A Descriptive Study on Labour and Delivery Outcomes Among Women Who Attended Lamaze Sessions During Pregnancy

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INTRODUCTION

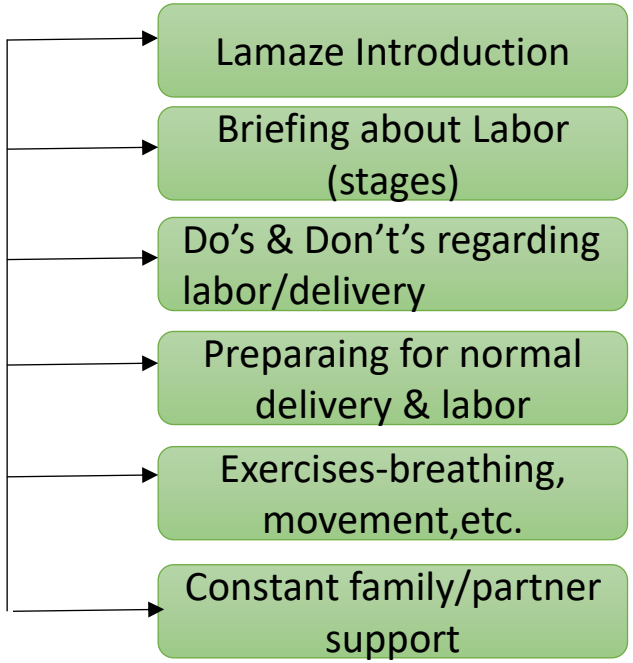
- Childbirth is a complex physiological and emotional process, involving physical pain, anxiety, and uncertainty.
- Variety of strategies have been used to support women during labor, delivery, and antenatal period- ranging from pharmacological pain relief to non- pharmacological pain relief methods like psychological and educational interventions.
- The Lamaze method, developed by French Obstetrician Dr. Fernand Lamaze, popularized in West in the mid – 20^{th} century has been recognized as one of the most widely used approaches to childbirth education.
- This includes breathing techniques, conscious relaxation, movements, and informed decision making to support women in their labor and childbirth journey.
- Proven effective in improving maternal comfort and promoting physiologic childbirth.
- Despite its growing adoption in tertiary care hospitals in India, limited data exist on the labour and delivery outcomes among women who attend such sessions. This study aims to describe labour patterns, delivery outcomes, pain perception, and maternal satisfaction among women who attended Lamaze sessions during pregnancy.

