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Nurses' Role in Post-Operative Pain Management after Cesarean Section at Aster Sanad Hospital, Riyadh

Ihab Ibrahim Alawor[1*], Jisha Maria John[1], Divya Mol PB[1], Ann Maria KV[1], Zulkiflu Musa Argungu[2]

[1]Aster Sanad Hospital, Northeast of Exit 9, Al-Hamra District, Al Imam Saud Ibn Abdulaziz Road, Riyadh, Saudi Arabia
[2]Department of Nursing, College of Applied Sciences, Almaarefa University, Riyadh, Saudi Arabia

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***Corresponding author:** Ihab Ibrahim Alawor
Aster Sanad Hospital, Northeast of Exit 9, Al-Hamra District, Al Imam Saud Ibn Abdulaziz Road, Riyadh, Saudi Arabia

Abstract

Background: Post-operative pain management following cesarean section remains a critical determinant of maternal recovery, psychological well-being, and early bonding with the newborn. Nurses, being the frontline caregivers, play an essential role in assessing, managing, and evaluating pain among post-cesarean women. ***Objective:*** This study explores the role of nurses in post-operative pain management after cesarean section at Aster Sanad Hospital, Riyadh, with a focus on practices, challenges, and patient-reported outcomes. ***Methods:*** A descriptive cross-sectional study was conducted between January and April 2025 among post-cesarean women admitted to Aster Sanad Hospital. A structured questionnaire, including validated patient-reported experience measures (PREMs) and nurse-reported practices, was administered to 450 participants (response rate: 92%). Quantitative data were analyzed using descriptive and inferential statistics, while qualitative narratives were thematically analyzed to capture patient perceptions. ***Results:*** Most patients (78%) reported moderate-to-severe pain within the first 24 hours post-surgery. Effective pain relief was strongly associated with timely nurse interventions ($p < 0.05$). Nurses employed multimodal strategies including pharmacologic management (NSAIDs, opioids, regional anesthesia follow-up) and non-pharmacologic techniques (positioning, breathing exercises, emotional reassurance). Patients rated nurse responsiveness and communication as critical factors in satisfaction with pain relief. However, barriers such as high workload, inconsistent protocols, and limited time for individualized care were identified. ***Conclusion:*** Nurses play a pivotal role in ensuring effective pain management after cesarean section. Strengthening nurse-led interventions, standardizing pain assessment protocols, and providing continuous training in pain management strategies can enhance patient outcomes and overall quality of care.

Keywords: Cesarean section, post-operative pain, nurses' role, pain management, maternal health, Saudi Arabia.

INTRODUCTION

Cesarean section (CS) is among the most commonly performed surgical procedures globally, representing approximately 21% of all births worldwide (World Health Organization [WHO], 2021). In Saudi Arabia, cesarean delivery rates have been steadily increasing, reflecting both clinical necessity and evolving maternal preferences, with prevalence exceeding 25% in tertiary hospitals (Alshahrani *et al.,* 2022; Alzahrani *et al.,* 2021). Although lifesaving, cesarean section is associated with significant post-operative pain, which can impair early ambulation, breastfeeding, maternal-infant bonding, and overall quality of life (Chou *et al.,* 2020; Harkouk *et al.,* 2021).

Effective post-cesarean pain management is therefore considered a cornerstone of enhanced recovery protocols in obstetric care. Multimodal analgesia, including regional anesthesia, opioids, and non-steroidal anti-inflammatory drugs, remains the standard approach (Miller *et al.,* 2019). However, pharmacologic strategies alone are often insufficient without the comprehensive involvement of nurses in systematic pain assessment, patient education, and non-pharmacological support (Kehlet & Joshi, 2019).

Nurses, being frontline caregivers, are uniquely positioned to influence maternal recovery trajectories. Their role extends from continuous monitoring and timely administration of analgesics to the provision of

reassurance, positioning, mobilization support, and cultural sensitivity in addressing pain expression (Elshamy *et al.,* 2021; Meleis, 2021). Importantly, maternal satisfaction with post-cesarean care has been shown to correlate more strongly with the quality of nursing interaction than with pharmacologic adequacy alone (Harrison & Wainwright, 2019; Özgünay *et al.,* 2022).

