



## **The practice of Non-Pharmacological Analgesia in Labour Among Midwives in a Tertiary Institution in Benin City, Edo State, Nigeria**

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### **Abstract**

**Background:** Women experience pain during childbirth in varying degrees of intensity. Therefore, most women require some type of analgesia to relieve pain. Non-pharmacological management reduces labour pain with minimal or no harm to the mother and foetus. **Aim:** This study aimed to assess the practice of non-pharmacological methods of analgesia in labour among midwives in the University of Benin Teaching Hospital. **Method:** A descriptive research design was used. The population were registered midwives working in the maternity wards of the hospital. Taro Yamane's formula was used to determine the sample size of 150 participants and all target population took part in the study. Data was analysed and presented in percentages, bar chart and inferential statistics using the chi-square ( $\chi^2$ ) test at a 95% confidence level. **Results:** Findings revealed low (41.3%) practice of non-pharmacological management, while 58.7% did not use the non-pharmacology method. The most practised methods were deep breathing exercises and continuous labour support (37.3%) with touching and massaging at (30.7%). Hindrances to the practice of the non-pharmacological method of management included understaffed maternity ward (72.0%), workload (51.3%), time factor (48.7%). Lastly, the study showed that there is no significant association between years of experience and practice of the non-pharmacological method of managing pain in labour which is  $P>0.05$ . **Conclusion:** It was concluded that the practice of non-pharmacological analgesia by midwives in managing pain is low. It is therefore recommended that more staff should be employed to reduce the workload of staff in order for them to increase their practice of the non-pharmacological method.

**Keywords:** *Non-Pharmacological, Practice, Labour Pain, Midwives, Pain Management*

### **Introduction**

Pain in labour is a dominant concern for many pregnant women. Antenatal access to information about risks and benefits of both pharmacological and non-pharmacological methods of pain management, along with demonstration and rehearsal of non-pharmacological analgesia can help women make informed decisions about whether and how, to use these techniques (Ojerinde et al.,

2016) The decisions regarding pain management techniques during labour and birth are prominent in clinical discussion and some women's birth plans. Most women expect to experience some degree of pain during labour. One of the major determinants of maternal satisfaction in labour is adequate analgesia and the woman being able to cope with the pain (Ojo et al., 2020). Supporting women during labour is an essential part of

public health-care. The term 'labour support' refers to continuous non-medical care of a woman in labour. It includes physical comforting such as touching, massaging, bathing, grooming, applying warmth or cold and emotional support such as continuous companion, reassurance, encouragement anticipatory guidance, information provision and non-medical advice (Bonnet et al., 2017).

The international association for the study of pain defined pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. Painful stimuli may induce such changes as increased heart rate, a rise in blood pressure, the release of adrenaline into the bloodstream and an increase in blood glucose levels. There is also a decrease in gastric motility and a reduction in blood supply to the skin causing sweating (Almushait & Ghani, 2014).

Labour, being the process by which the fetus, placenta and membranes are expelled through the birth canal, is the culmination of pregnancy and an event with great psychological, social and emotional meaning for the mother and her family. This is also a time when many women experience stress and physical pain (Madden et al. 2013). Pain during labour is one of the major concerns of pregnant women all over the world. (Madden et al. 2013).

Analgesia in labour is defined as the removal or reduction of pain in labour, this can be achieved by means of pharmacological methods and non-pharmacological methods administered by the midwife to her client. There is an array of both pharmacological and non-pharmacological interventions available for the relief of labour pain (Adam et al. 2015). Commonly, these include pharmacological interventions such as epidural analgesia, opioids, like pethidine, a non-opioid drug-like drug and injection, diclofenac injection, pentazoane and hyoscine bromide injection (Thomson et al., (2019). The non-pharmacological methods of analgesia on the

other hand do not involve the use of drugs in the control of pain but rather such activities like mobility, positioning, massage, acupuncture, hydrotherapy, Transcutaneous Electrical Nerve Stimulation (TENS) taught to the client or directly done for her by the midwife taking her delivery. The effectiveness of these drugs to reduce pain cannot be doubted including their side effects on both mother and the unborn baby.

A seven electronic database study conducted by Thomson et al., (2019) revealed that women reported mixed experiences of different analgesia method. It noted that pharmacological methods can reduce pain but have negative side effects. While the non-pharmacological method may not reduce labour pain but can facilitate bonding with professionals and birth supporters.

