Non-pharmacological labour pain management: Knowledge and attitudes among third-year nursing students at Welwitchia University, Katima Mulilo Campus, Namibia

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Background. Effective labour pain management is a critical component of respectful maternity care, yet in Namibia, only 37% of women receive adequate pain relief during childbirth. Non-pharmacological labour pain management (NPLPM) offers safe, cost-effective alternatives to medical options, and is aligned with World Health Organization recommendations. The knowledge and attitudes of nursing students, as future frontline providers of care, are crucial for the integration of these methods into clinical practice.

Objectives. To assess knowledge of and attitudes towards NPLPM among 3rd-year nursing students at Welwitchia University, Katima Mulilo Campus, Namibia.

Methods. A quantitative, descriptive cross-sectional study was conducted with 48 3rd-year nursing students (100% response rate), selected using simple random sampling. A structured, self-administered questionnaire was used, and data were analysed using descriptive statistics (frequencies, percentages) in Microsoft Excel.

Results. The majority of the respondents (89.6%; *n*=43) had received formal NPLPM training. While conceptual understanding was high, with 97.9% (*n*=47) correctly defining NPLPM and 100% (*n*=48) identifying the nurse/midwife as the primary provider, a critical gap was noted: 8.3% (*n*=4) misclassified epidural anaesthesia as non-pharmacological. Attitudes were overwhelmingly positive: 87.5% (*n*=42) rejected the notion that labour pain should be endured naturally, and 85.4% (*n*=41) expressed confidence in applying NPLPM. However, 33.3% (*n*=16) were neutral regarding NPLPM being time-consuming in busy wards, indicating a perceived practical barrier.

Conclusion. Students demonstrated strong foundational knowledge and positive attitudes towards NPLPM. However, misconceptions about pharmacological methods and concerns about clinical feasibility highlight a theory-practice gap. Enhancing practical training and addressing systemic barriers are essential to translate knowledge into consistent, competent care.

Keywords. Non-pharmacological, labour pain management, nursing education, knowledge, attitudes, maternal health, Namibia.

Undergraduate Res Health 2026;4(1):e4308. https://doi.org/10.7196/URHJ.2026.v4i1.4308

This article reports research undertaken by Lillian Akalemwa in partial fulfilment of the requirements for the Bachelor of Nursing and Midwifery Science degree at Welwitchia University, Katima Mulilo Campus, Namibia. Under the joint supervision of Mr Rainhold Ndaikile and Mr Kampale Ihemba, the study was completed in 2025, her graduation year.

Labour pain is one of the most intense forms of acute pain experienced by women.[1] Its effective management is a cornerstone of respectful, patient-centred maternity care, significantly influencing the childbirth experience and maternal outcomes.[2] In Namibia, access to adequate pain relief remains a significant challenge. A study on the quality of midwifery care in Namibia indicates that although over 92% of women attend antenatal care services, there is limited evidence regarding their access to adequate pain relief during labour.[3] Negative labour experiences are reported to be most common in rural regions owing to scarcity of resources and to cultural beliefs, people often viewing labour pain as part of a natural process.[4]

Non-pharmacological labour pain management (NPLPM), encompassing techniques such as breathing exercises, massage, hydrotherapy, positioning and continuous emotional support, provides safe, low-cost and evidence-based alternatives that require minimal infrastructure.[2,5] The World Health Organization (WHO) recommends NPLPM as a standard component of intrapartum care to reduce unnecessary medical interventions and promote a positive birth experience.[2]

Nursing students represent the future front line of maternal healthcare in Namibia. However, during clinical placement at Katima Mulilo Hospital, the researcher (LSA) made anecdotal clinical observations indicating that 3rd-year nursing students frequently failed to initiate

NPLPM for women expressing severe pain, despite the availability of simple comfort measures. These informal, first-hand observations raised concerns about a potential disconnect between classroom learning and clinical practice, prompting questions on students' knowledge about, and attitudes towards, NPLPM. This perceived gap between theoretical preparation and real-world application underscored the need for a systematic assessment. This study therefore aimed to rigorously assess the knowledge and attitudes of 3rd-year nursing students towards NPLPM at Welwitchia University, Katima Mulilo Campus, to identify specific educational gaps and inform targeted curriculum improvements that would enhance future maternal care outcomes.

