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**Title: AWARENESS ABOUT LABOUR ANALGESIA AMONGST PATIENTS VISITING A TERTIARY CARE HOSPITAL IN CHENNAI, INDIA.**

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#### ABSTRACT:

##### BACKGROUND AND AIMS

This study aimed to understand and spread awareness of labour analgesia, a life-altering discovery that reduces pain during childbirth. By exploring society's familiarity with this technique. The study aimed to examine variations in awareness levels influenced by various demographic factors and to empower women with the knowledge.

##### METHODS:

A cross-sectional observational study was conducted using a validated questionnaire, approved by the Institutional Ethics Committee. Participants fitting the eligibility criteria, answered questions regarding labour analgesia; after written informed consent is taken. Their perceptions, opinions, and practical applications were meticulously collected and analysed.

##### RESULTS :

The study, involving 170 participants (141 antenatal, 29 postnatal), revealed an overall labour analgesia awareness rate of 41.67%. Among the aware participants, most were between 18-30 years, were working, were graduates or post graduates, and belonged to urban residential areas. Among those unaware, the majority were younger women with higher secondary education, from urban areas, and most were multiparous. Education and occupation emerged as statistically significant factors in determining awareness levels.

##### CONCLUSION :

Despite the critical role of pain management in safe and comfortable childbirth, a significant number of women were unaware of their options, suggesting a necessity for heightened education and better communication. The provision of comprehensive information related to labour analgesia can empower expectant mothers to make informed decisions, contributing to a more comfortable childbirth experience. Emphasizing the fact that labour analgesia is a part of good obstetric care and a fundamental human right is essential.

**KEYWORDS:** labour analgesia, awareness, pain, childbirth.

## INTRODUCTION:

Labour analgesia, a transformative discovery, grants women the right to a pain-free childbirth. Its evolution, from ether to modern techniques like spinal epidurals, ensures with the aim of *“The delivery of the infant into the arms of a conscious and pain-free mother being one of the most exciting and rewarding moments in medicine”* as quoted by (Donald D. Moir; father of labour analgesia). [1]. Our research aims to raise awareness, empowering women to choose their birthing experience. Labor's subjective nature and cultural influences shape pain perception.[2] Psychological effects of labour pain can be so agonizing which may lead the women to prefer a caesarean section [3]. Pain triggers physiological responses, risking uterine blood flow and oxygen delivery, especially in women with pre-existing conditions.[4] Effective analgesia reduces these risks, providing tailored relief for each mother. Awareness of labour analgesia ensures women embrace this beautiful option, enhancing childbirth experiences.

## METHODS:

A cross-sectional observational study using a questionnaire was conducted after obtaining the approval from the Institutional Ethics Committee with research approval no: BIEC-054-23; a tertiary care hospital in Chennai, India.

The Sample size calculation was done according to a previous study conducted in Africa, 7 % of their participants had knowledge of labour analgesia [Mary T. Nabukenya][5]. This study was used to calculate sample size, with the assumption of 5% precision and 95% of confidence interval, minimum sample size of 101 was needed using the formula below.

### Formula

$$n = \frac{Z_{1-\alpha/2}^2 p(1-p)}{d^2}$$

Where,

p : Expected proportion

d : Absolute precision

1-  $\alpha/2$  : Desired Confidence level

The Inclusion criteria are; All antenatal women visiting the out-patient department or currently admitted in the in-patient ward of obstetrics and gynecology department. All postnatal women, who delivered per vagina in the last 1 year visiting the out-patient department or in the in-patient ward of obstetrics and gynecology department. Both primigravida and multigravida who had a vaginal delivery in the past 1 year.

And the Exclusion criteria are; All unwilling patients who refused to give consent. Women below 18 years. Women visiting the hospital for confirmation of pregnancy. Women in active labour were excluded from the study.

#### Methodology:

Validated questionnaires and consent forms were made both in English and in the local language (Tamil). Each individual was given a separate consent form either in English or Tamil as per their choice and the complete details were read out and clearly explained to them; following which an informed written consent was taken. 170 women who consented to participated, were given a questionnaire containing questions regarding labor analgesia and their opinions on its applications and its practical use during their labor. The questionnaire was answered by the participant either by themselves or with the help of the investigator. All participants of the survey had the liberty to express their thoughts freely or could tick the options which they thought was appropriate from the given options. Following the completion of data collection, the participants were given health education regarding the facts and benefits of labour analgesia. The doubts that arose following the health education session were also cleared.

Every session which lasted about 7 to 10 minutes with the participant contained obtaining consent, sociodemographic data, completion of questionnaire and health education about labour analgesia. This helped clear all the doubts and break the myths among women.

