

Knowledge of midwives on non-pharmacological methods of pain management during labor at Kawempe National Referral Hospital, Kampala District. A cross-sectional study.

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Page | 1

Abstract

Background:

Knowledge of non-pharmacological methods of labor pain management is a critical determinant of their utilization among midwives. The study aims to examine midwives' knowledge of non-pharmacological methods of pain management during labor at Kawempe National Referral Hospital, Kampala District.

Methodology:

A descriptive cross-sectional study design was used, and it utilized quantitative methods of data collection. The study was carried out at Kawempe National Referral Hospital, Kampala District. The study targeted all midwives at Kawempe National Referral Hospital, Kampala District. 30 midwives were chosen at Kawempe National Referral Hospital, Kampala District. A convenience sampling method was used in this study.

Results:

Regarding age, the majority of respondents, 12 (40%), were aged 26–30 years, followed by 8 (26.7%) in the 18–25 years bracket, 6 (20%) aged 31–35 years, and 4 (13.3%) were above 35 years. 25 (83.3%) identified breathing exercises, 22 (73.3%) identified position changes, 20 (66.7%) mentioned massage, 15 (50%) cited music therapy, 10 (33.3%) cited warm bath/hydrotherapy, 5 (16.7%) cited aromatherapy, and 3 (10%) were aware of acupuncture. 22 (73.3%) believed that NPPM were effective, 3 (10%) believed they were not effective, and 5 (16.7%) were not sure. On self-rated knowledge of NPPM, 12 (40%) rated their knowledge as good, 10 (33.3%) as fair, 5 (16.7%) as excellent, and 3 (10%) as poor. 12 (40%) of respondents reported having read guidelines or literature on NPPM, while 18 (60%) had not read any relevant materials.

Conclusions:

The study revealed that midwives at Kawempe National Referral Hospital have a generally high level of awareness of non-pharmacological methods of labour pain management, particularly for common techniques such as breathing exercises, position changes, and massage.

Recommendations:

Formulate and implement national policies and guidelines that promote and standardize the use of non-pharmacological methods for labor pain management.

Keywords: *Non-pharmacological pain management, Labour pain, Midwives' knowledge, Kawempe National Referral Hospital.*

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Background of study

Pain during labor is a complex physiological and psychological experience that varies from one woman to another. It is widely acknowledged as one of the most intense forms of pain experienced by women, typically resulting from uterine contractions, cervical dilation, and the descent of the fetus (Zelege et al., 2025). Non-pharmacological pain management refers to methods used to relieve labor pain without the use of medications. These

include techniques such as breathing exercises, massage, hydrotherapy, acupuncture, continuous labor support, and position changes (WHO, 2018).

Globally, the use of non-pharmacological methods during labor has gained recognition due to their safety, cost-effectiveness, and benefits in enhancing maternal satisfaction and positive birth experiences. According to the World Health Organization (2018), non-pharmacological

methods are crucial components of respectful maternity care and should be available to all laboring women.

Knowledge of non-pharmacological methods of labor pain management is a critical determinant of their utilization among midwives. According to Smith et al. (2018), in the USA, 67.4% of midwives reported awareness of at least one technique; however, only 42.5% could correctly identify and describe more than three methods, such as massage, breathing techniques, and warm baths. This suggests a substantial gap between surface-level knowledge and the deep understanding necessary for practice.

In Ghana, Boateng et al. (2019) found that 58% of midwives were aware of basic techniques like deep breathing and position changes, while only 29% had knowledge of less conventional methods such as hydrotherapy, aromatherapy, or acupuncture. This limited awareness affects the scope of pain management options offered to laboring women.

McCauley et al. (2017) reported that only 45% of midwives in Ethiopia possessed good knowledge of non-pharmacological pain relief methods, with 55% having either partial or poor knowledge. This underlines the need for targeted training programs to bridge knowledge gaps and standardize practices across the country.

Nakyanzi et al. (2023) reported that midwives at Lubaga Hospital in Kampala District, Uganda, indicated that just 38% of midwives had sufficient knowledge to explain and implement at least two evidence-based non-pharmacological methods. The remaining 62% either depended on outdated techniques or avoided such practices altogether due to lack of confidence and training.