Methods

Study design and setting

A quantitative, descriptive cross-sectional design was employed to obtain knowledge and attitudes at a single point in time.[6] The study was conducted at Welwitchia University, Katima Mulilo Campus, in the Zambezi Region of Namibia. The university provides a Bachelor of Nursing and Midwifery Science programme, with clinical placements largely at Katima Mulilo Hospital.

Population and sampling

The target population consisted of all 52 3rd-year nursing students enrolled in the 2024 academic year. The sample size was calculated using the Taro Yamane formula[7] at a 95% confidence level and a 5% margin of error, yielding a sample of 48 students. A simple random sampling method was employed: each student was assigned a unique identifier, and 48 were selected using a computer-generated random number sequence in Microsoft Excel. Inclusion criteria were: (*i*) enrolment as a 3rd-year nursing student in 2024; (*ii*) age ≥18 years; and (*iii*) provision of informed consent. Students from other academic years or campuses were excluded. The study achieved a 100% response rate (*N*=48).

Research instrument and data collection

A structured, self-administered questionnaire was developed in English (the language of instruction), adapted from previously validated tools[1] following a review of relevant literature. Face and content validity were established through review by two academic supervisors with expertise in maternal health and research methodology.[8] Data collection took place in a private room on campus after ethical approval was obtained. Participants provided written informed consent, and the researcher was present to clarify questions without influencing responses.

Data analysis

Data were coded and analysed using descriptive statistics in Excel 2019 with the package of Microsoft 365 (Microsoft, USA). Frequencies and percentages were calculated for categorical variables.

Ethical considerations

Ethical approval was granted by the Welwitchia University Institutional Research and Ethics Committee (ethical clearance ref. no. 22/3/1/2). The study adhered to the principles of the Declaration of Helsinki.[9] Participation was voluntary, anonymity was ensured through coding, and data were stored securely.

Results

Demographic characteristics of participants

All 48 participants completed the questionnaire. The majority were female (72.9%; *n*=35) and aged 23 - 27 years (58.3%; *n*=28). All participants (100%; *n*=48) identified as Christian and, crucially, every respondent had experience of rendering care to women in labour during their clinical placements, confirming relevant practical exposure. The demographic profile is summarised in Table 1.

Knowledge of NPLPM

As shown in Table 2, the majority of the students (89.6%; *n*=43) reported receiving formal training on NPLPM. Knowledge was generally sound: nearly all the students (97.9%; *n*=47) correctly defined NPLPM, and all (100%; *n*=48) identified the nurse/midwife as the responsible professional. The most preferred NPLPM methods were massage therapy (47.9%; *n*=23) and breathing techniques (43.8%; *n*=21). However, a critical misconception was identified, with 8.3% (*n*=4) incorrectly classifying epidural anaesthesia as a non-pharmacological method. All the respondents indicated that they would use breathing techniques, while 77.1% would use massage therapy. Hydrotherapy was the technique least likely to be used (22.9%; *n*=11).

Table 1. Demographic characteristics of the participants (*N*=48)

Characteristic	*n* (%)
Age (years)	
18 - 22	13 (27.1)
23 - 27	28 (58.3)
28 - 32	5 (10.4)
≥33	2 (4.2)
Gender	
Male	13 (27.1)
Female	35 (72.9)
Attended a labour case	
Yes	48 (100)
No	0

Table 2. Knowledge of NPLPM (*N*=48)

Knowledge item	*n* (%)
Received formal NPLPM training	43 (89.6)
Correctly defined NPLPM	47 (97.9)
Identified nurse/midwife as primary provider	48 (100)
Preferred massage therapy as NPLPM	23 (47.9)
Preferred breathing techniques as NPLPM	21 (43.8)
Misclassified epidural as NPLPM	4 (8.3)
Would use massage therapy	37 (77.1)
Would use breathing techniques	48 (100)
Would use hydrotherapy	11 (22.9)

NPLPM = non-pharmacological labour pain management.

Attitudes towards NPLPM

Student attitudes towards NPLPM were overwhelmingly positive (Table 3). The majority (87.5%; *n*=42) disagreed that labour pain should be endured without intervention, and 85.4% (*n*=41) felt confident using NPLPM. Most students (72.9%; *n*=35) believed that NPLPM use is effective, while 20.8% (*n*=10) were neutral about it, and 41 (85.4%) would recommend these methods to labouring mothers. A key finding, however, was ambivalence in terms of practicality; while 58.3% (*n*=28) disagreed that NPLPM is too time-consuming, a significant proportion of respondents (33.3%; *n*=16) were neutral on the statement.

