Perceived Effect and Coping Strategy of Post-Operative Pain Management on Early Mobilization among Patients in National Orthopaedic Hospital, Igbobi, Lagos State, Nigeria

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ABSTRACT

Early patient mobilization is one of the most important factors in postoperative pain management, especially in orthopedic patients. Poor pain management can lead to delayed recovery, poor functional status, and high healthcare costs. This study assessed the perceived impact of postoperative pain management on early patient mobilization at the National Orthopedic Hospital, Igbobi, Lagos State, Nigeria. A descriptive cross-sectional study was conducted among 152 patients using simple random sampling. Data were collected using a structured questionnaire and analyzed using SPSS version 29 software, with results presented in descriptive form and graphical illustrations. The study population was predominantly middle-aged (36.2%), male (73.0%), married, and had undergone major surgery (67.1%). Pain management techniques used included positioning and immobilization (36.2%), physiotherapy (32.2%), and analgesics (21.1%). Despite this, 54.6% of the patients suffered severe pain in the last 24 hours, with only 15.8% mobilized within 12 hours of surgery. Pain intensity (23.7%), fear of injury (25.7%), and lack of motivation (27.0%) were the major barriers to mobilization. Deep breathing exercises (39.5%) and relaxation techniques (27.6%) were employed as coping mechanisms, but communication barriers and cultural beliefs were major limitations. The results bring to light the shortcomings in pain management strategies and their effects on delayed early mobilization. Nurses are critical in filling these gaps through patient education, cultural competency in communication, and inter-professional collaboration for early ambulation and optimal recovery. It was recommended that improving patient and nurse communication, integrating cultural competency into treatment plans, and encouraging early mobilization are critical strategies that nurses can use to improve outcomes and achieve early mobilization in orthopedic patients.

Keywords: Postoperative pain, Early mobilization, Orthopaedic patients, Pain management.

INTRODUCTION

Post-operative pain is a significant clinical issue in orthopaedic practice, especially in the aftermath of invasive surgeries like fracture fixation, joint replacement, and spinal surgery (Bohr et al., 2026). Pain is a multifaceted sensory and emotional experience that profoundly influences physical recovery and psychological status. Poorly managed post-operative pain contributes to delayed early mobilization, which is an essential aspect of orthopaedic rehabilitation that helps to prevent complications like deep vein thrombosis, muscle wasting, joint stiffness, prolonged hospital stays, and the onset of chronic pain. Despite the existence of pharmacological and non-pharmacological approaches to pain management, musculoskeletal pain is a significant cause of disability worldwide (Farì et al., 2025), with orthopedic patients in Africa having a high prevalence of inadequately managed postoperative pain because of systemic constraints in the healthcare system.

In Nigeria, the management of postoperative pain is still suboptimal, with a high prevalence of moderate to severe pain among orthopedic patients in the early postoperative period (Alqaisi et al., 2024). The available evidence from tertiary institutions in Lagos State, including the National Orthopedic Hospital, Igbobi, suggests

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that the problem of inadequately managed pain has continued to pose a challenge to early mobilization and rehabilitation. The factors contributing to this problem include the lack of access to modern analgesic modalities, inadequate utilization of multimodal pain management strategies, a shortage of pain management specialists, irregular or delayed administration of analgesics, and inadequate patient education (Nagpal et al., 2024).

Besides, the role of patient-related factors such as cultural beliefs, socioeconomic factors, a lack of knowledge about pain management strategies, and individual coping styles cannot be overemphasized in shaping postoperative pain experiences and mobilization outcomes. Patients resort to different coping mechanisms, from compliance with prescribed medications to alternative forms of medication, but these are still inadequately investigated (Patel, et al., 2025). The absence of research within the region to investigate the relationship between post-operative pain management, patient coping mechanisms, and early mobilization of orthopaedic patients in Lagos State is a serious deficit in evidence-based practice that requires specific investigation.

The study, therefore, evaluated the perceived impact and coping strategies of post-operative pain management on early mobilization of orthopaedic patients at the National Orthopaedic Hospital, Igbobi, Lagos State, Nigeria. It specifically investigated the prevalence of post-operative pain, the relationship between pain management and early mobilization, the coping strategies employed by patients to manage pain and promote mobilization, and the challenges associated with successful pain management and early mobilization, by concentrating on a specialized orthopaedic hospital and examining both pharmacological and non-pharmacological methods of pain management (Niyonkuru et al., 2025). The result of the study will add to increased region-specific knowledge that will improve clinical practice, enhance nursing and multidisciplinary practice, and ultimately lower healthcare costs while improving patient satisfaction and quality of life.

