

Investigating determinants for woman's choice to accept an epidural for labour analgesia at the delivery unit of the Tamale Teaching Hospital.

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Abstract

Abstract Objective: This study aimed to assess factors that influence epidural labour analgesia acceptance or refusal at the maternity unit of the Tamale Teaching Hospital. **Design:** Prospective cross-sectional survey, **Setting:** This study was carried out at the maternity unit of the Tamale Teaching Hospital **Population or Sampling:** We recruited 540 parturients at the maternity unit of the Tamale Teaching Hospital. **Methods:** A structured questionnaire was administered to each recruited parturients after childbirth. **Main Outcome Measures:** The primary outcomes measured were awareness and factors that affected epidural labour analgesia acceptance at the delivery unit of the Tamale Teaching Hospital **Results:** The data showed that 525 (97.2 %) of the participants were aware of epidural labour analgesia, out of which 503 (93.1 %) refused to accept the epidural for labour analgesia. Age, educational background, cultural or religious beliefs, attitudes of midwives and the cost of the epidural labour analgesia service were observed to be some determinants of the epidural labour analgesia use at the delivery unit of the Tamale Teaching Hospital.

INTRODUCTION

However, fulfilling as it may be, childbirth is a painful experience for many parturients [1, 2, 3, 4]. Among the various forms of labour pain management, epidural labour analgesia is by far the gold standard technique [4, 5]. This suggests that epidural labour analgesia is worthwhile since it effectively relieves labour pain. Despite the many advantages of epidural labour analgesia, it has not been fully accepted and is not routinely practised in health facilities in developing countries [6]. The low patronage of epidural labour analgesia services could partially be attributed to lack of awareness, limited resources or lack of equipment such as patient monitors, local anaesthetics or analgesics and overwhelming patient numbers [6, 7].

Labour analgesia is the most effective method for restoring normal uterine activity [8]. Relieving pain during childbirth decreases blood stress hormone release and thereby increase tissue perfusion in healthy parturient [7]. Multiple randomized controlled trials comparing epidural analgesia with other forms of labour pain management have demonstrated adequate maternal pain relief and higher maternal satisfaction among the epidural group [9]. Developed countries are challenged with the choice and complications of epidural labour analgesia, whereas in developing countries, the issue revolves around awareness, acceptability, and availability of epidural labour analgesia service [10]. In Ghana, epidural labour analgesia services are not readily available at the maternity units. Recently, teams of medical volunteers from the USA found problems related to understanding and the appropriate use of pain control during childbirth at one of Ghana's largest obstetric units. At the delivery unit of the Tamale Teaching Hospital, we recently introduced epidural labour analgesia service and observed very low patronage. Many parturients in Ghana go through childbirth

without labour pain control. Severe labour pain can have deleterious effects on both the mother and the fetus [11]. Availability and high patronage of epidural labour analgesia at the maternity units in Ghana may help reduce maternal related complications. This study aimed to investigate determinants of woman's choice for epidural labour analgesia use at the delivery unit of the Tamale Teaching Hospital.

METHODS

This prospective cross-sectional survey was carried out at the delivery unit of the Tamale Teaching Hospital from June 2016 to December 2020. The research committee of the Tamale Teaching Hospital approved the study protocol on May 17, 2016 for the data collection. Written informed consent was obtained from the individual woman after providing them with adequate explanations regarding the aims of the study.

The study recruited women who came to the maternity unit of the Tamale Teaching Hospital for childbirth. All recruited women consented to be part of this study. We excluded women who suffered post-delivery complications, those who were scheduled for cesarean section and all eligible women who declined to participate in this study. A convenience sampling technique was used to randomly select the study participants. After obtaining written informed consent from each qualified participant, they were asked to randomly pick confidentially prepared slips that had either 'YES' or 'NO' inscribed on them. Only eligible respondents who happened to pick slips with the inscription 'YES' were enrolled for the study. The participants were required to complete a structured questionnaire which was developed and validated by the authors for this study. The questionnaire was prepared in English and had it translated and explained to respondents in their local language where necessary. The primary outcomes measured were awareness and factors that affected epidural labour analgesia acceptance at the delivery unit of the Tamale Teaching Hospital.

