



Practice of Non-Pharmacological Pain Management Techniques during Labour among Midwives in Secondary Health Facilities, Rivers West Senatorial Zone

Thom-Otuya Faith*¹, Alabere Ibidabo ², Dr. Elsie Ugege².

¹Nursing Division, Africa Centre of Excellence in Public Health and Toxicological Research, University of Port Harcourt, Rivers State, Nigeria.

²Africa Centre of Excellence in Public Health and Toxicological Research, University of Port Harcourt, Rivers State, Nigeria.

*Corresponding author's email: faith.thom-otuya@uniport.edu.ng

Article History	Abstract
Received: 07 May 2026 Accepted: 17 Jul 2026 Published: 03Aug 2026	Background: Labour pain is a multi-dimensional phenomenon and its effective management forms the part of intrapartum care. Although there are pharmacological approaches, there are non-pharmacological approaches that are safe and cost-effective and may lead to better birth outcomes and maternal satisfaction. Objective: This research sought to determine the level of knowledge, attitude, and practice of non-pharmacological methods of pain management during labour among midwives in all secondary health facilities in Rivers West senatorial Zone of Rivers State, Nigeria. Methods: A cross-sectional study was designed as a descriptive study with a sample of 427 midwives in Rivers West senatorial Zone of Rivers state. The semi-structured questionnaire was used to collect the data on socio-demographics, knowledge, attitude, practice, and perceived barriers. Descriptive statistics and chi-square tests were used for data analysis. Data collection was preceded by ethical approval and informed consent. Results: Most of the respondents (35.4) belonged to the age group of 30-39 years, with 49.4% having a BNSc degree. The level of knowledge was very high as 99.5% of participants have identified the advantages of position changes and 98.4% have known about massage. Attitudes were largely positive; 99.8% indicated that non-pharmacological approaches work. Concerning practice, 61.6% of midwives said they always used these techniques, with emotional support (59.3%), and breathing exercises (28.1) being the most prevalent. There were significant correlations between knowledge of particular techniques (e.g., breathing exercises, $p = 0.001$) and frequency of use. Heavy workload (57.4%), and insufficient staffing (22.0%) were major barriers identified. Conclusion: Midwives in Rivers West senatorial Zone have a high level of knowledge and positive attitudes towards non-pharmacological labour pain management. Nevertheless, institutional obstacles, like workload and shortage of staff, prevent regular utilization. These systemic concerns should be addressed by complementing staffing and frequent refresher training to make the most of maternal care.
License: CC BY 4.0 ^{1*}  Open Access article.	Keywords: Labour Pain; Midwives; Non-pharmacological Pain Management; Rivers West Senatorial Zone; Maternal Comfort.

How to cite this paper: Thom-Otuya et al., (2026). Practice of Non-Pharmacological Pain Management Techniques during Labour among Midwives in Secondary Health Facilities, Rivers West Senatorial Zone. *Journal of Public Health and Toxicological Research*, 3 (3): 318-324.

¹ ♦ This work is published open access under the [Creative Commons Attribution License 4.0](https://creativecommons.org/licenses/by/4.0/), which permits free reuse, remix, redistribution and transformation provided due credit is given.

Introduction

Labour pain is a highly intense form of acute pain experienced during the intrapartum period, due to uterine contractions, cervical dilatation and stretching of the perineum. Its management is a fundamental part of intrapartum care and has been shown to affect labour progress, maternal psychological health, birth satisfaction and subsequent fertility intentions (Ojong et al., 2022; Ohaeri et al., 2019). Internationally, labour pain management has shifted from a purely pharmacological, technocratic approach to an individualized approach that emphasizes maternal comfort, control and involvement in decision-making, as recommended by the World Health Organization and the American College of Obstetricians and Gynecologists (Elgzar et al., 2024).

Non-pharmacological pain management, such as massage, breathing exercises, water immersion and continuous support, are established clinical methods to alleviate labour pain and improve coping, without the risks associated with pharmacological methods. These techniques are non-invasive, inexpensive and carries little risk for mother and fetus. They also enhance satisfaction and contribute to a positive birth experience (Parkies et al., 2024). They are important in low resource settings like Nigeria where access to pharmacologic pain relief may be lacking because of financial, infrastructure and supply chain issues (Ojo et al., 2020).