Bishaw et al. (2020) reported that 53% of midwives at public health centers in the East Gojjam Zone, Amhara Region, Ethiopia, claimed to be familiar with non-pharmacological methods, but only 22% had ever received any formal training on the subject. The authors emphasized the critical role of curriculum reform and continuous medical education in enhancing awareness and skills.

Mwakawanga et al. (2022) found that 61.2% of nurse-midwives in two selected district hospitals in eastern Tanzania expressed general awareness of non-pharmacological methods, yet only 34.8% had ever received any formal in-service training or demonstration. The study aims to examine midwives' knowledge of non-pharmacological methods of pain management during labor at Kawempe National Referral Hospital, Kampala District.

METHODOLOGY

Study Design and Rationale

In this study, a descriptive cross-sectional study design was used, and it utilized quantitative methods of data collection. This research study design was preferred because it is less time-consuming and, in addition, the researcher collected data at once without following up with respondents.

Study Setting and Rationale

The study was carried out at Kawempe National Referral Hospital, Kampala District.

It is a public health center offering free general services and receives an average of 200 patients per day, with several departments such as the outpatient department, MCH, pharmacy, antenatal care clinic, YCC service delivery department, TB clinic, and diabetic clinic. The facility also carries out several services as per departments as well as reaching out to the communities for different services. This made it a suitable study site for assessing the factors influencing utilization of non-pharmacological pain management in labor among midwives.

The study area was chosen because it is within easy reach of the researcher.

Study Population

The study targeted all midwives at Kawempe National Referral Hospital, Kampala District.

Sample Size Determination

The sample size was determined by the use of Roscoe's (1975) method, which states that a Sample size not less than 30 and not more than 500 is appropriate for generalization of most scientific studies. Therefore, 30 midwives were chosen at Kawempe National Referral Hospital, Kampala District.

Sampling procedure

A convenience sampling method was used in this study. Convenience sampling is a nonprobability technique in which participants were selected based on accessibility and willingness to participate. Midwives were approached while on duty, as their absence could disrupt patient care. The researcher explained the purpose of the study to each midwife, and those who consented were enrolled. This process continued until the desired sample size of 30 midwives was reached over the three days of data collection.

Inclusion criteria and Exclusion Criteria

Inclusion criteria

This study included all midwives who met the following criteria;

Midwives willing to voluntarily take part in the study by consenting.

Midwives working at Kawempe Women's National Referral Hospital, Kampala District.

Exclusion criteria

Midwives who were on leave (annual, maternity, or sick leave) during the period of data collection.

Study variables

Independent variables

The independent variables of this study were; Knowledge of midwives towards utilization of non-pharmacological pain management in labor.

Dependent variable

The dependent variable was factors influencing utilization of non-pharmacological pain management in labor among midwives.

Research instruments

Data were collected by a structured questionnaire that consisted of both closed-ended and open ended.

Questions in the English language were designed to establish the factors influencing utilization of nonpharmacological pain management in labor among midwives. Observation Check List was also used.

Data collection procedure

After approval of the proposal, an introductory letter from the Research and Ethics Committee of Kampala University School of Nursing was taken to the Principal Nursing Officer of Kawempe.

Women's National Referral Hospital, Kampala District. The Principal Nursing Officer endorsed the study and forwarded the researcher to the In-charge, who then directed the researcher to the midwives on ward of the different wards. The researcher made a self-introduction, explained the purpose of the study to each respondent, and administered the questionnaires. Each respondent who met the inclusion criteria was guided to a separate room to ensure privacy and comfort while completing the questionnaire. To maintain confidentiality and anonymity, serial numbers were used instead of names, and the questionnaires were kept in a locked cupboard with the key held by the researcher. At the end of the session, the researcher thanked each respondent for their participation.

Data management

In the process of data collection, each questionnaire, after being filled in, was checked for completeness and accuracy before leaving the area of study. Filled questionnaires were kept properly in a locker for confidentiality and safety. The soft copy was entered into a computer with a strong password.

Data analysis

The data collected was analyzed by entering it into the computer using Microsoft Office Word and Microsoft Excel 2013, where data was represented in tables, graphs, pie-charts, and figures.

Quality Assurance: Validity and Reliability

Validity

The questionnaire was reviewed by the research supervisor to ensure conceptual equivalence and relevancy. Additionally, research assistants were trained to maintain consistency in data collection.

