem among surgical patients. Pharmacological methods remain the primary mode of pain relief, but the integration of non-pharmacological interventions such as relaxation, positioning, and music therapy was found to be more effective in reducing pain intensity. Therefore, multimodal pain management should be adopted as standard practice in hospitals to improve patient recovery and satisfaction.

Recommendations

1. Nurses should be trained in both pharmacological and non-pharmacological pain management techniques.
2. Hospital policies should mandate routine pain assessment and documentation using standardized scales.
3. Non-pharmacological methods should be included in postoperative nursing care plans.
4. Further studies with larger sample sizes and randomized controlled designs are recommended.

Financial support and sponsorship : Nil

Conflicts of interest : The author declare that they have no conflict of interest with regard to the content of the report.

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