



## Cross-sectional Study

## Survey on knowledge, attitude and practice of labor analgesia among health care providers at Debre Markos Comprehensive Specialized Hospital, Ethiopia 2021. A cross-sectional study

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## ABSTRACT

**Background:** Childbirth is among the most painful experiences a woman has during their childbearing years. Despite improvement in the development of standards for pain assessment and treatment, labor pain is mostly ignored especially in low and middle-income countries.

**Objectives:** To assess the knowledge, attitude, and practice of labor analgesia among health care providers at Debre-Markos comprehensive specialized hospital, Ethiopia.

**Methods:** After ethical approval was obtained from the ethical review board, institutional-based cross-sectional study was conducted in June 2021, written consent was taken from each health care provider (HCP) before data collection, and structured self-administered questionnaires were used. The collected data were coded and analyzed using SPSS version 22. Descriptive statistics were computed to determine frequencies and percentages finally data were presented using texts, tables, and graphs.

The study is registered with a research unique identifying number of 7407 found with the link address [http://www.researchregistry.com/browse-the-registry#home/?view\\_2\\_search=7407&view\\_2\\_page=1](http://www.researchregistry.com/browse-the-registry#home/?view_2_search=7407&view_2_page=1) and reported in line with STROCSS 2021.

**Results:** A total of 112 health care providers have participated with 70.5%, 29.5% being males and females respectively. This study was found that most gynecologists/obstetricians, 75% of general practitioners, and more than half (57.1%) of integrated emergency surgery and obstetrics (IESO) have good knowledge about labor analgesia, while the majority (58.3%) of midwives found to have poor knowledge. Although 75% of general practitioners and 71.4% of IESO have a good attitude towards obstetric and labor pain management, only 55.6% of midwives and 51.2% of graduating medical students were found to have a good attitude. Among health care providers (HCP), 60.3% of graduating medical students, 75% of general practitioners, 74.1% of IESO, and most of the seniors were found to have good practice of labor analgesia.

**Conclusion:** There is a wide gap among health care providers in knowledge, attitude, and practice of labor analgesia. Training health care providers about safe, efficient, and affordable labor analgesia is crucial to improving health care.

**Abbreviations:** HCP, Health Care Providers; IESO, Integrated Emergency Surgery and Obstetrics; STROCSS, Strengthening The Reporting of Cohort, Cross-sectional and Case-control studies in Surgery; WHO, World Health Organization.

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## 1. Background

Labor pain is a regular uterine contraction and cervical dilation transmitted through visceral afferent sympathetic nerves from thoracic (T10) to lumbar(L1) and, perineal stretching innervated with pudendal nerve and sacral nerves [1]. Labor pain can vary considerably in intensity among individuals, due to woman's perception of pain before labor and the emotional component [2].

Labor analgesia prevents adverse events associated with stress responses to pain, including postpartum depression [3]. The American College of Obstetricians and Gynecologists recognizes that a woman's request for labor pain relief is a sufficient medical indication for its provision [4]. In 2018 the World Health Organization (WHO) confirmed that "epidural analgesia is most effective and recommended for healthy pregnant women requesting pain relief during labor, depending on the woman's preferences [5,6], and should be prescribed as per the WHO analgesic ladder [6].

Developed countries considered labor analgesia as an essential part of intrapartum care and all women have the choice to access all range of pain relief options for labor and delivery [7]. In low and middle-income countries the most common form of pain relief is the continuous support of companions during labor, but the provision of further pain relief in labor is often neglected [7,8].

Labor pain can be relieved either through non-pharmacological (continuous support of a companion, directed breathing and relaxation techniques, massage, laboring in water, and the use of transcutaneous electrical nerve stimulation) or pharmacological(oral tablets, inhalation analgesia, intravenous and intramuscular opioids, and various types of local and regional analgesia) [9].

Healthcare providers (HCP) have an important role to play in supporting women's choice and accessing those mentioned pain relief options during labor(3).

## 2. Statement of the problem

Even though labor pain is different among individuals it is not well practiced especially in middle and low-income countries(7).

A lack of awareness, misunderstanding regarding acceptability, safety, and availability of pain relief options are considered to be the main reasons why women in many low and middle-income countries fail to receive adequate labor pain relief [10], another study in Nepal concludes that only 1.11% had complete knowledge about painless delivery, rest had only some idea about it and 72.2% of HCP accepted labor analgesia is important [11]. In addition, HCP understand and agree that labor is painful, but, fail to provide labor analgesia during labor [12]. On the contrary, a study on HCP agrees that labor is painful but lacks knowledge and attitude towards labor pain management [13].

