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Original Research Article

Introduction of heating pads in the labour room: a quality improvement project

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ABSTRACT

Background: Thermal discomfort during labour can contribute to patient distress. During winter months in north India, maintaining patient comfort remains challenging despite standard heating, particularly in high-volume public sector labour rooms. Simple interventions addressing environmental comfort may improve patient experience. This project aimed to evaluate the feasibility and patient-reported thermal comfort associated with introducing heating pads in a government hospital labour room as a quality improvement (QI) initiative.
Methods: This before-and-after QI project was conducted in the labour room of a tertiary-care government medical college hospital in North India during winter. Baseline data on patient-reported thermal discomfort were collected through brief verbal interviews before the intervention. Reusable heating pads were then introduced as a non-invasive comfort measure. Post-intervention interviews assessed thermal comfort, perceived changes in pain or discomfort, willingness to recommend the intervention, and feedback from resident doctors. Changes in the proportion of patients reporting comfort were assessed using the chi-square test as a supportive analysis.
Results: Fifty-five women participated pre-intervention and 60 post-interventions. The proportion reporting thermal comfort increased from 49.1% to 76.7% after the implementation. Approximately two-thirds reported a reduction in pain or discomfort, and 88.3% would recommend the intervention. Most resident doctors reported improved patient comfort and greater ease during examinations or suturing.
Conclusions: Introducing reusable heating pads was associated with improved patient-reported thermal comfort and positive staff feedback. Such interventions may be feasible strategies to improve patient comfort in labour rooms and support patient-centred care in resource-constrained settings.

Keywords: Quality improvement, Heating pads, Labour, Comfort

INTRODUCTION

Every year, well over 130 million births occur globally.[1] Roughly 25 million births occur in India alone, representing nearly one-fifth of the world's live births.[2] Ensuring safe and respectful care during labour for such a large number of patients is a central challenge for maternity services.

Existing intrapartum care protocols emphasize safety, dignity, and pain management; however, practical measures addressing environmental comfort receive less explicit attention in routine labour room practice.[3]

In North India, winter ambient temperatures commonly fall into single digits (°C), creating conditions in which maintaining patient comfort becomes difficult despite adherence to standard obstetric care protocols. Indoor thermal conditions are recognized as an important element of environmental quality in healthcare buildings and can influence the perceptions and experiences of patients.[4]

Comfort is widely recognised as a meaningful component of quality obstetric care, and non-pharmacological interventions that enhance maternal comfort are increasingly emphasised within modern maternity care frameworks.[5-7] Positive patient experience, including

comfort and adequate pain management, is associated with improved clinical and quality outcomes, which highlights the validity of comfort-focused QI initiatives.[8]

Within obstetric practice, several studies have examined the use of localized heat application during labour, emphasising its effects on pain intensity.[9-10] Other studies have also explored comfort-related outcomes, with findings suggesting that targeted heat application may improve perceived comfort among labouring women.[11] However, existing studies have predominantly used heat therapy as an analgesic adjunct. There remains limited evidence addressing the structured use of direct conductive heat as a means of improving thermal comfort as a service-level concern, particularly in high-volume public sector labour rooms and in low- and middle-income settings.

This gap is especially relevant in environments where maintaining consistent ambient warmth is challenging, highlighting the need for simple, low-cost comfort measures that can be realistically integrated into routine clinical workflows.

This QI project was initiated to focus on feasibility, acceptability, and patient experience rather than on establishing causality. The project was undertaken in the labour room of a tertiary care government hospital in north India during the winter season, with the primary objective of improving thermal comfort among labouring women through the introduction of reusable heating pads. Secondary objectives included assessing patient-reported perceptions of pain, willingness to recommend the heating pads to other women, and concerns from the perspective of resident doctors involved in intrapartum care.

METHODS

Study design

This project was conducted as a prospective, before-and-after QI initiative aimed at assessing changes in perceived patient comfort following the introduction of reusable heating pads as an intervention during the winter months.

