# Knowledge and practice of pain management among nurses in labour wards in Ibadan, Nigeria

*By Ogonna EZE Ojerinde, Adenike Onibokun, and Onoja Mattew Akpa*

## Abstract

**Background:** It is not clear whether awareness of pain management has influenced the management of labour pain by nurse/midwives in Ibadan, Nigeria. Many women in labour do not get optimal pain relief, despite awareness of the importance of pain management.

**Aims:** This study aimed to assess knowledge and practice of labour pain management among nurse/midwives in Ibadan.

**Methods:** This cross-sectional study included 87 nurse/midwives on duty in labour rooms of three hospitals in Ibadan, Nigeria. Data were collected using semi-structured questionnaires. Descriptive statistics, and Pearson's and Kendall's correlation coefficients were used for data analysis. All analyses were performed using IBM SPSS version 20.0 at a 5% level of significance.

**Findings:** Two thirds of respondents (66.7%) had a moderate level of knowledge, and 34.5% managed labour pain through back massage/psychotherapy. Knowledge of pain management was associated with level of education ($\tau = 0.82$; $P < 0.001$) while good practice of pain management was associated with good knowledge ($r = 0.49$; $P < 0.001$). The association between good practice and years of working experience just failed to be statistically significant ($P = 0.06$).

**Conclusions:** Nurse/midwives in Ibadan have moderate knowledge of labour pain management. Participants in this study primarily used back massage and psychotherapy. There is need for improvement in knowledge of labour pain management through continuing education for nurse/midwives in Ibadan.

**Keywords:** Knowledge, Practice, Labour pain, Nurses, Pain management

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There has been progress in recent decades in the understanding of the underlying mechanisms of pain and its treatment (Bergstrom et al, 2010). Childbirth, while primarily a joyful event, also exposes the woman to one of the severest forms of pain. Labour pain associated with childbirth is a painful experience, irrespective of social and ethnic background. A study conducted on labouring women in the UK indicated that 93.5% of the women described the pain as severe or unbearable (Baker at al, 2001), while in Finland 80% described it as very severe or intolerable (Ranta et al, 1995).

Pain during the dilation phase of labour originates from the dilation mechanism of the lower uterine segment and cervix. In the expulsive stage, pain is caused by the distension and traction of the pelvic structures surrounding the vagina and the distension of the pelvic floor and perineum (Bergstrom et al, 2010). Owing to the Biblical explanation for labour pain, which blames Eve for listening to the serpent, some women perceive labour pain as a means of atonement for sin and, therefore, do not complain while experiencing labour pain.

Managing labour pain in women is an important nursing and midwifery responsibility, and facilities are required to implement specific procedures and provide education on pain assessment and management during labour.

## Literature review

It is acknowledged that pain is associated with labour and birth. Pain is defined by the International Association of the Study of Pain (2012) as 'unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage'. Pain is highly individual and has both emotional and sensory components. Panke (2002) quotes McCaffery's (1968) definition of pain, which suggests that pain is whatever the experiencing person says it is, existing whenever he says it does. Perceptions of pain are influenced by social and environmental factors, and by a person's experiences and cultural factors. Therefore, an individual's perception of pain is distinct and unique.

Labour is the process by which the fetus and placenta are expelled through the birth canal (Fraser et al, 2010), and is usually accompanied by intense and prolonged pain. Pain levels reported by labouring women vary widely. Pain levels appear to be influenced by fear and anxiety levels.

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Some other factors may include experience with prior childbirth, age, ethnicity, preparation, physical environment and immobility.

Pain during labour is caused primarily by uterine muscle contractions, along with pressure on the cervix. This pain manifests itself as cramping in the abdomen, groin and back. Other causes of pain during labour include pressure on the bladder and bowels by the fetus' head, and the stretching of the birth canal and vagina (KidsHealth, 2011).

The childbirth experience is consistently described as a pivotal event of great psychological importance in a woman's life. How the woman responds psychologically is, to some extent, dependent on the support she receives. The quality of support provided influences the woman's satisfaction with the birth process. A satisfying or positive experience with childbirth increases when the woman's expectations are met (Sauls, 2004). Sleutel (2003) has opined that helping mothers in labour is the essence of intrapartum nursing care.

Pain in labour and childbirth is not easily defined, nor is it simple to assess. After months of waiting, the onset of labour can be an exciting and anxiety-provoking event. Childbirth pain tends to be either celebrated or vilified, depending on a woman's personal and cultural models and expectations. Because multiple factors influence pain and a woman's perception of pain during labour, assessing pain accurately is a challenge in clinical practice (Roberts et al, 2010).

