

Challenges Faced by Nurses in Adhering to Postoperative Pain Management Protocols: A Cross-Sectional Study at Wangata General Hospital, Democratic Republic of the Congo

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ABSTRACT

Background: Postoperative pain remains a major public health concern, often underestimated and inadequately managed, particularly in resource-limited settings. Nurses play a central role in pain assessment and treatment, yet many face significant barriers in implementing standardized protocols.

Objective: This study aimed to identify and analyze the main difficulties encountered by nurses in adhering to postoperative pain management protocols at Wangata General Hospital.

Methods: A descriptive cross-sectional study was conducted among 90 nurses selected through purposive sampling. Data were collected using self-administered questionnaires and semi-structured interviews, then analyzed using descriptive statistics with SPSS and Excel. Chi-square tests were used to examine associations between sociodemographic characteristics and perceived barriers.

Results: The majority of participants were female (55.6%), aged 26-36 years (52.2%), holding A1 nursing diplomas (44.4%), with 1-5 years of professional experience (45.5%). No nurse had received specific or practical training on postoperative pain management in the preceding three years. Major constraints included: heavy workload hindering regular pain assessment (100%), unavailability of analgesic medications (86.7%), patient refusal to adhere to prescribed treatments (88.9%), and financial limitations restricting analgesic options (66.7%). Significant statistical associations were observed between age and treatment refusal ($\chi^2=9.354$, $p<0.05$), between sex and drug unavailability ($\chi^2=8.481$, $p<0.05$), and between professional experience and treatment refusal ($\chi^2=19.166$, $p<0.05$).

Conclusion: This study highlights multidimensional barriers—organizational, material, and professional—that hinder optimal protocol application. Addressing these challenges requires strengthening continuing education, improving analgesic availability, reducing workload, and enhancing patient education.

Keywords: Postoperative pain, nurses, protocol, organizational constraints, analgesics, Wangata General Hospital, Democratic Republic of the Congo

1. INTRODUCTION

1.1 Background

Postoperative pain remains one of the most persistent challenges in modern healthcare. Defined by the International Association for the Study of Pain (IASP, 2020) as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, adequate postoperative pain management is essential not only for patient comfort but also for reducing physiological complications, promoting recovery, and limiting hospital stay duration (Gan et al., 2014).

Despite scientific advances and the development of international protocols, numerous patients continue to report inadequately relieved postoperative pain. This discrepancy reveals a gap between theoretical recommendations and their practical implementation in hospital settings (Apfelbaum et al., 2003). The World Health Organization (WHO, 2018) emphasizes the importance of systematic and adapted approaches but notes that protocol application remains uneven across contexts.

1.2 The Role of Nurses in Pain Management

Nurses occupy a central position in postoperative pain management. Their role extends beyond medication administration to encompass assessment, monitoring, patient education, and psychological support. The quality of their intervention directly determines protocol effectiveness and patient satisfaction (Yapo, 2018).

Pain assessment constitutes the first essential step. Nurses must use validated tools such as the Visual Analog Scale (VAS) or Numerical Rating Scale (NRS) to measure pain intensity (IASP, 2012). Regular assessment must be documented in patient records to ensure rigorous follow-up. Nurses are also responsible for administering analgesics according to medical prescriptions, monitoring treatment efficacy, and detecting side effects, particularly those associated with opioids (Merabeti, 2012).

1.3 The African Context

In Africa, the problem is amplified by structural and organizational constraints. Several studies show that nurses face obstacles related to lack of continuing education, insufficient material and medication resources, and cultural representations that sometimes minimize pain importance (Kizza & Muliira, 2015). In many African hospitals, postoperative pain is still perceived as inevitable, limiting protocol adherence and compromising care quality.

In the Democratic Republic of the Congo (DRC), the situation is particularly concerning. Hospital infrastructures suffer from chronic underfunding, and analgesic medication availability remains limited (Mabiala et al., 2019). Nurses, often understaffed, must manage heavy workloads, reducing their capacity to rigorously apply pain management protocols. The absence of practice monitoring and evaluation mechanisms contributes to a persistent gap between theoretical recommendations and daily care reality.