Discussion

This study provides a comprehensive assessment of knowledge about and attitudes towards NPLPM among 3rd-year nursing students in Namibia, a critical cohort for improving maternal healthcare outcomes. The findings reveal a cohort that is theoretically well prepared and has strongly positive, patient-centred attitudes, yet one in which there is a discernible gap between knowledge and the confidence to apply it in real-world clinical settings.

The high proportion of students (89.6%) who reported formal training in NPLPM is commendable and exceeds rates reported in comparable sub-Saharan African contexts, such as Ethiopia (70%).[10] This finding indicates that this essential topic is successfully integrated into the nursing curriculum at Welwitchia University, aligning with WHO recommendations.[2] The near-universal correct definition of NPLPM (97.9%) and the unanimous identification of the nurse as the primary provider (100%) further reflect effective foundational teaching. This role clarity is a fundamental prerequisite for clinical implementation, as ambiguity can significantly hinder the application of non-pharmacological methods.[11]

However, a critical deficiency was uncovered. The misclassification of epidural anaesthesia as a non-pharmacological method by 8.3% of students, although they were a minority, represents a serious conceptual error with direct implications for patient safety and education. Epidural analgesia involves the administration of local anaesthetics or opioids into the epidural space, carrying risks such as maternal hypotension and fetal bradycardia.[12] Confusing it with non-invasive methods such as massage or breathing techniques risks misinforming patients and undermines the integrity of informed consent. This finding echoes the findings of a study by Jones *et al.*,[1] where similar confusions were noted among nursing and midwifery students, suggesting a common curricular weakness in clearly delineating pain management modalities.[1,2] It underscores the need for teaching strategies that explicitly contrast pharmacological and non-pharmacological mechanisms, perhaps using case-based learning or concept-mapping exercises.

Students' reported willingness to apply specific NPLPM modalities provides valuable insight into how theoretical learning may translate into clinical behaviour. The findings showed that while all students (100%) reported willingness to use breathing techniques, confidence and intention varied across other methods. Massage therapy was favoured by 77.1% of students, demonstrating moderate readiness to apply tactile, patient-centred interventions requiring skill and confidence. However, hydrotherapy received the lowest endorsement, with only 22.9% of participants stating that they would use it. This pattern is likely to reflect differences in perceived feasibility, institutional resource availability, and exposure during clinical practice. Similar trends were observed in a study from Iran, where student intentions aligned more strongly with low-resource, non-equipment methods than with techniques requiring specialised infrastructure.[13] These results suggest that while attitudes are positive, the readiness to implement certain NPLPM methods may be constrained by training opportunities and clinical environment limitations rather than conceptual rejection of the techniques themselves.

The attitudinal findings are particularly promising for the future of maternal care in Namibia. The overwhelming rejection (87.5%) of the notion that labour pain must be endured naturally signifies a shift away from fatalistic cultural norms that can impede pain relief.[4] This evidence-based, compassionate stance is aligned with the WHO's framework for respectful maternity care.[2] Furthermore, the high levels of confidence (85.4%) and the near-universal willingness to learn more (98.0%) indicate a motivated student body poised to adopt these skills. The finding that cultural beliefs were not perceived as a barrier by 91.7% of students is significant in the Namibian context, suggesting that professional education can effectively foster an evidence-based approach that transcends traditional beliefs.

Despite these strengths, the study identified a potential barrier to implementation: perceived practicality. The fact that 33.3% of respondents were neutral on whether NPLPM is too time-consuming for busy wards is revealing. It points to a recognition of the systemic challenges in clinical environments, such as understaffing and high patient loads, which are well-documented barriers in low-resource settings.[13] This neutrality suggests that students, while theoretically confident, are apprehensive about the feasibility of providing holistic care in resource-constrained realities. This 'know-do gap' is a critical issue; knowledge and positive attitudes may not translate into action if students perceive

Table 3. Attitudes towards NPLPM (N=48)

Attitudinal statement	Agree, *n* (%)	Neutral, *n* (%)	Disagree, *n* (%)
Confident in using NPLPM	41 (85.4)	5 (10.4)	2 (4.2)
Believe NPLPM is effective	35 (72.9)	10 (20.8)	3 (6.3)
Labour pain should be endured naturally	6 (12.5)	0	42 (87.5)
Willing to learn more about NPLPM	47 (98.0)	1 (2.0)	0
Cultural beliefs restrict NPLPM use	4 (8.3)	0	44 (91.7)
NPLPM is too time-consuming in busy wards	4 (8.3)	16 (33.3)	28 (58.3)
Would recommend NPLPM to mothers	41 (85.4)	6 (12.5)	1 (2.1)

NPLPM = non-pharmacological labour pain management.

a lack of institutional support or time. It highlights the necessity of not only educating students but also addressing the structural constraints in clinical placement sites.