Although studies show the benefits of non-pharmacological pain relief, their use by midwives in Nigeria is inconsistent. In Ekiti State, studies found that organizational barriers, such as workload and lack of equipment, were significant barriers to practice (Ojo et al., 2020). In Calabar, Ojong et al. (2022) reported less than half of the midwives consistently practised cognitive-behavioural techniques, despite having a good level of knowledge. Likewise, Olajide (2025) reported a knowledge-practice gap among midwives in Oyo State, with lower-than-anticipated practice among midwives who reported high knowledge. Together, these studies suggest that knowledge does not necessarily translate into practice, and that contextual factors such as staffing, physical facilities and the continuity of training are critical in influencing midwifery practice.

To date, no study has reported on the knowledge, attitude and practice of non-pharmacological pain management during labour among midwives in the Rivers West Senatorial Zone of Rivers State, Nigeria. This region is socio-culturally diverse, multi-ethnic health-seeking behaviours and has secondary level health facilities that attend to large obstetric caseloads with scarce resources. Knowledge of the factors influencing midwifery practice in this zone is crucial to tailor intervention strategies. This research is significant in filling an important gap in

research literature, as it provides the first empirical evidence of this subject in the Rivers West Senatorial Zone. The aim was to assess the level of practice Of non-pharmacological pain management techniques during labour among midwives in all secondary health facilities in Rivers West senatorial Zone, the objectives were: (i) to assess the level of midwives' knowledge of non-pharmacological pain management techniques; (ii) to ascertain their attitudes towards the use of the techniques; (iii) to determine the level of practice of non-pharmacological management of pain; (iv) to ascertain pattern and frequency of practice; and (v) to identify the factors associated with practice including perceived barriers.

Methodology

Study Design

A descriptive cross-sectional study design was used to determine midwives' knowledge, attitudes, and practices regarding non-pharmacological methods for pain management. This enabled the researcher to gather information on a large scale at a single point in time, thereby presenting a picture of current midwifery practice.

Study Setting and Population

The research was done in Rivers West Senatorial Zone of Rivers State, Nigeria. The target population included the licensed midwives involved in labour and delivery care across all secondary health facilities in the Zone. Rivers State is a multi-ethnic region, and the study population included midwives from different indigenous groups, including the Ijaw, Ikwerre, Ekpeye, Engenni, and Ogoni tribes.

Sample Size and Sampling Technique

The Cochran formula was used to determine the sample size of 427 midwives. A combination of a total population survey and purposive sampling was used to select participants, ensuring the sample represented various secondary healthcare facilities in Rivers West Senatorial Zone, Rivers State.

Inclusion and Exclusion Criteria

Inclusion criteria were registered midwife (RN/RM, BNSc, or MSc) working in a labour and delivery unit in all secondary health facilities within Rivers West Senatorial Zone and willingness to take part. Exclusion criteria included midwives who are critically ill.

Instrumentation

A semi-structured, self-administered questionnaire was used to collect data. The tool was broken down into areas, including socio-demographic and occupational factors, understanding of non-pharmacological methods, attitudes towards these methods, practice patterns, factors related to practice, and facilitators and barriers.

Validity and Reliability

The questionnaire underwent face and content validity by a panel of experts in midwifery and nursing research. Reliability was determined via a pretest with a small group of midwives (not included in the final sample), yielding a reliability coefficient similar to high internal consistency.

Data Collection Procedure

The midwives were given questionnaires during their shifts. Clear guidelines were provided, and participants were advised to complete the forms independently to reduce bias. Questionnaires were completed, and the completed questionnaires were collected immediately to achieve a high response rate.

Data Analysis

SPSS software version 2.7 was used to analyse the data. Descriptive statistics such as frequencies and percentages were presented.

The Chi-square (χ^2) test was conducted to assess the relationship between two categorical variables: knowledge and practice of non-pharmacological pain management. This was suitable given that the variables were categorical.

Before the test, assumptions for the Chi-square test were verified, including independence, sample size, and expected counts of at least 5 (with some cells having counts less than 5). Collapsing of categories was performed if required. A p-value <0.05 was considered significant.