1.4 Problem Statement

In Equateur Province, specifically at Wangata General Reference Hospital (HGR Wangata), these difficulties manifest acutely. Nurses must contend with a fragile hospital organization, heavy workloads, and limited availability of resources necessary for protocol application. Patient and family awareness about pain relief importance remains insufficient, reducing nursing practice effectiveness and exacerbating postoperative suffering.

The central problem lies in the gap between international standards for postoperative pain management and their effective implementation in a Congolese hospital context. This gap exposes patients to avoidable painful experiences and compromises care quality.

1.5 Study Objectives

General objective: To identify and analyze the main difficulties encountered by nurses in adhering to and applying postoperative pain management protocols at Wangata General Hospital.

Specific objectives:

1. Describe the sociodemographic and professional characteristics of participating nurses
2. Evaluate nurses' knowledge level regarding postoperative pain management
3. Identify obstacles related to protocol application
4. Determine organizational and structural constraints (workload, understaffing, medication availability, administrative constraints)

1.6 Hypotheses

H1: Lack of training and practical competencies constitutes a major obstacle to protocol application.

H2: Organizational constraints (workload, understaffing, medication unavailability) limit postoperative pain management effectiveness.

2. METHODS

2.1 Study Design: this was a descriptive cross-sectional study using quantitative methods.

2.2 Study Setting

The study was conducted at Wangata General Reference Hospital (Hôpital Général de Référence de Wangata) in Mbandaka, Equateur Province, Democratic Republic of the Congo. Located in Boyera Quarter, the hospital originated in the 1920s as "Hôpital Léopold II" and has undergone several name changes before receiving its current designation on November 12, 2003. The hospital was rehabilitated in September 2011 by the Central Coordination Bureau (B.C.C.O) with World Bank support.

The hospital operates with three daily rotations: morning (07:30-13:30), afternoon (13:30-18:30), and night (18:00-07:30). It has a budgetary capacity of 250 beds, with 154 beds actually available.

2.3 Study Population and Sampling

The target population comprised all nurses working at HGR Wangata in medical and medico-technical services. The sampled population included nurses from surgical services, intensive care, recovery rooms, and gynecology-obstetrics.

Inclusion criteria:

- Licensed nurse
- Working in services managing postoperative patients
- Present on the day of the survey
- Provided informed consent to participate

Exclusion criteria: Nurses not meeting the above criteria.

Purposive consecutive non-probability sampling was employed, yielding a sample size of 90 nurses (Fortin & Gagnon, 2010).

2.4 Data Collection

Data were collected using a self-administered questionnaire developed based on the study objectives. The questionnaire addressed:

- Sociodemographic characteristics (age, sex, education level, years of experience)
- Professional characteristics (service assignment, training received, workload perception)
- Perceived obstacles (medication availability, administrative constraints, patient adherence)
- Barriers to pain assessment (linguistic barriers, financial limitations)

The survey was administered in French and occasionally in local languages. Data collection occurred over a two-week period. Each participant received a brief explanation of the questionnaire completion process, and the researcher remained present to clarify any difficulties.

2.5 Ethical Considerations

The study received institutional approval from the research directorate of the nursing sciences section. Ethical principles included:

- **Informed consent:** Verbal consent was obtained from each participant after explaining study objectives and data use
- **Confidentiality and anonymity:** No names or addresses were collected; responses were coded
- **Voluntary participation:** Participants could withdraw without consequences
- **Institutional authorization:** Obtained from HGR Wangata management

The principles of the Declaration of Helsinki (2013) and WHO (2016) guidelines on health research ethics were respected.

2.6 Data Analysis

Data were verified, coded, and entered into SPSS and Excel. Descriptive statistics (frequencies, percentages, means) were calculated. Chi-square tests examined associations between categorical variables, with statistical significance set at $p < 0.05$.

3. RESULTS

3.1 Sociodemographic and Professional Characteristics

Table 1 presents the characteristics of the 90 participating nurses.