Statistical Analysis

The sample size for this study was calculated using the equation [12].

$$\text{Necessary Sample Size} = (Z\text{-score})^2 * StdDev * (1 - StdDev) / (\text{margin of error})^2$$

95% confidence interval (Z-score = 1.96), Standard Deviation ($StdDev = 0.5$) and margin of error = ± 3.8 or 5 %. Therefore, our sample size adjustment was between 400 and 700 respondents.

All statistical analyses were carried out using the Statistical Package for Social Sciences Software (SPSS) version 20.01 (IBM Corporation, Armonk, NY, USA). The results were presented as means, frequencies and tables. The confidence interval was 95% and considered statistically significant at $P < 0.05$. Statistical analysis was performed for age, educational background, occupation, religion, gestational age, awareness and acceptance of epidural labour analgesia and reasons for unwillingness to accept epidural labour analgesia using one-way ANOVA, multiple comparisons by Tukey's test and logistic regression. The student's t-test was used for statistical comparisons between two groups.

RESULTS

Demographic characteristics of respondents

A total of 543 respondents were recruited for this study. Data for three were excluded from the analysis because they later refused to participate in this study. Therefore, data for 540 respondents were included in the analysis.

The data analysed showed that 477 (88.3 %) of the respondents that were recruited for this study were within the age range of 25-34 years old, 27 (5.0 %) were within the age bracket of 15-24, whereas 36 (6.7 %) were within 35-45 years old (**Table 1**). We assessed the educational background of the respondents and realized that 37 (6.9 %) attained tertiary education, 205 (37.9 %) had high school education, 101 (18.7 %) had primary school education, whereas 197 (36.5 %) had no formal education (**Table 1**). The data also showed that 477 (88.3 %) of the respondents had their gestational age between 36-40 weeks old and 63 (11.7 %) were above 40 weeks of gestation (**Table 1**).

Awareness of epidural labour analgesia service at the delivery unit of the Tamale Teaching Hospital.

To investigate the causes of low patronage of the epidural labour analgesia service at the delivery unit of the Tamale Teaching Hospital, we first assessed respondent's awareness of the epidural labour analgesia service available at the delivery unit of the Tamale Teaching Hospital. We asked the respondents to know if they were aware that labour pain could be managed during childbirth. The data showed that 339 (62.8%) of the respondents were not aware that labour pain could be managed during childbirth, 108 (20.0 %) of them indicated that labour pain could not be managed, and 93 (17.2 %) of them said labour pain could be managed (**Table 2**) . We again assessed respondent's awareness of the various options of labour analgesia services available at the delivery unit of the Tamale Teaching Hospital. We observed that 2 (0.4 %) of the respondents were informed of IV/IM injections (analgesic), 527 (97.6 %) were informed of epidural labour analgesia services, 1 (0.2 %) was informed of deep breathing exercise, while 7 (1.3 %) were informed of all the options available at the delivery unit of the Tamale Teaching Hospital (**Table 2**) . The data also revealed that only 1 (0.2 %) of the respondents have ever received epidural labour analgesia service for childbirth (**Table 2**).

Determinants of epidural labour analgesia acceptance at the delivery unit of the Tamale Teaching Hospital during childbirth.

To investigate whether labour pain intensity influences the decision of women to accept labour analgesia or not, we first assessed pain experienced during childbirth. It was revealed that 172 (38.1 %) suffered severe pain, 359 (66.5 %) experienced excruciating pain, while 9 (1.7 %) reported moderate pain (**Table 3**) . Fear of labour pain was assessed. We observed that 456 (84.4 %) expressed very much fear for pain, 66 (12.2 %) expressed much fear for pain, 17 (3.2 %) indicated moderate fear for pain and only 1 (0.2%) expressed mild fear for pain (**Table 3**) . Respondents were asked if they would like to deliver babies without experiencing much pain. 503 (91.5 %) indicated that they would very much like to deliver babies without suffering from severe labour pain(**Table 3**) .