Related Works

Post-operative pain management is an integral part of orthopedic practice and directly affects the recovery process, early mobilization, and overall outcomes (Rhamelani et al., 2025). Optimal management involves pharmacological, non-pharmacological, and patient-centered strategies, which are tailored to individual needs and settings. Pharmacological modalities include opioids, non-steroidal anti-inflammatory drugs, adjuvant analgesics, and regional anesthesia that relieve pain through various mechanisms, although their use can be restricted by side effects, potential for dependency, or availability constraints (Hong and Chung, 2025). Non-pharmacological modalities like physiotherapy, cognitive-behavioral therapy, relaxation therapies, and assistive devices are supplementary to pharmacological therapies and target the psychological, social, and emotional aspects of pain, while patient-centered care, education, shared decision-making, and culturally appropriate approaches improve compliance and maximize outcomes (Abdullah, 2024). Recent advances, such as multimodal analgesia and Enhanced Recovery After Surgery (ERAS) plans, focus on combining multiple pain management modalities and early mobilization to facilitate faster recovery and shorter hospital stays.

Early mobilization is inextricably associated with optimal pain management and is considered the backbone of post-operative care (Johnson, 2025). Engaging in movement and physical activity early after surgery can help prevent complications such as deep vein thrombosis, pulmonary embolism, muscle atrophy, and joint stiffness, while also promoting respiratory function, circulation, and physical conditioning. On the psychological side, early mobilization can help alleviate anxiety, improve mood, and promote autonomy, leading to increased patient satisfaction and participation in the rehabilitation process (Singam, 2024). The application of early mobilization is affected by physiological considerations such as the degree of pain, surgical difficulty, preoperative physical conditioning, and postoperative complications; psychological factors such as fear, anxiety, motivation, and pain perception; environmental considerations such as hospital facilities and support staff; and systemic considerations such as the availability of pain management programs, human resources, and beliefs about recovery. These factors, taken together, highlight the interdependence of pain management and mobilization.

Patients use a variety of strategies to cope with postoperative pain, depending on pharmacological, non-pharmacological, cultural, and social factors (Ashu and Mburu, 2024). Pharmacological strategies include the

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use of analgesics, opioids, NSAIDs, and adjuvants, while non-pharmacological strategies include physiotherapy, heat or cold therapy, relaxation, distraction, and cognitive-behavioral techniques. Cultural factors, especially in a Nigerian environment, also play a part in influencing coping mechanisms, such as the use of herbal medicines, consulting traditional healers, and seeking community or spiritual assistance. Successful coping mechanisms are associated with improved pain management, easier mobilization, enhanced mental well-being, and shorter hospital stays; yet, their application is hindered by factors such as a lack of resources, cultural misunderstandings, insufficient financial resources, and inadequate patient education (Onuoha et al., 2024).

The Health Belief Model (HBM) is a theoretical construct that helps explain patient behavior during post-operative care, focusing on the importance of perceived susceptibility, disease severity, benefits, barriers, cues to action, and self-efficacy in influencing patient compliance with pain management and mobilization regimens (Feng and Cui, 2025). Research studies emphasize the importance of effective pain management in making early mobilization easier, minimizing complications, and improving functional outcomes (Singam, 2024). In the African and Nigerian orthopedic setting, research shows that poor pain management is a significant hindrance, with cultural beliefs, fear of pain, inadequate patient education, and resource limitations further obstructing the path to recovery (Gao et al., 2023). Research has shown that integrating pharmacological, non-pharmacological, and culturally appropriate strategies with the support of healthcare professionals and community networks, patients experience improved coping mechanisms, early mobilization, and ultimately improved patient satisfaction and quality of life (Cipta et al., 2024). This literature emphasizes the need for context-specific research to inform the development of evidence-based interventions to address the specific needs of orthopedic patients in resource-limited settings.

METHODOLOGY

The study was conducted using a descriptive cross-sectional study design to evaluate the perceived impact and coping mechanisms of post-operative pain management on early mobilization among patients at the National Orthopaedic Hospital, Igbobi (NOHIL), Lagos State, Nigeria. The NOHIL is a tertiary healthcare center founded in 1945 and offers advanced orthopaedic, trauma, and reconstructive surgery services, including fracture care, joint replacement, spinal surgery, and physiotherapy. The hospital caters for a wide range of patients and has specialized units such as surgical wards, intensive care, recovery, and pain management services, which are supported by multidisciplinary teams of surgeons, anesthesiologists, physiotherapists, nurses, and pain management specialists.