Reliability

The questionnaire was pre-tested among 3 midwives at a similar facility, Nsambya Hospital, to ensure reliability. Revisions were made based on feedback before use in the actual study.

Ethical considerations

An introductory letter was obtained from the Research and Ethics Committee of Kampala University School of Nursing. This letter was presented to the administrator of Kawempe National Referral Hospital, Kampala District, to seek permission to conduct the study. Participants were provided with a clear explanation of the study in simple, easily understandable language before enrollment, and only those willing to participate provided consent. Participants were informed that they could withdraw from the study at any time without any consequences, in line with the fundamental principle of voluntary participation in research ethics. Confidentiality was maintained throughout the study by using serial numbers instead of names, and the completed questionnaires were kept in a locked cupboard.

RESULTS

Social demographic data of respondents

Table 1: Demographic Characteristics of Respondents

(n = 30)

Variable	Category	Frequency (f)	Percentage (%)
Age (years)	18–25	08	26.7
	26–30	12	40.0
	31–35	06	20.0
	Above 35	04	13.3
	Total	30	100
Gender	Male	06	20.0
	Female	24	80.0
	Total	30	100
Level of Education	Certificate	04	13.3
	Diploma	18	60.0
	Bachelor's degree	08	26.7
	Other	00	00.0
	Total	30	100
Years of Experience	<1 year	02	06.7
	1–5 years	10	33.3
	6–10 years	12	40.0
	>10 years	06	20.0
	Total	30	100
Training in NPPM	Yes	18	60.0
	No	12	40.0
	Total	30	100

Source: Primary data (2025).

The study included 30 midwives at Kawempe National Referral Hospital. Regarding age, the majority of respondents, 12 (40%), were aged 26–30 years, followed by 8 (26.7%) in the 18–25 years bracket, 6 (20%) aged 31–35 years, and 4 (13.3%) were above 35 years. The majority of respondents were female, 24 (80%), while males constituted 6 (20%). In terms of education, 18 (60%) held a diploma, 8 (26.7%) had a bachelor's degree, and 4 (13.3%) had a

certificate. None reported other qualifications. Regarding years of experience as a midwife, 12 (40%) had 6–10 years, 10 (33.3%) had 1–5 years, 6 (20%) had more than 10 years, and 2 (6.7%) had less than 1 year of experience. Concerning training in non-pharmacological pain management (NPPM) during labor, 18 (60%) of the respondents had received training, whereas 12 (40%) had not.

Knowledge of midwives on non-pharmacological pain management in labor
Table 2: Awareness of NPPM, Methods Known, Perceived Effectiveness, and Self-Rated Knowledge (n = 30)

Variable	Category	Frequency (f)	Percentage (%)
Heard about NPPM	Yes	28	93.3
	No	02	06.7
	Total	30	100
Methods known	Breathing exercises	25	83.3
	Massage	20	66.7
	Music therapy	15	50.0
	Warm bath/hydrotherapy	10	33.3
	Position changes	22	73.3
	Acupuncture	03	10.0
	Aromatherapy	05	16.7
	Total	30	100
Believe NPPM effective	Yes	22	73.3
	No	03	10.0
	Not sure	05	16.7

