

ASSESSMENT OF KNOWLEDGE AND ATTITUDE OF EPIDURAL
ANALGESIA AND ASSOCIATED FACTORS AMONG HEALTHCARE
PROFESSIONALS IN OBSTETRIC DEPARTMENT AT JIMMA UNIVERSITY
MEDICAL CENTER, JIMMA, 2022 G.C.



JIMMA UNIVERSITY MEDICAL CENTER

DEPARTMENT OF DEPARTMENT OF ANESTHESIA, CRITICAL CARE AND
PAIN MEDICINE

BY: GARUMA BABU (MD, YEAR THREE ANESTHESIOLOGY RESIDENT)

A PROPOSAL SUBMITTED TO JIMMA UNIVERSITY MEDICAL CENTER,
SCHOOL OF MEDICINE IN PARTIAL FULFILLMENT OF THE
REQUIREMENT FOR SPECIALITY CERTIFICATE IN ANESTHESIOLOGY

JANUARY, 2023

JIMMA, ETHIOPIA

ASSESSMENT OF KNOWLEDGE AND ATTITUDE OF EPIDURAL
ANALGESIA AND ASSOCIATED FACTORS AMONG HEALTHCARE
PROFESSIONALS IN OBSTETRIC DEPARTMENT AT JIMMA UNIVERSITY
MEDICAL CENTER, JIMMA, 2022 G.C.

BY: GARUMA BABU (MD, YEAR THREE ANESTHESIOLOGY RESIDENT)

ADVISOR: YEMANE AYELE (MD, ASSISTANT PROFESSOR OF
ANESTHESIOLOGY, CRITICAL CARE MEDICINE AND PAIN MEDICINE)

JANUARY, 2023

JIMMA, ETHIOPIA

Name of investigator	Dr. Garuma Babu
Full title of the research project	Assessment of knowledge and attitude of epidural analgesia and associated factors among healthcare professionals at obstetric department at Jimma university medical center, Jimma, Ethiopia, 2022G.C
Study Area	Jimma university medical center
Total Cost of the project	25,608 ETB
Source of Funding	Jimma university medical center
Address of the investigators	Cell phone: +251917162812
	Email: gbggaruma@gmail.com
Name of Advisor	Dr. Yemane Ayele

ACKNOWLEDGEMENT

Above all, my special thanks goes to almighty GOD.

Next, my thanks goes to my advisor for helpful inputs though out this research paper development.

Also, my acknowledgement extends to Jimma university medical center, department of anesthesia, critical care and pain medicine and HCPs who participated in this study.

ABSTRACT

Background; Labor pain is the most painful and stressful natural experience of a mother's life. Management of labor pain has great effect on the mother's experience and future possible health seeking behavior. Although there are various methods of managing the pain, these practices are not yet common in our setup. Anecdotal data at Jimma university medical center showed possible lack of understanding about epidural analgesia among health care providers which may result in low performance and prevent its applicability as labor analgesia in the obstetrics set up. At Jimma university medical center this study can help us develop understanding of the current knowledge and attitude affecting its practice and build baseline data to expand the practice of anesthesiology while making the labor experience painless for mothers.

Objective: The aim of this study was to assess the knowledge and attitude of epidural analgesia and associated factors among obstetric healthcare professionals in Jimma university medical center, Jimma, Ethiopia, 2022 G.C.

Method: Institution-based, prospective cross-sectional study design was conducted from September to November, 2022 G.C in JUMC among 124 obstetric healthcare professionals. Descriptive and logistic regression analysis was used to show the association of the dependent and independent variables at a P-value of ≤ 0.05 cut off point to declare significance. Odds ratio and 95% confidence interval were computed to determine the strength of association.

Result and conclusion: More than half of obstetric health care professionals had poor knowledge and unfavorable attitude towards epidural labor analgesia. There were statistically significant association between knowledge as well as attitude and variables like level of education and current place of work.

Recommendation: There is a need to improve obstetric health care professional's knowledge and attitude towards epidural labor analgesia through education and training.

Key words: Epidural analgesia, Attitude, Knowledge, Obstetric health care professionals.

Table of Contents

ACKNOWLEDGEMENT	IV
ABSTRACT	V
Background;.....	V
Objective:	V
Method:	V
Table of Contents	VI
List of tables and figures	VIII
I. List of tables	VIII
II. List of figures.....	IX
Abbreviations/ Acronyms	X
1. Introduction	1
1.1 Background.....	1
1.2. Statement of the Problem	3
1.3. Significance of the study.....	4
2. Literature Review.....	5
Conceptual framework	11
3. Objectives	12
General Objectives.....	12
Specific Objectives	12
4. Method	13
4.1 Study Area and Period	13
4.2Study Design.....	13
4.3 Population	13
4.3.1 Source Population	13
4.3.2Study Population	13
4.4 Inclusion and exclusion criteria	14
4.4.1 Inclusion criteria	14
4.5 Sample size	14
4.6 Study variables.....	15

4.7 Data collection tools and Sampling technique.....	16
4.8 Data processing and analysis	16
4.9 Data quality control.....	17
4.10 Operational definition	17
4.11 Ethical considerations	18
4.11 Dissemination plan	18
5. Result	19
5.1 Socio-demographic characteristics.....	20
5.1.1 Result of associated factors affecting knowledge and attitude towards epidural analgesia	26
5.2 Result of knowledge assessment towards epidural analgesia.....	22
5.3 Result of attitude assessment towards epidural analgesia	25
6. Discussion	30
7. Conclusion and recommendation.....	34
7.1 Conclusion.....	34
7.2 Recommendation.....	36
8. References	37
9. Annexes	40
9.1 Informed Consent Sheet.....	40
9.2 Questionaries'	41
I. Socio-demographics data	41
II. Questions regarding knowledge of epidural analgesia (100%)	41
III. Questions regarding attitude towards epidural analgesia (100%)	43

List of tables and figures

I. List of tables

Table 1: Distribution of sex, age, marital status, occupation, year of practice, level of education, and place of work among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Table 2: Distribution of knowledge of epidural analgesia utilization, effect on labor progress, and rate of instrumental and caesarian delivery for labor pain management among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Table 3: Distribution of responses regarding contraindication, complications and clinical manifestation of systemic toxicity regarding epidural analgesia among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Table 4: Factors associated with knowledge about epidural analgesia among healthcare professionals working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November 2022, n = 124

Table 5: Factors associated with attitudes of healthcare professionals towards epidural analgesia among those working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November 2022, n = 124

II. List of figures

Figure 1: Distribution of knowledge and attitude assessment towards epidural analgesia among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C. n = 124.

Figure 2: Distribution of knowledge regarding timing of epidural catheter insertion and administration of epidural drugs among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Figure 3: Distribution of attitude regarding whether HCPs believe laboring mother feel pain and laboring pain be treated among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Figure 4: Distribution of labor pain management practice among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Figure 5: Distribution of reasons for not recommending epidural analgesia among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Abbreviations/ Acronyms

ACOG American College of Obstetrics and Gynecologists

ANC Antenatal Care

AOR adjusted odd ratio

ASA American Society of Anesthesiologists

CI confidence interval

COR crude odd ratio

CS Caesarian section

EA Epidural Analgesia

ETB Ethiopian birr

GC Gregorian calendar

HCP Healthcare professional

HCW Healthcare worker

HIC High Income country

JUMC Jimma University Medical Center

LMIC Low to middle income country

OPD Out-patient diagnosis

PTSD Posttraumatic Stress Disorder

SD standard deviation

SPSS Statistically Package for the Social Sciences

WHO World health organization

1. Introduction

1.1 Background

Labor is a painful natural process which mother experiences in her life. Different individuals may experience or view this pain in different ways. Factors like culture, beliefs, norms, attitudes, experiences, level of education, skills, economic capability, awareness, biases, religion, ethnicity, race, parity and societal views can affect how people may choose to define, view, experience and even manage labor pain (1)(2). This variation may be significant enough, not only to affect a woman's child birth experience but also her future life outcome and her unborn child as well(2–4).

Many agree that labor is a painful yet natural process.(3) But in today's world the practice of labor pain relief can be affected by an individual's knowledge and attitude. It becomes even more crucial to understand how healthcare professionals approach labor pain. Although many factors such as access to basic healthcare and health equity affect this provision of standard healthcare among other things (5,6), still attitudes and knowledge can determine whether healthcare providers take the necessary steps to push themselves to implement the beginning of strong foundation needed today, in order to reach a standard of healthcare provision of tomorrow that incorporates efficient, safe and effective modalities of pain management such as epidural analgesia routinely (4). Labor pain being a natural phenomenon doesn't mean it should not be managed.(3)

Nevertheless there are many modalities to manage labor pain which can be divided into non-pharmacologic and pharmacologic. Among the non-pharmacologic techniques; emotional support, companionship from either family members or partner, breathing and relaxation techniques, massaging, use of transcutaneous electrical nerve stimulation in early labor (TENS) and laboring in water have been known to relieve pain. Among the pharmacological techniques; opioids, inhalational analgesia, local anesthetic infiltration, and regional analgesia such as epidural analgesia are worth mentioning.(3,9)(7)

Epidural analgesia is an administration of local anesthetic and/or adjuncts like opioids into the epidural space to provide a band of numbness from umbilicus to proximal lower extremities while allowing the patient to be awake, aware, and able to feel pressure during labor (10). Although in the western set up it is a very popular form of analgesia, in third world country like ours it is practiced rarely due to lack of access. While epidural analgesia remains the gold standard when it comes to labor pain relief, knowledge and attitude of HCPs towards epidural analgesia may affect its future practice (10).