In 2001, the Joint Commission (formerly the Joint Commission on Accreditation of Healthcare Organizations (JCAHO, 2003)) noted that the lack of a standardised pain assessment and re-assessment tool was a barrier to adequate pain care for patients. Its goal was that institutions provide relevant pain management to various patient populations. Therefore, it developed standards for the assessment and management of pain in accredited hospitals. In response, many hospitals embraced the use of the Numeric Rating Scale (NRS), which asks a patient to rate pain on a scale of 0–10. The NRS has increasingly been used for most patient populations (JCAHO, 2003).

Roberts et al (2010: 107) reported that the documentation of pain in the labour and birth setting is essential for all health-care providers caring for women in labour. They added:

*'The Joint Commission standards mandate regular pain assessments, but compliance with this mandate in the highly unique patient population of laboring woman is problematic when using the standard 0 to 10 Numeric Rating Scale. Labor pain is always unique given the various contributing physiologic, emotional, social, and cultural components.'*

Support from caregivers who have a strong belief in women's ability to give birth without pharmacological pain relief has been identified as an important feature of midwifery practice, especially where a two-way trusting relationship can evolve. There is evidence that when women receive midwife-led continuity of care they are less likely to use pharmacological pain relief in labour, and are more

' *Pain in labour and childbirth is not easily defined. It tends to be either celebrated or vilified, depending on a woman's personal and cultural models and expectations* '

likely to have an intervention-free labour and birth (Leap et al, 2010).

Iliadou (2012) opined that it is widely recognised that women in labour have a profound need for companionship, empathy and help. Support in labour has been described as having the following four dimensions:
- Emotional support (encouragement, reassurance, listening)
- Informational support (explanations, suggestions, advice)
- Physical support (comfort measures e.g. massage, cool compresses, ice chips)
- Advocacy, where the woman's wishes are represented to others.

## Causes of pain in labour

Pain during childbirth may be psychological/emotional or physiological. Emotional sources of pain may include fear, anxiety about the unknown, and lack of education. Childbirth education is a good way to combat this problem, although it will not eliminate it. It will enable those participating in the birth process to have a working knowledge of what is going on.

Leap et al (2010) noted that anxiety about labour has been shown to be a predictor of negative consequences, including a lack of satisfaction with the experience of labour and birth and poor emotional wellbeing in the postnatal period, severe pain during labour, and dystocia and emergency caesarean section. The number of women who are fearful of labour pain and who expect to have epidural anaesthesia has increased significantly in the last two decades (Leap et al, 2010).

Pain during the early first stage of labour arises from dilation of the lower uterine segment and cervix. Pain from the late first stage and second stage of labour arises from descent of the fetus in the birth canal, resulting in distension and tearing of tissues in the vagina and perineum (Wong, 2010). If the woman holds her breath and tries to fight against the contractions, dilation and labour may be hindered and may, therefore, be more painful as the uterus is deprived of oxygen, creating tension. The woman's position is important in the birth process. Certain birthing positions, such as lying on the back, may be more likely to be painful. Changing positions and remaining mobile can help to reduce labour pain. Procedures such as amniotomy, vaginal exams and monitoring may cause pain, by limiting the woman's mobility or creating anxiety (Wong, 2010).

## Pain management during labour

Pain management in labour may be based on either a pharmacological or a non-pharmacological model. The

| Table 1. Sociodemographic characteristics of respondents | | |
|---|---|---|
| **Characteristics** | **Frequency** $(n = 87)$ | **%** |
| **Age group** | | |
| 20–29 years | 45 | 51.7 |
| 30–39 years | 21 | 24.1 |
| 40–49 years | 21 | 24.1 |
| **Tribe** | | |
| Hausa | 2 | 2.3 |
| Igbo | 28 | 32.2 |
| Yoruba | 57 | 65.5 |
| **Religion** | | |
| Christianity | 75 | 86.2 |
| Islam | 12 | 13.8 |
| **Marital status** | | |
| Married | 39 | 44.8 |
| Single | 42 | 48.3 |
| Divorced | 5 | 5.7 |
| Widowed | 1 | 1.1 |
| **Setting** | | |
| UCH | 44 | 50.6 |
| AMTH | 31 | 35.6 |
| JNH | 12 | 13.8 |
| **Designation** | | |
| Nursing officer II | 28 | 32.2 |
| Nursing officer I | 20 | 23.0 |
| Senior nursing officer | 9 | 10.3 |
| Principal nursing officer | 25 | 28.7 |
| Assistant nursing officer | 2 | 2.3 |
| Chief nursing officer | 3 | 3.4 |
| **Educational qualification** | | |
| Registered nurse/registered midwife | 4 | 4.6 |
| Ordinary national diploma | 1 | 1.1 |
| Higher national diploma | 20 | 23.0 |
| Bachelor's degree | 56 | 64.4 |
| Master's degree | 6 | 6.9 |
| **Working experience** | | |
| < 5 years | 7 | 8.0 |
| 6–10 years | 29 | 33.3 |
| 11–15 years | 13 | 14.9 |
| 16–20 years | 29 | 33.3 |
| > 20 years | 9 | 10.3 |