The sample size for this study was determined using the Cochran formula for sample size calculation:

$$\frac{z^2 \cdot p \cdot (1 - p \, n)}{o} = e2$$

Where: n = required sample size

Z = standard normal deviation (1.96 at a 95% confidence level) p = estimated proportion of population with the attribute 0.5 for maximum variability. e = margin of error (5%=0.05).

N= Population size

Step One

$$= \frac{(1.96)^2 \cdot 0.5 \cdot (1-0.5)}{(0.05)^2}$$

$$- \frac{3.8416 \cdot 0.5 \cdot 0.5)}{0.0025}$$

$$= \frac{1.9208 \cdot 0.5}{0.0025}$$

$$\frac{0.9604}{0.0025} = 385$$

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Step Two

Adjustment for finite population

Adjust for finite population

$$n = \frac{n_o}{1 + \frac{n_o - 1}{N}}$$

$$n = \frac{385}{1 + \frac{385 - 1}{200}}$$

$$n = \frac{385}{1 + \frac{384}{250}}$$

$$n = \frac{385}{1 + 1.536}$$

$$n = \frac{385}{2.536}$$

$$n = 152$$

Sample Size is 152

The study population included adult orthopedic patients aged 18 years and above, who had undergone surgery within four weeks preceding the date of data collection. Inclusion criteria included patients with documented interventions for pain management and the ability to communicate experiences with pain, while patients under 18 years of age, those with clinical instability disorders or other complications not related to pain management, and critically ill patients were excluded. A sample size of 152 participants was calculated using the Cochran formula, and simple random sampling was used to provide equal representation of participants from postoperative wards.

Data was collected using a structured questionnaire, which was supplemented by focus group discussions to provide qualitative information. The questionnaire was divided into four sections: demographic details, postoperative pain management (types and perceived effectiveness of pain management), early mobilization (time, intensity of mobilization, and factors affecting mobilization), and strategies and barriers to effective pain management. Content validity was established by expert review by orthopedic surgeons, pain management specialists, physiotherapists, and pilot testing. The questionnaire was also validated for reliability using Cronbach's alpha coefficients of 0.70 or higher and test-retest reliability. Data collection was done following ethical standards, including informed consent, confidentiality, voluntary participation, and non-maleficence.

Data analysis was done using SPSS software version 29. Descriptive statistics (frequency, percentage, graphs, and tables). The data was summarized, while inferential statistics, Pearson's correlation test at a significance level of 0.05, was used to test the hypotheses of the study. Ethical clearance was sought from the NOHIL Research Ethics Committee, and the participants were fully informed of the objectives, procedures, and rights in line with the ethical standards of the research.

RESULTS AND DISCUSSION

The study was conducted among 152 orthopedic patients who had undergone surgical procedures at the National Orthopedic Hospital, Igbobi, Lagos State.