Most of the research studies discussed about labor pain as well as knowledge and attitude of HCP's towards labour analgesia from different perspectives (2-4,9) but study regarding specific analgesia methods is not thoroughly discussed. Epidural analgesia which is one of the safest and most efficient techniques is not much discussed. Among a few literatures present, (10) none of this is done in our set up. The rationale for consideration of this research study being that we could be the leading pioneers in pain management using available epidural technique.

1.2. Statement of the Problem

Labour pain is associated with different physiological changes for the mother. These changes include; increase in respiratory rate, oxygen consumption, peripheral vascular resistance, and cardiac output due to pain induced catecholamine release. Labour pain is not only associated with psychological and emotional stress (6) but also it can be potentially life threatening for a woman with preexisting cardiovascular and respiratory problems (7). Pain during labor has been associated with PTSD (8). Maternal physiologic changes to labor pain may even affect fetal and maternal wellbeing as well as labor progress. (9)

The lack of understanding among HCPs at obstetrics about epidural analgesia led to underutilization in our set up to practice as a mode of labour analgesia.

Most of the study papers agreed women can feel moderate to severe pain during labor between 43.7% and 90%.(1–4,8–11).

The lack of understanding regarding labour pain management, which may be contributed to knowledge gap or existing attitudes toward option of pain management modalities among HCPs, can affect the practice and accessibility to pregnant mother.

As epidural analgesia is one of best modality of labour pain controlling method, knowledge and attitude affect accessibility, practice, utilization, and even policy making. Improvement in knowledge and attitude increase the capability and willingness of HCP's to inform as an option of pain management modality, acceptability among parturient, better ability to treat labour pain, and improve maternal satisfaction.

To my knowledge, since there was no research done in our set up to assess knowledge and attitude of HCPs towards epidural analgesia and associated factors, the finding of the research tried to fill this gap.

Therefore, the purpose of this research was to assess the knowledge and attitude of health professionals about epidural analgesia and associated factors which can affect the practice and utilization.

1.3. Significance of the study

This study assessed the level knowledge and attitude and will contribute to baseline data for future intervention in order to achieve an ultimate goal to improve health professional patient caring practice and to make child birth better experience for a mother.

The result of this study provided important information in identifying associated factors affecting knowledge and attitude among HCP and aid in deciding to improve health care practice, and to involve responsible bodies. It may even help shape policies that affect women directly at national level.

2. Literature Review

According to American Society of Anesthesiologists (ASA) and American College of Obstetricians and Gynecologists (ACOG), maternal request is sufficient justification for pain relief (10). ACOG also states that “labor results in severe pain for many women. There is no other circumstance where it is considered acceptable for a person to experience untreated severe pain, amenable to safe intervention, while under a physician’s care” (12). Even though we are dealing with a natural phenomenon and not an illness with consideration of the above statement, there are many modalities of pain management which includes pharmacologic as well as non-pharmacologic.

According to a study performed in Norway between January to December, 2015 GC, the study compared provision of epidural analgesia according to the mother’s birthplace native versus immigrant women and found compared to native women, that primiparous women from Latin America/Caribbean with an instrumental vaginal delivery were most likely to be provided with epidural analgesia (OR 2.12,95% CI 1.69-2.66), while at the same time that multiparous women from sub-Saharan Africa with spontaneous vaginal delivery were least likely to be provided with epidural analgesia (OR 0.42, 95% C 0.38-0.44), also longer residence time was also associated with having a higher chance of receiving the epidural analgesia. In conclusion, disparities in the likelihood of getting epidural analgesia were observed by maternal birthplace but the study recommended further study need to be done whether this is due to maternal preference or heterogeneous access to analgesia (13).

A study done in Queensland and New South Wales in Australia over a 10 months period in 2009 GC among registered nurses and midwives regarding knowledge of epidural analgesia. With a total 408 participants using descriptive survey, most demonstrated good knowledge about epidural analgesia management and its sensory as well as its motor blockade by answering 75-77% of the questions correctly. And fair knowledge demonstrated by correctly answering 69% of the anatomy questions and only 57% correctly responded about pharmacology and 56% about complications of epidural analgesia. It concluded that for further development of new and existing epidural education programs (14).

Another study done in Ohio , USA in 2018 GC, using cross-sectional study method, with total of 90 participants from anesthesia, obstetricians and nurses. The results showed willingness to provide epidural was similar based on level of cervical dilatation, though at 10 cm dilatation obstetricians (73.3%) far more significantly willing for the provision of neuraxial block compared to both nurses (27.6%, $P < 0.01$) and anesthesiologists (36.7%, $P < 0.01$). Anesthesiologists (100%) and nurses (86.2%) were more familiar with epidural than obstetricians (43.3%, $P < 0.01$). The study concluded that there are differences among HCPs in factors like timing of epidural and self-perceived knowledge about epidural and further inter professional education is required (15).

A study conducted in Saud Arabia at king Khalid University in 2018G.C assessing knowledge of epidural analgesia among parturient at ANC clinic using a hospital based cross-sectional study which participate 328 women, of which 205 women had university level education, (88.4% were multiparous). The majority 62.5% women had low level of knowledge about EA with significant relationship between the level of perception and primary as well as post-graduate education with $P < 0.001$. The study concluded that majority of women in child bearing age group had limited knowledge about the benefits and associated complications of epidural analgesia (16) .

A cross-sectional descriptive study conducted at Castle Street Hospital for Women and De Soysa Hospital for women in Sri Lanka between June to August, 2017 G.C, with a total of 260 women participants. Among those, 41.9% had heard about labor analgesia, of which 6.7% had good knowledge and 15.6% had positive attitude towards labor epidural analgesia. Good knowledge about labor epidural analgesia had a correlation with good attitude ($p < 0.05$). However the overall conclusion showed that total level of knowledge and attitude about labor epidural analgesia was poor and the study recommended the education of mothers via pamphlets and during ANC visits (17).

A clinical audit conducted in New Delhi, 2004 GC conducted among obstetricians to assess knowledge and attitude about labor analgesia out of 120 questioners with a 100 respondents (with 20% junior residents, 32% senior registrars and 22% consultants in public and 22% in private practice), results of which showed only 32% had conducted labor under epidural analgesia, 92% felt epidural analgesia was required but 8% had no need for it, 30% felt it affected the course of labor while the rest 70% said it had no effect on the course of labor, and around 51% felt it had increased risk of instrumentation. Only 1% of respondents felt epidural had an adverse effect on mother while 3% felt it had an adverse effect on neonate. However 87% said they would recommend it to mother while 13% said they would not, of which 30.7% said it was due to lack of anesthesiologist while 70% of the said it was due to shortage of staffing and monitors. In conclusion while most would recommend epidural analgesia the addressing of logistic problems personnel and monitoring availability need to be addressed (18).

A single center cross sectional study done in November 2016 G.C, at Shaikh Saeed Memorial Campus of The Indus Hospital, Karachi, Pakistan, two surveys were done one with HCWs with 71 participants and the other with patients coming to their first ANC visit with 1005 mothers participating. Regarding attitude among HCWs, 87.3% said pain should be treated during labor. With regard to knowledge of labour pain treatment modalities, HCWs reported systemic opioids with adjuvants as the most common method (36.6%), followed by systemic opioids only (31%) and regional anesthesia (23.95%). And of those HCWs 43.7% believed that pain relief should be practiced and has no adverse effect. But 29.65% believe it prolongs labor and 14.15% affects the fetus adversely and 11.3% of HCWs said it increases rate of cesarean section (4). Out of the parturient only 27.9% were aware of labor analgesia and 85.2% were willing to have analgesia, and 14.1% of women didn't support labor analgesia citing, it's what it means to be a mother. To put this in perspective there is a wide gap between practice of labor analgesia and knowledge(4).

A study done in Zaria, Nigeria for 2 weeks in 2009 GC in a multicenter 3 high volume facilities study with 95 HCPs respondents after consent, with the respondents including doctors, nurses and midwives. Most (94.8%) agreed that pain relief is needed, 2.1% were undecided and, 3.2% didn't have the attitude that pain relief was necessary at all. Concerning knowledge in the preceding 4 weeks; 48.4% had administered pharmacologic pain relief with systemic opioid being the most common form of treatment. The 54.5% had no reason why they didn't provide pain relief. Reason such as unavailability of equipment, cost of pain relief, lack of knowledge and skill were given as reasons by some. In conclusion even though most have good attitude towards treating pain this didn't align with their practice (2).

A study done at the annual scientific conference of society of gynecology and obstetrics of Nigeria 2016 GC, in a questioner based cross-sectional study, with a total of 324 participants of which 73.1% were male and 26.9% were female, the majority 94.1% practiced at a tertiary facility in urban areas. Epidural analgesia knowledge was high (100%), while availability was 77.8%, and its routine prescription was only 25.9%, female obstetricians were more likely to prescribe epidural analgesia for pain relief in labor with (68.9% vs 63.3%, P value=0.001), deterrents to epidural use were, cost (69.4%), lack of skill (27.8%), clients refusal (13.4%) and fear of complications (10.2%). Good fetomaternal outcome and maternal satisfaction in mothers who have used epidural was 95% (10). To conclude, there is gap between knowledge and practice of epidural analgesia among obstetricians.(10).