Ethical Considerations

The University of Port Harcourt Research Ethics Committee (UPREC) approved the study. All participants gave informed consent. The study was conducted with confidentiality and anonymity, and participants were told they had the right to withdraw at any time without adverse consequences.

Results

Socio-Demographic Characteristics

The history of the respondents' work is shown in Table 1. Most respondents (169; 39.6%) had 6-10 years' midwifery experience and 4-6 years' experience in the labour ward (172; 40.3%). The majority had attended a course on managing labour pain (402; 94.1%) and 243 (56.9%) had not attended a recent refresher course.

Knowledge of Non-Pharmacological Techniques

Overall, midwives' knowledge was good (Table 2). Nearly all knew changing position decreases pain (425; 99.5%) and massage is a non-pharmacological intervention (420; 98.4%). Awareness of hydrotherapy (426; 99.8%) and guided imagery (400; 93.7%) was also high.

Attitude Toward Non-Pharmacological Techniques

Midwives were positive about non-pharmacological pain management (Table 3). Most strongly agreed that they are effective (363; 85.0%) and almost all agreed that they are safe and comfort women.

Practice of Non-Pharmacological Techniques

The practice was frequent, and 61.6% of the respondents said that they always use these methods (Table 4). Emotional support and reassurance (50.1%), breathing and relaxation exercises (38.9%), were the most common techniques used. The most important factor that informed the decision of the technique was the stage of labour (47.1%).

Pattern of Practice

Table 5 indicates that the majority of midwives (59.3%) use continuous emotional support as their main pattern. Most (44.7%) use methods throughout the labour process and 81.3% use methods at the beginning of labour. Effectiveness is normally assessed using a mixture of feedback and behavioural response (52.2%).

Factors Associated with Practice (Chi-Square Analysis)

Chi-square analysis showed that there were significant relationships between the knowledge of particular techniques and their practice (Table 6). The frequency and choice of techniques were strongly related to knowledge of breathing techniques ($p < 0.001$) and

water-based pain relief ($p < 0.001$). Perceived effectiveness was also largely affected by knowledge of the benefits of these methods ($p < 0.001$).

Table 1: Socio-Demographic Characteristics of Respondents (N = 427)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	20–29	90	21.1
	30–39	151	35.4
	40–49	126	29.5
	50–59	53	12.4
	60 and above	7	1.6
Marital Status	Single	105	24.6
	Married	262	61.4
	Separated	12	2.8
	Divorced	15	3.5
	Widowed	32	7.5
Religion	Cohabiting	1	0.2
	Christianity	400	93.7
	Islam	12	2.8
Tribe (Valid N = 369)	Traditional worshipper	15	3.5
	Ijaw	108	29.3
	Ikwerre	89	24.1
	Ekpeye	80	21.7
	Engenni	50	13.6
Educational Qualification	Ogoni	42	11.4
	RN/RM	190	44.7
	BNSc	210	49.4
	MSc Nursing/Midwifery	25	5.9
Years of Practice	6–10 years	169	39.6
Years in Labour Ward	4–6 years	172	40.3
Attended Pain Course	Yes	402	94.1
Refresher Course	No	243	56.9
Encounter Severe Pain	Often	170	39.9

Table 2: Knowledge of Non-Pharmacological Pain Management Techniques (N = 427)

Knowledge Item	Correct Response	Frequency (n)	Percentage (%)
Effect of position change	Reduce pain & improve comfort	425	99.5
Hydrotherapy benefit	Reduce pain & promote relaxation	426	99.8
Non-pharmacological method	Massage	420	98.4
Guided imagery purpose	Distract mother & reduce pain	400	93.7
Breathing technique	Breathing exercises	370	86.7
Contraindication	High-risk pregnancy	414	97.0

Table 3: Attitude of Respondents Towards Non-Pharmacological Techniques (N = 427)