The initiative used an observational pre-post design in which baseline and post-intervention data were collected using the same interview-based methodology. As a QI initiative, the intent was to assess feasibility, acceptability, and patient experience and to evaluate temporal changes associated with the intervention.

Study setting

Project conducted in labour room of tertiary care government medical college hospital in North India. Labour room caters to high volume of patients and is staffed by junior, senior residents, interns and nursing staff.

During the winter months, ambient temperatures in the region are low. Despite standard heating measures being activated, patients have informally reported discomfort related to feeling cold during labour. Due to this discomfort, patient cooperation during examinations may reduce and procedures such as episiotomy suturing become difficult to conduct. This context prompted the introduction of a low-cost comfort-focused intervention.

Participants

Participants included labouring patients in the labour room during the data collection periods. Verbal consent was obtained before offering the heating pads and participation in interviews. Participation in interviews and acceptance of heating pads were entirely voluntary. No medical decisions or standard obstetric care pathways were altered for any participant/non-participant as part of this initiative.

Pre-intervention phase

Baseline data were collected through brief, anonymous, verbal interviews conducted in the labour room. Patients were asked a simple question assessing their perceived thermal comfort in the labour room environment prior to the availability of heating pads.

Intervention

Eight reusable heating pads were provided to the nursing staff in the labour room to be used as a non-invasive comfort measure for the patients. The patients were informed that declining participation would not affect the standard of care provided. Pads were applied externally and only with the patient's consent. This was optional, non-coercive, and did not interfere with standard clinical management or monitoring.

The heating pads were intended only to improve patient comfort and were not positioned or used in a manner that would affect clinical outcomes or procedures.

Post-intervention phase

Following implementation of the intervention, patients were offered heating pads as an adjunct to routine care. Post-intervention interviews assessed: Perceived thermal comfort following the intervention, subjective change in comfort or pain perception and willingness to recommend its use to other patients.

In addition to this, brief feedback was obtained from resident doctors regarding feasibility and perceived utility in routine practice.

All interviews were concise to minimize disruption in a busy clinical setting.

Primary outcome

Primary outcome was the proportion of patients reporting thermal comfort following the introduction of heating pads

Secondary outcomes

Secondary outcomes were patient-reported subjective change in comfort or pain perception following the intervention and willingness to recommend the intervention to other patients.

Analysis

Categorical variables were described using simple counts and percentages. The change in the proportion of patients reporting comfort before and after the intervention was assessed using a chi-square test. The Chi-square test was used solely for supportive analysis and not to assess causal effect, in keeping with the nature of QI work. Secondary outcomes, including, self-reported changes in pain or discomfort, and willingness to recommend the intervention, were also summarized descriptively. This project was conducted as a QI initiative and was reviewed at the departmental level and was determined to not constitute human-subjects research and therefore did not require formal Institutional Ethics Committee approval.

RESULTS

Participants and data collection

During the project period, 55 labouring women were included in the pre-intervention phase and 60 women participated in the post-intervention phase following the introduction of heating pads in the active labour room.

All women in the post-intervention group who accepted the heating pads answered the brief post-intervention questionnaire which assessed comfort, perceived pain relief, and the willingness to recommend this intervention for other patients.

Primary outcome

Thermal comfort

The primary outcome was the proportion of women reporting thermal comfort during labour. In the pre-intervention phase, 27 of 55 women (49.1%) reported being thermally comfortable. Following implementation of the heating pads, this proportion increased to 46 of 60 women (76.7%) (Figure 1).

This represents an absolute increase of approximately 27.6% in reported thermal comfort following the intervention. Comparison of pre- and post-intervention proportions using a chi-square test demonstrated a statistically significant difference (χ^2=9.41, df=1, p =0.002) in proportions. This analysis supports the observed change following implementation.

Secondary outcomes

Perceived pain reduction

Among the 60 women in the post-intervention phase, 40 (66.7%) reported that use of the heating pad reduced their pain or discomfort to some extent during labour. The remaining participants reported either no perceived change or were unsure. No formal comparison with pre-intervention pain levels was performed, as pain perception was assessed descriptively as part of post-intervention feedback (Figure 2).