pharmacological model aims to eliminate or minimise the pain a woman feels in labour, and the non-pharmacological model offers resources for effective coping during the labour and birth experience without the use of pain-relieving medications. Simkin and Bolding (2004) refer to these as the 'medical model' and the 'midwifery model', respectively. Birth setting, staffing constraints, economic incentives, provider philosophies, and maternal choice can all affect the model of care that is offered to labouring women.

The pharmacological model of care views pain as pathological, and the elimination of painful sensation is its emphasis. The perspective of the non-pharmacological model views childbirth as a private, physiological process that can be influenced by many factors. The focus of this model is on the elimination of suffering. The American College of Nurse–Midwives (2016) issued a philosophy statement that asserts a woman's 'right to self-determination, to complete

information and to active participation in all aspects of her care within the bounds of safety'. This approach, and an acceptance of pain's integral role in the labour process, can assist a woman in experiencing labour pain without suffering.

According to Simkin and Klein (2015), the non-pharmacological approach to pain management includes techniques that address both physical sensations of pain and the psycho-emotional and spiritual elements. Pain is perceived as a side effect of a normal physiological process (labour). In contrast to neuraxial anesthesia, the primary goal is not to make the pain disappear. Instead, the woman is educated and assisted by her caregivers to take an active role in decision-making and using self-comforting techniques and non-pharmacological methods to relieve pain and enhance labour progress. Assuming an active role builds the woman's self-confidence and adds to her sense of wellbeing, which is associated with her ability to cope with labour. Reassurance, guidance, encouragement, and acceptance of her coping style are used. With this type of care, women perceive that they have coped successfully with the pain and stress of labour and state that they were 'able to transcend their pain and experience a sense of strength and profound psychological and spiritual comfort during labour' (Simkin and Klein, 2015).

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 pain relief methods, can help women make informed decisions about whether, and how, to use these techniques.

Landau (2009: 5) noted that studies have demonstrated that pain relief can be started early in labour with no negative consequences, and that 'automated delivery of large boluses of diluted local anesthetic with opioids may be more effective than continuous background infusion of these drugs in patient-controlled epidural analgesia'.

Iliadou (2009) reported that pethidine has been used extensively for labour analgesia. However, there are doubts about its effectiveness and concerns about potential side effects for both women and infants. Epidural analgesia has been described as the only consistently effective method of labour pain relief (Iliadou, 2009).

## Materials and methods
### Study design, setting and study instruments
This cross-sectional descriptive study assessed knowledge and practice of pain management among nurse/midwives at University College Hospital (UCH), Jericho Nursing Home (JNH) and Adeoyo Maternity Teaching Hospital (AMTH), in Ibadan, Nigeria. The target population was nurse/midwives on labour wards in Nigeria and the study population was nurse/midwives in labour wards at the three hospitals in Ibadan. Data were obtained from all nurse/midwives who were available on duty at the time of the study. The study instrument was a 33-item questionnaire designed by the researcher after a series of literature reviews. The questionnaire was divided into three sections: section A addressed demographic data while sections B and C, respectively, assessed knowledge of pain management

and practice of pain management for women in labour. The questionnaire was presented to the researcher's supervisor for face and content validity of the instrument.

### Study objectives

- To assess the knowledge of nurse/midwives of pain management during labour.
- To assess the practice of nurse/midwives around the management of labour pain.

### Hypotheses tested

- There is no significant relationship between nurse/midwives' knowledge of pain management and their practice of pain management for women in labour.
- There is no significant relationship between nurse/midwives' educational qualification and their knowledge of pain management in labour.
- There is no significant relationship between nurse/midwives' years of working experience and practice of pain management for women in labour.