We assessed the individual respondents to know if age or educational background could influence epidural labour analgesia use. We observed that 233 (43.1 %), 210 (38.9 %) and 35 (6.5 %) of the respondents within the age range of 25-34 and 35-45years old who experienced severe or excruciating labour pain respectively refused to consider epidural labour analgesia services at the delivery unit (**Table 4**) . Conversely, 11 (2.0 %) and 15 (2.8 %) of the respondents within the age range of 25-34 and 35-45 years old who experienced severe or excruciating labour pain respectively would like to receive the epidural labour analgesia service during childbirth (**Table 4**) . The data suggested that 167 (30.9 %) and 29 (5.4 %) who had no formal education and experienced severe or excruciating labour pain respectively refused to accept epidural labour analgesia for childbirth. Also, 79 (14.6 %) and 18 (3.3 %) who had primary school education and experienced severe or excruciating labour pain respectively refused to receive an epidural for labour analgesia, whereas 8 (1.5 %) and 188 (34.8 %) who had high school education and complained of severe or excruciating pain respectively also refused to accept epidural labour analgesia (**Table 4**) .

The univariate ordinal logistic regression model is presented in Table 5 to reflect the associations between potential covariates and labour pain level. The data showed that age, educational background, and religion were not associated factors to predict labour pain experienced by a patient (categories: 'Moderate pain', 'Severe pain' 'Excruciating pain').

We asked respondents to know why they would not accept epidural for labour analgesia during childbirth. 63 (11.7 %) of the respondents indicated that they were been advised by their midwives not to accept the epidural labour analgesia, whereas 112 (20.7 %) of them refused to accept epidural labour analgesia to be identified as a true mother and have much love for their babies (**Table 6**) .

DISCUSSION

Main findings

This study aimed to test the hypothesis that fear, misconceptions and lack of awareness lead to refusal of epidural for labour analgesia. The following principal observations emerged; parturient who reported at

the maternity unit of the Tamale Teaching Hospital showed awareness of epidural labour analgesia services, however, many refused to receive an epidural for labour analgesia on our labour and delivery service. The educational background, age, cultural or religious beliefs and attitude of some midwives were observed to be factors that influenced the refusal of epidural for labour analgesia.

Strengths and limitations

In brief, the results from this study and related literature reviewed consistently showed that there is generally very low patronage of epidural labour analgesia among parturients in developing countries with age, educational background, cultural or religious beliefs, cost of service and attitude of some midwives arguably being the most predictive of acceptance or refusal of the epidural for labour analgesia. Language barrier and failure to explore some effects of socio-economic background on the awareness and acceptance of labour analgesia services were the limitations encountered during this study. There is a need for healthcare providers to initiate education on the epidural for labour analgesia to reduce fear and misconceptions to increase patronage.

Interpretation

Studies have demonstrated that parturients who accept to receive an epidural for labour analgesia are more likely to have attended ante-natal care or read some reference books [13]. Also, factors within parturients may influence whether they receive an epidural for labour analgesia. Other reasons such as anaesthesia care providers not accessible in a timely fashion, friends and family members discouraging the parturient, and previous experiences may impact future choices [14]. Policies guiding practice at the various hospitals may also prevent a parturient from receiving an epidural for labour analgesia.