Statement	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly Disagree n (%)
Effective in labour	363 (85.0)	63 (14.8)	1 (0.2)	0 (0.0)
Improves comfort	164 (38.4)	256 (60.0)	7 (1.6)	0 (0.0)
Professional responsibility	204 (47.8)	222 (52.0)	1 (0.2)	0 (0.0)
Safe in labour	206 (48.2)	215 (50.4)	3 (0.7)	3 (0.7)
Continuous training improves use	244 (57.1)	180 (42.2)	3 (0.7)	0 (0.0)

Table 4: Practice of Non-Pharmacological Pain Management Techniques (N = 427)

Variable	Category	Frequency (n)	Percentage (%)
Frequency of Use	Always	263	61.6
	Often	67	15.7
	Sometimes	96	22.5
Most Frequently Used	Emotional support	214	50.1
	Breathing exercises	166	38.9
	Massage	28	6.6
Guiding Factor	Stage of labour	201	47.1
	Staff/Time availability	100	23.4

Table 5: Pattern of Non-Pharmacological Pain Management Techniques Practiced (N = 427)

Variable	Category	Frequency (n)	Percentage (%)
Applied Stage	All stages of labour	191	44.7
Initiation Time	At onset of labour	347	81.3
Initiator	Midwife	403	94.4
Use Before Drugs	Always	168	39.3
Overall Pattern	Routine & consistent	351	82.2

Table 6: Association between Knowledge and Practice of Non-Pharmacological Pain Management

Knowledge Variable	χ^2	df	p-value	Decision
Breathing technique	171.655	9	<0.001	Significant
Water-based relief	207.614	9	<0.001	Significant
Guided imagery purpose	8.319	3	0.040	Significant
Knowledge of benefits	157.747	9	<0.001	Significant
Relaxation methods	126.348	9	<0.001	Significant

Discussion

The present study identifies a key paradox in midwifery services in Rivers West Senatorial Zone, in which midwives have virtually universal knowledge of non-pharmacological pain management techniques, as well as highly positive attitudes towards these techniques, but a substantial minority (almost four in ten) do not use the techniques regularly in labour. This knowledge-practice gap, rather than a lack of knowledge or professional belief, stands as the key problem to be explained. The overall results suggest it is not midwives' knowledge and belief, but rather the organizational contexts in which they operate that are the limiting factors.

Knowledge and Attitude: The midwives in this study had an extremely high level of knowledge of non-pharmacological techniques, with a response rate of above 90% for most of the knowledge items. This is a higher level than in other parts of Nigeria, such as Ekiti (Ojo et al., 2020) and Calabar (Ojong et al., 2022). A likely explanation for this is the education level of the sample in this study: 49.4% had BNSc degrees and

94.1% had completed formal training in labour pain management, which means that those with higher educational qualifications and formal training retain more knowledge. This comparison is useful because it suggests that the primary driver of the knowledge-practice gap identified here is likely not ignorance; if midwives in settings with lower knowledge scores have similar levels of practice, then the knowledge-practice gap in this study can only be explained by factors other than the midwives' knowledge. The overwhelmingly positive attitude in this study (99.8% reported that non-pharmacological methods are effective) is congruent with reports from Saudi Arabia (Elgzar et al., 2024) and Ethiopia (Eyeberu et al., 2022), where positive attitudes were widely held among obstetric care providers. Eyeberu et al. (2022) reported a positive association between attitude and utilization in Ethiopia, which is consistent with the theoretical assumption that attitude is a necessary precursor for practice. But the current results show that while positive attitude is necessary, it is not

sufficient for practice - suggesting the enabling environment plays a key role.