#### Statistical Methods :

Statistical analysis was done in Microsoft excel and also with SPSS software version 20. continuous variables were represented as Mean (SD), and categorical variables was represented as Frequency (percentage). Chi-square test or Fisher's exact tests was used to assess differences in categorical data. The p value of  $<.05$  were considered as significant.

**RESULTS:**

A total of 150 antenatal women and 50 post-natal women were approached; 141 antenatal and 29 postnatal women consented to participate and complete the study, thus making it a total of 170 participants. The awareness about the existence of labour analgesia among the participants which included both antenatal and postnatal women was only 50 (41.67%) in number, while the 120 (70.58%) participants had never heard that normal delivery can be made painless. Of the 50 who had awareness about labour analgesia, majority were of the age between 18-30 years, were working, were graduates or postgraduates and belonged to urban residential area. On the other hand, 120 women who lacked the awareness of pain-free childbirth, were also majorly younger women of age group (18-30 years), whose education was higher secondary level; were housewives or non-working women who came from urban areas and most of them were multiparous women. Education and occupation were statistically significant factors in determining awareness about labour analgesia.

TABLE 1: AWARENESS ABOUT LABOUR ANALGESIA

Parameters	Did you know that there are medicines to reduce pain during labour?		
	No(120)	Yes (50)	P-Value
<b>Age</b>			
18 to 30	101(71.63%)	40(28.37%)	0.51
31 to 40	19(65.52%)	10(34.48%)	
>40	0(0)	0(0)	
<b>Education</b>			
Illiterate	1(100%)	0(0)	<0.001*
Primary	28(90.32%)	3(9.68%)	
Secondary	26(96.3%)	1(3.7%)	
Diploma	4(100%)	0(0%)	
Graduate	49(57.65%)	36(42.35%)	
Postgraduate	12(54.55%)	10(45.45%)	
<b>Occupation</b>			
Medical	3(23.08%)	10(76.92%)	<0.001*
Working	42(63.64%)	24(36.36%)	
Housewife	75(82.42%)	16(17.58%)	
<b>Rural/Urban</b>			
Rural	15(60%)	10(40%)	0.272
Suburban	35(37.31%)	17(32.69%)	
Urban	70(75.27%)	23(24.73%)	
<b>Parity</b>			
Primigravida	55(73.33%)	30(31.58%)	0.485
Multigravida	65(68.42%)	20(26.67%)	
<b>Antenatal/Postnatal</b>			
Antenatal	100(70.92%)	41(29.08%)	0.833
Postnatal	20(68.96%)	9(31.03%)	
<b>Booked/ un-booked</b>			
Booked	10(20%)	40(80%)	0.276
Un-booked	32(26.67%)	88(73.33%)	
<b>Mode of delivery</b>			
Normal vaginal delivery	25(43.1%)	15(51.72%)	0.447
c-section	33(56.9%)	14(48.28%)	

Table 2: SOURCE OF INFORMATION ABOUT LABOUR ANALGESIA

Source of information	Number	Percentage
Doctors	9	17.30%
Friends and family	11	21.15%
Media/ internet	27	51.92%
Education	3	5.76%
Hospital brochures	1	1.92%
Experience from previous delivery	1	1.95%

TABLE 3 : CHOICE OF METHOD OF LABOUR ANALGESIA

Choice of route of administration	Number	Percentage
Oral tablets	9	33.34%
Intramuscular injection	6	22.22%
Intravenous injection	6	22.22%
Epidural injection	3	11.11%
Water bath	3	11.11%

TABLE 4 : REASONS FOR NON-ACCEPTANCE OF LABOUR ANALGESIA.

Reason for not accepting labour analgesia	Number	Percentage
I want to experience labour naturally	7	36.84%
I am not eligible, due to previous c section delivery.	2	10.53%
I am worried about complications.	9	47.37%
I want to hear experiences of other women have used it before	1	5.26%

**DISSCUSSION:**

Labour analgesia, which includes methods such as neuraxial analgesia, facilitates safe and comfortable deliveries, especially in high-risk pregnancies. Thus, when the study was conducted to analyse the extent to which women of the present time are aware about such facilities that enable them to pleasantly deliver a healthy baby safely, the outcome of the survey turned out to be low (41.67%), similar to the findings of previous Indian studies one conducted in a remote Indian island (Andaman)[6], the other in a northern state of India (Uttar Pradesh)[7] and one from the same state (Tamil Nadu)[8] with 7.14%, 37.7% and 14% awareness respectively. A Ugandan study[5] analysed the knowledge on labour analgesia among women also showed similar results of 7%. The awareness on labour analgesia was majority by the younger population (40%), this could probably be because of the easy accessibility and extensive usage of technology available to all the people around the world in the form of social media which makes the people of today 'tech-savvy' and inclines them to learn new things. This is supported by the fact that the major source of information about labour analgesia was learned through the mass media or the internet by 51.97% of the women. However, this contradicts what has been observed in other studies, where the major source of information was from friends and relatives[5],[6] and [7].