ORGANIZATION'S PROFILE

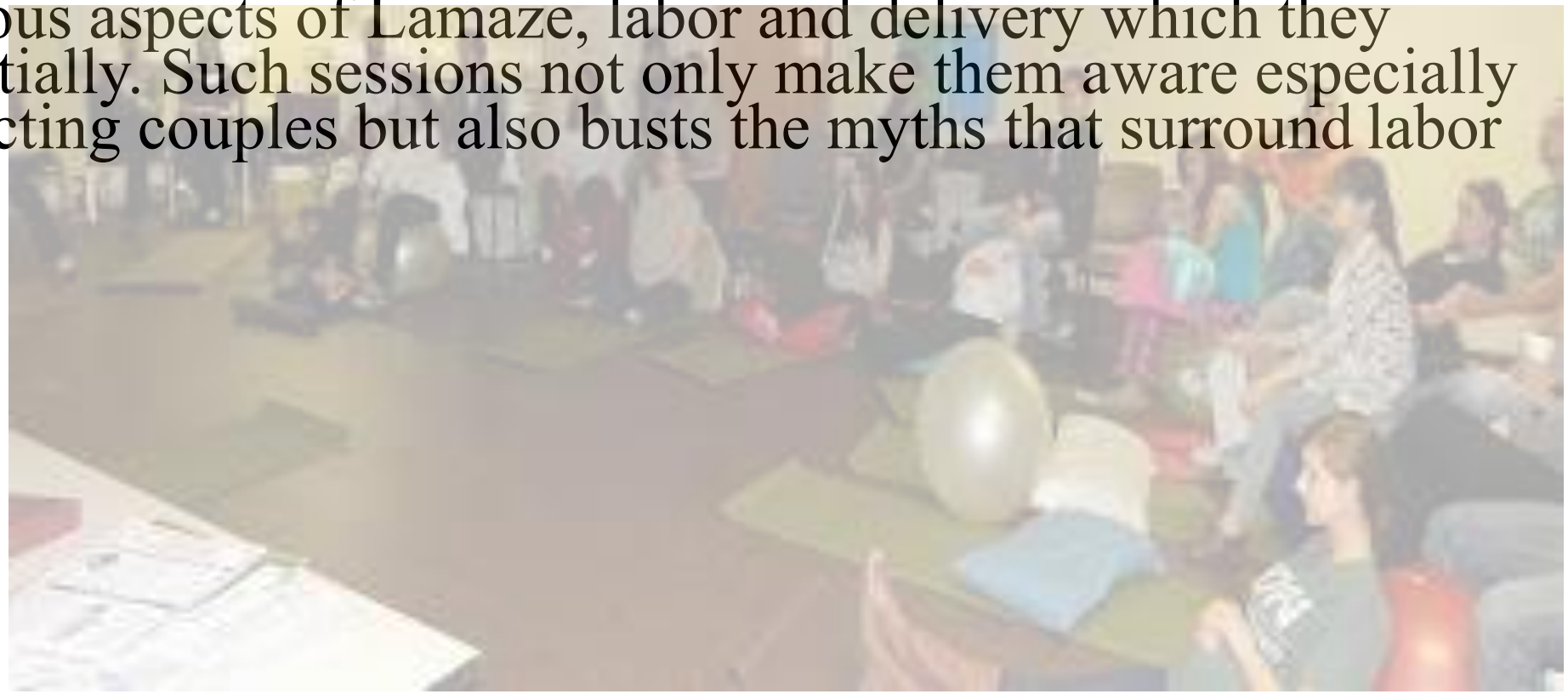
- Cloudnine hospital is a single speciality private hospital chain which is a leading name in maternal and childcare sector. It was established in year 2007 by the Founder Dr. Kishore Kumar.
- Pan-India it has 41 branches in cities like Bangalore, Noida, New Delhi, Pune, Gurugram, Mumbai, Chennai, Hyderabad, Chandigarh, Panchkula, Faridabad, Ludhiana, and Lucknow. It is GPTW (Great Place To Work) certified for three consecutive times.[1]
- It provides services including, maternity services, gynaecology, paediatric services, radiology, fertility services, nutrition and dietetics, physiotherapy, stem cell banking, lactation support, homecare services, etc.

STRUCTURED LAMAZE SESSION

- The session was conducted by the Physiotherapist associated with the hospital. When a pregnant woman comes for gynaecology consultation and is nearing her EDD she is enrolled in the Lamaze session as a part of her antenatal care. Few weeks before her EDD she attend the Lamaze sessions, and advised most probably to come with their partner or some family member.
- Session includes:



- During briefing about labor the pregnant women is educated about the early signs of labor so that they know and be prepared about it. They are briefed regarding various stages of labor and step by step are educated about the exercises (breathing/ Movement) they need to do at every stage and how constant support can be provided to them. Each and every exercise is first explained and then is practised under proper supervision. This is how a structured Lamaze session is being conducted in which their entire queries are answered and they are educated regarding various aspects of Lamaze, labor and delivery which they don't know initially. Such sessions not only make them aware especially first time expecting couples but also busts the myths that surround labor and delivery.



Lamaze session

Exercises during Lamaze

Interactive session

RESEARCH QUESTION AND OBJECTIVES

- What are the labor and delivery outcomes among women who attended Lamaze sessions during pregnancy?

Primary Objective is:

- To describe the labor and delivery outcomes including labor duration and type of delivery among women who attended Lamaze session during pregnancy.

Secondary Objectives are:

- To describe maternal pain perception during labor and delivery using pain scores recorded during hospital stay.
- To describe socio demographic and obstetric characteristics of pregnant women.
- To describe maternal perception of the usefulness / effectiveness of Lamaze sessions.