In a study conducted in Shakkah province of Saudi Arabia by Ali et al., (2013), it was noted that knowledge and practice of non-pharmacological management were at a satisfactory level. However, the percentage that applied non-pharmacological pain management was low in hospitals because of lack of time. It however reported a positive relationship among age, educational level, years of experience, and practice of the nursing staff regarding non-pharmacological methods.

Sahile et al. (2017) in their study conducted in North Ethiopia observed the practice of labour pain management methods was 43.3%, which was only non-pharmacologic methods and practice of pharmacologic method was nil. The study however revealed that the practice of labour pain management methods was poor. However, the study concluded that positive attitude and highest qualification were found to be significant predictors of the practice of labour pain management. So there is a need to build the attitude and knowledge of midwives towards the good practice of labour pain management. Another study conducted in Northwest Ethiopia by Bitew et al. (2016) revealed that overall utilization of obstetric

analgesia in labour pain management was 40.1% which showed only non-pharmacologic methods while pharmacological obstetric analgesia utilization was zero. Conclusively, it was noted that the highest qualification and inadequate knowledge were significantly associated with obstetric analgesia utilization.

Similarly, Aziato et al. (2017) in their own study conducted in Ghana, observed that midwives employed different pain control measures including pharmacological and non-pharmacological methods such as psychological care, sacral massage and deep breathing exercises. Although the midwives exhibited knowledge on drugs used for labour pain management, they did not regularly administer analgesics, and the non-pharmacological care provided were inadequate due to increased workload and shortage of staff. Some of the midwives showed empathy towards women and supported the women. Most of the midwives perceived labour pain as normal and encouraged women to bear the pain. They concluded that midwives require regular education on labour pain management and they should pay attention to women in labour individually and administer the care that meets their need.

Another study conducted in Egypt by Mousa et al., (2018) showed that although most health practitioners (HPs) understand the role of analgesia in labour pain relief, there is a wide gap between the use of analgesia methods and women's need in Minia Egypt. They claimed this is due to health care facilities. It was concluded that research should be done to reduce more barriers to its use. Ohaeri et al. (2018) in their study conducted in Ibadan, Nigeria posited that the most reported method of managing labour pain was reassurance which is a non-pharmacological method, followed by drugs which is pharmacological. It concluded that mastery of labour pain management should be considered as one of the prerequisites for the renewal of a license for midwives. A study conducted at Ibadan, Nigeria by Oguniran et

al., (2020) reported that the majority of the midwives considered the use of the non-pharmacological method of management because it is cheap and safe and natural.

Almushait and Ghani (2014) in their study conducted in Saudi Arabia observed that barriers to the practice of non-pharmacological analgesia during labour were lack of time, regulating issues, lack of knowledge, patient unwillingness and strong beliefs in analgesia.

In an intervention study conducted in Ghana by Boateng et al., (2019), it was revealed that barriers to the use of non-pharmacological pain management are categorized into three – clinician related, health system-related and client-centred. Clinician-related barriers comprised perceptions and belief of nurses and midwives which hindered their frequent utilization of non-pharmacological methods. A number of them is of the opinion that non-pharmacological interventions do not actually relieve pain. Health system-related barriers refer to the structure of the health system as well as the physical structure of the labour ward. The number of nurses and midwives available for each shift was not sufficient to effectively carry out these non-pharmacological interventions while client-centred is described as preferences of clients which hindered the use of non-pharmacological methods in managing labour pain.

A similar study conducted in Akure, Southwest by Anozie et al., (2018) reported that obstetricians in Nigeria practised the use of epidural analgesia more than non-pharmacological analgesia. It was also revealed in the study that the deterrents of the use of analgesia among obstetricians in Nigeria are lack of skills, expensive, against religion, against culture, need to allow natural labour and client refusal. Another study conducted in Ekiti State, Southwest Nigeria by Ojo et al., (2020) reported that lack of labour pain relief equipment, shortage of staff

and hospital policies influenced midwives management of labour.

Studies have shown that these methods have little or no side effects and are quite effective in pain control and can be used in combination with the pharmacological methods although they seem to be regularly overlooked by midwives, doctors or patients (Escott et al. 2009). Effective labour pain management results in greater birth satisfaction, safe and comfortable birth experience for the mother and the baby. Hence, the study was to assess the practice of non-pharmacological management and hindrance to management during labour.