Another study done in Amhara regional state referral hospitals, Ethiopia, conducted from July 1st-15th 2014, involving 212 obstetric care givers (47.2% midwives, 19.3% doctors and 67.5% nurses), around 39.2% had highest qualification of BSc degree, 26.9% had diploma and 14.6% had MSc degree. There was 40.1% utilization of non-pharmacologic analgesia (psychotherapy 88.2%, breathing technique 71.9% and massage 63.51%) while pharmacologic analgesia use was zero. There was a statistical association found between inadequate knowledge and highest professional qualification with the utilization of obstetric analgesia(9).

Using a descriptive cross-sectional analysis done in the urban, peri-urban and rural areas in Ethiopia over 2 weeks in March 2013 G.C, 164 respondents participated. Of those 79% agree women feel moderate to severe pain during labor, 77% agree labor pain should be treated, from the 24% of respondents didn't feel pain should be relieved, 20% said it will affect the course of labor, 19% said pain relief will make labor longer, 17% pain relief will have adverse effects on the baby, and 38% believed pain is a natural process and mothers should cope with it (3). In conclusion while most agree pain is present and should be treated, pain relief options aren't provided to women and there is need to educate HCPs and to inform mothers about options of pain relief(3).

The study done in Durame General Hospital, Kembata Tembaro Zone, Southern Ethiopia from March 1 to April 2, 2017, a descriptive qualitative cross sectional method with 15 midwife participants using in-depth interview (1). The results showed that while some of the midwives encouraged the mothers to relieve pain by massaging them, allowing them to sit in a squatting position, or walk around, others viewed it as a natural process and didn't consider to manage it. Regarding knowledge most said they didn't have enough knowledge to manage it pharmacologically and that pharmacological interventions harm the mother and baby so they have decided not to use it.(1).

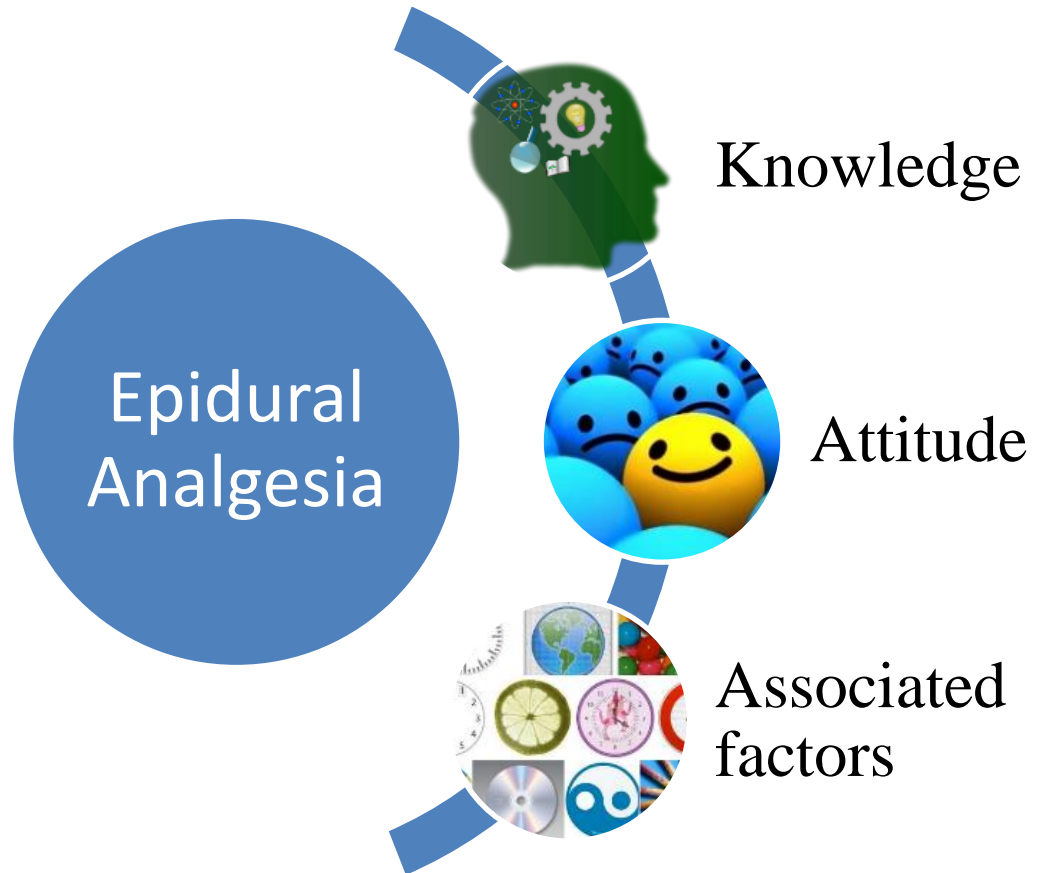
A cross-sectional study conducted from March 1st-30th, 2018 GC, in public health centers of east Gojam Zone, Amhara region, Ethiopia, with 309 participants, with structured questionnaire used with greater than half 54.2% of the HCPs had adequate knowledge about labor pain relief methods, regarding attitude, majority 86.3% believe labor pain should be managed, but 55.9% thought that pharmacologic pain relief method isn't required to manage such labor(8).

Another cross-sectional study conducted among 130 final year midwifery students in July 2018, Gonder university Amhara region, Ethiopia. 68.5% of them expect pain during labour. Among those students, 30% expect moderate and 38.5% expect severe pain during labor (11). 83% didn't have knowledge about WHO analgesic ladder, and regarding methods of analgesia majority knew non-pharmacologic and simple analgesics (emotional support (29%), simple analgesic like paracetamol or diclofenac (22%)). However, systemic opioids and regional labor analgesia were not considered as labor analgesia by the respondents(11). The study concluded, almost two third of the respondents were not aware of painless labor in hospital and most believe pharmacologic methods will affect the labor, baby and mother(11).

Of the common themes identified from the researches reviewed most agree that parturient feel moderate to severe pain during labor (1,2). The majority of the HCWs on the literature support pain to be treated (2,19). Lack of access to analgesics, procedure material, gap in skill and knowledge to provide pain relief have been some of the reasons in majority of the papers (2,10). In considerations of the results of the various studies reviewed a study done in Zaria, Nigeria in 2009, the results were out of the 95 HCWs 98% agreed pain relief was needed, 2.1% of them were undecided as to whether analgesia for labor was required, 3.2% said it wasn't necessary to treat the pain, only 48.4% less than half had administered analgesia out of the 93.7% who attended a delivery in the preceding 4 weeks, systemic opioid was the most commonly used, 42.1% counseled their parturient, among those who did not provide analgesia 54.5% had no reason (2).

The gaps identified were as follows ; there was failure to correlate between level of education with knowledge towards analgesia provision (2). Analgesia types used were not specifically recorded (20), or adequately described (2) . There was minimal evaluation of attitude and knowledge with regards to epidural analgesia which is considered the gold standards in labor pain management. No record of practice of epidural analgesia present in some of the studies (2). There is high awareness of epidural analgesia (2). However there is knowledge gap identified as there was practice of use of systemic steroids as analgesia for labor pain. In the remaining HCWs which didn't provide analgesia in the study conducted in Zaria, Nigeria (2), even though awareness was high, there was conflict when it came to practice.

Conceptual framework



3. Objectives

General Objectives

- To assess knowledge and attitude of epidural analgesia and associated factors among health care professionals in obstetric department at JUMC, Jimma, Ethiopia, 2022 G.C.

Specific Objectives

- To assess knowledge about epidural analgesia among obstetric HCPs.
- To assess attitude toward epidural analgesia among obstetric HCPs.
- To investigate associated factors affecting knowledge about epidural analgesia among obstetric HCPs.
- To investigate associated factors affecting attitude towards epidural analgesia among obstetric HCPs.

4. Method

4.1 Study Area and Period

The study was conducted at JUMC, which is found in Jimma, southwest Ethiopia, and one of the biggest tertiary hospitals in southwest Ethiopia which gives delivery services for 300-500 pregnant mothers monthly as well as ANC follow up for 400-600 pregnant mothers monthly. In addition to being a tertiary referral hospital that provides medical, surgical, pediatrics, obstetrical and other subspecialty services; it is also has educational and training center for many health related undergraduate and postgraduate programs.

In obstetric department, at labour ward there were 3 beds at latent labour room, 5 beds at active labour room, 4 delivery couches, and 2 operating theaters. At maternity ward there were 36 beds at post CS rooms, 12 beds at high risk room and 4 beds at private rooms. There are on average between 350-400 vaginal deliveries attended monthly, and close to 100-150 cesarean sections done monthly. There were total 181 HCPs which includes 14 obstetric seniors, 52 obstetric residents (R1=11, R2=19, R3=15, R4=7), 23 midwives, 12 obstetric nurses and 80 medical interns during study period in the department.

The study was conducted from September to November, 2022 GC.

4.2 Study Design

Institution based prospective cross-sectional study design was conducted among obstetric health professionals at JUMC, Jimma, Ethiopia, 2022 G.C.

4.3 Population

4.3.1 Source Population

Obstetric health professionals such as obstetricians, obstetric residents, medical interns attaching to obstetric department during the study period, midwives and obstetric nurses at the labor ward, maternity ward and ANC OPD at JUMC, Jimma, Ethiopia, 2022 G.C.

4.3.2 Study Population

All obstetric HCPs during study time period were included.