REVIEW OF LITERATURE

S.No.	Title	Authors(year)	Location	Sample Size	Sampling Technique	Salient Features
1.	Lamaze Breathing: What Every Pregnant Women Needs to Know[2]	Judith A. Lothian (2011)	Not specified as it's a peer reviewed or expert opinion article	Not specified as it's a peer reviewed or expert opinion article	Not specified as it's a peer reviewed or expert opinion article.	This article is a peer reviewed educational article of Lamaze breathing techniques, emphasizing their role in promoting relaxation and coping during labour. It describes physiological and psychological benefits of controlled breathing which involves decreased pain perception and increased maternal confidence. It reveals
2.	A Study to Assess the Effectiveness of Lamaze Breathing Technique in Pain Management During the First Stage of Labour[3]	Divya B R (2024)	Apollo Women's Hospital, Chennai, India	30 Primigravida mothers	Purposive sampling	This study uses the one-group pretest and post test design and it uses Wong-Baker Pain Scale, and it saw significant reduction in pain scores post-intervention. Results showed mean reduced from 6.6 to 1.57.

3.	Effectiveness of Jacobson Relaxation and Lamaze Breathing Techniques in the Management of Pian and Stress During Labor: An Experimental Study[4]	2023 Gayatri S. Kaple, Shubhangi Patil	Acharya Vinoba Bhave Rural Hospital, Wardha, India	35 pregnant women out of which 18 were Lamaze attendees	Simple random sampling using envelope method	It is an experimental study which compares Jacobson relaxation and Lamaze breathing techniques in which Lamaze group showed noticeable reduction in pain and stress levels.
4.	Effectiveness of Antepartum Breathing Exercise on the Outcome of Labour: A Randomized Controlled Trial[5]	2023 Nayak BS	Kasturba Hospital, Manipal, India	-	Block Randomizatio n	It performs a single blinded RCT, in which the intervention group received Lamaze sessions in their antenatal period ; the outcomes revealed decreased duration of labor.

5.	Effectiveness of Lamaze Breathing on Comfort, Labor, and Anxiety Among Primigravida Mothers During the Active Stage of Labor: A Quasi Experimental Study[6]	Seethalakshmi Durairaj et al. (2024)	-	100 primigravida mothers (50 exp. ; 50 control)	Purposive Sampling	It has quasi experimental design; and it was observed that Lamaze breathing led to comfort, reduced the pain and anxiety levels and all the outcomes showed statistical significance.
6.	Impact of Lamaze Breathing on Childbirth: Comparison between Primigravid and Multigravid	Sushmita R Karkada et al. (2024)	Dr. TMA Pai Hospital, Udupi , India	-	RCT	This study included comparison of effects of Lamaze Breathing between primigravid and multigravida women. The intervention group showed shorter labour duration and improved outcomes.

7.	Effect of Lamaze Technique on Labour Pain and Women's Satisfaction During First Stage of Labour[8]	Zienab B. Mohamed et al. (2024)	Benha University Hospital, Egypt	140 pregnant women (70 exp. – 70 control)	Purposive sampling	It has quasi experimental study design; Lamaze technique actually led to evident reduction in labor pain and increased satisfaction levels in mothers.
8.	Effect of Lamaze Breathing and Psychosomatic Relaxation Techniques on Labour Pains and its Outcomes[9]	Kanchan Adhikari, Seeta Devi (2022)	Pune, Maharashtra , India	50 women	Purposive sampling	This quantitative study used a post test control group setup to see the effectiveness of Lamaze breathing and Psychosomatic relaxation techniques. In this study, the women were divided into two groups, experimental and control groups. Pain levels were measured and it was revealed that 72% of women of the control group experienced moderate pain while 44% of the women of the experimental group reported moderate pain.

9.	Breathing Techniques During Labor: A Multinational Narrative Review of Efficacy[10]	Maria Augusta Heim, Maria Yolanda Makuch (2023)	It's a narrative review	7 studies were reviewed	It's a narrative review	They assessed the effectiveness of breathing techniques for pain control that are used during labor and delivery process. This review contains data from various sources such as PubMed, PEDro, SciELO; apart from this they also covered various publications from Jan 2005 to Sept 2021 in various languages like English, Portuguese, and Spanish. They found out that Breathing techniques offered benefits in labor and delivery processes without any side effects on new born, thus it proves the significant role of low cost and non – pharmacological methods in controlling pain and anxiety levels and enhance the well-being throughout the labor and delivery process.
10.	Update on Non – Pharmacologic Approaches to Relieve Labor Pain and Prevent Suffering[11]	Simkin P, Bolding A(2004)	-	-	-	This is a narrative review of 13 Non – pharmacological methods like Hydrotherapy, constant labour support, massage, movements/exercise, acupuncture, TENS, aromatherapy. The review found strong evidence against various non-pharmacological methods and also highlights the need for further RCTs for more definite results.