### **Statement of the Problem**

Effective labour management results in greater birth satisfaction, safe and comfortable birth experience for mother and baby. Labour pain management include a broad range of pharmacologic and non-pharmacologic intervention strategies. The researcher observed that intervention given to relieve pain in labour by midwives was majorly pharmacological in nature. Non-pharmacologic analgesia that is easily applicable, cheap and safe was not adequately used during natural birth. Aziato et al., (2017) in their study in Ghana reported that midwives administer pharmacological analgesia in the management of labour and non-pharmacological care provided was inadequate. This informed the researcher to assess midwives practice of pharmacological method and hindrance to the practice.

### **Significance of the Study**

This is to propagate the applicability of non-pharmacological analgesia during natural birth and to bring to the effectiveness and benefit of non-pharmacological analgesia.

### **Objectives of the Study are to:**

- i. Assess the practice of non-pharmacology management during labour
- ii. Identify the factors that hinder the practice of non-pharmacological management during labour.

### **Hypothesis**

H<sub>0</sub>: There is no significant association between years of experience in the labour ward and the practice of non-pharmacological methods during labour.

### **Theoretical Framework**

Reva Rubin's Framework and Social Support Theory

Reva Rubin's framework and social support theory provide a remarkably solid theoretical foundation for nurses' care of mothers in labour. Integrating social support into the framework spans several disciplines and has clearly shown that health outcomes are influenced by support. Rubin framework explains the labouring mother psychological milieu, guiding the support processes that can ease the trials of her labour, improve birth outcomes, enhance her self-esteem, identity and provide a foundation for her role transition to motherhood. Rubin describes social support actions by nurses during labour as directed towards two of the four components of what is described as pregnancy work: seeking safe passage and giving of oneself. Seeking safe passage refers to the mother's knowledge and care-seeking behaviour to ensure that both she and her newborn emerge from pregnancy and childbirth intact and healthy while giving oneself refers to the willingness and ability to make personal sacrifices (time, discomfort, etc) for the child. Social support is often described as an interpersonal transaction that contains emotional support or affects, information or advice, instrumental or physical aid and appraisal support or affirmation.

Emotional or affect support refers to empathy esteem, concern unconditional regard and reflective listening are emotionally sustaining behaviour e.g. staying with the labouring mother, making eye contact, touching her hand. Appraisal or affirmation implied that the intrapartum nurse can relieve the mother's feeling of anxiety and shame by (a) explaining what is normal (b) offering reassurance (c)

contextualizing the functional losses as progress in her journey toward delivery. Nursing support involves enabling the mother to achieve control of function appropriately in time and place. Instrumental or Physical Aid: This involves action to alter the environment or provide aid, money, time or labour such as providing sips of water, play music, offering a warm shower, helping mother into different positions. It is divided into two components: (a) comfort care and (b) clinical skills and expertise. Comfort care is the intervention during pain such as a calm voice, gentle firm touch, with an open palm, sacral counterpressure, cooling washes, back massage. Rubin elaborated on nursing skills needed for adequate comfort to labouring mothers. Nurses who are knowledgeable and skilled can augment mothers' coping abilities by being supportive and responsive to the mother. Skills like reassuring touch, verbal confirmation and restful massage. Both the social support literature and Rubin's writings provide a theoretical foundation for intrapartum nursing care. Regarding the nurse as a support provider, Rubin clearly established both the privilege and commitment that nurses have when they help women "through the valley of the shadow that all women walk to have a child" (Rubin, 1975).

#### **Application of Theory to Study**

Application of Reva Rubin's framework and social support theory is basically, the integration of social support and care of mothers in labour. This explains the labouring mother psychological milieu, support processes that can ease trials of labour, improve birth outcomes. Social support is described as an interpersonal transaction that contains emotional support or affects, information or advice, instrumental or physical aid and appraisal support or affirmation. In caring for mother or women in labour pharmacological or non-pharmacological are given to alleviate pain and discomfort in order to improve birth outcomes. During labour the midwife renders social support such as emotional or affect

support such as midwife staying with labouring mother, patiently supporting her with non-pharmacological analgesia that is cheap and safe for example touching. Appraisal or affirmation support such as relieving of mothers' feeling of anxiety, by reassuring her. While instrumental or physical aid support has two components, comfort and clinical skill. Example of physical and appraisal support are the intervention rendered during labour pain such as massage, deep breathing exercises, continuous labour support.