The limitations of the study must be acknowledged. Its cross-sectional design provides a snapshot in time but cannot establish causality or track changes in knowledge and attitudes throughout the educational programme. The single-institution sample, while providing valuable insights for Welwitchia University, limits the generalisability of the findings to other nursing schools in Namibia or the region. Nevertheless, the high response rate and rigorous methodology strengthen the internal validity of the results, providing a solid evidence base for institutional reflection and action.

Conclusion and recommendations

This study concludes that 3rd-year nursing students at Welwitchia University, Katima Mulilo Campus, have a strong foundational knowledge of and highly positive attitudes towards NPLPM. They demonstrate a clear understanding of the nurse's role and a patient-centred ethos that rejects unnecessary pain endurance. However, the persistence of specific misconceptions, particularly regarding the classification of epidural analgesia, and concerns about the practical feasibility of implementing NPLPM in clinical practice, indicate a gap between theoretical learning and practical readiness.

Bridging this theory-practice gap is imperative. To ensure that these future nurses are not only knowledgeable but also empowered and competent to provide high-quality, compassionate care, targeted interventions are required. These interventions must focus on clarifying foundational concepts and equipping students with strategies to navigate the challenges of the real-world clinical environment.

Based on the findings, the following recommendations are proposed.

For curriculum enhancement

- **Address conceptual gaps.** Integrate explicit teaching modules that clearly differentiate between pharmacological and non-pharmacological pain management methods, using interactive methods such as case studies and quizzes to reinforce learning.
- **Expand the scope of teaching.** Move beyond pain reduction to educate students on the broader benefits of NPLPM, such as its potential to shorten labour duration and reduce the need for obstetric interventions, as supported by evidence.[5]
- **Incorporate cultural competence.** While not a major barrier, formally integrating cultural competence training will prepare students to sensitively navigate diverse patient beliefs about childbirth.

For clinical training and institutional support

- **Strengthen clinical mentorship.** Designate clinical mentors or 'NPLPM champions' among practising midwives to serve as role models for students, supervise, and provide feedback to students during their labour ward rotations.
- **Integrate into assessments.** Include the practical application of NPLPM techniques (e.g. demonstrating massage, guiding breathing) in clinical skills checklists and evaluations to emphasise their importance.
- **Advocate for resources.** University leadership should collaborate with hospital management to ensure that basic NPLPM resources (e.g. birthing balls, supportive seating) are available in clinical areas.

For future research

- **Longitudinal studies.** Conduct research that follows a cohort of students into their internship and early practice to assess how knowledge and attitudes translate into clinical behaviour over time.
- **Multi-institutional studies.** Expand the research to include other nursing schools in Namibia to gain a national perspective and identify common challenges and successes.
- **Qualitative exploration.** Use focus groups or in-depth interviews with students and educators to explore the perceived barriers to NPLPM implementation in greater depth, providing rich data for intervention design.

Declaration. The research was done in partial fulfilment of the requirements for LSA's Bachelor of Nursing and Midwifery Science degree at the Clara Barton School of Nursing, Welwitchia University, Katima Mulilo Campus, Namibia.

Acknowledgements. The authors thank Welwitchia University, the Ministry of Health and Social Services and the respondents for permission to conduct this study.

AI declaration. The authors acknowledge the journal policy on the use of AI, and the requirement to disclose the use of any AI tools in manuscript preparation. AI (ChatGPT) was used only for minor language polishing on a few sentences. Substantive writing, data analysis and interpretation were performed by the authors. Professional language editing was done by a professional editor.

Author contributions. LSA: conceptualisation, methodology, formal analysis, investigation, writing – original draft. RVN: supervision, validation, writing, review and editing. KI: supervision, writing; review and editing.

Funding. None.

Data availability statement. The data sets generated and analysed during the current study are available from the corresponding author (RVN) upon reasonable request, subject to participant confidentiality agreements.

Conflicts of interest. None.

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Received 6 October 2025. Accepted 29 January 2026.