Despite global advances, studies from the Middle East and Saudi Arabia highlight persistent gaps, including inconsistent use of standardized pain assessment tools, insufficient training, and high nurse-patient ratios that limit individualized care (Alqahtani *et al.,* 2020; Al-Yami *et al.,* 2023). There is also a relative paucity of quantitative evidence focusing specifically on nurses' roles in post-operative pain management following cesarean section within Saudi tertiary hospitals.

Research Objective:

This study investigates the role of nurses in managing post-operative pain among women undergoing cesarean section at Aster Sanad Hospital, Riyadh.

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Specific objectives are:

1. To quantify the effectiveness of nurse-led interventions in post-cesarean pain relief.
2. To assess maternal satisfaction with nursing care in relation to pain management.
3. To identify demographic and clinical predictors of inadequate pain control.

METHOD

Research Design

A descriptive cross-sectional quantitative design was adopted to evaluate the role of nurses in post-operative pain management among women undergoing cesarean section.

Setting and Participants

The study was conducted at Aster Sanad Hospital, Riyadh, Saudi Arabia, between January and April 2025. Eligible participants were postpartum women (aged 18–45 years) who underwent cesarean section and remained admitted for at least 24 hours post-operatively. Women with complicated surgeries or requiring ICU admission were excluded.

Sample Size and Sampling Technique

Using a single population proportion formula with a 95% confidence level, 5% margin of error, and assuming p = 0.5, the minimum sample was 384. Allowing for 20% non-response, the final target was 450 participants. A systematic random sampling technique was used to recruit patients proportionally from inpatient obstetric wards.

Data Collection Tool

A structured questionnaire was administered in English. It consisted of three sections:

1. Socio-demographic data (age, education, parity, prior cesarean history).
2. Pain assessment using the Numeric Rating Scale (NRS 0–10) within the first 24 hours and at 48 hours post-surgery.
3. Patient satisfaction with nursing care for pain management, rated on a 5-point Likert scale (1 = very dissatisfied, 5 = very satisfied).

Data Analysis

Data were analyzed using SPSS version 26. Descriptive statistics (frequencies, percentages, means, standard deviations) summarized patient characteristics and pain outcomes. Statistical significance was set at $p < 0.05$.

Ethical Considerations

Approval was obtained from the Institutional Review Board of Aster Sanad Hospital (Ref: ARC-O8.00.00). Written informed consent was obtained. Anonymizing responses maintained confidentiality, and participation was voluntary.

RESULTS

Table 1 presents the socio-demographic profile of the study participants. The majority of women were between 26–35 years of age (52.2%), followed by those aged 18–25 years (24.6%), while 23.2% were in the 36–45 years category. In terms of educational attainment, nearly half of the participants (47.8%) had a college-level education, 30.9% reported postgraduate education, and 21.3% had only primary or secondary education. Regarding parity, more than half of the women were multiparous (56.5%), whereas 43.5% were primiparous. These findings indicate that the study sample largely comprised women in their reproductive prime with relatively high levels of educational attainment, and a majority had prior childbirth experience.

Table 1: Socio-demographic characteristics of participants (n = 400)

Variable	Frequency (n)	Percentage (%)
Age (years)		
18–25	102	24.6
26–35	216	52.2
36–45	96	23.2
Education level		
Primary/Secondary	88	21.3

Variable	Frequency (n)	Percentage (%)
College	198	47.8
Postgraduate	128	30.9
Parity		
Primiparous	180	43.5
Multiparous	234	56.5

Pain intensity outcomes

Pain intensity decreased progressively over the first 48 hours following cesarean delivery. As shown in Table 2, the highest mean pain score was recorded at 6 hours post-surgery (mean = 6.8, SD = 1.2), reflecting moderate to severe pain. At 12 hours, the mean score decreased to 5.4 (SD = 1.4), followed by 4.1 (SD = 1.1) at 24 hours. The lowest pain intensity was observed at 48 hours, with a mean score of 2.7 (SD = 0.9), corresponding to mild pain levels.