Generally, the above studies, show there is a gap in knowledge, attitude, and practice of obstetric and labor analgesia among health care providers [10,13]. This study provides scientific information related to the level of knowledge, attitude, and practice of HCP and identifies the major area of focus that helps to develop a strategic plan for solving problems related to the provision of labor analgesia and is used as baseline information for further studies.

## 3. OBJECTIVES

### GENERAL OBJECTIVES.

- To assess the knowledge, attitude, and practice of labor analgesia among health care providers at Debre-Markos Comprehensive Specialized Hospital, Ethiopia, 2021.

### SPECIFIC OBJECTIVES.

- To assess the knowledge of health care providers about labor analgesia
- To determine the attitude of health care providers about labor analgesia
- To describe the practice of health care providers about labor analgesia

## 4. Methods

After obtaining ethical approvals from Debre Markos University ethical review board, a Cross-sectional study was conducted in June 2021. All health care providers who work in the labor and maternity ward were invited to participate and written consent was obtained from each health care provider.

A structured questionnaire that had four components including socio-demographic characteristics, knowledge, attitude, and practice-related questions was developed based on previous studies. Health care providers working in labor and maternity ward for less than a week and unavailable during the study period were excluded from this study.

Data was collected through self-administer questioners and data were checked for completeness, inconsistencies, and then coded, entered using EPI data version 4.4.2. Then the data was cleaned and analyzed using SPSS version 22. Descriptive statistics were computed to determine frequencies and percentages finally data were presented using texts, tables, and graphs. This study is registered with research unique identifying number of 7407/[https://www.researchregistry.com/browse-the-registry#home/?view\\_2\\_search=7407&view\\_2\\_page=1](https://www.researchregistry.com/browse-the-registry#home/?view_2_search=7407&view_2_page=1) and reported in accordance with STROCSS 2021,criteria [14].

## 5. Operational definition

Rule of 70% was used, which means that respondents answer  $\geq 70\%$  in attitude, knowledge, and practice was considered as good whereas respondents who answer  $< 70\%$  were considered as poor in the three variables.

**Often-** Respondents who provide labor analgesia routinely for eligible mothers.

**Sometimes-** Respondents who provide labor analgesia, are not in the routine base for eligible mothers.

## 6. Result

### 6.1. Socio-demographic characteristics of study participants

Although there were 133 health care providers (HCP) in the obstetric department, based on inclusion and exclusion criteria only 112 professionals were eligible with a 100% response rate. Of these participants 70.5%, 29.5% are males and females respectively (Table 1). Among

**Table 1**  
Socio-demographic characteristics of HCPs at obstetrics department at Debre Markos Comprehensive Specialized Hospital, Debre Markos', Northwest Ethiopia, 2021.

Variables	Category of variable	Frequency	Percent
Age	20–29	62	55.3
	30–39	45	40.2
	$\geq 40$	5	4.5
Sex	Male	79	70.5
	Female	33	29.5
Profession	Midwife	36	32.1
	graduating medical students	58	51.8
	General practitioner	8	7.1
	IESO	7	6.3
	Obstetrician/gynecologist	3	2.7
Year of experience	$\leq 5$	76	67.7
	6–9	31	27.6
	$\geq 10$	5	4.7

professionals, 51.8% and 32.1% are graduating medical students and midwives respectively, with a total of 67.9% having work experience of fewer than 5 years (Table 1).

### 6.2. HCPs knowledge on labor analgesia and its management

Even though 88.4% of participants know the WHO analgesic ladder, only 61.6% of them have used it for treatment with the pain assessment tools 55.7%, 32.8% verbal and numerical methods respectively. Mostly used labor analgesics were tramadol and NSAIDs 49.1%, 35.7% respectively (Table 2).

In this study the major barriers of using labor analgesia were lack of awareness and pain relief is not a priority to a laboring mother 46.4% and 40.2% respectively (Fig. 1).

In this study combining analgesics, the oral medication 1 h before the second stage of labor was effective, and avoiding opioids in patients with respiratory compromise was 50.9%, 73.2% 78.6%, respectively (Fig. 2).

The concern of study participants to use labor analgesia was, will affect baby breathing 55(49.1%) and it prolongs labor 48(42.8%).

### 6.3. Respondent's attitude about obstetric and labor pain and its management

Regarding their attitude towards labor pain relief majority of the respondents agree and strongly agree were 32(28.6%) and 61(54.5%) respectively (Fig. 3).