These non-pharmacological analgesia approaches to pain management addresses the physical sensation of pain and also prevent suffering by enhancing the psychological-emotional and spiritual components of care.

#### **Methods and Materials**

The study adopted a cross-sectional descriptive research design.

#### **Research Setting**

The study was conducted at the University of Benin Teaching Hospital (UBTH), Benin City. Geographically, the University of Benin Teaching Hospital is located in the Ugbowo community between the boundaries of Egor and Ovia North-East local government areas of Edo State. It is situated along Benin-Lagos express road, a few kilometres from the University of Benin. It shares boundaries with the main campus of the University of Benin and the Federal Government Girls' College road. The hospital was taken over by the federal government on 1 April 1975. With an initial bed capacity of 360 when it officially opened on 12 May 1973, the UBTH today boasts of over 860-bed capacity as of August 2017 and still increasing with a multiplicity of departments offering a wide range of services. The hospital was chosen because it is a tertiary institution consisting of different specialists.

The maternity unit consists of the following wards: Labour Ward (12 beds) and delivery room (4 beds) Labour Ward Theater (12 beds), Maternity Wards 1 (42 beds) and 2 (42 beds),

Antenatal Clinic, and Family Planning Clinic. It is a tertiary health institution set up to render health services to the general public and also training of nurses, midwives, medical doctors and other health professionals.

### **Population**

The target population for this study was one hundred and fifty (150) midwives in the maternity unit of the University of Benin Teaching Hospital. The ratio of nurse/patient in the labour ward is 1:3 while 1:1 in the delivery room.

### **Sample Sampling Technique**

Census sampling was used in this study. This was because of the small target population.

### **The instrument for Data Collection**

A self-developed structured questionnaire consists of closed-ended questions with a choice of one or several answers (Multiple choice questions). The questions were formulated according to the research objectives stated and consist of three sections.

Section A: Demographic data of the participants elicit questions on age, rank, experience in the labour ward and the highest level of education, Section B: Practice of non-pharmacological analgesia in labour elicit questions from respondents to indicate “Yes” or “No” Section C: Hindrances of non-pharmacological methods of analgesia elicit questions on the time factor, understaff maternity ward, work overload and strong belief in analgesic. Section D: elicit questions on type of non-pharmacological analgesia – touching and massaging, TENS and hypnosis, deep breathing exercises and continuous labour support and information provision and non-medical advice.

### **Validity and Reliability**

Content and face validity was done by experts (a reproductive health nurse and a gynaecologist). A test-retest method was used to ascertain the reliability of the instrument using Cronbach’s Alpha. This was conducted two (2) weeks apart. A pilot study was

conducted among 15(10% of the sample) midwives in Irrua Teaching Hospital to ascertain the clarity of the questionnaire. The test-retest procedure produced reliability of 0.81.

### **Method of Data Collection**

The structured questionnaires were self-administered to the respondents in the various wards in the maternity unit on different days from June to July 2019 to enable the researcher to get access to the midwives on their different days of availability (duty). The response rate is 100%. One hundred and fifty questionnaires were retrieved and properly filled.

### **Method of Data Analysis**

Data analysis was done using descriptive statistics which involved the use of percentage and bar chart. The hypothesis was tested using inferential statistics of chi-square ( $\chi^2$ ). The level of significance was set at 5% (0.05) such that a significant association was established at  $P < 0.05$ .

### **Ethical Consideration**

Ethical clearance was obtained from the Ethics and Research Committee, University of Benin Teaching Hospital, Benin City with reference number ADM/E22/A/VOL.VII/14641. The code of ethics aimed at protecting the rights of individuals was adopted. They were:

- ✧ Voluntary participation: respondents voluntarily participated in the study.
- ✧ Privacy: privacy of respondents was maintained
- ✧ Confidentiality: all information given was treated with the utmost confidentiality
- ✧ Autonomy: respondents were given the right to make a decision as regards the study, no respondents were coerced to participate.
- ✧ Beneficence: the researcher ensured that the benefits of the study outweigh the risks. The welfare of participants was parts of the goal of the study.

- ✧ Non-maleficence: Respondents were protected from harm in the course of the study
- The research aim, objectives and procedure of the study were explained to the respondents after which informed consent was obtained before participation.