### Ethical considerations

Permission to conduct the study was obtained from the management of each of the hospitals. All participants provided written consent by signing an informed consent form. Though the study posed no risk to the participants, data were collected from participants taking confidentiality of information into consideration. Data collection took place for 4 weeks. Questionnaires were given to the participants and retrieved immediately after filling. Participants were informed that their participation was voluntary and they could withdraw from the study at any time.

### Data management and analysis

Data from collated questionnaires were coded and entered into the computer system after every respondent's identity had been removed. Data were checked for outliers, entry errors and omissions using the IBM SPSS version 20.0. Knowledge score for an individual participant was computed as the sum of correct responses to the 7-item knowledge questions, while practice score was computed as the sum of the individual's responses to the 14-item Likert-scale questionnaire.

Frequency tables, percentages, mean and standard deviation were used for preliminary data analysis and explorations. Pearson's correlation coefficient was used to assess the relationship between the knowledge score and practice score raw scores, while Kendall's correlation coefficient was used in assessing how knowledge score and practice score were associated with educational qualification and years of working experience, respectively. All analyses were performed at a 5% significance level.

## Findings

All 87 nurse/midwives available at the time of the study were approached, and they all participated in the study after reading and signing a written consent form. Socio-demographic characteristics of respondents are presented in *Table 1*. Most of the respondents (51.7%) were aged

| Table 2. Knowledge of pain management | | |
|---|---|---|
| Response | Frequency ($n=87$) | % |
| **Level of knowledge** | | |
| Low | 8 | 9.2 |
| Moderate | 58 | 66.7 |
| High | 21 | 24.1 |
| **Pain is a subjective phenomenon** | | |
| Yes | 84 | 96.6 |
| No | 3 | 3.4 |
| **Ever heard of pain management in labour** | | |
| Yes | 85 | 97.7 |
| No | 2 | 2.3 |
| **Source of information** | | |
| Classroom | 20 | 23.0 |
| Textbook | 50 | 57.5 |
| Colleagues | 4 | 4.6 |
| Seminar/workshop | 4 | 4.6 |
| Magazine/journal | 9 | 10.3 |
| **Knowledge about pain assessment tools** | | |
| Yes | 61 | 70.1 |
| No | 26 | 29.9 |
| **If previous response was yes, please list the scales or tools you know** | | |
| Premature Infant Pain Profile pain scale | 40 | 46.0 |
| Neonatal Facial Coding System pain scale/facial rating scale | 12 | 13.8 |
| Physical psychological scale | 6 | 6.9 |
| Diversional therapy | 3 | 3.4 |
| Not applicable | 26 | 29.9 |

20–29 years. One third of respondents (33.3%) had worked as a nurse/midwife for 6–10 years and another third (33.3%) for 16–20 years.

Respondents' sources of information of pain management in labour are presented in *Table 2*. Most of the participants got their information from textbooks (57.5%) and classroom teaching (23.0%). The majority (70.1%) of the respondents were generally aware of pain assessment tools.

In *Table 3*, respondents' knowledge of pharmacological and non-pharmacological methods of pain relief are presented. The most well-known methods of pain relief were the use of back massage/psychotherapy (34.5%) as non-pharmacological support and use of paracetamol/pentazocine (39.1%) for pharmacological support.

## Discussion

The current study assesses knowledge and practices of pain management in labour among nurse/midwives from selected hospitals in Ibadan, Nigeria. To the best of the authors' knowledge, this study is the first attempt to assess pain management in labour among nurse/midwives in the studied location. As far as possible, efforts were made to present a comprehensive report on the subject. However, one clear limitation of the study is the small sample size given by the narrow study population. Although the current study is a primary survey, data were not collected using a standard, previously validated questionnaire. It was difficult to locate a questionnaire specifically designed for the subject of this