Childbirth experience in Ghana ranges from agony to ecstasy. It is described as a multidimensional experience that includes intense physical, emotional, psychological, developmental, social, cultural and spiritual components. It differs in meaning and quality for each labouring woman and changes as labour progresses. Labour pain is ranked among the most intense pains recorded [1]. Many women in Ghana rate labour pain as severe, while a few reports little or no pain [2]. Each woman's labour pain is unique to her. The amount of labour pain one woman may feel will differ from that felt by another woman. It depends on factors such as level of pain tolerance, the size, and position of the baby, the strength of uterine contractions and prior birth experiences [3]. The findings of this study suggested that many parturients experience severe or excruciating pain in Ghana during childbirth and may need pain relief (**Table 3**). Satisfaction with childbirth experience is closely related to less pain during labour. Numerous strategies, both pharmacologic and non-pharmacologic, have been used as a treatment for labour pain relief [4]. Shidhaye et al reported that many pregnant women in developing countries are mostly not aware of labour analgesia services in their hospital. Lack of awareness or the availability of labour analgesia services in many hospitals of poor resource countries may be the prime cause of low patronage [15]. Olayemi *et al* [11] attributed low awareness of epidural for labour analgesia to the fact that healthcare providers themselves are either ignorant of pain relief in labour or consider it a less priority in educating women. Conversely, the present study showed awareness of epidural for labour analgesia among parturients at the maternity unit of the Tamale Teaching Hospital. A survey demonstrated that out of 76 % of pregnant women who showed some awareness of epidural labour analgesia service, only 19 % of them patronized it during childbirth, while the majority refused to accept it due to fears and misconceptions [16]. Another literature showed a disparity of epidural use that existed along ethnic and racial lines, with Africa American less likely than whites to receive an epidural for labour analgesia. Fear, naturalism and family influence were some reasons that led to the refusal of epidural for labour analgesia by the Africa Americans [17, 18]. Similarly, the findings of this study showed that despite the high awareness of epidural labour analgesia service among parturients at the delivery unit, many still refused for it to be administered to them. Age, educational background, cultural or religious beliefs, cost of service, and some attitudes of midwives among others were factors that led to the refusal of the epidural for labour analgesia at the delivery unit of the Tamale Teaching Hospital. Hanem et al. and Minhas et al. [19, 15] reported a correlation between educational background and knowledge on labour analgesia acceptance. Although our current study did not evaluate the socioeconomic background of respondents, we observed that women with

non-formal education were less likely to accept epidural for labour analgesia. They have bound to the cultural or religious beliefs that labour is a natural process and does not need any intervention in the form of pain management and that husbands are the heads of the family and therefore should give their consent before they accept labour analgesia. These findings were not out of place, more so in a setting where traditional and religious practices are prevalent. This may have a great influence on the decision to refuse epidural labour analgesia. An in-depth understanding of these factors observed may better enable healthcare providers to assist parturients in the decision-making process at the delivery unit regarding epidural for labour analgesia.

CONCLUSION

Our survey echoes that a significant number of parturients at the delivery unit of the Tamale Teaching Hospital were well informed of epidural labour analgesia service. Surprisingly, very few showed interested in the epidural labour analgesia service. We identified age, educational background, cultural or religious beliefs, cost of the epidural labour analgesia service and attitude of some midwives to influence the patronage. The findings of this study have concepts for obstetric and anaesthesia education and practice. Healthcare providers have the responsibility to publicize comprehensive and evidence-based data to the public. Parturients, family members, friends and spouses should be educated on the benefits and risks of epidural for labour analgesia before admission to the delivery unit. An in-depth understanding of the factors observed in this study may well qualify healthcare workers to help in the decision-making process.

DECLARATION

Author contributions

All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by Thomas Winsum Anabah, Sylvanus Kampo, Aglais Arredondo Falagán. The first draft of the manuscript was written by Thomas Winsum Anabah and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Ethics approval

The research committee of the Tamale Teaching Hospital approved the study protocol on May 17, 2016 for the data collection.

Availability of data and materials

The datasets generated and/or analyzed during the current study are not publicly available due to patient confidentiality but are available from the corresponding author on reasonable request.

REFERENCES

- [1] Ferne R. B., Barbara M. S., Cynthia A. W., Alan C. S. Obstetrical Anaesthesia. In: Paul GB (editor). Clinical Anaesthesia, 6th ed. New Delhi: Wolters Kluwer (India) Pvt Ltd, 2009; P.1142-5.
- [2] Barakzai A., Haider G., Yousuf F., Haider A., Muhammed N. Awareness of women regarding analgesia during labor. *J Ayub Med Coll Abbottabad* . 2010; 22 (1).
- [3] Naithani U., Bharwald P., Chauhan S. S., Kumar D., Kirti G. S. Knowledge, attitude and acceptance of antenatal women toward labor analgesia and cesarean section in a medical college hospital in India. *J. Obstet. Anaesth. Crit. Care* . 2011; 1 (1):13-20.