Table 1. Sociodemographic and Professional Characteristics of Participants (N=90)

Characteristic	n	%
Age		
18-25 years	23	25.6
26-36 years	47	52.2
≥ 37 years	20	22.2
Sex		
Male	40	44.4
Female	50	55.6
Education level		
Inf A2	30	33.3
Inf A1	40	44.4
Inf L2	20	22.2
Professional experience		
1-5 years	41	45.5
5-9 years	24	26.7
10-15 years	15	16.7
> 15 years	10	11.1
Service assignment		
Operating room	30	33.3
Surgery	25	27.8
Recovery room	20	22.2

Characteristic	n	%
Others	15	16.7
Specific training (last 3 years)		
Yes	0	0.0
No	90	100.0
Practical training (last 3 years)		
Yes	0	0.0
No	90	100.0

Interpretation: The majority of participants were young adults aged 26-36 years (52.2%), female (55.6%), held A1 nursing diplomas (44.4%), and had 1-5 years of professional experience (45.5%). Critically, no participant had received specific or practical training on postoperative pain management in the preceding three years.

3.2 Perceived Obstacles to Pain Management

Table 2 summarizes participants' perceptions of various obstacles.

Table 2. Perceived Obstacles to Postoperative Pain Management (N=90)

Variable	n	%
Heavy workload hinders regular pain assessment		
Yes	90	100.0
No	0	0.0
Analgesic medications unavailable		
Yes	78	86.7
No	12	13.3
Administrative constraints delay analgesic administration		

Variable	n	%
Yes	26	28.9
No	64	71.1
Patients refuse prescribed analgesic treatments		
Yes	80	88.9
No	10	11.1
Linguistic barriers hinder pain assessment		
Yes	15	16.7
No	75	83.3
Financial resources limit analgesic options		
Yes	60	66.7
No	30	33.3
Lack of equipment to monitor patients receiving analgesics		
Yes	90	100.0
No	0	0.0

Interpretation: All participants (100%) reported that heavy workload hindered regular pain assessment and that equipment was lacking for monitoring patients receiving certain analgesics. The vast majority reported medication unavailability (86.7%), patient treatment refusal (88.9%), and financial limitations (66.7%). Notably, most nurses (83.3%) did not perceive linguistic barriers as problematic.

3.3 Associations Between Age and Perceived Obstacles

Table 3 presents associations between age and various perceived obstacles.

Table 3. Associations Between Age and Perceived Obstacles

Obstacle	χ^2 calculated	χ^2 tabular	df	p-value	Interpretation
Analgesic unavailability	4.735	5.99	2	>0.05	Not significant
Administrative constraints	3.071	5.99	2	>0.05	Not significant
Patient treatment refusal	9.354	5.99	2	<0.05	Significant
Linguistic barriers	2.688	5.99	2	>0.05	Not significant

Interpretation: A statistically significant association was found between age and patient refusal of prescribed analgesic treatments ($\chi^2=9.354$, $p<0.05$). No significant associations were observed between age and other obstacles.

3.4 Associations Between Sex and Perceived Obstacles

Table 4 presents associations between sex and perceived obstacles.

Table 4. Associations Between Sex and Perceived Obstacles

Obstacle	χ^2 calculated	χ^2 tabular	df	p-value	Interpretation
Analgesic unavailability	8.481	3.84	1	<0.05	Significant
Administrative constraints	1.309	3.84	1	>0.05	Not significant

Interpretation: A statistically significant association was found between sex and analgesic medication unavailability ($\chi^2=8.481$, $p<0.05$). Female nurses more frequently reported this obstacle. No significant association was found with administrative constraints.

3.5 Associations Between Education Level and Obstacles

Table 5. Association Between Education Level and Analgesic Unavailability

Variable	χ^2 calculated	χ^2 tabular	df	p-value	Interpretation
Education level $\times$ analgesic unavailability	2.380	5.99	2	>0.05	Not significant

Interpretation: No statistically significant association was found between initial education level and perceived analgesic unavailability.

3.6 Associations Between Professional Experience and Obstacles

Table 6 presents associations between years of professional experience and perceived obstacles.