Their main reason for relieving labor pain was, 73(45%) responded to relieve pain 44(27%) to relieve stress, 22% to feel confident, and the rest of them was responded to enjoy the experience.

The majority of the HCPs 98(87.5%) think that respectful and nonjudgmental communication will ease labor, and 38(33.9%) think regional anesthesia will increase the risk of cesarean delivery. To determine pain reality 34(30.4%) sterile water injection is necessary and 34(30.3%) it is better to avoid opioids due to fear of addiction. 67.9% of the HCPs think that laboring mother complains of pain for seeking staff attention.

The HCPs' expectations of pain for laboring mothers were 55.4%, 36.6%, and 8% severe and moderate and mild respectively.

### 6.4. HCPs on practice about labor pain and its management

In this study, 31.6% of the respondents never give labor analgesia, while 49.1% give sometimes and 20.3% of them often give labor analgesia (Table 3).

The main reason for not giving labor analgesia was lack of knowledge and skill, safety concerns, and lack of equipment or drugs (24.1%.5.4%, 3.5%) respectively (Table 3).

In the present study, 49(43.8%) of professionals assess and grade pain before and after labor analgesia whereas 63(56.2%) do not. Most commonly practiced non-pharmacological analgesia for laboring mothers were deep and controlled breathing 104(92.8%) and verbal support and reassurance 53(47.3%) (Table 3).

**Table 2**

Method of pain relief routinely used at obstetrics department at Debre Markos Comprehensive Specialized Hospital, Debre Markos', Northwest Ethiopia, 2021.

Method of pain relief routinely used		Frequency	Percent
IV or IM	Yes	43	38.4
	No	69	61.6
Oral analgesics	Yes	34	30.4
	No	78	69.6
Social and psychological support	Yes	41	36.6
	No	71	63.4
Regional or local anesthesia	Yes	13	11.6
	No	99	88.4

## 7. Discussion

This survey found that most of the study participants expected that labor pain is severe and had a positive attitude towards labor pain management. Although most seniors and general practitioners have good performance in all parameters towards obstetric and labor pain management, the majority of midwives and interns found to have poor knowledge and attitude that needs awareness creation to improve utilization of obstetric and labor analgesia.

In this study, only less than half of the participants know how to assess and grade pain and most of them use IV/IM and non-pharmacological method of labor analgesia and management was influenced with lack of awareness, considering pain relief is not a priority to a laboring mother and the major concerns in using labor analgesia were it prolongs labor and it will affect baby breathing.

In this study, the Overall 48.2%, 57.1%, and 57.1% have good knowledge, attitude, and practice of obstetric and labor analgesia respectively which shows poor performance.

The majority of HCPs (88.4%) know the WHO analgesic ladder but only 61.6% of professionals have used it to treat pain. This finding is higher than a study conducted at the University of Gondar, in which 83% of them do not know the WHO analgesics ladder [15]. The possible reason might be that the study was conducted only on graduate midwifery students who had low clinical knowledge and exposure.

Health care providers (HCPs) used 38.4% IM or IV and 30.4% oral route of administrations, from which tramadol and NSAIDs were 49.1% 35.7% respectively, which is higher than the study on obstetric caregivers' shows pharmacologic obstetric analgesia utilization was zero (13). This may be due to a lack of knowledge and availability of drugs. Professionals used 36.6% social and psychological support as a routine method of pain relief which is lower than the Amhara regional state referral hospital study which is 88.2% [13,16–18]. This may be due to HCP in the study setting giving less emphasis to the non-pharmacologic method of labor pain management.

In the current study, the major problems to using labor analgesia were lack of awareness, and pain relief is not a priority to a laboring mother 46.4% and 40.2% respectively. This finding is different from barriers identified in a study conducted in Nigeria in which the majority 54.5% has no reason for not offering labor analgesia [19]. The most common concerns in using obstetric and labor analgesia in this study were it will affect babies breathing 49.1% and will prolong labor 42.8%. This finding is in line with the study conducted in Nepal which shows common concern is it could harm the baby 22.7% [11,16].

The findings of this study towards professionals attitude for labor analgesia, were positive (agree and strongly agree) were 28.6% and 54.5% respectively and only 15% of HCPs responded no need to relieve labor pain and had a safety concern, which has similar findings to a survey done on awareness, attitude, and practice of health care providers in Nigeria which showed 94.8% agreed that pain relief is needed during labor [19,20].