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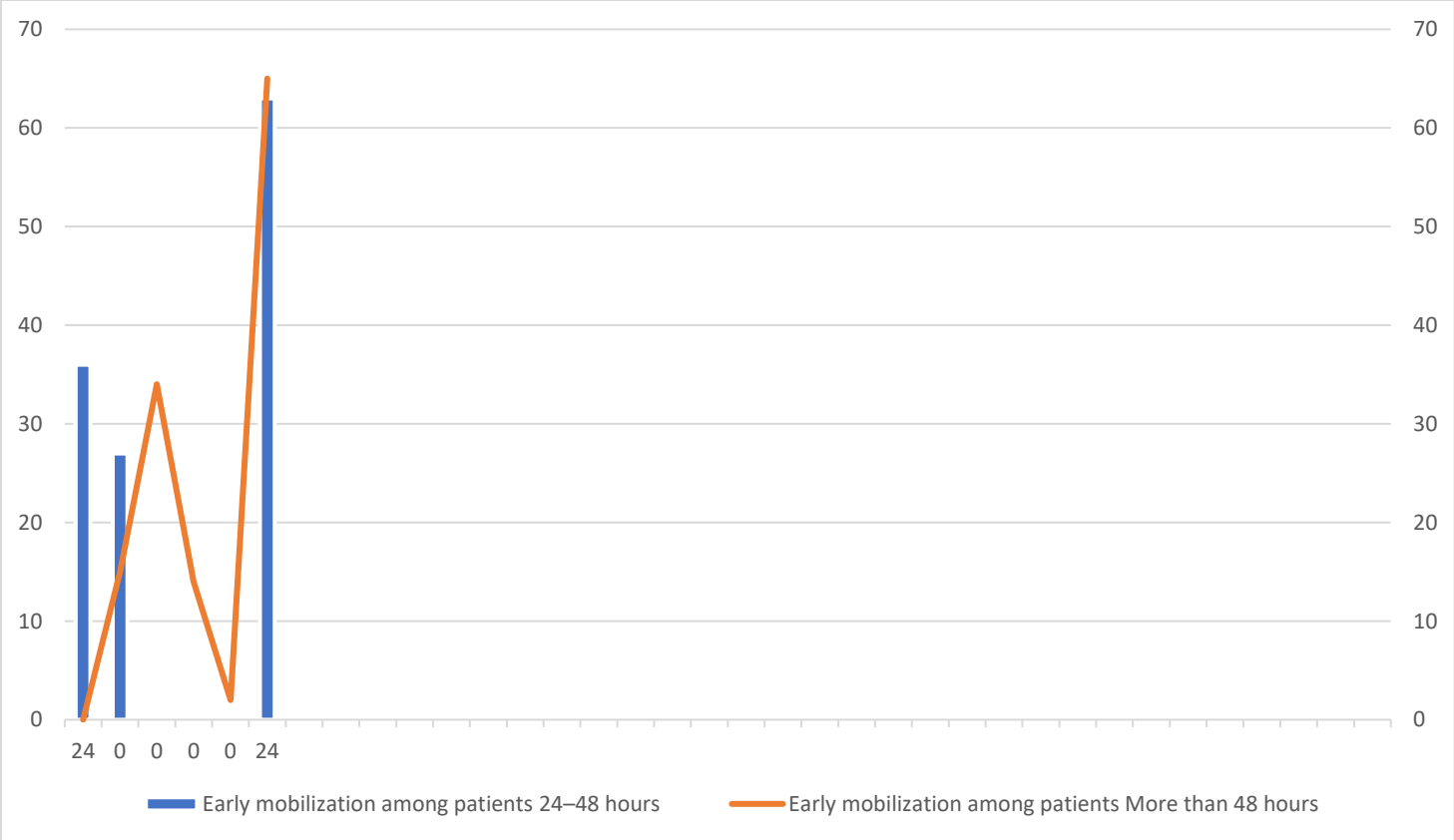
Post-Operative Pain Management Practices

The respondents indicated the use of different pain management practices. Immobilization and positioning were the most frequently used practices (36.2%), followed by physiotherapy (32.2%) and analgesics (21.1%). Cold and heat therapy was practiced by 10.5% of the respondents.

Regarding the administration of analgesics, more than half of the respondents (55.3%) received analgesics every six hours, while 25.7% received analgesics every eight hours. None of the respondents received analgesics every four hours. Although most of the respondents (80.9%) reported mild pain (pain score 0-2) at the time of data collection, a considerable number of respondents (54.6%) reported severe pain (pain score 6-10) in the past 24 hours. However, only 49.3% of them experienced mild pain at their lowest pain level.

The perceived effectiveness of pain management also differed among the respondents. Although 32.9% of them found pain relief to be very effective and 21.1% found it to be effective, a substantial number of them found pain relief to be very ineffective (20.4%) or ineffective (15.8%). The key factors that impede pain management are side effects of medications (23.7%), lack of nursing personnel (23.0%), insufficient pain relief (19.7%), and delays in medication administration (15.1%). Financial constraints were also a problem for 10.5% of the respondents.



Outcomes of Early Mobilization

The early mobilization process was significantly delayed for the participants. Only 15.8% of the patients started mobilization within 12 hours of surgery. Most patients started mobilization after 24 hours, with 41.4% mobilizing between 24-48 hours and 42.8% mobilizing after 48 hours.

The patients' attendance at physiotherapy sessions was not uniform, with 35.5% attending sessions twice a week, 31.6% once a week, and only 23.7% attending daily physiotherapy sessions. Few patients (2.6%) did not attend physiotherapy sessions at all.