Table 6. Associations Between Professional Experience and Perceived Obstacles

Obstacle	χ^2 calculated	χ^2 tabular	df	p-value	Interpretation
Patient treatment refusal	19.166	9.94	4	<0.05	Significant
Financial limitations on analgesics	2.216	9.94	4	>0.05	Not significant

Interpretation: A statistically significant association was found between professional experience and patient refusal of prescribed analgesic treatments ($\chi^2=19.166$, $p<0.05$). No significant association was found with financial limitations.

3.7 Summary of Key Findings

1. **Training gap:** No nurse had received specific or practical training on postoperative pain management in the preceding three years.
2. **Workload:** All participants reported that heavy workload hindered regular pain assessment.
3. **Medication access:** 86.7% reported unavailability of necessary analgesic medications.
4. **Patient adherence:** 88.9% reported that patients sometimes refused prescribed analgesic treatments.
5. **Financial barriers:** 66.7% reported that financial constraints limited analgesic options.
6. **Equipment shortage:** All participants reported lack of equipment to monitor patients receiving certain analgesics.
7. **Significant associations:** Found between age and treatment refusal, sex and drug unavailability, and professional experience and treatment refusal.

4. DISCUSSION

4.1 Training and Competence Gaps

The finding that no participant had received specific or practical training on postoperative pain management in the preceding three years (0%) is highly concerning. This result aligns with Kizza and Muliira (2015), who demonstrated that nurses in resource-limited settings lack continuing education in pain management. Similarly, Meissner et al. (2018) reported that lack of knowledge and training constitutes a major cause of inadequate postoperative pain management.

The absence of training has direct consequences: nurses may lack competencies in using validated pain assessment tools, recognizing pain expression in diverse patient populations, and administering analgesics according to multimodal protocols. Yildirim et al. (2008) showed that continuing education significantly improves nurses' knowledge and attitudes toward pain management.

4.2 Workload and Organizational Constraints

All participants (100%) reported that heavy workload hindered regular pain assessment. This finding is consistent with Kizza and Muliira (2015), who noted that high care loads reduce pain assessment quality. Van den Heede et al. (2009) demonstrated that high nurse-to-patient ratios are associated with lower quality care, including pain management.

Heavy workload manifests in several ways: insufficient time for systematic pain assessment using validated scales, inability to document pain scores at prescribed intervals, and competing priorities where pain is perceived as less urgent than vital functions. Aiken et al. (2014) showed that inadequate nurse staffing is associated with increased patient mortality and lower care quality.

4.3 Medication Availability

The finding that 86.7% of nurses reported unavailability of necessary analgesic medications reflects a critical resource gap. Meissner et al. (2015) highlighted that many hospitals still face insufficiencies in access to analgesic treatments. This problem is particularly acute for opioids, which are essential for severe postoperative pain but often unavailable or subject to restrictive regulations in developing countries (Berterame et al., 2016).

The significant association between sex and medication unavailability ($\chi^2=8.481$, $p<0.05$) suggests that female nurses may be more sensitive to or more frequently confronted with this obstacle. This could reflect differential service assignments or reporting tendencies.

4.4 Patient Adherence and Refusal

The finding that 88.9% of nurses reported patient refusal of prescribed analgesic treatments is striking. This result aligns with studies showing that patient beliefs about pain, fear of side effects (particularly opioid addiction), and lack of information about analgesics influence treatment adherence (Apfelbaum et al., 2003).

The significant associations between age and treatment refusal ($\chi^2=9.354$, $p<0.05$) and between professional experience and treatment refusal ($\chi^2=19.166$, $p<0.05$) suggest that older and more experienced nurses may have developed better communication strategies to address patient reluctance, or alternatively, that these nurses work with different patient populations.

4.5 Financial Barriers

The finding that 66.7% of nurses reported financial constraints limiting analgesic options reflects the economic reality of healthcare in resource-limited settings. Gan et al. (2014) noted that cost remains a significant barrier to optimal pain management, as many effective analgesic options are expensive or not covered by insurance systems.

4.6 Linguistic Barriers

Contrary to some research showing that linguistic barriers negatively influence pain assessment (Helman, 2007), the majority of nurses (83.3%) in this study did not perceive language as a major obstacle. This may reflect the relatively homogeneous linguistic environment of Mbandaka, where Lingala is widely spoken and understood by both nurses and patients.