Recommendation of the intervention for other patients

A total of 53 of 60 women (88.3%) stated that they would recommend the use of heating pads to other women in labour (Figure 3).

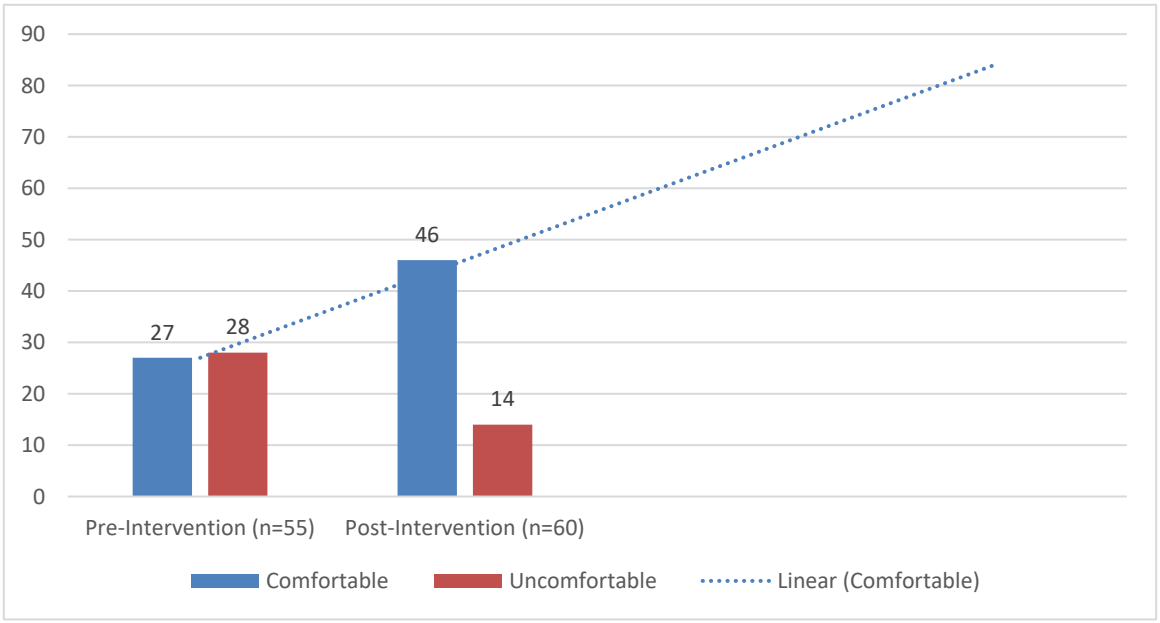

Figure 1: Patient reported thermal comfort before and after introduction of heating pads.