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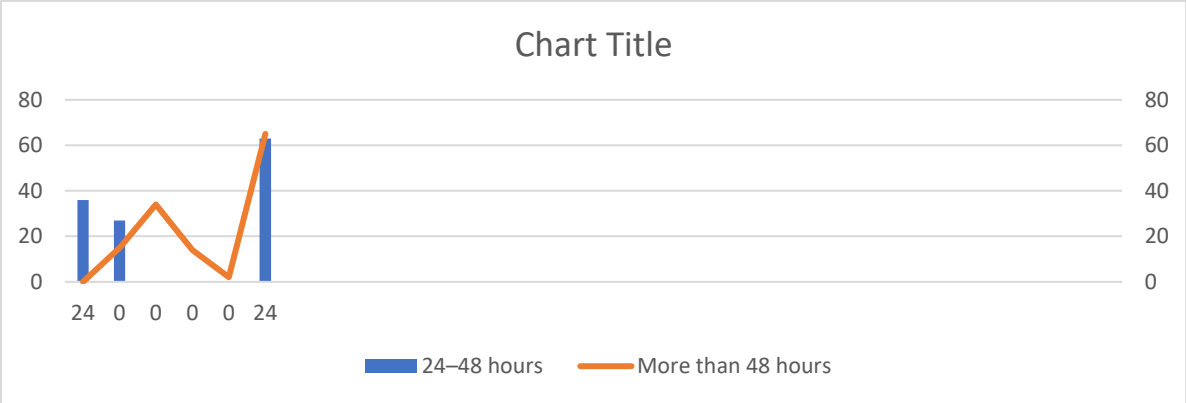
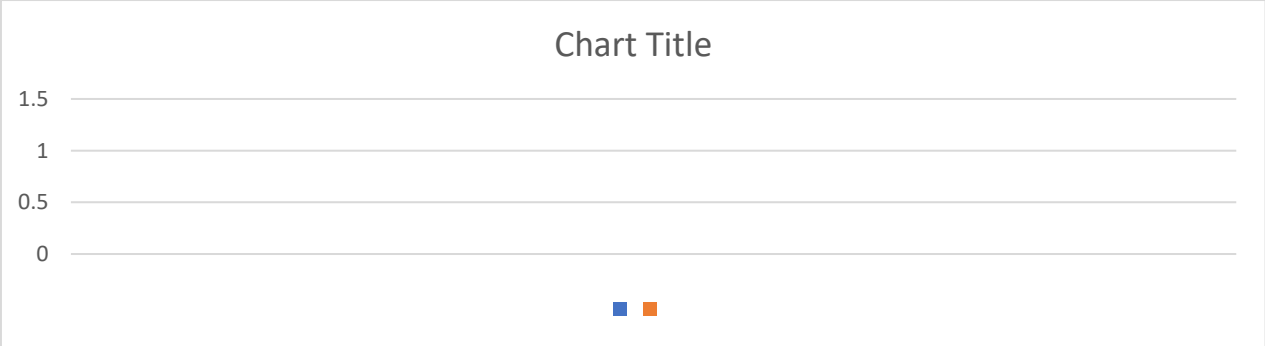


Coping Strategies and Barriers

Based on 405 multiple responses, the most frequent barriers to effective pain control were cultural or personal beliefs (22.7%), followed by communication barriers with healthcare providers (22.0%), and family-related problems (18.3%). Insufficient medication (13.8%) and side effects of medication (7.9%) were also identified. It is clear that socio-cultural and communication-related factors are more challenging than clinical factors.



Relationship Between Pain Management, Coping Strategies, and Early Mobilization

Inferential analysis revealed a statistically significant relationship between the perceived effectiveness of post-operative pain management and early mobilization ($p < 0.05$). In addition, the coping strategies employed by patients were significantly related to early mobilization outcomes ($p < 0.05$), suggesting that effective pain management and effective coping strategies contributed to positive early mobilization experiences.

Coping Strategies	**Early mobilization among patients**			**Total**	**X2**	**df**	**pvalue**
	Within 12 hours	24–48 hours	More than 48 hours				
Deep breathing exercises	24	36	0	60	75.038	1	.000
Relaxation techniques	0	27	15	42			
Cold/heat application	0	0	34	34			
Diversional therapy	0	0	14	14			
Other	0	0	2	2			
Total	**24**	**63**	**65**	**152**			

CONCLUSION

The importance of post-operative pain management in the early mobilization of orthopedic patients is highlighted in this study. The findings suggest that patients are suffering from intense pain that postpones mobilization, and although both pharmacological and non-pharmacological approaches are used, the

inconsistencies in delivery and the lack of patient participation limit their effectiveness. The nurse's role in overcoming these issues through pain assessment, education, emotional support, advocacy, and culturally competent communication is highlighted. Systemic issues like the unavailability of pain medication, a shortage of staff, and a lack of patient education also impede early mobilization, suggesting the need for better pain management practices and active nursing interventions in resource-poor settings. The study suggests that cultural competence training for healthcare professionals, standardized multimodal pain management practices, public education about early mobilization, active patient participation, and improved collaboration between nurses and physiotherapists to provide personalized mobilization plans be adopted. Moreover, government support in terms of staff, training, and pain management infrastructure is required to improve care delivery. Future studies should be conducted in other health facilities with a bigger population, using different methods of data collection; such as interviews and observations, to investigate pain management and coping strategies that affect early mobilization.

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