Of all the women who knew about labour analgesia 72% were graduates and 10% were postgraduates, this implies that higher their level of education, higher is the extent to which women are keen to learn new things and the more skilled they are to access the technology. The level of awareness was higher, 48% among the working women population and 32% among the non-working women, these statistics indicate that there is a higher awareness level about labour analgesia among working women compared to housewives. This difference could be influenced by factors such as access to information, time availability, social dynamics, education, socioeconomic status, and access to healthcare. However, it's important not to generalize or make assumptions about individuals' knowledge or value based solely on their occupation, as both working women and housewives have unique experiences and perspectives.

The geographic distribution of the knowledge on painless delivery is, 46% in urban, 34% in suburban, and 20% in rural regions. Urban areas demonstrate the highest awareness, likely due to better access to healthcare, higher education levels, and more exposure to information. Suburban areas show moderate awareness, while rural areas have the lowest awareness, possibly due to limited access to healthcare, lower education levels, and less exposure to information. Addressing disparities in access to healthcare and education could help improve



awareness levels across all regions. Another parameter that was found to have some significance is that, multigravida mothers had 60% knowledge on pain reduction medicines and techniques than the primigravida with 40%; this could probably be due to their experience with severe labour pain during previous deliveries or due to health education by doctors during their period of antenatal care, similar to the study by Nabukenya et al [5].

Despite not having prenatal care, 68% of women (un-booked cases) knew about labour analgesia, compared to 31% who received prenatal care (booked cases). This discrepancy could be due to insufficient counselling about pain management from obstetricians and social workers during prenatal appointments. Education strategies must target both booked and un-booked cases to ensure comprehensive knowledge on labour pain management. Equivalent awareness was seen between women who had a vaginal delivery (51%) and those who had a caesarean section (48%). In total, about 51.72% of women who delivered vaginally and 48.28% who underwent a caesarean were aware of pain management during childbirth.

Of the 50 women who heard about labour analgesia, most women recognised more than one method of pain relief. Twenty-five women claimed to have knowledge on epidural, followed by 18 women for water bath, 15 for intramuscular pain relief injections, 8 for intravenous administered pain relief medication, 2 for oral tablets, 1 for pain relief gel, 2 for vaginal route administered injections and 2 for AYUSH practices ( Ayurveda, Yoga and naturopathy, Unani, Siddha and Homeopathy) that are used to reduce pain perceived during labour . Of all the women who said they were familiar with epidurals, only a few knew its name. Most of them just called it "some injection given in the back." These similar finding were also seen in few other studies by Prakash et al [6] and Nabukenya et al[5].

The extensiveness at which such methods of pain relief during labour are employed globally was analysed among women, 17 (34%) of women were not sure about the usage of pain relief methods around the world. Similar to the Hong Kong study, where 57% of women did not know the extensiveness of its usage[9]. 14 (28%) women thought administration of pain relief during labour was very rare, 6 (12%) women felt that it was used occasionally for specific conditions and 7 (14%) of them stated that most women belonging to other countries might use them during delivery and 1 among them assumed that women who seek obstetric care from private medical sector might use such facilities. 2 (4%) women felt that such medical interventions are only used by rich women. 4 (8%) of them felt that this is a branch of medicine that is still developing and is now being used by many women.

When the women were asked for their opinion, if labour analgesia should be made available to all pregnant women going through labour, 39 (78%) said yes and 9 (18%) of them said no and 2 (4%) of women didn't have any opinion. While, contrastingly in a Hong Kong study 50% of the participants stated they didn't know[9]. When the women were asked if they are to anticipate any complication associated with administration of labour pain relief medicines, most of them stated more than one reason; 19 women felt there might be no side effects, and some even stated that "if there were any side effects with the drug or the procedure, the doctors might never use it on women". 17 women felt the drug administration during labour may lead to postpartum backpain or chronic back pain for the rest of their lives, similar to the participants of the Hong Kong study, where 43% of women feared back pain[9]. Six women feared to have organ damage or any general risk to their health, 2 of them felt that labour analgesia might cause harm to both themselves and the baby, 1 of them felt it might harm the baby alone, 8 women anticipated to have weakened contractions or feared they might not be able to push out their baby efficiently with epidural, while 3 women contemplated the possibility of having chronic leg pain, 3 of them worried to have breathing difficulties during labour and 1 of them felt their normal delivery might get converted into a caesarean section. On the other hand, few studies were observed to have 12.82% [6], 20.3% [7] and 54.5% [5] mothers who thought it was harmful to the baby. These reasons may contribute to lack of popularity of labour analgesia methods.