Practice and Pattern: The level of consistent practice (61.6%) who reported they "always" use these techniques is significant given the almost universal knowledge and positive attitude. Such discordance between knowledge, attitude and practice is not uncommon. Ojong et al. (2022) found similar in midwives in Calabar, and Ojo et al. (2020) in Ekiti State, that the knowledge-practice gap in the non-pharmacological management of labour pain is a systemic characteristic of health care settings in Nigeria. The fact that emotional support (50.1%) and breathing techniques (38.9%) are the most commonly used techniques, while massage (6.6%) is used less often, is significant. This finding is consistent with Ohaeri et al., (2019), who found that the most commonly used intervention among skilled health attendants in Ibadan was reassurance. The consistency between settings in different parts of Nigeria, with different sociodemographic characteristics, suggests that the choice of technique is driven primarily by resource constraints, rather than clinical considerations of patient need. Emotional support and breathing exercises do not require any equipment, time, or space, and can be carried out in any physical environment, so they are environmentally fit with busy under-resourced labour wards. By contrast, massage, hydrotherapy and guided imagery require resources such as time and space, or patient co-operation, which are scarce in the study environment. This finding has a significant implication for clinical governance: the pattern of use of techniques may be a *de facto* triage of available interventions based on environmental constraints, rather than evidence of efficacy. The fact that midwives were the main initiators of the techniques (94.4%) is another aspect of practice to consider. This may be a measure of diligence but it also reflects an imbalance of power in the midwife-patient relationship that is common in many Nigerian health care settings in which women in labour may not feel empowered to specify how they would like their pain managed. This is relevant to the practice of person-centred and shared decision-making models in labour care, recommended by the World Health Organization (Elgzar et al., 2024). When the midwife has exclusive initiative in the use of techniques, pain management becomes contingent on individual discretion, rather than choice - a tenuous basis for quality care. Statistical

Analysis and Implications: Chi-square (χ^2) tests were used to statistically test the null hypothesis that knowledge of specific non-pharmacological techniques was unrelated to the frequency of practice. This was an appropriate choice as the independent and dependent variables (knowledge and practice frequency, respectively) were both categorical. The findings showed significant associations for all variables related to knowledge of a specific technique. These relationships were strongest for knowledge of breathing techniques ($\chi^2 = 171.655$, $df = 9$, $p < 0.001$) and water-based pain relief ($\chi^2 = 207.614$, $df = 9$, $p < 0.001$), suggesting that midwives who knew the proper techniques for these pain-relieving strategies were more likely to use them in practice. These large chi-square values, when compared to their degrees of freedom, indicate a strong non-random association that is unlikely to be due to chance. But the varying magnitude of these associations is of analytical importance and must not be ignored. The association of guided imagery ($\chi^2 = 8.319$, $df = 3$, $p = 0.040$) was significantly weaker than the other techniques. This finding implies knowledge is a less powerful predictor of use for some techniques than others. Guided imagery demands considerable patient co-operation, attention and a quiet environment - conditions that are unlikely to be present in busy secondary-care facilities. This weak link suggests that the barrier to using guided imagery is not cognitive but environmental. The policy implication is profound: training in and of itself will have diminishing returns for techniques with environmental barriers. Environmental and staffing changes are required in conjunction with training and should be tailored to the technique itself.

Institutional Barriers: The most common barriers to practice were high workload (57.4%) and lack of staff (22.0%). This study's results are consistent with a broader regional trend. Excessive workload has been repeatedly identified as a major barrier to non-pharmacological pain relief in Tanzania (Mwakawanga et al., 2024), South Africa (Parkies et al., 2024), and several states of Nigeria, including Akure (Akin-Otiko et al., 2023) and Yobe (Abdullahi, 2024). In a high-volume scenario, midwives will focus on monitoring and responding to emergencies, reducing the time available for the patient-specific interactions required for non-pharmacological interventions. This creates a form of "de facto" triage, where pain relief is prioritized away from. Another issue is the fact 56.9% of those surveyed reported they had not completed a refresher course, while

94.1% had done initial training. Refresher training is important because the use of clinical skills in high-stress situations is susceptible to "rusting out", especially for skills that are rarely used. The lack of in-service training may explain why the level of practice is lower than the level of knowledge: one-time training can raise awareness but not competence or confidence in putting it into practice. This observation is consistent with findings that one-off training, in the absence of reinforcement, has little effect on changing practice in resource-limited health systems (Eyeberu et al., 2022).

Conclusion

This research shows midwives in the Rivers West Senatorial Zone have high knowledge and very positive attitudes to non-pharmacological management of labour pain, but there remains a big gap between knowledge and practice. This isn't due to lack of awareness or will, but structural barriers. The chi-square test found knowledge to significantly predict practice; the weaker relationship found between knowledge and practice for guided imagery demonstrates that knowledge is not a non-negotiable factor in an environment that presents a barrier. The choice of technique is determined by the labour ward environment, not by best evidence. The fact that midwives are the sole initiators also highlights a lack of person-centred care. To overcome this deficit, health managers need to focus on midwifery recruitment, embed periodic staff refresher training, and improve labour ward conditions to facilitate a wider repertoire of techniques. This will improve intrapartum pain management and promote person-centred care in this neglected setting.