4.7 Equipment Shortage

The universal report (100%) of equipment shortage for monitoring patients receiving certain analgesics represents a serious patient safety concern. Meissner et al. (2015) emphasized that adequate monitoring equipment (pulse oximeters, cardiac monitors, PCA pumps) is essential for safe opioid administration. Its absence may lead to under-treatment of pain due to fear of side effects.

4.8 Comparison with International Standards

Comparing these findings with international guidelines reveals significant gaps. The WHO (2008) three-step analgesic ladder recommends progressive analgesic use based on pain intensity. SFAR (Aubrun et al., 2021) guidelines emphasize systematic assessment, anticipatory prescribing, and side effect monitoring. IASP (2017) recommends multimodal approaches combining pharmacological and non-pharmacological interventions. The current study reveals that these standards are not being fully implemented at HGR Wangata due to the identified barriers.

4.9 Study Limitations

Several limitations warrant acknowledgment:

1. **Single site:** The study was conducted at one hospital, limiting generalizability
2. **Self-report bias:** Responses may be subject to social desirability or recall bias
3. **Non-variable responses:** Some variables showed no variation, preventing statistical analysis

4. **Sample size:** N=90 limits the power to detect certain associations
5. **Cross-sectional design:** Cannot establish causality between identified factors and protocol adherence

4.10 Implications for Practice

These findings have several implications:

For hospital administration: Invest in continuing education programs, improve analgesic supply chains, recruit additional staff to reduce workload, and procure monitoring equipment.

For nursing practice: Implement systematic pain assessment protocols, document pain scores regularly, engage in patient education about analgesics, and advocate for resources.

For policy: Develop national guidelines for postoperative pain management, ensure essential analgesic availability, and integrate pain management into nursing curricula.

5. CONCLUSION

5.1 Summary of Findings

This study aimed to identify difficulties encountered by nurses in adhering to postoperative pain management protocols at Wangata General Hospital. The results revealed multiple obstacles:

Organizational barriers: Heavy workload (100%) hindering regular pain assessment, equipment shortage (100%) for patient monitoring, and administrative constraints (28.9%) delaying analgesic administration.

Material barriers: Analgesic medication unavailability (86.7%), financial limitations restricting analgesic options (66.7%).

Professional barriers: Absence of specific or practical training (100%) in the preceding three years.

Patient-related barriers: Refusal of prescribed analgesic treatments (88.9%).

5.2 Hypothesis Verification

H1 (Lack of training constitutes a major obstacle): ACCEPTED. The complete absence of training in the preceding three years, combined with its universal recognition as a need, confirms this hypothesis.

H2 (Organizational constraints limit effectiveness): ACCEPTED. Heavy workload, medication unavailability, equipment shortage, and financial limitations all constitute significant organizational barriers.

5.3 Principal Conclusion

The difficulties affecting postoperative pain management at HGR Wangata are multidimensional, encompassing organizational, material, and professional factors. The gap between international standards and local practice is substantial. Improvement requires a systemic approach including continuing education, improved medication availability, workload reduction, equipment procurement, administrative streamlining, and patient education.

5.4 Recommendations

To hospital authorities:

- Organize regular continuing education on postoperative pain management
- Ensure permanent availability of analgesic medications in relevant services
- Reduce nurse workload through adequate staffing
- Strengthen equipment and materials for postoperative patient monitoring
- Simplify administrative procedures delaying analgesic administration

To nurses:

- Respect postoperative pain management protocols

- Regularly assess pain intensity in surgical patients
- Educate patients about analgesic treatment adherence importance
- Participate actively in professional training and continuing education

To patients and families:

- Respect medical and nursing prescriptions regarding analgesic treatments
- Promptly inform healthcare personnel of persistent pain or adverse effects
- Collaborate with nurses for better postoperative care

To future researchers:

- Conduct similar studies in other healthcare facilities for comparison
- Deepen research on factors influencing patient adherence to analgesic treatments
- Study the impact of continuing education on postoperative pain management quality

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