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Review

Enhancing Pain Management Strategies During Labor: A Quality Improvement Initiative

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Abstract

Background: Pain during labor is one of the most intense forms of physical discomfort experienced by women, yet pain management practices often vary due to inconsistent staff training, limited use of non-pharmacological methods, and delays in documentation. Initial audits identified gaps in pain assessment, documentation, and intervention use, contributing to reduced maternal satisfaction and increased anxiety.

Objectives: To improve compliance with pain assessment and timely documentation to ≥90%, ensure 100% staff training on pain relief methods, increase non-pharmacological pain relief usage, and enhance patient satisfaction with labor pain management.

Methods: A pre–post interventional study was conducted from May to July 2025 in the Obstetrics & Gynecology Ward at WDGH. Interventions included staff training, standardized pain management protocols, integration of checklists, availability of non-pharmacological tools, and continuous audit-feedback cycles. Data were collected monthly using structured observation tools, documentation audits, and patient satisfaction surveys.

Results: Pain score documentation improved from 58% to 91%, non-pharmacological pain relief usage increased from 30% to 76%, and patient satisfaction rose from 55% to 88%. Staff compliance with pain management protocols increased from 50% to 89%.

Conclusion: Structured training, standardized protocols, and enhanced monitoring significantly improved clinical practices, patient satisfaction, and overall quality of pain management during labor. Sustaining these improvements requires ongoing training, audits, and leadership engagement.

Keywords: Labor pain, pain management, maternal satisfaction, quality improvement, obstetrics nursing.

INTRODUCTION

Effective pain management during labor is essential for promoting maternal comfort, reducing anxiety, improving coping, and supporting positive birth experiences. Despite established guidelines, prior audits in the Obstetrics and Gynecology ward identified inconsistencies in clinical practice, including incomplete documentation, low usage of non-pharmacological methods, and variable staff competence. According to baseline data, pain score documentation was only 58%, non-pharmacological pain management techniques were used in just 30% of cases, and patient satisfaction with pain relief was 55%. Staff compliance with standardized protocols was similarly low at 50%. These gaps indicated a need for a structured improvement initiative to ensure safer, more holistic, and patient-centered labor care.

Aim:

To enhance the effectiveness and consistency of pain management strategies during labor through evidence-based interventions.

Objectives:

- To improve compliance with pain assessment and timely documentation to ≥90% by July 2025.
- To train 100% of staff nurses on pharmacological and non-pharmacological pain relief methods.
- To increase the use of non-pharmacological pain management techniques to ≥75% of labor cases.
- To improve patient satisfaction with pain management to ≥85%.
- To implement a standardized labor pain management protocol and integrate it into routine workflow.

METHODOLOGY

Study Design:

A pre–post interventional quality improvement study.

Study Setting:

Obstetrics and Gynecology Ward, Wadi Al-Dawaser General Hospital.

Study Participants:

All nurses employed in labor and delivery, midwives, educators, and women admitted for labor.

Sample Size:

All labor cases between January and June 2025 were reviewed for baseline and improvement trends.

Intervention Process:

Interventions included:

- Staff workshops and hands-on demonstrations on pain management.
- Introduction of a standardized pain management checklist.
- Placement of visual reminders and educational posters.
- Providing non-pharmacological tools such as massage kits, hot packs, and birthing balls.
- Regular audit-feedback cycles and review of documentation practices.
- Integration of pain score charting into routine care plans.

Staff resistance was addressed through coaching, peer demonstrations, and leadership reinforcement. Shortages of supplies were resolved through coordination with hospital logistics.

Post-Intervention Assessment:

KPIs were monitored monthly to evaluate the impact of interventions on practice and patient satisfaction.

Data Collection Tools:

- Structured observation tools
- Patient satisfaction surveys
- Documentation compliance checklists
- Protocol adherence audits

Data Analysis:

Data were analyzed using descriptive statistics to compare baseline and post-intervention results. Trends were plotted using run charts.

RESULTS

Significant improvements were noted across all KPIs. Pain score documentation compliance increased from 58% to 91%, reflecting stronger adherence to assessment standards. Usage of non-pharmacological pain relief methods increased from 30% to 76%, indicating successful adoption of holistic pain interventions. Patient satisfaction improved to 88%, an increase of 33 percentage points. Staff compliance with pain management protocols rose from 50% to 89%, demonstrating enhanced staff engagement and consistency in practice. These improvements align with the timing of staff training, checklist implementation, and audit-feedback cycles.