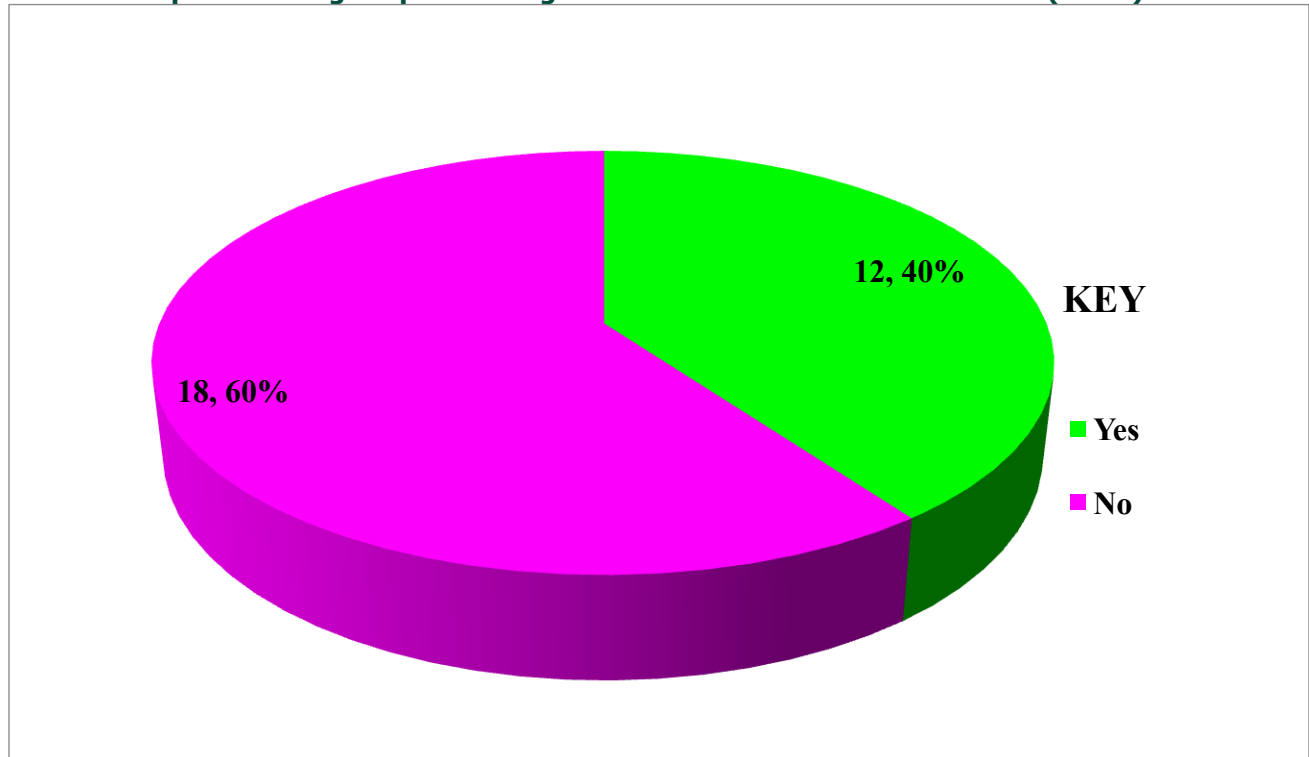
	Total	30	100
Self-rated knowledge	Poor	03	10.0
	Fair	10	33.3
	Good	12	40.0
	Excellent	05	16.7
	Total	30	100

Source: Primary data (2025).

A large proportion of respondents, 28 (93.3%), reported having heard about non-pharmacological methods of labor pain management, while 2 (6.7%) had not. When asked about the specific methods known, 25 (83.3%) identified breathing exercises, 22 (73.3%) identified position changes, 20 (66.7%) mentioned massage, 15 (50%) cited music therapy, 10 (33.3%) cited warm

bath/hydrotherapy, 5 (16.7%) cited aromatherapy, and 3 (10%) were aware of acupuncture. Regarding perception of effectiveness, 22 (73.3%) believed that NPPM were effective, 3 (10%) believed they were not effective, and 5 (16.7%) were not sure. On self-rated knowledge of NPPM, 12 (40%) rated their knowledge as good, 10 (33.3%) as fair, 5 (16.7%) as excellent, and 3 (10%) as poor.

Figure 1: Showing respondents who have ever read any guidelines or literature on nonpharmacological pain management (n=30)



Source: Primary data, (2025).

From the figure, 12 (40%) of respondents reported having read guidelines or literature on NPPM, while 18 (60%) had not read any relevant materials.

DISCUSSION

Demographic Characteristics of Respondents

The demographic characteristics of the respondents provide important context for understanding the midwives' knowledge and practices regarding non-pharmacological pain management (NPPM) during labor. The study involved 30 midwives at Kawempe National Referral Hospital. The age distribution shows that the majority, 12 (40%), were between 26–30 years. This suggests that most midwives were in the early to mid-stages of their professional career, which may positively influence their willingness to adopt new practices such as NPPM. Additionally, 8 (26.7%) were aged 18–25 years, indicating a considerable proportion of younger practitioners who may have recently completed their formal training. Smaller proportions were aged 31–35 years (20%) and above 35 years (13.3%), representing more experienced cadres.

The gender distribution revealed that most respondents were female, 24 (80%), which aligns with the global trend of midwifery being a female-dominated profession. The remaining 6 (20%) were male. While gender does not directly influence competence, the predominance of female midwives reflects typical workforce patterns in maternity settings.