4.4 Inclusion and exclusion criteria

4.4.1 Inclusion criteria

- Obstetric HCPs who have interaction with parturient during ANC follow up, labor and delivery at JUMC.

4.4.2 Exclusion criteria

- Obstetric HCPs who refused to participate in the research.

4.5 Sample size

Sample size determined by using statistical formula, single population proportion formula.

By taking 50% prevalence of level of knowledge and attitude among HCPs toward epidural analgesia since research was not done in our set up previously.

$$n = (Z_{\alpha/2})^2 \times p \times q / d^2$$

Where: n= required number of sample size.

$Z_{\alpha/2}$ = desired 95% confidence, $Z=1.96$.

$$p=0.5$$

$$q=1-p=0.5$$

d= margin of error tolerated which is 5%=0.05

$$n = (1.96)^2 \times 0.5(1-0.5) / (0.05)^2 = 384$$

Since the source population is less than 10,000, I used the correction formula

$$n_f = n / (1 + n/N)$$

Where n_f =final sample size, n = sample size =384, N = number of obstetric HCPs= 181.

$$n_{\text{final}} = 384 / (1 + 384/181) = 124$$

Final sample size will be = **124**

4.6 Study variables

4.6.1 Dependent variables

- Knowledge
- Attitude

4.6.2 Independent variables

- Age
- Sex
- Religion
- Marital status
- occupation
- Level of education,
- Place of work
- Year of experience

4.7 Data collection tools and Sampling technique.

Data was collected using structured questionnaire adapted from previous sources (8,10)(18).

The questioner was prepared in English and consists of four sections;

- Socio-demographic data of the HCPs
- Knowledge will be assessed in pre-prepared standardized questioner from previous studies
- Attitude will be assessed in pre-prepared standardized questioner from previous studies.
- Questions regarding associated factors

Data collection was carried out by four different trained general practitioners who weren't involved in the management of the pregnant women, to make sure the study is double blind. Questioner was conducted after consent of participants.

Participants was selected by convenience sampling technique.

4.8 Data processing and analysis

The principal investigator followed up the data collection process daily to ensure that the data were accurate, consistent, and comprehensive. The data was edited, coded, entered into Epidata version 3.1, and cleaned. SPSS version 26 was used for data analysis, and a statistical significance test was applied to see the association between dependent and independent variables. The binary logistic regression was used with adjusted odds ratio (AOR) and corresponding 95% confidence interval (CI) was used to assess the strength of the association between the dependent and independent variables at a P-value of ≤ 0.05 cut off point to declare significance. Descriptive data was presented as counts and percentages for categorical data. For continuous variables was presented as Means, Medians and Standard deviations.

4.9 Data quality control

Before data collection starts, training was given for data collectors for one day. Pretest questionnaires was conducted using 5% of sample size at different site.

Each day before data collection starts, the primary investigator was given an orientation to data collectors to ensure completeness, accuracy, and consistency of the questionnaires and the collected data.

The principal investigator was provided on-site technical assistance and follow the data collection process daily to ensure that the data were accurate, consistent, and comprehensive.

Before analyzing the data, the principal investigator enter data to Epidata and cleaned.

4.10 Operational definition

Knowledge; facts, information and understanding about epidural labor analgesia

Good knowledge: 50-100% correct responses to the knowledge questions

Poor knowledge: <50% correct responses to the knowledge questions

Attitude: the way health care professionals think or behave towards epidural labor analgesia.

Favorable attitude: 50-100% positive response to attitude questions

Unfavorable attitude :< 50% positive response to attitude questions.

Obstetrics HCPs- HCPs which includes obstetric-gynecology seniors, residents, medical interns, nurses, midwives, pharmacist working at obstetrics department.

Obstetrics department- department under gynecology and obstetric department which includes ANC, labor operation room, labor and maternity wards.

Epidural labor analgesia- neuraxial technique which involves administration of analgesic drugs into epidural space for labor pain relief.

4.11 Ethical considerations

Ethical clearance was obtained from the research and ethics committee of JUMC, school of medicine and letter of support from department of Anesthesiology, Critical care and pain medicine.

After an explanation of the research was given to the participants they were given written consent to sign.

The identity of the participants remained anonymous as the data collection format didn't include any identifying factors such as name of participant.

All of the data collected was kept confidential and will only be used for purposes of education as well as for furthering research and evidence based medicine.

There was no risk for those who participate in this research.

4.11 Dissemination plan

The finding of the study was disseminated to anesthesia, critical care and pain medicine department, faculty of medicine, hospital administration office and other responsible bodies.

5. Result

The study was conducted among obstetrics HCPs working at JUMC, Jimma, South West Ethiopia. Institution based prospective cross-sectional study design was conducted and 124 HCPs were taken as sample population which selected by convenience sampling technique from 181 HCPs during the study period. Data was collected using structured questionnaire adapted from previous sources.

Knowledge assessment was interpreted after all response to structured questionnaire regarding knowledge was converted to percentage and cut off point 50% was used to interpret as good and poor knowledge. As well as, attitude assessment was interpreted after all response to structured questionnaire regarding attitude was converted to percentage and cut off point 50% was used to interpret as favorable and unfavorable attitude.

From sampled population, regarding assessment of knowledge, majority 68 (54.8%) HCPs had poor knowledge and 56(45.2%) HCPs have good knowledge regarding epidural analgesia. Among HCPs majority 72(58.1%) have unfavorable attitude and 52(41.9%) have favorable attitude towards epidural analgesia. Therefore, majority of HCPs at JUMC obstetrics department had poor knowledge (54.8%) and unfavorable attitude (58.1%) towards epidural labor analgesia. See figure 1;

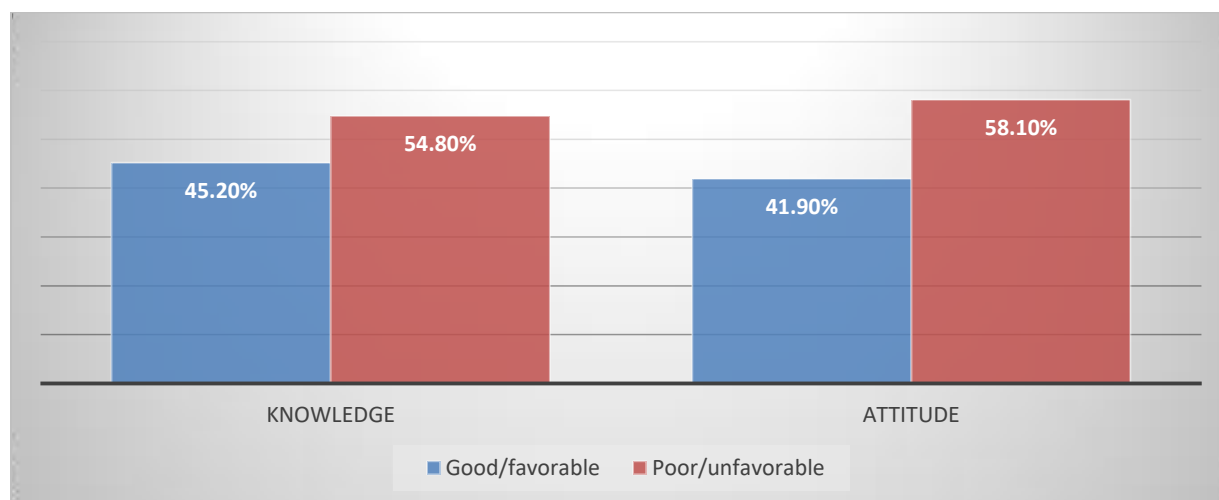


Figure 1: Distribution of knowledge and attitude assessment towards epidural analgesia among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C. n = 124.

5.1 Socio-demographic characteristics

The study involved more than a half males HCPs 70 (56.5%). Most of HCPs were young adults in 20-29yrs age category which accounts for 83.9%. Among HCPs involved in the study, majority 57 (46%) were orthodox religion followers and were unmarried 84 (67.7%). Majority of HCPs involved in the study were undergraduate medical interns which accounts for 71 (57.3%) and working at labor ward 52(41.9%) with less than 2 year of practice 91 (73.4%). See table 1.

Table 1: Distribution of sex, age, marital status, occupation, year of practice, level of education, and place of work among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Variables	Categories	Frequency	Percent
Sex	Male	70	56.5
	Female	54	43.5
	Total	124	100
Age	20-29	104	83.9
	30-39	17	13.7
	40-49	3	2.4
Marital status	Unmarried	84	67.7
	Married	36	29.0
	Divorced	3	2.4
	Widowed	1	0.8
Occupation	Midwife	15	12.1
	Nurse	8	6.5
	Medical intern	71	57.3
	OBGYN resident	25	20.2
	OBGYN senior	5	4.0

Year of practice	0-2	91	73.4
	3-5	23	18.5
	6-10	9	7.3
	>10	1	0.8
Level of education	Undergraduate	71	57.3
	Diploma	10	8.1
	Bachelor's degree	13	10.5
	Doctorate	30	24.2
Current place of work	Labor ward	52	41.9
	Antenatal care (ANC)	27	21.8
	Maternity	38	30.6
	Operation room	2	1.6
	All wards	5	4.0

5.2 Result of knowledge assessment towards epidural analgesia

Majority of HCPs responded that epidural analgesia can be used for labor pain management 108(87.1%). Majority of HCPs 76 (61.3 %) responded that epidural analgesia can affect labor progress significantly. However, majority of HCPs 84 (67.7 %) responded that epidural analgesia didn't increase rate of instrumental and caesarian delivery. See table 2;

Table 2: Distribution of knowledge of epidural analgesia utilization, effect on labor progress, and rate of instrumental and caesarian delivery for labor pain management among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Knowledge variables	Response	Frequency	Percent (%)
knowledge of epidural analgesia utilization for labor pain management	Yes	108	87.1
	No	16	12.9
Effect of epidural analgesia on labor progress	Yes	76	61.3
	No	48	38.7
Effect of epidural analgesia on rate of instrumental and caesarian delivery	Yes	40	32.3
	No	84	67.7

Majority of HCPs 87 (70.2%) failed to mention vertebral site for epidural insertion. Only 37(29.8%) mentioned the site of insertion and most responded between L3and L4; 16(12.9%), and some mentioned between L2and L3; 8(6.5%) and between L1-L2 5(4.0%).