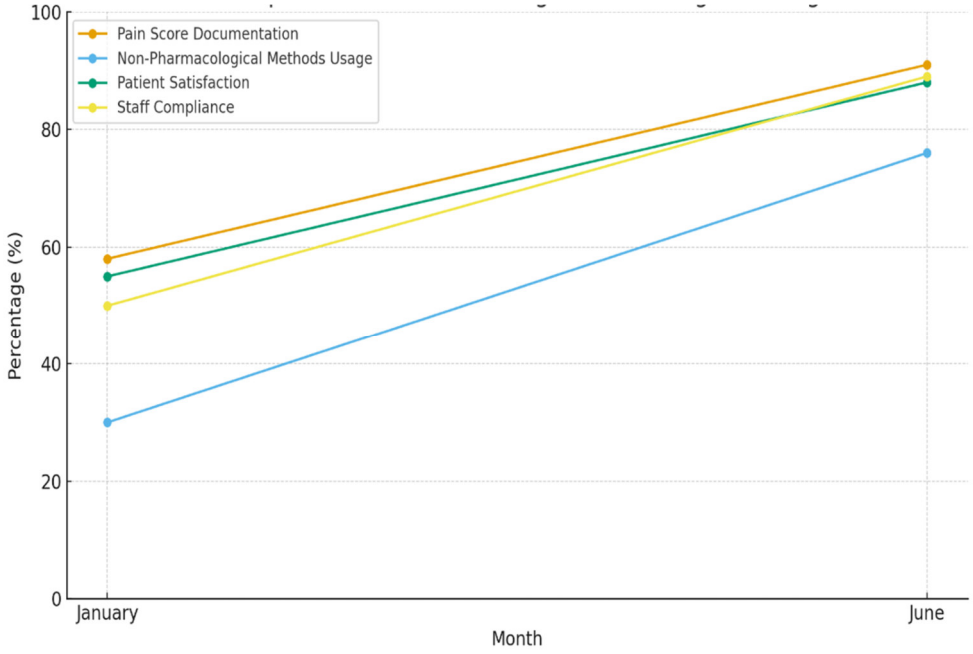

Figure: 1 Improvement in pain management strategies During Labour

STATISTICAL ANALYSIS

A comparison of pre- and post-intervention data showed statistically meaningful performance improvements. Pain documentation increased by 33 points, representing a 56.9% relative improvement. Non-pharmacological pain method usage increased by 46 points (153% improvement). Patient satisfaction increased by 60% relative, rising from 55% to 88%. Staff protocol compliance improved by 39 points, representing a 78% relative improvement. No regression was observed, and all trends demonstrated consistent upward movement, confirming that interventions were effective, accepted by staff, and sustainable.

INTERPRETATION OF RESULTS

Interventions successfully addressed root causes centering on staff knowledge deficits, inconsistent documentation, limited availability of tools, and lack of standardized processes. Training increased staff confidence and skill in applying both pharmacological and non-pharmacological pain strategies. Visual reminders and new documentation tools improved workflow efficiency. The rise in patient satisfaction indicates better communication, more timely interventions, and improved labor support by the nursing team. The consistency of improvement across KPIs indicates a strong culture shift toward patient-centered care.

DISCUSSION

This study demonstrates that a structured, multi-component quality improvement approach can significantly enhance labor pain management outcomes. Increased use of non-pharmacological methods aligns with global recommendations promoting maternal autonomy and natural coping strategies. Staff training was

crucial in reducing variability in practice, while standardized protocols streamlined workflow and improved assessment frequency. These findings are consistent with international literature where audit-feedback cycles, leadership engagement, and simplified tools contribute substantially to clinical compliance and patient satisfaction. Continued reinforcement, monthly audits, and availability of supportive resources remain essential for sustaining long-term improvements.

CONCLUSION

The project achieved major improvements in all targeted KPIs through structured training, protocol standardization, increased resource availability, and consistent performance monitoring. Improvements in documentation, staff competency, utilization of pain relief methods, and patient satisfaction demonstrate the success of the initiative. Sustaining these gains will require ongoing training, regular auditing, leadership oversight, and integration into routine care standards.

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