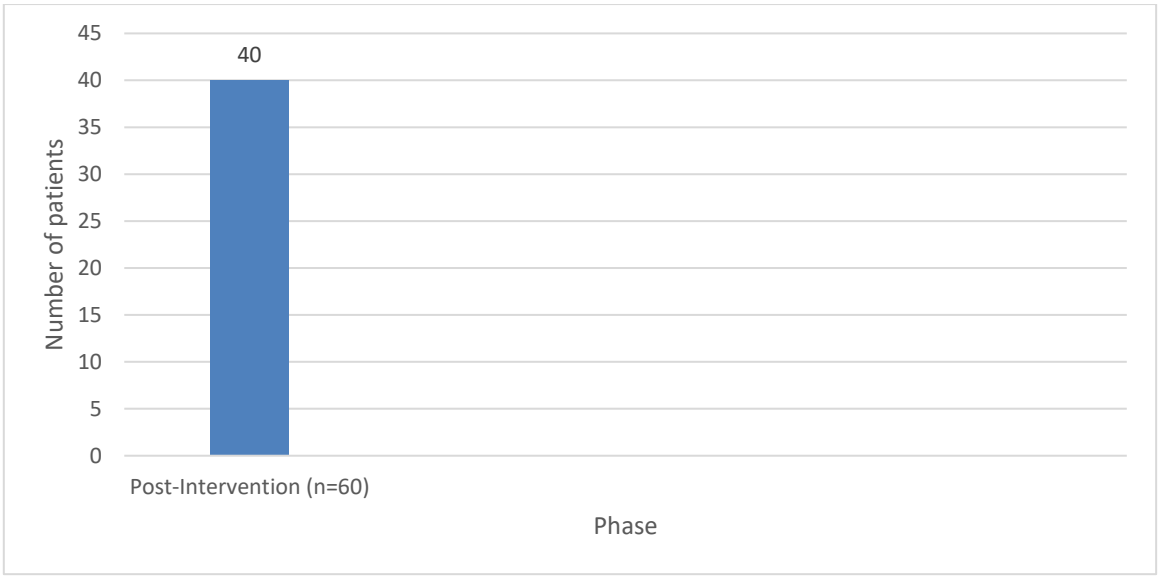

Figure 2: Patient reported pain or discomfort reduction following the use of heating pads.

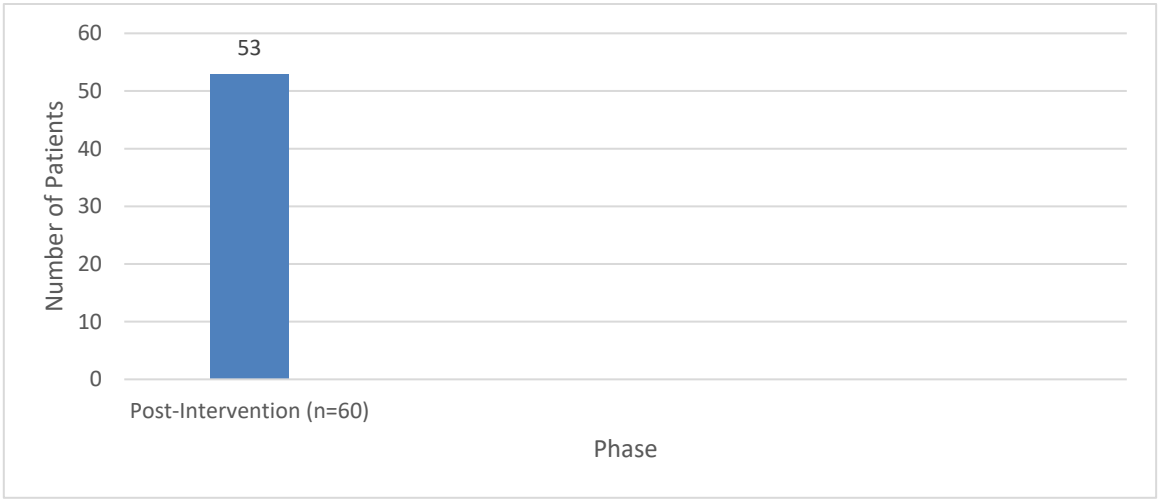

Figure 3: Patient willingness to recommend heating pad use to other women in labour.