11.	A Study to Assess the Effectiveness of Lamaze Breathing on Labor Pain and Anxiety Towards Labor Outcome Among Primigravida Mothers During Labor in Community Health Centre, Kolar Road, Bhopal[12]	Akshaykumari Jhala (2017)	Community health center, Kolar Road, Bhopal, MP, India	40 Primigravida	Purposive sampling	This study's participants were divided into experimental and control groups. In which the exp. Group was trained in Lamaze breathing, while control group didn't receive Lamaze but the standard care. For pain perception visual analog scale was used. Statistical analysis revealed that there was a significant decrease in pain levels of the exp. Group and 70% of people of control group experienced severe pain and 65% of experimental group experienced mild pain.
12.	A Study to Assess the Effectiveness of Lamaze Breathing Technique on Reduction of Labour Pain Among Primigravida Mothers at Primary Health Centres, Coimbatore[13]	Hatlin Sugi M. (2021)	PHCs at Kovilpalayam, Coimbatore, Tamil Nadu, India	30 primigravida mothers	Non-probability convenient sampling	This study used one group pretest and posttest design to evaluate the effectiveness of Lamaze breathing, on labour pain. The pretest mean pain score was 7, which decreased to a posttest mean of 3.The study had the conclusion that Lamaze breathing is effective in reducing labour pain.

METHODOLOGY

- Design: Descriptive cross-sectional study
- Observation and capturing of the data variables at a particular point of time without causing any intervention, experiment or establishing any cause-effect relationship.
- Setting: Tertiary maternity hospital, India
- Sampling technique: convenience sampling, a non-probability sampling
- Sample: 92 women (Nov 2024–May 2025)
- Tools: Hospital records + feedback
- In this study quantitative data and categorical data both types were covered and were summarized using descriptive statistics.
- Data Analysis: Microsoft Excel – frequencies, means, charts

S. No.	Inclusion Criteria
1.	Pregnant women who attended Lamaze session during time period of November 2024 to 5 May 2025.
2.	Pregnant women who delivered in the same hospital.
3.	Patients having complete hospital records.
4.	Women aged 18-40 years.
5.	Given the short feedback form in order to capture patient's experience regarding Lamaze usefulness.

S. No.	Exclusion Criteria
1.	Excluding people with incomplete medical records.
2.	Planned cesarean section without onset of labor (Elective cesarean section).
3.	Excluding complicated pregnancies such as placenta previa, etc., those pregnancies who already have complications or are risky as it may affect the usage of Lamaze and may be affected by various factors.
4.	Excluded people who refused for feedbacks as it will affect the overall data and result.
5.	Exclusion of the people who delivered in any other hospital.
6.	Excluded people who didn't attend Lamaze sessions.