A study on Knowledge, Attitude, and Practices of labor analgesia amongst healthcare workers showed that 43.7% felt that pain relief should be administered, 14.1% believed analgesia had adverse effects on the fetus and 11.3% reported increased risk of cesarean section [16, 21], in contrary Neuraxial analgesia in early labor did not increase the rate of cesarean delivery, and it provided better analgesia and resulted in a shorter duration of labor than systemic analgesia [22, 23].

The expectation of HCP in labor pain, severe, moderate, and mild (55.4%, 36.6%, 8%) respectively, was nearly similar with a study finding in Gondar shows labor pain were 30% and 57% experience moderate and severe intensity of pain, respectively [13,24].

A study on the utilization of obstetric analgesia in labor pain management indicates overall utilization of obstetric analgesia in labor pain management was 40.1% which showed only non-pharmacologic methods including Psychotherapy 88.2%, breathing technique 71.9%, and massage 63.51%. and concludes that obstetric analgesia utilization

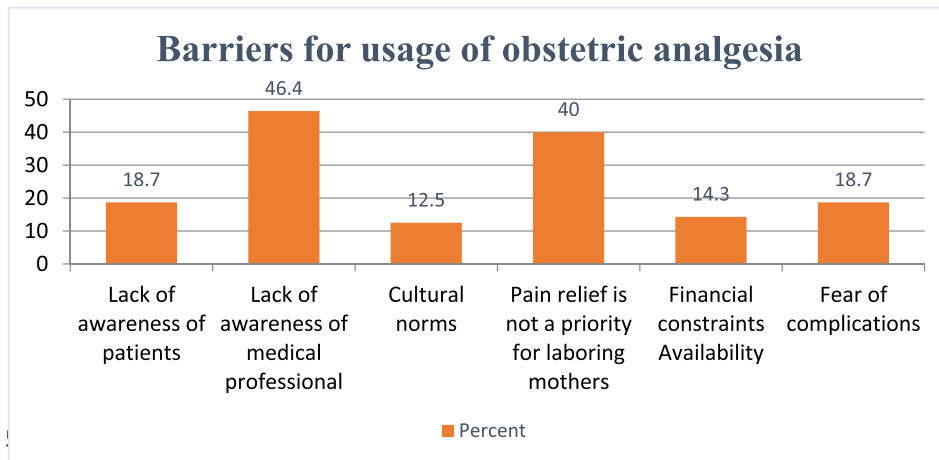


Fig. 1. Barriers to use labor analgesia at obstetrics department at Debre Markos Comprehensive Specialized Hospital, Debre Markos, Ethiopia, 2021.

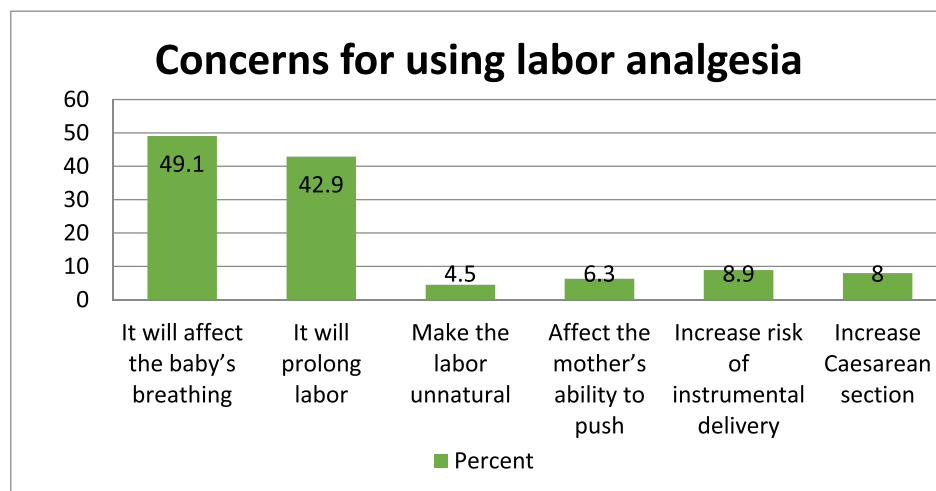


Fig. 2. Concerns for using labor analgesia at obstetrics department of at Debre Markos Comprehensive Specialized Hospital, Debre Markos', Northwest Ethiopia, 2021.