Majority of HCPs 88(71.0%) responded epidural catheter should be inserted which mentioned mostly during latent phase 62(50%) and before onset of labor 22(17.7%). Even though, most mentioned epidural drug administered during active first stage of labor 82(66.1%), only 26(21.0%) mentioned it should be administered starting from latent first stage of labor. See figure 2:

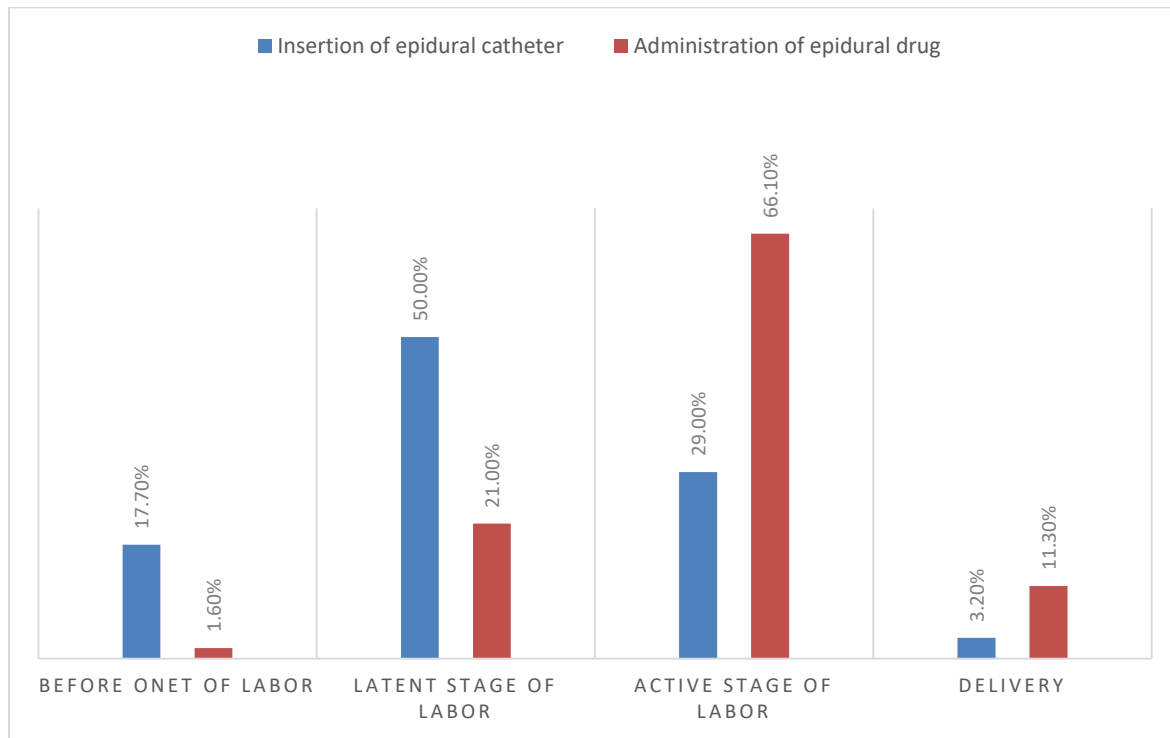


Figure 2: Distribution of knowledge regarding timing of epidural catheter insertion and administration of epidural drugs among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

More than half of HCPs 70(56.5%) mentioned types of drugs used for epidural analgesia. Most commonly mentioned drugs were bupivacaine 53(42.7%), and lidocaine 47(37.9%). Majority of HCPs 72 (58.1%) mentioned contraindications for epidural catheter insertion as patient refusal 56(45.2%) and site infection 50(40.3%).

More than half of HCPs 65 (52.4%) failed to mention clinical manifestations of local anesthetic systemic toxicity. Even though some of them commonly mentioned confusion 46(37.1%), agitation 33(26.6%) as sign and symptoms of systemic toxicity. Majority of HCPs 77 (62.1%) mentioned complications of epidural catheter insertion as infection 59(47.6%) and hypotension 47(37.9%) See table 3;

Table 3: Distribution of responses regarding contraindication, complications and clinical manifestation of systemic toxicity regarding epidural analgesia among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Variables	Response	Yes		No	
		Frequency	Percent (%)	Frequency	Percent (%)
Contraindication for epidural analgesia	Patient refusal	56	45.2	68	54.8
	Site infection	50	40.3	74	59.7
	Coagulopathy	32	25.8	92	74.2
	Thrombocytopenia	29	23.4	95	76.6
	Hypotension	25	20.2	99	79.8
	Increased ICP	25	20.2	99	79.8
	Others	7	5.6	117	94.4
Complications of epidural analgesia	Infection	59	47.6	65	52.4
	Hypotension	47	37.9	77	62.1
	Prolong labor	29	23.4	95	76.6
	Arrhythmia	20	16.1	104	83.9
	Systemic toxicity	14	11.3	110	88.7
	Headache	10	8.1	114	91.9
	Others	7	5.6	117	94.4
Clinical manifestation of systemic toxicity	Confusion	46	37.1	78	62.9
	Agitation	33	26.6	91	73.4
	Hypotension	26	21.0	98	79.0
	LOC	24	19.4	100	80.6
	Seizure	17	13.7	107	86.3
	Others	8	6.5	116	93.5

5.3 Result of attitude assessment towards epidural analgesia

Most of HCPs 110 (88.7%) agreed or strongly agreed laboring mother feel severe pain as well as majority of HCPs 87 (70.2%) agreed or strongly agreed labor pain should be treated. See figure 3;

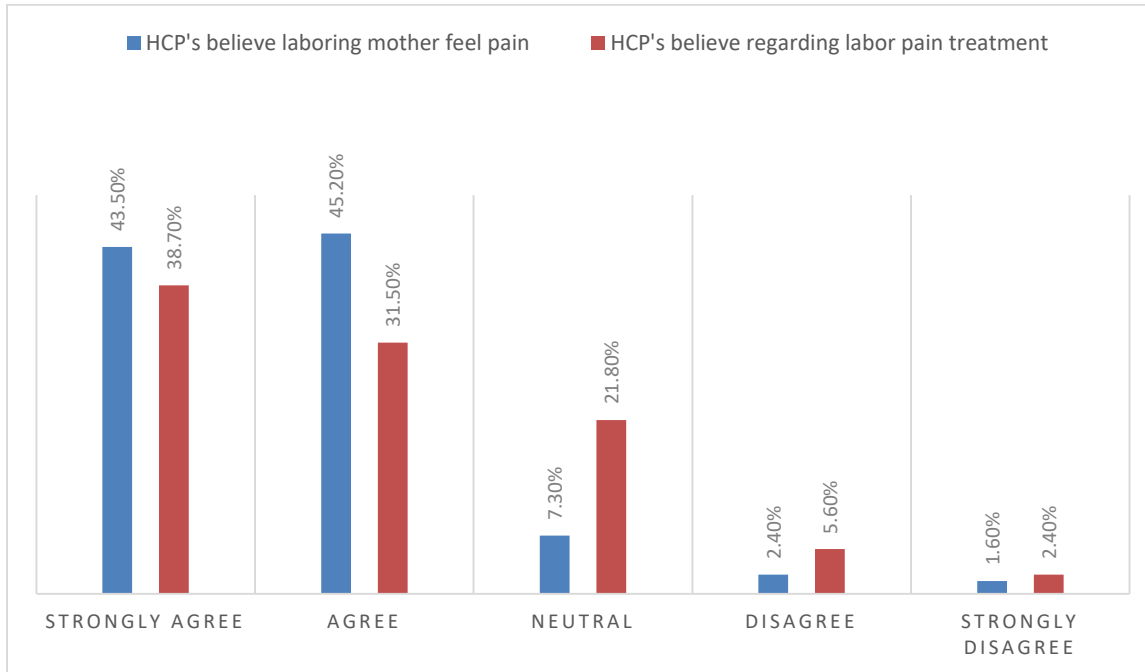


Figure 3: Distribution of attitude regarding whether HCPs believe laboring mother feel pain and laboring pain be treated among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

5.4 Result of associated factors affecting knowledge and attitude towards epidural analgesia

I. Factors associated with knowledge

Level of education, current place of work, and year of experience were found to be statistically associated with knowledge about epidural analgesia in a bivariate logistic regression analysis at a 25% level of significance. After adjusting for potential confounders, level of education and current place of work were found to be significantly associated with knowledge about epidural analgesia at a 5% level of significance in a multivariable binary logistic regression.