| Table 3. Knowledge of pharmacological and non-pharmacological methods of pain relief | | | |
|---|---|---|---|
| Response | | Frequency (*n*=87) | % |
| Knowledge of non-pharmacological methods of pain relief in labour | Yes | 61 | 70.1 |
| | No | 26 | 29.9 |
| **Please list some of the methods of which you have knowledge:** | | | |
| Pharmacological | Paracetamol/pentazocine | 34 | 39.1 |
| | Diclofenac/tramadol/paracetamol | 13 | 14.9 |
| | Buscopan/pentazocine/paracetamol/Drugamol (paracetamol) | 8 | 9.2 |
| | Tramadol/pentazocine/diclofenac | 7 | 8.0 |
| | Pentazocine/tramadol/paracetamol | 6 | 6.9 |
| | Pethidine injection | 4 | 4.6 |
| | Diclofenac/tramadol etc | 4 | 4.6 |
| | Pethidine/opioids/epidural/anaesthesia | 3 | 3.4 |
| | No response | 8 | 9.2 |
| Non-pharmacological | Back massage/psychotherapy | 30 | 34.5 |
| | Diversional therapy/proper and comfortable position | 10 | 11.5 |
| | Back rubbing/warm water/diversional therapy | 8 | 9.2 |
| | Emotional support/diversional therapy | 7 | 8.0 |
| | Psychotherapy/warm bath | 7 | 8.0 |
| | Diversional therapy/therapeutic touch/exercise | 4 | 4.6 |
| | Acupuncture/massaging | 4 | 4.6 |
| | Massage/transcutaneous electrical nerve stimulation | 3 | 3.4 |
| | Sacral massage/music therapy | 3 | 3.4 |
| | Transcutaneous electric nerve stimulation | 3 | 3.4 |
| | Presence of family member/sitting in a bath tub with warm water | 3 | 3.4 |
| | No response | 5 | 5.7 |
| **Have you ever been given a lecture on pain management?** | Yes | 77 | 88.5 |
| | No | 10 | 11.5 |
| **Would you like such a lecture for nurses in your hospital?** | Yes | 21 | 24.1 |
| | No | 66 | 75.9 |

| Table 4. Hypotheses tested | | | | |
|---|---|---|---|---|
| Variables | Mean ± SD | *r* | *τ* | *P* |
| Knowledge | 82.4 ± 16.6 | 0.49 | | <0.001 |
| Practice | 51.2 ± 4.9 | | | |
| Knowledge: Level of education | | | 0.82 | <0.001 |
| Practice: Years of working experience | | | 0.17 | 0.06 |

study. The nurse/midwives who participated in the study at the three selected hospitals provide services to a wider target population, and a strength of the study was that all 87 nurse/midwives who were eligible agreed to take part and provided data for the study.

From the two objectives assessed, it was found that the majority of respondents had heard of pain management in labour, with the main source of information being textbooks. A majority of the nurse/midwives viewed pain as a subjective phenomenon. The respondents had knowledge of both pharmacological and non-pharmacological pain management in labour. Listed examples from the study included the use of back massage, psychological therapy,

warm bath, music therapy, acupuncture and transcutaneous electrical nerve stimulation (TENS); the methods with the highest occurrence were back massage and psychotherapy. This finding is in agreement with the literature. According to Bakri (2012), in a study that assessed knowledge and practice of nurse/midwives in Khartoum, Sudan about management of labour pain, the majority of the nurse/midwives had good knowledge of different methods of pain relief though they lacked the right practice. Analgesia was found to be used in 93.3% of cases in labour, mainly pethidine, and non-pharmacological methods used include deep breathing (Bakri, 2012).

This study also assessed knowledge of pharmacological methods of pain management in labour. The main methods identified by the respondents were the use of opioids such as pethidine and pentazocine. Epidural was mentioned by just a few (3.4%) of the respondents, suggesting poor knowledge of its use.

Assessment of pain is important in the management of labour pain. The practice of psychotherapy, giving information to the woman, encouraging breathing exercises and providing physical care may help in the management of pain in labour.

## Conclusions

In this study, nurse/midwives in labour wards in Ibadan demonstrated moderate knowledge of management of labour pain. The pain management methods primarily practised by the nurse/midwives were back massage and the use of psychotherapy. There is a need for improvement in knowledge by continuing education for nurse/midwives, especially on labour pain management, which will enhance practice. There is also a need to include pain assessment in the partograph for accurate labour pain assessment.

There is need for continuing education for nurse/midwives on labour wards in Ibadan. Only nurses who have been trained as midwives should attend to women in labour. Nurse/midwives should always provide information and advice to support women in labour, encouraging and permitting the women to exercise control in the birthing process. An increase in practising non-pharmacological support in the management of labour pain may have fewer implications for the fetus, so should be encouraged.

*Conflict of interest: The authors declare no competing interests.*

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## Key Points

- Labour pain is experienced by women during childbirth, and may have complications if it is not properly managed
- 87 nurse/midwives from three hospitals in Ibadan, Nigeria participated in a survey assessing their knowledge and practice of labour pain management
- Findings show that nurse/midwives have a moderate knowledge of pain management in labour
- There is a need for continuing education to improve knowledge, which will enhance practice of pain management in labour

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