Conflict of Interest

The authors declare no conflict of interest.

References

- Abdullahi, A. (2024). Assessment of pain management in labour and midwives perspectives in hospital used Damaturu Yobe State. *African Journal of Health, Nursing and Midwifery*, 7(1). DOI: [10.52589/ajhnm-msbfsdkb](https://doi.org/10.52589/ajhnm-msbfsdkb)
- AbuQubtah, R., Alrida, N., & Ababneh, A. (2024). Knowledge, attitude, and practice toward pharmacological and non-pharmacological methods for labor pain management among midwives. *Journal of Medical Pharmaceutical and Allied Sciences*, 13(2), 6429–6441. DOI: [10.55522/jmpas.V13I2.5942](https://doi.org/10.55522/jmpas.V13I2.5942).
- Akin-Otiko, S., et al. (2023). Practices and challenges of pain management during first stage of labour among midwives in University of Medical Sciences Teaching Hospital Complex, Akure. *International Journal of Nursing, Midwife and Health Related Cases*, 9(2), 13-23. DOI: [10.37745/ijnmh.15/vol9n21323](https://doi.org/10.37745/ijnmh.15/vol9n21323)
- Elgzar, H. M., et al. (2024). Non-pharmacological labor pain relieve methods: utilization and associated factors among midwives and maternity nurses in Najran, Saudi Arabia. *Reproductive Health*, 21(1). DOI: [10.1186/s12978-023-01737-2](https://doi.org/10.1186/s12978-023-01737-2)
- Eyeberu, A., et al. (2022). Obstetrics care providers attitude and utilization of non-pharmacological labor pain management in Harari regional state health facilities, Ethiopia. *BMC Pregnancy and Childbirth*, 22(1). DOI: [10.1186/s12884-022-04717-9](https://doi.org/10.1186/s12884-022-04717-9)
- Mwakawanga, D. L., et al. (2024). "...We never considered it important...": a qualitative study on perceived barriers on use of non-pharmacological methods in management of labour pain by nurse-midwives in eastern Tanzania. *BMC Nursing*, 23(1). DOI: [10.1186/s12912-024-02187-2](https://doi.org/10.1186/s12912-024-02187-2)
- Ohaeri, B., et al. (2019). Skilled health attendants' knowledge and practice of pain management during labour in health care facilities in Ibadan, Nigeria. *European Journal of Midwifery*, 3(1). DOI: [10.18332/EJM/99544](https://doi.org/10.18332/EJM/99544)
- Ojo, O. J., et al. (2020). Assessment of factors influencing midwives management of labour pain at tertiary hospitals in Ekiti State, Nigeria. *International Journal of Scientific and Research Publications*, 10(4). DOI: [10.29322/IJSRP.10.04.2020.P10087](https://doi.org/10.29322/IJSRP.10.04.2020.P10087)
- Ojong, I. N., et al. (2022). Midwives' utilization of nonpharmacological pain relief measures for labor pain management: A descriptive cross-sectional study. *Journal of Integrative Nursing*, 4(1), 12-18. DOI: [10.4103/jin.jin_27_22](https://doi.org/10.4103/jin.jin_27_22)
- Olajide, O. (2025). Utilization of pain relief in labor and it's associated factors among midwives in selected hospitals in Oyo State, Nigeria. *Journal of Womens Healthcare & Midwifery Research*, 3(1). DOI: [10.47363/jwhmr/2025\(3\)124](https://doi.org/10.47363/jwhmr/2025(3)124)
- Parkies, M., et al. (2024). The benefits and barriers of providing non-pharmacological pain relief to women in labour during COVID-19: A qualitative study of midwives in South Africa. *Women*, 4(1), 78-92. DOI: [10.3390/women4010008](https://doi.org/10.3390/women4010008)