Regarding level of education, those with undergraduate-level education had 8.5 times more poor knowledge about epidural analgesia (AOR (95% CI) = 8.5 (2.7, 25.95) P-value = 0.0001) when compared to doctorate holders. And diploma holders are five times more likely to have poor knowledge about epidural analgesia (AOR (95% CI) = 5.1 (1.1, 24.6), P-value = 0.041) when compared to doctorate holders. Regarding the current place of work, those working in ANC are four times more likely to have good knowledge about epidural analgesia (AOR (95% CI) = 3.5 (1.08, 11.4), P-value = 0.037) when compared with those working in labor wards. See table 4;

There were no statistically significant association between knowledge and variables like sex, age, marital status, occupation and year of practice.

Table 4: Bivariate and Multivariate logistic regression model to identify factors associated with knowledge about epidural analgesia among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November 2022, n = 124

Variables	Categories	Knowledge		COR	AOR	P-value
		Poor	Good			
Level of education	Undergraduate	48(38.7%)	18(14.5%)	8.76 (3.2, 23.9)	8.5 (2.7, 25.95)	0.0001
	Diploma	6 (4.8%)	4 (3.2%)	4.93 (1.07, 22.6)	5.1 (1.1, 24.6)	0.041
	Bachelor's degree	7 (5.6%)	11 (8.9%)	2 (0.6, 7.45)	2 (0.5, 7.7)	0.32
	Doctorate	7 (5.6%)	23 (18.5%)	1	1	
Current Place of work	Labor ward	18 (14.5%)	18 (14.5%)	1	1	0.252
	ANC	7 (5.6%)	22 (17.7%)	3.1 (1.07, 9.2)	3.5 (1.08, 11.4)	0.037
	Maternity	18 (14.5%)	13 (10.5%)	1.4 (0.5, 3.6)	1.13 (0.39, 3.2)	0.824
	OR	4 (3.2%)	8 (6.5%)	0.5 (0.13, 1.96)	0.94 (0.2, 4.4)	0.936
	All wards	6 (4.8%)	10 (8.1%)	0.6 (0.18, 2.0)	1.1 (0.27, 4.4)	0.891

II. Factors associated with attitude

Level of education, current place of work, and year of experience were found to be statistically associated with knowledge about epidural analgesia in a bivariate logistic regression analysis at a 25% level of significance. After adjusting for potential confounders, level of education and current place of work were found to be significantly associated with attitude towards epidural analgesia at a 5% level of significance in a multivariable binary logistic regression.

Regarding level of education, those with diplomas are 2.3 times more likely to have an unfavorable attitude towards epidural analgesia (AOR (95% CI) = 2.33 (0.93, 8.9), P-value = 0.01) when compared to those with doctorates. Regarding the current place of work, those working in ANC are three times more likely to have an unfavorable attitude towards epidural analgesia (AOR (95% CI) = 3.18 (1.05, 9.6), P-value = 0.041) when compared with those working in labor wards. See table 5;

There were no statistically significant association between attitude and variables like sex, age, marital status, occupation and year of practice.

Table 5: Bivariate and Multivariate logistic regression model to identify factors associated with attitudes of HCPs towards epidural analgesia among those working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November 2022, n = 124

Variables	Categories	Attitude		COR	AOR	P-value
		Unfavorable	Favorable			
Level of education	Undergraduate	42 (33.9%)	24 (19.4%)	4.08 (1.6, 10.3)	2.7 (0.96, 7.8)	0.059
	Diploma	9 (7.3%)	1 (0.8%)	2.10 (0.82, 10.1)	2.33 (0.93, 8.9)	0.01
	Bachelor's degree	12 (9.7%)	6 (4.8%)	4.67 (1.3, 16.34)	3.26 (0.85, 12.5)	0.085
	Doctorate	9 (7.3%)	21 (16.9%)	1	1	
Current Place of work	Labor ward	18 (14.5%)	18 (14.5%)	1	1	
	ANC	22 (17.7%)	7 (5.6%)	3.14 (1.07, 9.2)	3.18 (1.05, 9.6)	0.041
	Maternity	22 (17.7%)	9 (7.3%)	2.4 (0.89, 6.74)	2.13 (0.74, 6.08)	0.159
	OR	6 (4.8%)	6 (4.8%)	1.0 (0.27, 3.7)	1.12 (0.25, 4.95)	0.882
	All wards	4 (3.2%)	12 (9.7%)	0.3 (0.09, 1.2)	0.337 (0.07, 1.5)	0.158

Majority of HCPs 91 (73.4%) requested by laboring mother for pain relief. But majority of HCPs 57(62.0%) didn't comply and provide for those who requested for labor pain relief. See figure 4;

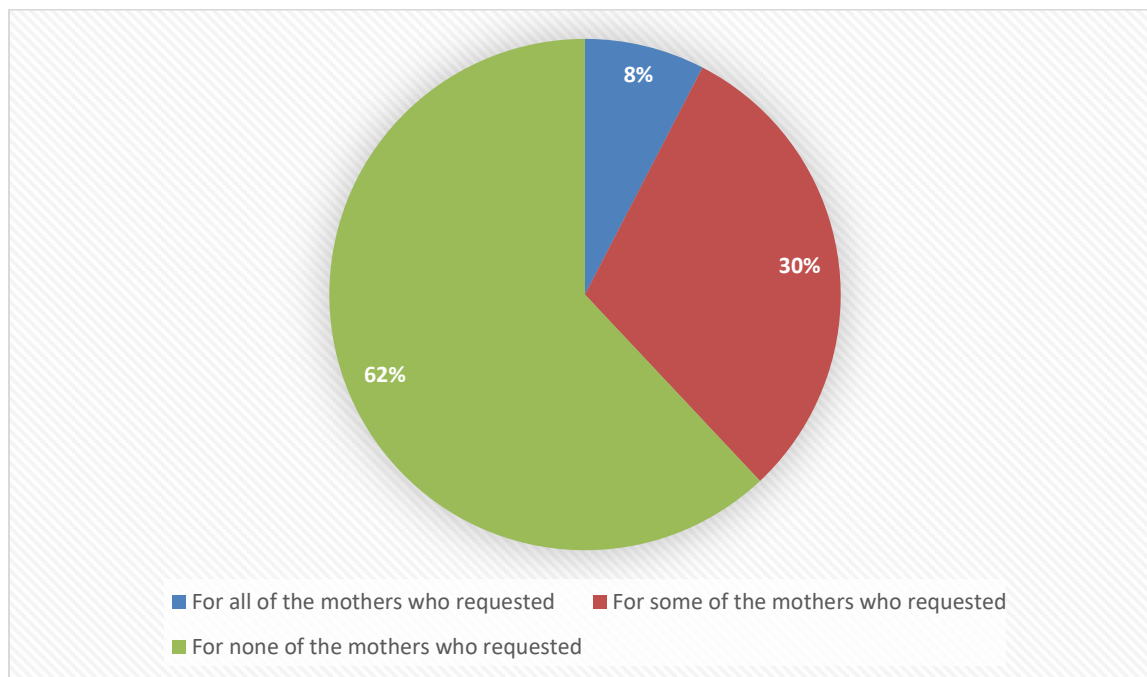


Figure 4: Distribution of labor pain management practice among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

Less than half of HCPs 59(47.6%) mentioned they will recommend epidural analgesia as labor pain management. But more than half of HCPs 65(52.4%) mentioned they won't recommend epidural labor analgesia. Majority of HCPs among mentioned reasons for not recommending as lack of epidural material 26(40.0%), lack of knowledge 18(27.7%) and lack of expert HCPs 15(23.1%) and some of HCPs mentioned as fear of complication 11(16.9%), and others like no need for labor pain treatment, lack of 9(13.8%). See figure 5;

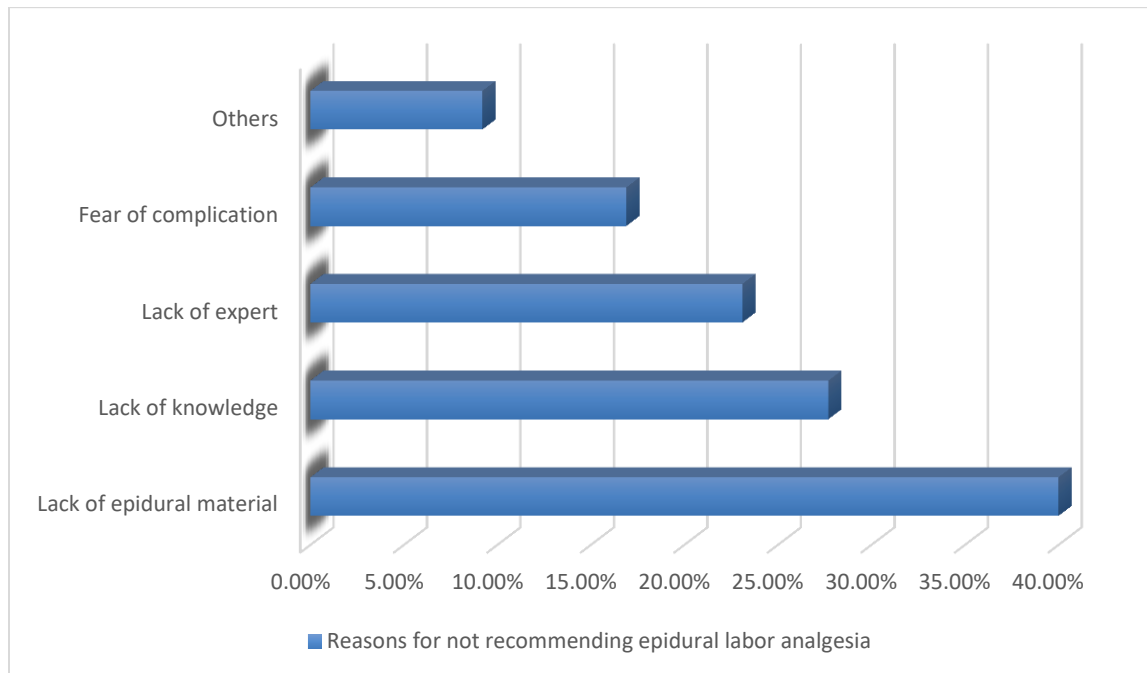


Figure 5: Distribution of reasons for not recommending epidural analgesia among HCPs working at the obstetric department at JUMC, Jimma Town, southwest Ethiopia, from September to November, 2022 G.C.