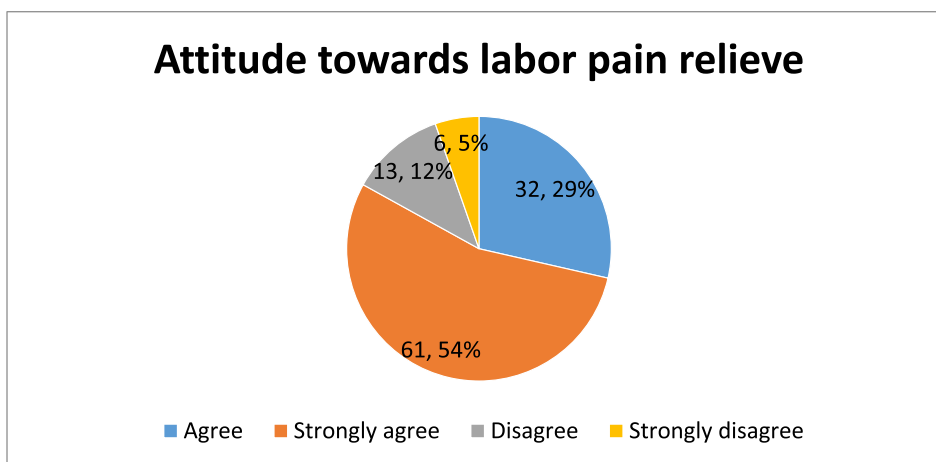


Fig. 3. Attitude toward labor pain relief at obstetrics department at Debre Markos Comprehensive Specialized Hospital, Debre Markos', Northwest Ethiopia July 2021.

was very low(19), Which is in line with this study.

In the current study, 24.1% of participants were not given pharmacologic labor analgesia due to lack of knowledge and skill which is better

than the study at the University of Gondar which was 65% [13,18]. This might be due to multi-disciplinary professionals having better work experience in the current study.

**Table 3**

Knowledge, attitude, and practice of HCPs in the obstetrics department at Debre Markos Comprehensive Specialized Hospital, Debre Markos', Northwest Ethiopia July 2021.

Level of knowledge, attitude, and practice of the profession			Profession				
			Midwife	Intern	IESO	General practitioner	Senior
Level of knowledge	Good	Frequency	15	26	4	6	3
		%	41.7	44.8	57.1	75	100.0
	Poor	Frequency	21	32	3	2	0
		%	58.3	55.2	49.2	25	0.0
Level of attitude	Good	Frequency	20	30	5	6	3
		%	55.6	51.2	71.4	75	100.0
	poor	Frequency	16	28	2	2	0
		%	44.6	48.8	28.6	25	0.0
Level of practice	good	Frequency	15	35	5	6	3
		%	41.7	60.3	71.4	75	100.0
	poor	Frequency	21	23	2	2	0
		%	58.3	39.7	28.6	25	0.0

## 8. Conclusion

There is a wide gap among health care providers in knowledge, attitude, and practice of labor analgesia.

## 9. Recommendation

- Giving training to health care providers about safe, efficient, and affordable labor analgesia.
- Not only psychological support and deep breathing but also pharmacological methods especially epidural analgesia should be considered.
- Create awareness about labor analgesia during their ANC follow up
- Use this study as a baseline to investigate more.

## 10. Limitation of the study

- The study was conducted relatively on a small sample size and descriptive study, which is difficult to infer for the general population.
- Attitude and practice should have been explored more with qualitative data.

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## Ethical approval

Ethical approval was obtained from Debre Markos University ethical review board.

## Consent

Written consent was obtained from each participants before filling self administered questioners.

## Author contribution

- Dr. Amsal Shiferaw Melese = study concept or design, data collection.
- Samuel Debas Bayable = data analysis or interpretation, writing the paper.
- Getamesay Demelash simegn and Yitayal Guadie Ashebir =methods and validations of questioners
- Netsanet Temesgen Ayenew=interpretations of the results.
- Melaku Bantie Fetene= Data entry ,clearance and soft ware.

## Registration of research studies

1. Name of the registry: **Research studies**
2. Unique Identifying number or registration ID: 7407.
3. Hyperlink to your specific registration (must be publicly accessible and will be checked): [researchregistry7407](https://researchregistry7407)".

## Guarantor

Mr. Samuel Debas Bayable(MSc), and Dr. Amsal Shiferaw Melesse.

## Provenance and peer review

Editor and reviewers' comments were well addressed with all authors and responses to comments were incorporated in the manuscript in the revised.

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Yewlsew Fentie (MSc in Advanced Clinical Anesthesia) [fyewlsew@gmail.com](mailto:fyewlsew@gmail.com) helps us to check the overall writings.

## Declaration of competing interest

The authors declare that there is no conflict of interest.

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