**Results**

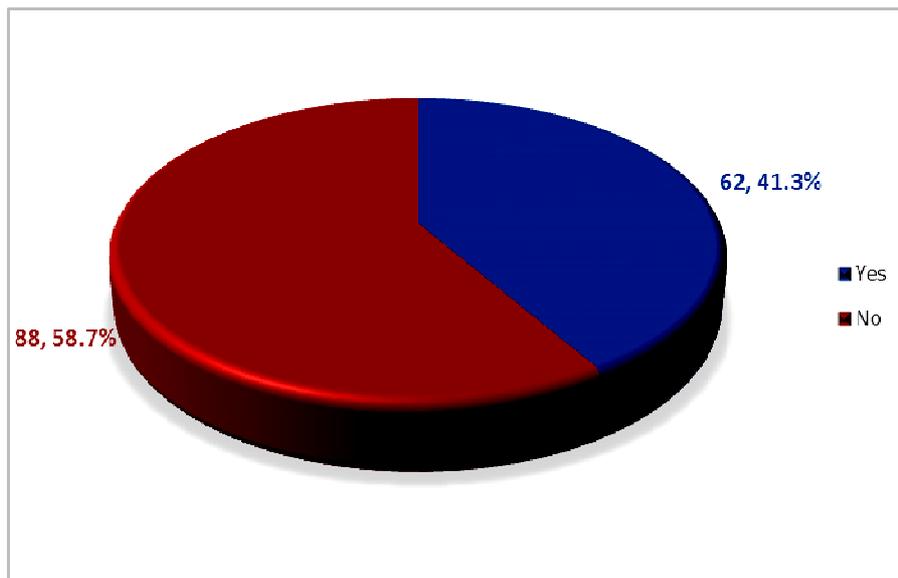
**Table 1: Sociodemographic Characteristics of Respondents**

Variables	Attributes	Frequency	Percentage
How old are you?	25-30	20	13.3
	31-35	35	23.3
	36-40	78	52.0
	41 and above	17	11.3
What is your rank?	CNO	19	12.7
	ACNO	27	18.0
	PNO	63	42.0
	SNO	20	13.3
	NOI	21	14.0
How many years experience have you had in labour ward?	1-2 years	31	20.7
	3-5 years	78	52.0
	Above 5 years	41	27.3
	None	0	0.0
What is your highest level of education?	B.Sc	53	35.3
	M.Sc	15	10.0
	RN/RM	82	54.7

CNO: Chief Nursing Officer, ACNO: Assistant Chief Nursing Officer, PNO: Principal Nursing Officer, SNO: Senior Nursing Officer, NOI: Nursing Officer I

Table 1 shows the demographic characteristics of respondents. 20(13.3%) of the respondents are within the age bracket 25 - 30yrs, 35(23.3%) are within 31 - 35yrs, 78(52.0%) are within 36 -40yrs; while the remaining 17(11.5%) of the respondents are 41yrs and above. 19(12.9%) of the respondents are CNO, 27(18.0%) are ACNO,

63(41.7%) are PNOs, 20(13.3%) are SNO's while the remaining 21(14.0%) are NO I. Respondents have 1 - 2years experience, 78(51.8%) are 3 - 5years, while the remaining 41(27.3%) are above 5 years. 53(35.0%) of the respondents are B.Sc holders, 15(10.1%) are M.Sc holders, while the remaining 82(54.7%) have RN/RM.



**Figure 1: Practice of non-pharmacological analgesia in labour**

Figure 1 shows the midwives' practice of non-pharmacological analgesia in labour. 62(41.3%) of the midwives reported that they

use these non-pharmacological methods of pain relief, while the remaining 88(58.7%) do not use them.

**Table 2: Types of Non-Pharmacological Analgesia in Labour**

	Frequency	Percentage
Touching and massaging	46	30.7
TENS and hypnosis	6	4.0
Deep breathing exercises and continuous labour support	56	37.3
Information provision and non-medical advice	12	8.0

Table 3 shows the types of non-pharmacological methods of pain relief for patients in labour, 46(30.7%) make use of touching and massage, 6(4.0%) use TENS and

hypnosis, 56(37.3%) use deep breathing exercises and continuous labour support method, while 12(8.0%) information provision and non-medical advice.