Education levels showed that 18 (60%) of the midwives held diplomas, making this the most common qualification. This is consistent with Uganda's midwifery training structure, where diploma-level training forms the backbone of clinical staffing. Additionally, 8 (26.7%) had bachelor's degrees, indicating a growing presence of highly trained midwives who may have greater exposure to evidence-based practices. Only 4 (13.3%) had certificates, reflecting reduced reliance on certificate-level training in referral-level healthcare settings.

Years of professional experience varied, with the highest proportion, 12 (40%), having 6–10 years of experience. Another 10 (33.3%) had worked for 1–5 years, reflecting a

relatively young workforce. Midwives with more than 10 years' experience accounted for 6 (20%), while only 2 (6.7%) had less than one year of experience. This distribution indicates that most respondents had adequate exposure to clinical practice, potentially enhancing their understanding and application of labor pain management methods.

Training in non-pharmacological pain management was reported by 18 (60%) of the respondents, while 12 (40%) had not received such training. This highlights a significant training gap that may affect the consistency and quality of NPPM practices. The relatively high proportion of trained midwives suggests growing awareness of NPPM; however, the 40% lacking training underscores the need for strengthened continuing professional development.

Knowledge of midwives on non-pharmacological pain management in labor.

A large proportion of respondents, 28 (93.3%), reported having heard about nonpharmacological methods of labor pain management, while only 2 (6.7%) had not. This indicates a generally high level of awareness among midwives at Kawempe National Referral Hospital. The high awareness could be attributed to pre-service training and exposure during clinical practice. This finding is consistent with Smith et al. (2018) in the USA, who reported that 67.4% of midwives were aware of at least one technique, although deeper knowledge was less common.

When asked about specific methods, 25 (83.3%) identified breathing exercises, 22 (73.3%) identified position changes, 20 (66.7%) mentioned massage, 15 (50%) cited music therapy, 10 (33.3%) cited warm bath/hydrotherapy, 5 (16.7%) cited aromatherapy, and 3 (10%) were aware of acupuncture. This shows that midwives were most familiar with basic techniques, while awareness of less conventional methods was limited. This pattern could be due to training curricula focusing more on common techniques and less on alternative methods. Similar observations were made in Ghana by Boateng et al. (2019), where awareness of basic techniques was high, but knowledge of hydrotherapy, aromatherapy, and acupuncture was low.

Regarding effectiveness, 22 (73.3%) believed NPPM were effective, 3 (10%) did not, and 5 (16.7%) were unsure. This suggests that most midwives have confidence in the utility of these methods for labor pain relief, which could facilitate their use in practice. The high perception of effectiveness aligns with McCauley et al. (2017) in Ethiopia, who reported that midwives with good knowledge were more likely to value and attempt NPPM, although a significant proportion still had partial or poor knowledge.

On self-rated knowledge, 12 (40%) rated their knowledge as good, 10 (33.3%) as fair, 5 (16.7%) as excellent, and 3 (10%) as poor. This indicates that while most midwives perceive their knowledge positively, there is room for improvement, especially in achieving high competency. This aligns with Nakyanzi et al. (2023) in Uganda, who found that only 38% of midwives had sufficient knowledge to explain and implement at least two evidence-based NPPM methods, highlighting gaps in confidence and training.

Only 12 (40%) of respondents had read guidelines or literature on NPPM, while 18 (60%) had not. This low engagement with formal resources may limit the depth and standardization of knowledge, potentially affecting consistent practice. Bishaw et al. (2020), in Ethiopia, reported a similar gap, noting that although 53% of midwives were familiar with NPPM, only 22% had received formal training. Mwakawanga et al. (2022), in Tanzania, also reported that general awareness was higher than actual formal training exposure, with institutional support being a key factor in bridging this knowledge-practice gap.

Limitations of the Study

Small Sample Size

The study involved only 30 midwives from Kawempe National Referral Hospital, which may limit the generalizability of the findings to other hospitals or regions in Uganda. A larger sample from multiple facilities could have provided a more comprehensive understanding of the factors influencing utilization of non-pharmacological pain management methods.

Self-Reported Data

The study relied on self-administered questionnaires, which may have introduced response bias, as participants could provide socially desirable answers rather than reflecting their true practices or beliefs. This may have affected the accuracy of the findings regarding actual utilization of non-pharmacological pain management techniques.