6. Discussion

Epidural analgesia which remains the gold standard for labor pain management, knowledge and attitude of HCPs towards epidural analgesia may affect its future practice (10).

In this study which conducted among obstetrics health care professionals working at obstetrics department Jimma university medical center from September to November, 2022 G.C showed there was poor knowledge and unfavorable attitude towards epidural labor analgesia.

From sampled population, regarding assessment of knowledge, majority 68 (54.8%) HCPs have poor knowledge and 56(45.2%) HCPs have good knowledge regarding epidural analgesia. The finding is lower when compared from a study done in Queensland and New South Wales in Australia with a total 408 nurses and midwives, 75% demonstrated good knowledge about epidural analgesia (14).This difference in level of knowledge can be due to;

1. The study in Queensland and New South Wales in Australia didn't involve undergraduate medical interns and physicians.
2. Different set up and socio-economic status.
3. Less practice of epidural analgesia in our set up.
4. This study involved small sample population and limited to obstetrics department.

There were no statistically significant association between knowledge and variables like sex, age, marital status, occupation and year of practice.

Majority of HCPs involved in the study were undergraduate medical interns and more than half of HCPs working at labor ward. There were statistically significant association between knowledge and variables like level of education and current place of work. Regarding associated factors affecting knowledge of HCPs, those with undergraduate-level education had 8.5 times poor knowledge about epidural analgesia when compared to doctorate holders. And diploma holders are five times more likely to have poor knowledge about epidural analgesia when compared to doctorate holders. Regarding the current place of work, those working in ANC are four times more likely to have good knowledge about epidural analgesia when compared with those working in labor wards. There was no study found in other set ups to compare associated factors affecting knowledge.

Majority of HCPs had unfavorable attitude towards epidural labor analgesia 72(58.1%) and 52(41.9%) of HCPs had favorable attitude. There were no statistically significant association between attitude and variables like sex, age, marital status, occupation and year of practice. There were statistically significant association between attitude and variables like level of education and current place of work. Regarding level of education, those with diplomas are 23 times more likely to have an unfavorable attitude towards epidural analgesia when compared to those with doctorates. Regarding the current place of work, those working in ANC are three times more likely to have an unfavorable attitude towards epidural analgesia when compared with those working in labor wards. There was no study found in other set ups to compare associated factors affecting attitude.

Most of HCPs responded that epidural analgesia can be used for labor pain management 108(87.1%). Also the finding is comparable with the study conducted in New Delhi (18), in which 92% know epidural analgesia can be used as labor analgesia.

Although, majority of HCPs which accounts for 76 (61.3 %) responded that epidural analgesia can affect labor progress significantly, majority of HCPs 84 (67.7 %) responded that epidural analgesia didn't increase rate of instrumental and caesarian delivery. In the study conducted among obstetricians in New Delhi showed, majority 70 % said it had no effect on the course of labor and around 51% felt it had increased risk of instrumentation (18). The difference can be due to;

1. The study in New Delhi only involved obstetricians
2. Different set up
3. Less exposure of epidural in our setup.
4. Guideline used in our set up.

Majority of HCPs 87 (70.2%) failed to mention vertebral site for epidural insertion. Only 37(29.8%) mentioned the site of insertion and most responded between L3and L4; 16(12.9%), and L2and L3; 8(6.5%).

Majority of HCPs 88(71.0%) responded epidural catheter should be inserted during latent phase 62(50%) and before onset of labor 26(21%). Even though, most responded epidural drug should be administered during active first stage of labor 82(66.1%). Also in study done in Queensland and New South Wales in Australia among registered nurses and midwives, 69% mentioned site of epidural insertion. (14) The difference can be due to;

1. The study in Queensland and New South Wales in Australia didn't involve undergraduate medical interns.
2. Different set up and socio-economic status.
3. Less practice of epidural analgesia in our set up.
4. This study involved small sample population and limited to obstetrics department.

Majority of HCPs 70(56.5%) mentioned types of drugs used for epidural analgesia. Most commonly mentioned drugs were bupivacaine 53(42.7%), and lidocaine 47(37.9%). Majority of HCPs 72 (58.1%) mentioned contraindications for epidural catheter insertion. Most commonly mentioned contraindications were patient refusal 56(45.2%) and site infection 50(40.3%). The find was comparable with the study done in Queensland and New South Wales in Australia among registered nurses and midwives regarding knowledge of epidural analgesia, 57% correctly responded about pharmacology and contraindications (14).

Majority of HCPs 77(62.1%) mentioned complications of epidural catheter insertion. Most commonly mentioned complications were infection 59(47.6%) and hypotension 47(37.9%). More than half of HCPs 65 (52.4%) failed to mentioned clinical manifestations of local anesthetic systemic toxicity. Even though some of them commonly mentioned confusion 46(37.1%), agitation 33(26.6%) as sign and symptoms of systemic toxicity. The find was comparable with the study done in Queensland and New South Wales in Australia among registered nurses and midwives regarding knowledge of epidural analgesia, 56% mentioned complications of epidural analgesia (14).

Most of HCPs 110 (88.7%) agreed or strongly agreed laboring mother feel severe pain and majority of HCPs 87 (70.2%) agreed or strongly agreed labor pain should be treated. The finding was comparable with the studies done in public health centers of east Gojam, Ethiopia majority 86.3% believe labor pain should be managed. (8) In study done in the urban, peri-urban and rural areas in Ethiopia 77% agree labor pain should be treated (3). A study done in Zaria, Nigeria including doctors, nurses and midwives, most (94.8%) agreed that pain relief is needed (2). A study done at Shaikh Saeed Memorial Campus of The Indus Hospital, Karachi, Pakistan, Regarding attitude among HCWs, 87.3% said pain should be treated during labor (4). Majority of HCPs 91 (73.4%) requested by laboring mother for pain relief. But majority of HCPs 57(62.6%) didn't comply and provide for those who requested for labor pain relief. The finding was comparable with the study done in Zaria, Nigeria 51.6% HCPs didn't comply and administer pharmacologic pain relief during labor (2). Less than half of HCPs 59(47.6%) mentioned they will recommend epidural analgesia as labor pain management. But in Study done in New Delhi conducted among obstetricians, 87% said they would recommend it to mother (18).The difference might be;

1. Study population in New Delhi limited to obstetrician
2. Geographic and set up difference
3. Less epidural practice in our set up
4. Lack knowledge regarding epidural analgesia

But more than half of HCPs 65(52.4%) mentioned they won't recommend epidural labor analgesia mainly due to lack of epidural material 26(40.0%), lack of knowledge 18(27.7%) and lack of expert HCPs 15(23.1%).

The finding was comparable to the study done in New Delhi conducted among obstetricians, among reasons mentioned for not recommending epidural analgesia 70% of them said it was due to shortage of stuffing and epidural material, and 30.7% said it was due to lack of anesthesiologist (18).

7. Conclusion and recommendation

7.1 Conclusion

In assessment of knowledge and attitude of health care professionals working at obstetrics department JUMC, more than half of HCPs had poor knowledge and unfavorable attitude towards epidural labor analgesia.

There were statistically significant association between knowledge as well as attitude and variables like level of education and current place of work. There were no association found between knowledge or attitude and variables like sex, age, marital status, occupation and year of practice.

The identified associated factors can be risk factor for unsatisfying knowledge and unfavorable attitude.

STRENGTH OF THE STUDY

- The study is pioneer in assessing HCPs knowledge and attitude regarding epidural analgesia in our set up.
- In addition to qualitative data analysis, to strength findings of the study, associated factors were identified after converting it to quantitative data and the relative risk based on logistic regression analyses adjusted for potential confounders.
- The study involved diverse group of health care professionals from different working area.

LIMITATION OF THE STUDY:

- Multi-center study among healthcare workers will give a much thorough picture of the knowledge gaps and attitude towards epidural analgesia.
- Limited study found to compare the finding this study result, specifically to compare associated factors.
- There might be bias from convenience sampling and not involving equal proportion of sample population from different HCPs characteristics as during cohort study.
- This study did not use standardized validated questionnaire tools and manual grading of responses to knowledge and attitude which can lead to personal error.

7.2 Recommendation

The result found reflects the knowledge and attitude in our setting and contributing factor can be the associated factors in similar set up.

Therefore, to overcome the gap in knowledge and attitude as well as to tackle contributing factors;

1. Cohort study as well as multicenter study should be done to address issue regarding level of knowledge and attitude towards epidural analgesia in health facilities and come up with more representative findings.
2. There is a need to improve knowledge and attitude of health care professionals through training and educational, and to involve responsible bodies in supplying health facilities with the necessary materials and personnel.
3. There is a need to change to HCPs attitudes, through training as well as enhancing their ability to think critically about their practice.
4. Study should be done to assess level of practice of epidural labor analgesia which might affect level of knowledge and attitude.
5. There is a need to shape policies that improve HCPs' knowledge and attitude.
6. The findings from this study can be used as base line data and further investigation.