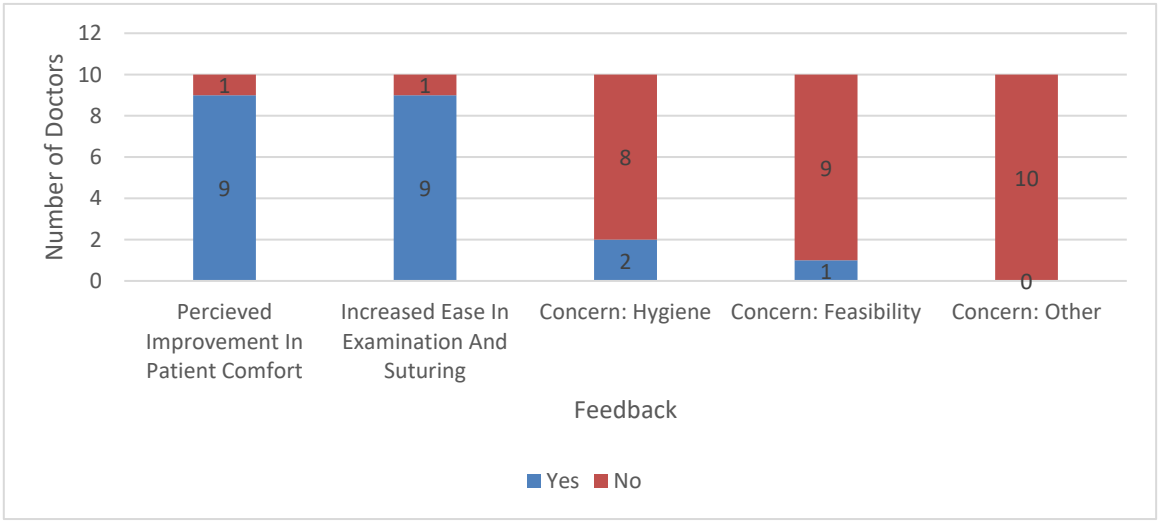

Figure 4: Resident doctor feedback on feasibility and percieved impact of heating pad use.

Feasibility and staff feedback

Feedback regarding feasibility and perceived impact of the intervention was obtained from 10 resident doctors involved in labour room care during the study period. Nine residents (90%) reported a perceived improvement in patient comfort following the introduction of heating pads. A similar proportion reported improved ease of examination or suturing due to increased patient comfort.

The resident doctors were also asked for their concerns regarding the heating pads. Two residents (20%) raised hygiene-related concerns regarding the reuse and cleaning of heating pads, and one resident (10%) expressed uncertainty regarding the long-term feasibility of sustained implementation (Figure 4).

DISCUSSION

Thermal discomfort during labour may receive limited explicit attention in routine labour room care, particularly in low-resource or public hospital settings where environmental temperature control may be inconsistent. Labour rooms in north India experience seasonal cold during winter months, and despite air conditioning or centralized heating, patients, often lightly clothed for obstetric monitoring, may experience significant cold stress.

This QI initiative was associated with a meaningful improvement in patient-reported thermal comfort following the introduction of reusable heating pads in the labour room during winter months. The present project demonstrates the feasibility and acceptability of heating pad use in a high patient volume government hospital labour room.

The proportion of women reporting comfort increased following the introduction of heating pads. These findings are parallel to the result of another study that focussed on comfort.[11]

The observed improvement in comfort is likely multifactorial. While the heating pads themselves provided direct conductive warmth, contextual factors such as increasing winter severity over the project period and heightened staff awareness of patient comfort may also have contributed. Consistent with QI principles, the findings are interpreted as temporal associations following implementation, reflecting how system-level changes function in routine clinical environments rather than controlled experimental conditions.

In addition to this, two-thirds of post-intervention participants reported subjective reduction in pain or discomfort. This is in alignment with the results of previous studies on reduction in pain.[9-10, 12-13] Nearly 90% of the women expressed willingness to recommend the intervention to other labouring patients. This concurs with the results of another study which also included a recommendation section.[12] The high proportion of participants willing to recommend the intervention suggests strong perceived value from the patient perspective. This aligns with the established dimension of healthcare quality of patient-centred care and comfort measures as legitimate targets for QI.[14-16]

These findings suggest that a simple, low-cost comfort-focused intervention can positively influence patient experience in a high-volume government hospital labour room. These findings are broadly consistent with existing literature evaluating heat application during labour, which have primarily focused on pain reduction and maternal comfort rather than on thermal comfort itself.[9-13]

Feedback from resident doctors further supports the feasibility of the intervention. Most resident doctors reported an improvement in patient comfort and experienced greater ease during examinations or suturing. This suggests potential secondary benefits. Concerns related to hygiene and long-term feasibility highlight areas where the intervention could be improved. These issues may be addressed through simple measures such as clear cleaning protocols, designated storage, and defined responsibility for maintenance and oversight. Mechanisms by which the heating pads may have improved comfort are not explored, as the focus was patient experience rather than determining physiological pathways.