Conclusions

The study revealed that midwives at Kawempe National Referral Hospital have a generally high level of awareness of non-pharmacological methods of labour pain management, particularly for common techniques such as breathing exercises, position changes, and massage. However, knowledge of less conventional methods, such as aromatherapy and acupuncture, remains limited, and engagement with formal guidelines or literature is low.

Recommendations

Policy Makers

Formulate and implement national policies and guidelines that promote and standardize the use of non-pharmacological methods for labor pain management.

Study Area (Kawempe National Referral Hospital)

Provide adequate infrastructure, supplies, and administrative support to enable midwives to consistently implement non-pharmacological pain management techniques.

Implications to nursing practice

The findings of this study have several important implications for nursing practice. The high awareness of non-pharmacological pain management among midwives indicates that nurses are generally knowledgeable about these methods, which supports their adoption in labor care; however, limited knowledge of less conventional techniques such as aromatherapy and acupuncture suggests a need for targeted training to expand competencies. Confidence in using these methods was moderate, highlighting the importance of mentorship and skill reinforcement for less experienced midwives.

Collectively, these findings emphasize that nursing practice should integrate continuous education, confidence-building, efficient application strategies, and institutional support to enhance the quality of labor pain management.

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Abbreviations and acronyms

NPPM: Non-Pharmacological Pain Management / Methods

MCH: Maternal and Child Health

YCC: Young Child Clinic

TB: Tuberculosis

Source of funding

The study received no external funding.

Conflict of interest

The authors declared no conflict of interest.

Author contribution

JMN: conceptualization, methodology, investigation, writing – original draft

AKN: supervision, Validation, Writing – review & editing

SO: Supervision, Validation

GDA: Project administration

All authors: Approved the final version of the manuscript and agreed to be accountable for the work.

Data availability

Data are available upon request from the corresponding author.

Author biography

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References

1. Bishaw, K. A., Sendo, E. G., & Abebe, W. S. (2020). *Knowledge and use of labour pain relief methods among obstetric caregivers in Ethiopia: A facility-based cross-sectional study*. BMC Pregnancy and Childbirth, 20(1), 1–9. <https://doi.org/10.1186/s12884-020-03034-6>.
2. Boateng, E. A., Kumi, L. O., & Diji, A. K. (2019). *Nurses and midwives' experiences of using non-pharmacological interventions for labor pain management: A qualitative study in Ghana*. BMC Pregnancy and Childbirth, 19(1), 168. <https://doi.org/10.1186/s12884-0192311-x>.
3. McCauley, M., Stewart, C., & Kebede, B. (2017). *Healthcare providers' knowledge and attitudes regarding labor pain relief in Ethiopia*. BMC Pregnancy and Childbirth, 17(1), 1–6. <https://doi.org/10.1186/s12884-017-1211-8>.
4. Mwakawanga, D. L., Mselle, L. T., Chikwala, V. Z., & Sirili, N. (2022). *Use of nonpharmacological methods in managing labour pain: Experiences of nurse-midwives in Tanzania*. BMC Pregnancy and

- Childbirth, 22(1), 376.
<https://doi.org/10.1186/s12884022-04707-x>.
5. Nakyanzi, J., Mukomuzibu, C., & Kimera, D. (2023). *Challenges to implementing nonpharmacological strategies for labour pain in Uganda*. Student's Journal of Health Research Africa, 4(9), 17.
<https://doi.org/10.51168/sjhrafrica.v4i9.623>.
6. Smith, L. A., Burns, E., & Cuthbert, A. (2018). *Parenteral opioids for maternal pain management in labour*. Cochrane Database of Systematic Reviews, 6(6), CD007396.
<https://doi.org/10.1002/14651858.CD007396.pub3>.
7. World Health Organization. (2018). WHO recommendations: Intrapartum care for a positive childbirth experience.
<https://www.who.int/publications/i/item/9789241550215>.
8. Zeleke, A. M., Gonete, Y. A., Tassew, W. C., & Ferede, Y. A. (2025). *Utilization of nonpharmacological labour pain management and associated factors in Ethiopia: A systematic review and meta-analysis*. BMC Pregnancy and Childbirth, 25(1), 309. <https://doi.org/10.1186/s12884-025-07441-2>.

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