**Table 3: Hindrances to Practice of Non-Pharmacological Analgesia in Labour**

	Frequency	Percentage
Time factor	73	48.7
Understaffed maternity ward	108	72.0
Workload	77	51.3
Strong belief in analgesic	64	42.7

Table 2 shows the hindrances to the practice of non-pharmacological methods of pain relief in labour. 73(48.7%) reported that time factor was a hindrance to the practice, 108(72.0%)

reported understaffed maternity wards, 77(51.3%) reported unavailability of necessary materials, while 64(42.7%) reported a strong belief in analgesia.

## Hypothesis

**Table 4:** Hypothesis Testing

	Practice methods		$\chi^2$	p
	Yes	No		
<b>Years of experience in labour ward</b>				
1-2 years	13(41.9)	18(58.1)	6.122	0.106
3-5 years	47(60.3)	31(39.7)		
Above 5 years	29(70.7)	12(29.3)		

The above table shows the association between years of experience in the labour ward and the practice of non-pharmacological methods in labour. The result shows the proportion of midwives that practise these methods increases with increasing years of experience in the labour ward. This association is not statistically significant ( $p>0.05$ ). We, therefore, accept the null hypothesis which states that there is no significant association between years of experience in the labour ward and the practice of non-pharmacological methods in labour.

### Discussion of Findings

The study was to assess the practice of non-pharmacological analgesia in labour among midwives. One hundred and fifty (150) respondents participated in the study. A majority of the respondents were between 36 and 40 years, Principal Nursing Officers (PNO) by rank and 3-5 years of experience while the majority were registered nurses (RN) and midwives (RM).

The finding from the study indicates that the practice of non-pharmacological pain management during labour is low which is consistent with related studies done by Sahile et al., (2017); Bitew et al., (2016). This is also at variance with other studies conducted in Ibadan and Jos, Nigeria which reported that the majority of the midwives use non-pharmacological analgesia in the management of pain (Ohaeri et al., 2019 and Daniel et al., 2015). The present study also indicated that a high number of midwives do not use non-pharmacological pain management during

labour. This is supported by other studies conducted by Sahile et al., (2017); Bitew et al., (2016) that recorded zero and nil respectively.

This implies that the practice of non-pharmacological management of pain during labour by midwives may be due to the belief of the philosophy of midwifery practice of care. This philosophy of care is dedicated to the essential truth about childbirth that is based on the process of childbearing as a normal physiological process perfectly designed by nature. This physiological process is a natural, instinctive, primal experience that has its own rhythm and pace. That is why the midwives show empathy and encourage women to bear pain with minimal support.

The most practised non-pharmacological methods were deep breathing exercises and continuous labour support followed by touching. This is consistent with the findings of Azieto et al., (2017) and other findings in Ibadan and Jos, Nigeria (Ohaeri et al., 2019 and Daniel et al., 2015). The findings also revealed that hindrances to practising non-pharmacological method effectively were understaffed maternity wards, followed by workload and time factor and strong belief in analgesic. This is also supported by the studies conducted by Boateng et al., (2019); Almushart & Ghani (2014) and Ojo et al., (2018) respectively which revealed that the number of staff available was not sufficient for each shift, lack of time and strong belief in analgesic were hindrances to the practice of the nonpharmacological method.

Finding in support of hindrances to the practice of non-pharmacological method revealed factors such as religion, culture, need to allow natural labour and client refusal (Anozie et al., 2018).

Lastly, this study showed that there is no significant association between years of experience and practice of the non-pharmacological method. This is supported by the study of Ali et al. (2013) which revealed that years of experience is a predictor of the practice of non-pharmacological management of pain during labour. Possibly, if there had not been any hindrance to the practice of non-pharmacological management, the non-pharmacological method would have been the most practised method.

### Conclusion

The result revealed the low practice of the non-pharmacological method. Some of the reasons for the non-practise of non-pharmacological methods include an understaffed maternity ward, time factor and workload.

### Recommendation

It is recommended that adequate staffing should be employed to enhance the practice of non-pharmacological analgesia during labour. There should be regular education on pain management during labour. This should be incorporated into mandatory continuing professional development programmes (MCPDP) organized for nurses and midwives. This would help build the positive attitude of midwives towards the non-pharmacological method of management of pain relief during labour.

### Strengths and Limitations of the Study

The major strength of this study was the high response rate of the respondents. One of the limitations of the study stems from the fact that data was collected from the respondents based on self-report which were not independently verified. Possibility of recall bias may have existed.

### Competing Interest

The authors declare that they have no competing interests.

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