This project has some limitations. It was conducted over a limited winter period in a single labour room, reflecting the local environmental conditions in which the intervention was implemented. Patient comfort and pain reduction were assessed using simple self-reported responses in order to maintain feasibility within a busy labour room environment. The project also did not include a concurrent control group.

CONCLUSION

The implementation of reusable heating pads in the labour room was associated with an improvement in patient-reported comfort. The heating pads were also associated with a subjective reduction in the pain or perceived by patients. Staff feedback was predominantly positive. As a practical QI initiative, this project highlighted the value of addressing basic comfort needs and patient-centred interventions in obstetric care. Simple environmental comfort interventions such as this may represent scalable and low-cost strategies to improve patient experience in high-volume public sector maternity settings.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. United Nations Department of Economic and Social Affairs, Population Division. World Fertility Report 2024. New York, NY: United Nations. 2025.

2. UNICEF. Key data. Available at: https://www.unicef.org/india/key-data. Accessed on 14 January 2026.
3. World Health Organization. Making childbirth a positive experience. Available at: https://www.who.int/news/item/15-02-2018-making-childbirth-a-positive-experience. Accessed on 14 January 2026.
4. Alhmoud SH, Shbaita AS, Altamimi S, Alsbaihi O, Alhmoud HH. Integrating narrative inquiry and thermal comfort simulation for empathy-driven healthcare design: a case study. Int J Des Nat Ecodyn. 2025;20:2957-69.
5. World Health Organization. WHO recommendations: intrapartum care for a positive childbirth experience. Available at: https://www.who.int/publications/i/item/9789240110939. Accessed on 10 March 2026.
6. Nori W, Kassim MAK, Helmi ZR, Pantazi AC, Brezeanu D, Brezeanu AM, et al. Non-pharmacological pain management in labor: a systematic review. J Clin Med. 2023;12:7203.
7. Beyable AA, Bayable SD, Ashebir YG. Pharmacologic and non-pharmacologic labor pain management techniques in a resource-limited setting: a systematic review. Ann Med Surg (Lond). 2022;74:103312.
8. Doyle C, Lennox L, Bell D. A systematic review of evidence on the links between patient experience and clinical safety and effectiveness. BMJ Open. 2013;3:e001570.
9. Goswami S, Jelly P, Sharma SK, Negi R, Sharma R. The effect of heat therapy on pain intensity and duration of labor during the first stage among primiparous women and Apgar scores: a systematic review and meta-analysis. Eur J Midwifery. 2022;6:66.
10. Patel S, Prakasam A, Patel V, Shivani S, Sharon S. Effectiveness of warm compress on labour pain relief in primiparturients during the first stage of labour: a quasi-experimental study. J Neonatal Surg. 2025;14(16):362-8.
11. Lawot I, Khan I, Shrestha T. Effectiveness of heat application on comfort during labor among primigravida women: a pilot study. Int J Community Med Public Health. 2025;12:2559-64.
12. Dastjerd F, Erfanian Arghavanian F, Sazegarnia A, Penciu RC, Serbanescu L, Brezeanu D, et al. Effect of infrared belt and hot water bag on labor pain intensity among primiparous women: a randomized controlled trial. BMC Pregnancy Childbirth. 2023;23:405.
13. Fahami F, Behmanesh F, Valiani M, Ashouri E. Effect of heat therapy on pain severity in primigravida women. Iran J Nurs Midwifery Res. 2011;16:113-6.
14. Institute of Medicine Committee on Quality of Health Care in America. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academies Press. 2001.
15. Wensley C, Botti M, McKillop A, Merry AF. Maximising comfort: how do patients describe the care that matters? A two-stage qualitative descriptive study to develop a quality improvement framework for comfort-related care in inpatient settings. BMJ Open. 2020;10:e033336.
16. National Institute for Health and Care Excellence. Patient experience in adult NHS services: improving the experience of care for people using adult NHS services. Available at: https://www.nice.org.uk/guidance/cg138/evidence/full-guideline-pdf-185142637. Accessed 10 March 2026.

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