8. References

1. Geltore TE, Kelbore AG, Angelo AT. Perceptions of obstetric analgesia: a qualitative study among midwives attending normal vaginal deliveries in Durame Hospital, Southern Ethiopia. *Journal of Pain Research*. 2019;12:2187.
2. Ogboli-Nwasor E, Adaji SE, Bature SB, Shittu OS. Pain relief in labor: a survey of awareness, attitude, and practice of health care providers in Zaria, Nigeria. *Journal of Pain Research*. 2011;4:227.
3. McCauley M, Stewart C, Kebede B. A survey of healthcare providers' knowledge and attitudes regarding pain relief in labor for women in Ethiopia. *BMC Pregnancy Childbirth*. 2017;17(1):1–7.
4. Ali M, Sultan SF, Kumar A, Ghouri N. Knowledge, attitude and practices of labor analgesia amongst healthcare workers and patients: A single center cross sectional study. *Pakistan Journal of Medical Science*. 2020;36(1):S4–8.
5. Sahile E, Yemaneh Y, Alehegn A, Nigussie W, Yekoye A, Gebeyehu N. *iMedPub Journals Practice of Labour Pain Management Methods and Associated Factors among Skilled Attendants Working at General Hospitals in Tigray Region , North Ethiopia : Hospital Based Cross-Sectional Study Design*. *Health science journal* vol.11 No4:516 2017;1–7.
6. Reime B, Klein MC, Kelly A, Duxbury N, Saxell L, Liston R, et al. Do maternity care provider groups have different attitudes towards birth ? *an International Journal of Obstetrics and Gynecology*, December 2004; Vol,111:pp. 1388–1393.
7. Olaleye O, Dada SO, Alabi GO. Awareness and Utilization of Obstetric Epidural Analgesia in Labour Among Pregnant Women in Wesley Guild Hospital Ilesha , Nigeria. *International Quarterly of Community Health Education*, 2020; 1-8
8. Bishaw KA, Sendo EG, Abebe WS. Knowledge, and use of labour pain relief methods and associated factors among obstetric caregivers at public health centers of East Gojjam zone, Amhara region, Ethiopia: A facility based cross-sectional study. *BMC Pregnancy and Childbirth*. 2020;20(1):1–9.

9. Bitew A, Workie A. Utilization of Obstetric Analgesia in Labor Pain Management and associated Factors among Obstetric Care Givers in Amhara Regional State Referral Hospitals, Northwest Ethiopia: A Hospital based Cross Sectional Study. *Journal of Pain Research*. 2016;05(02).
10. Anozie OB, Lawani LO, Mamah JE, Esike CO, Ezeonu OP, Eze JN, et al. Epidural analgesia for management of labour pain: Determinants and deterrents among obstetricians in Nigeria. *International Journal of Women's Health and Reproductive Science*. 2018;6(4):410–414.
11. Endalew NS, Tawuye HY, Melesse DY. Knowledge and attitude towards pain relief in labor among final year midwifery students: A cross-sectional study. *International Journal of Surgery Open*. 2020;24:38–42.
12. Bitew A, Workie IA, Seyum T, Demeke T. Utilization and associated factors of obstetric analgesia in management among obstetric care givers in Amhara Regional state referral hospitals , northwest ethiopia, *Journal of biomedical science*.2016 5:2.
13. Waldum ÅH, Jacobsen AF, Lukasse M, Staff AC, Falk RS, Vangen S, et al. The provision of epidural analgesia during labor according to maternal birthplace : a Norwegian register study. *BMC Pregnancy and Childbirth*. 2020; 20:321.
14. Bird A, Wallis M, Chaboyer W. Registered nurses ' and midwives ' knowledge of epidural analgesia. *Royal college of nursing, Australia. Elsevier Australia*. 2009; 16:193-200.
15. Lipps J, Lawrence A, Palettas M, Small RH, Soma L, Coffman JC. Interprofessional provider attitudes toward the initiation of epidural analgesia in the laboring patient: are we all on the same page? *International Journal of Obstetrics Anesthesia*. 2019 Feb;37:57–67.
16. Sultan S, Alahmari A, Almetrek M, Alzillae AY, Hassan WJ, Mahdi S, et al. Knowledge , attitude , and practice of childbearing women toward epidural anesthesia during normal vaginal delivery in Alsanayeah Primary Health Care in Khamis Mushait. *Journal of Family medicine and Primary Care*. 2020;99–104.

17. Delwatta SL, Dona P, Kaushalya J, Kankanamalage A. Is knowledge and attitude on epidural analgesia during labour satisfactory among pregnant women attending antenatal clinics in Colombo District ? Sri Lanka journal of Anaesthesiology. 2019;27(1):21–7.
18. Bharti T, Kirti N, C.K. Dua. Clinical audit on the existing attitudes and knowledge of obstetricians regarding labour analgesia. Indian journal of anesthesia; January,2004:48:3.

9. Annexes

9.1 Informed Consent Sheet

Hello, how are you?

My name is _____ I am here on behalf of Dr. Garuma Babu, a year three anesthesia, critical care and pain medicine resident in JUMC, conducting his study among obstetric healthcare professionals currently doing thesis for the partial fulfillment of medical specialty in anesthesiology at JUMC, department of anesthesiology ,critical care and pain medicine , I would like to fill the questioner given about knowledge and attitude about epidural analgesia and associated factors among obstetric healthcare professionals at JUMC, south west Ethiopia. The objective of this study is to assess knowledge and attitude toward epidural analgesia and associated factors. We would like to identify factors that are discouraging as well as encouraging the application of epidural technique as labour analgesia modality.

Your cooperation and willingness for the interview is very helpful in identifying the problems related to the issue. Your name will not be included in the form and I assure you that all information that you give will be kept strictly confidential. Your participation is voluntary and you are not obliged to answer any question you do not wish to answer. If you are not still comfortable with the interview, please feel free to stop it any time you wish.

Do you want to continue?

- A. Yes
- B. No

Thank you in advance for your help!.

Name of principal investigator: Dr. Garuma Babu

Phone number: (+251)-917162812

E-mail address: gbggaruma@gmail.com

9.2 Questionnaires'

I. Socio-demographics data

1. Age _____
2. Sex A. Male B. Female
3. Religion
A. Muslim C. Orthodox
B. Protestant D. Other
4. Marital status
A. Unmarried C. Divorced
B. Married D. Widowed
5. Level of education
A. Undergraduate C. Bachelor's degree E. Doctorate
degree
B. Diploma D. Master's degree
6. Occupation
A. Midwife C. Medical intern E. OBGY senior
B. Nurse D. OBGY resident
7. Current place of work
A. Labor ward C. Maternity ward E. All wards
B. Antenatal care (ANC) D. Operation room
8. Year of practice at gynecologic and obstetric department
A. 0-2 years C. 6-10 years
B. 3-5 years D. > 10 years

II. Questions regarding knowledge of epidural analgesia

1. Do you know epidural analgesia can be used as labor pain management?
A. Yes B. No
2. Does epidural analgesia affect the courses of the mother's labor significantly?
A. Yes B. No
3. Does epidural analgesia increase the incidence of instrumental delivery or caesarian section?

A. Yes B. No

4. Have you conducted labor and delivery under epidural analgesia?

A. Yes B. No

5. Do you know the vertebral level for epidural catheter insertion for labor analgesia?

A. Yes B. No

6. If **yes** to question number (5), please specify the site; _____

7. When should epidural catheter be inserted?

A. Before onset of labor C. Active stage of labor

B. Latent stage of labor D. After delivery

8. When should epidural analgesia drug be provided?

A. Before onset of labor C. Active stage of labor

B. Latent stage of labor D. After delivery

Please answer the following questions as best to your knowledge

9. What are the commonly used epidural drugs for epidural analgesia?

1. _____

2. _____

10. What are the contraindications to epidural analgesia?

1. _____

2. _____

3. _____

4. _____

11. What are the complications of epidural analgesia?

1. _____

2. _____

3. _____

4. _____

12. What are the sign and symptoms of local anesthetic systemic toxicity?

1.

2.

3.

4.

5.

III. Questions regarding attitude towards epidural analgesia

1. Do you believe mothers feel pain during labor?

- A. Strongly disagree D. Agree
B. Disagree E. Strongly agree
C. Neutral

2. Do you believe labor pain should be treated?

- A. Strongly disagree D. Agree
B. Disagree E. Strongly agree
C. Neutral

3. Have you been asked by laboring mothers for labor pain relief?

- A. Yes B. No

4. If your answer is **yes** to question number (4);

I. How often have you been asked for labor pain relief?

- A. Occasionally B. Sometimes C. Always

II. How often do you comply and provide labor pain relief?

- A. For all of the mothers who asked
B. For some of the mothers who asked
C. For none of the mothers who asked

5. Would you recommend epidural analgesia to laboring mothers?

- A. Yes B. No

6. If the answer is **no** to question number (6), please specify the reason(s).

- A. Lack of knowledge C. Lack of expert health care professionals
B. Fear of complication D. Fear of prolonging labor
E. Lack of epidural material and monitoring equipment
F. Any other reason(s) _____

THANK YOU!