A comparative analysis about the opinions of women on the usage of labour analgesia in private sector and government sector revealed that, 34 (68%) women felt it was used more in the private sector, while 10 (20%) of them felt it was more in the government sector and 6 (12%) of them had no idea. This question was put forth to analyse the perception of women in all dimensions and about the availability of facilities in different health setups. A Hong Kong study showed around 74% of their participants did not have an opinion on it.[9]

When the women were asked as to who administers the analgesia, most of them responded with more than one option, 22 women said anaesthesiologist would administer the drug, while 20 of them thought obstetricians would administer the drug, on the other hand 7 of them thought nurse would administer the drug and 3 of the women felt other staff members in the Operating room might administer the drug when needed. In a study by Nabukenya et al, where 78.65% women thought any doctor could administer labour analgesia[5] and in another study by I.A. Khan et al majority of 56.9% of women didn't know who administers labour analgesia.[7].

When postnatal mothers were questioned if they ever used labour analgesia for their deliveries, all of them said 'no'. 7 of them did not know such facilities were available at the place and time of their delivery, 3 of them wanted to experience labour naturally, and 5 of them said they didn't use labour analgesia because they were not eligible, due to their previous history of caesarean section. The women were asked to state their opinion if they would accept labour analgesia for their future deliveries and 7 of them agreed, while 5 of them would not want to take in pain relief and 3 of them were unsure. In a study by I.A. Khan et al, their survey revealed that 68% of their total participants were willing to opt for labour analgesia in the future.[7] and in a study by Nabukenya et al. 87.7% of the women were willing.[5].

Few important similarities that were noted among our very diverse south Indian population, was the unwillingness of the antenatal women who, despite their knowledge on labour analgesia disagreed to accept it, of which, universally the most commonly stated reason was the enthusiasm of the mothers to experience labour naturally.[7][5].

Despite the availability of pain-relieving medicines during labour, a significant percentage of younger females, particularly in the age group of 18 to 30, were found to be less acquainted with this concept as compared to their older counterparts. Lower education levels emerged as another contributing factor, with higher rates of non-usage observed among those with primary or secondary education, or no formal education at all, compared to postgraduates and undergraduates. The trend of non-usage seemed to correlate with occupation, too, with highest proportions identified among housewives, possibly due to differences in healthcare literacy, cultural convictions, or economic factors. Interestingly, despite the presumption of better access to healthcare, a higher number of urban dwellers abstained relative to those from rural or suburban regions. Childbirth experiences and the timing of the decision, pre- or post-childbirth, appeared to have a minimal impact on choosing pain management options. Moreover, unplanned delivery scenarios were linked with higher proportions of non-usage, highlighting the value of pre-planned strategies for pain management. An added element of influence was the type of delivery, with those undergoing C-section deliveries showing a slightly higher preference for non-usage, possibly due to varying beliefs about pain perception or management.

In brief, we found that younger women and those with lower education levels were less aware of pain-relief options during labour. Additionally, housewives tended to be less informed

compared to working women and medical professionals. Urban areas generally had higher awareness levels than rural ones. Despite the importance of pain management, many women, particularly those undergoing C-sections, were not aware of their options.

### **CONCLUSION:**

In the journey of childbirth, managing pain is crucial for a safe and comfortable experience. Labor analgesia, a method to ease labour pains, is considered a basic right for women during childbirth. Through our study, we discovered that 70.58% of women are unaware of this option, reflecting a need for better education, good access to information and effective communication between healthcare providers and expectant mothers.

Improving awareness and access to information about labour analgesia for mothers can be achieved through various strategies. Healthcare facilities can provide informative brochures and online resources explaining the options and benefits of pain relief during labour. Antenatal classes led by professionals can offer detailed discussions on labour analgesia, while one-on-one counselling sessions with social workers or other staff, can address individual concerns. Multimedia tools like videos and presentations can visually explain the process, and community workshops and peer support groups can provide opportunities for discussion and sharing experiences. Collaboration between healthcare providers, accessible information in multiple languages, and continuous education for providers are essential.

Increasing awareness and fostering open communication are essential steps in ensuring expectant mothers have access to comprehensive information and support regarding labour analgesia, empowering them to make informed decisions and experience childbirth with comfort and confidence.

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