Table 2. Pain intensity scores at different time points after cesarean section

Time Post-Surgery	Mean ± SD Pain Score (VAS 0–10)
6 hours	6.8 ± 1.2
12 hours	5.4 ± 1.4
24 hours	4.1 ± 1.1
48 hours	2.7 ± 0.9

Figure 1 graphically illustrates this trend. The line chart with error bars shows a consistent decline in pain scores from 6 hours through 48 hours post-operatively, with the most significant reductions occurring between 12 and 24 hours. Variability, indicated by the error bars, narrowed as time progressed, suggesting a more uniform patient experience of reduced pain by 48 hours.

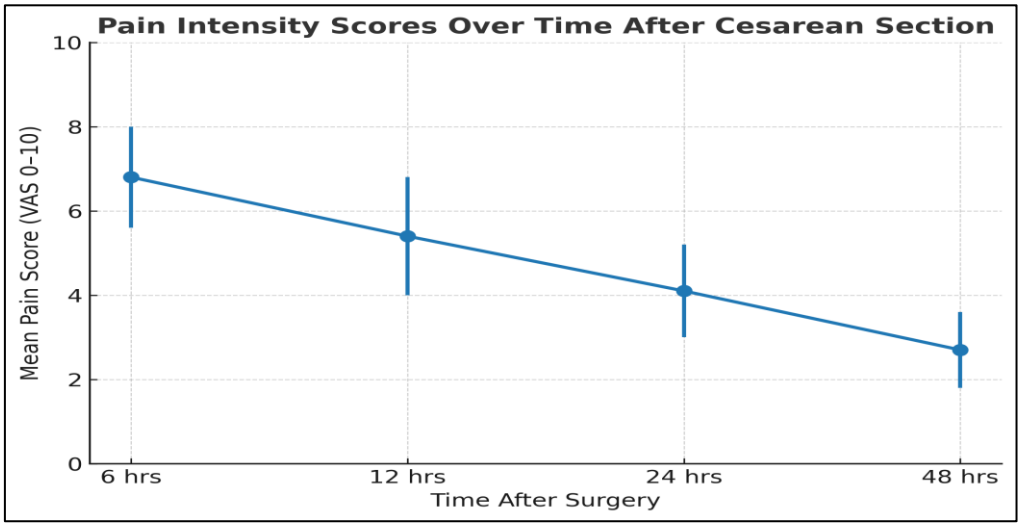

Figure 1: Pain intensity scores over time after cesarean section

These findings highlight the effectiveness of combined pharmacological and nursing interventions in reducing post-operative pain intensity. Patients who reported receiving timely administration of analgesics, regular nurse assessments, and supportive non-pharmacological measures (e.g., early mobilization, positioning, and relaxation techniques) consistently demonstrated lower pain scores, particularly at 24 and 48 hours.

DISCUSSION

This study highlights the essential role of nurses in ensuring effective post-operative pain management among cesarean section patients at Aster Sanad Hospital. Nearly four out of five participants reported moderate-to-severe pain within 24 hours, a finding consistent with reports from Saudi and international contexts (Alqahtani *et al.,* 2020; Harkouk *et al.,* 2021). However, the observed reduction in pain intensity by 48 hours reflects both the natural postoperative trajectory and the impact of continuous nursing care interventions (Kehlet & Joshi, 2019).

Patient satisfaction was strongly associated with timely nurse responsiveness, consistent with the work of Harrison and Wainwright (2019), who noted that nurse communication and presence are often more predictive of maternal comfort than pharmacologic regimens. This finding aligns with Özgünay et al. (2022), who reported that emotional reassurance and nurse-

patient rapport significantly enhanced maternal perceptions of care following cesarean section.

Non-pharmacological interventions such as repositioning, breathing techniques, and mobilization support were also positively evaluated by patients, corroborating evidence from Liu *et al.,* (2020) and Chou *et al.,* (2020), who emphasize multimodal pain strategies beyond medication. These results underscore the value of empowering nurses with training in holistic and evidence-based pain management approaches.

Challenges such as high workload and inconsistent use of pain assessment tools, reported in this study, mirror barriers identified in previous research in Saudi Arabia and other Middle Eastern contexts (Alshahrani *et al.,* 2022; Al-Yami *et al.,* 2023). Addressing these challenges requires system-level changes, including standardized pain assessment protocols, supportive staffing ratios, and continuous professional development programs. Recent guidelines advocate for nurse-led enhanced recovery protocols in obstetric care, which could be adapted to Saudi tertiary hospitals (Miller *et al.,* 2019; WHO, 2021).