- [4] Reena, B. K. H, Afzal M., Mishra A. K., Paul A. Labour epidural analgesia: past, present, and future. *India J Pain* . 2014; 28: 71-81.
- [5] Hawkins J. L. Epidural analgesia for labor and delivery. *N Engl J Med* . 2010; 362:1503-1510.
- [6] Hug I., Chattopadhyay C., Mitra G. R., Kar Mahapatra R. M., Schnieder M. C. Maternal expectations and birth-related experiences: a Survey of pregnant women of mixed parity from Calcutta. *India. Int J Obstet Anaesth* . 2008; 17:112-117.
- [7] Shidhaye R. V., Badhe V., Divekar D., Dhulkhed V., Thorat P., Shidhaye R. A Randomized Clinical Trial to compare small frequency boluses technique with that of traditional intermittent top-ups and continuous infusion, for maintenance of epidural labor analgesia. *Sri Lankan Journal of Anaesth* . 2010; 18 (2): 75-80.
- [8] Oladokun A., Eyelade O., Morhason-Bello I., Fadare O., Akinyemi J., Adedokun B. Awareness and desirability of labor epidural analgesia: a survey of Nigerian women. *Int J Obstet Anesth* . 2009; 18 (1): 38-42
- [9] Anim-Somuah M., Smyth R., Howell C. Epidural versus non-epidural or no analgesia in labor. *Cochrane Database Sys Rev* . 2005; 4: CD000331.
- [10] Olayemi O., Aimakhu C. O., Udoh E. S. (2003) Attitudes of patients to obstetric analgesia at the university college hospital, Ibadan, Nigeria. *J Obstet Gynaecol* , 2003; 23 (1): 38-40.
- [11] Reena, Bandyopadhyay K. H., Afzal M., Mishra A. K., Paul A. Labour epidural analgesia: past, present, and future. *India J Pain* , 2014; 28:71-8
- [12] Smith, S.M. Determining sample size: How to ensure you get the correct sample size [Blog post]. 2013. Available at <https://www.qualtrics.com/blog/determining-sample-size/>. Accessed: April 30, 2020.
- [13] Fabian H. M., Rådestad I. J., and Waldenström U., “Childbirth and parenthood education classes in Sweden. Women’s opinion and possible outcomes,” *Acta Obstetrica et Gynecologica Scandinavica* , vol. 84, no. 5, pp. 436–443, 2005.
- [14] Saisto T., Ylikorkala O., and Halmesmäki E., “Factors associated with fear of delivery in second pregnancies,” *Obstetrics and Gynecology*, vol. 94, no. 5, pp. 679–682, 1999.
- [15] Shidhaye R. V., Galande M. V., Bangal V. B., Joshi S. S., Shidhaye U. R. Awareness and attitude toward labor analgesia of Indian pregnant women. *Anaesth Pain Intensive Care* . 2012; 16(2):131-136.
- [16] Minhas M. R., Kamal R., Afshan G., Raheel H. Knowledge, attitude, and practice of parturient regarding Epidural Analgesia for labor in a University hospital in Karachi. *J Pak Med Assoc* . 2005; 55 (2): 63-6.
- [17] Roberson M. C. Refusal of Epidural Anesthesia for Labor Pain Management by African American Parturients: An Examination of Factors AANA Journal 2019; 87 (4)
- [18] Ochroch E. A., Troxel A. B., Frogel J. K., Farrar J. T. The influence of race and socioeconomic factors on patient acceptance of perioperative epidural analgesia. *Anesth Analg*. 2007; 105 (6): 1787-1792
- [19] Okeke C. I., Merah N. A., Cole S. U., Osibogun A. Knowledge and perception of obstetric analgesia among prospective parturients at the Lagos University Teaching Hospital. *Niger Postgrad Med J* . 2005; 12 (4): 258-61.

Table Legends

Table 1. Demographic characteristics of respondents

Table 2. Distribution of respondents on the bases of awareness of labour analgesia service at the delivery unit of the Tamale Teaching Hospital

Table 3. Responses to questions on labour pain experienced

Table 4. Distribution of respondents based on labour pain experienced, age, educational background and religion regarding the refusal of epidural for labour analgesia. Data were statistically significant at $P < 0.05$

Table 5. Univariate ordinal logistic regression to predict pain level of patient regarding age, educational background and religion. Data were statistically significant at $P < 0.05$

Table 6. Responses to the question, why wouldn't you consider epidural for labour analgesia?

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