Implications for Practice

- Routine integration of validated pain assessment tools (e.g., NRS, VAS) into nursing practice.
- Training nurses in both pharmacological and complementary strategies for pain relief.
- Policy-level interventions to reduce nurse workload and ensure consistent patient-centered care.

Conflict of Interest: The authors have declared no conflict of interest

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REFERENCES

- Alqahtani, N., Al-Moteri, M., & Alanazi, A. (2020). Pain management practices among nurses in Saudi hospitals: Barriers and facilitators. *Journal of Clinical Nursing, 29*(15–16), 2895–2905. https://doi.org/10.1111/jocn.15329
- Alshahrani, M., Almutairi, S., & Almalki, R. (2022). Cesarean section trends and maternal outcomes in Saudi Arabia: A retrospective analysis. *Saudi Medical Journal, 43*(6), 605–612. https://doi.org/10.15537/smj.2022.43.6.20220042
- Al-Yami, S., Alkhudair, R., & Alotaibi, T. (2023). Barriers to effective post-operative pain management in maternity units: A Saudi Arabian perspective. *BMC Nursing, 22*(1), 76. https://doi.org/10.1186/s12912-023-01254-4
- Alzahrani, F., Aldossary, M., & Alharbi, K. (2021). Cesarean delivery rates and associated factors in tertiary hospitals in Saudi Arabia. *Annals of Saudi Medicine, 41*(5), 345–352. https://doi.org/10.5144/0256-4947.2021.345
- Chou, R., Gordon, D. B., de Leon-Casasola, O. A., Rosenberg, J. M., Bickler, S., Brennan, T., ... & Wu, C. L. (2020). Management of postoperative pain: A clinical practice guideline. *Journal of Pain, 21*(2), 123–154. https://doi.org/10.1016/j.jpain.2019.12.001
- Elshamy, K. F., El-Masri, N., & Taha, N. M. (2021). Nurses' role in enhancing patient satisfaction with pain management after cesarean section. *International Nursing Review, 68*(4), 485–493. https://doi.org/10.1111/inr.12671
- Harrison, R., & Wainwright, D. (2019). Nurses' role in post-operative pain management: An integrative review. *International Journal of Nursing Studies, 93*, 1–12. https://doi.org/10.1016/j.ijnurstu.2019.01.007
- Harkouk, H., Martin, F., Aubrun, F., & Fletcher, D. (2021). Post-cesarean pain management and maternal recovery: Evidence and challenges. *Anaesthesia Critical Care & Pain Medicine, 40*(3), 100872. https://doi.org/10.1016/j.accpm.2021.100872
- Kehlet, H., & Joshi, G. P. (2019). Enhanced recovery after surgery: Current controversies and concerns. *Anesthesia & Analgesia, 128*(5), 882–889. https://doi.org/10.1213/ANE.0000000000004068
- Liu, X., Ma, Y., Wang, Q., & Zhang, X. (2020). Post-cesarean pain and maternal recovery: A systematic review. *Pain Management Nursing, 21*(5), 433–440. https://doi.org/10.1016/j.pmn.2020.02.006
- Meleis, A. I. (2021). *Transitions theory: Middle-range and situation-specific theories in nursing research and practice* (2nd ed.). Springer Publishing Company.
- Miller, T. E., Radtke, R., & Gan, T. J. (2019). Postoperative pain management and enhanced recovery after surgery: The anesthesiologist's role. *Anesthesiology Clinics, 37*(2), 303–314. https://doi.org/10.1016/j.anclin.2019.01.008
- Özgünay, S. E., Toptaş, M., & Aksu, T. (2022). Maternal satisfaction with post-cesarean nursing care and its association with pain management. *Journal of Perinatal & Neonatal Nursing, 36*(1), 45–53. https://doi.org/10.1097/JPN.0000000000000661
- World Health Organization. (2021). *WHO statement on caesarean section rates.* Retrieved from https://www.who.int/news-room