OPERATIONAL DEFINITIONS

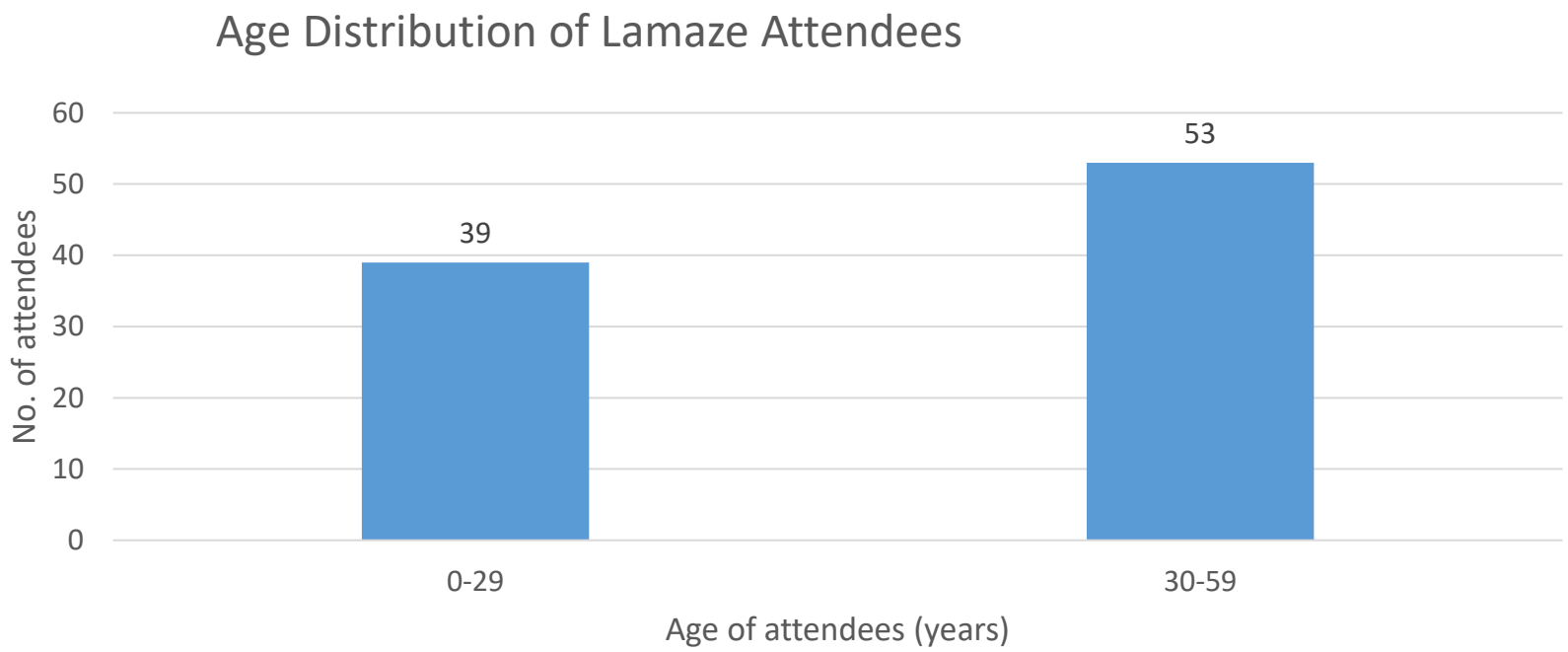
- Lamaze attendee: A Woman who attended at least one Lamaze session during her antenatal period.
- Labor Duration: Time from onset of active labor (4 cm cervical dilated) to complete delivery of baby.
- Pain score: self – reported score measured using standard pain scale (0-5) recorded by nursing staff during labor and post-delivery period throughout the hospital stay.
- Normal delivery: Delivery of the baby through vaginal canal without surgical intervention.
- Cesarean section delivery: delivery method where the baby is not delivered through vagina rather through an incision in the mother's abdomen and uterus via surgical intervention. Many a times C- section delivery is either elective (by choice) or emergency (due to some complications).
- Primigravida: women pregnant for the first time.
- Multigravida: woman who had two or more pregnancies.
- First stage of labor: it starts with mild contractions and cervix dilation which ends at 10 cm dilation of cervix.
- Second stage of labor: starts with complete cervix dilation and ends with baby being delivered, through this stage mother feels the urge to push and contractions are also severe.
- Third stage of labor: in this stage placenta is delivered.
- Fourth stage of labor: is recovery in which cervix dilation comes back to normal and mother's body recovers.

ETHICAL CONSIDERATIONS

- All the institutional guidelines were followed where the study was conducted. Prior approval was taken for the conduction of this study from the business head of the hospital.
- Patient names and their personal data will be coded and kept anonymous. All the data was collected retrospectively and the feedback taken postnatal was also a part of the routine follow up of the services offered.
- No clinical / experimental interventions were introduced in the study. The choice of whether using Lamaze or not was entirely upto the participants, entirely voluntary. Confidentiality and privacy was maintained throughout the research.
- The study posed no threat or risk to the health of the participants and ensured their practice of free will is safeguarded throughout the data collection process.

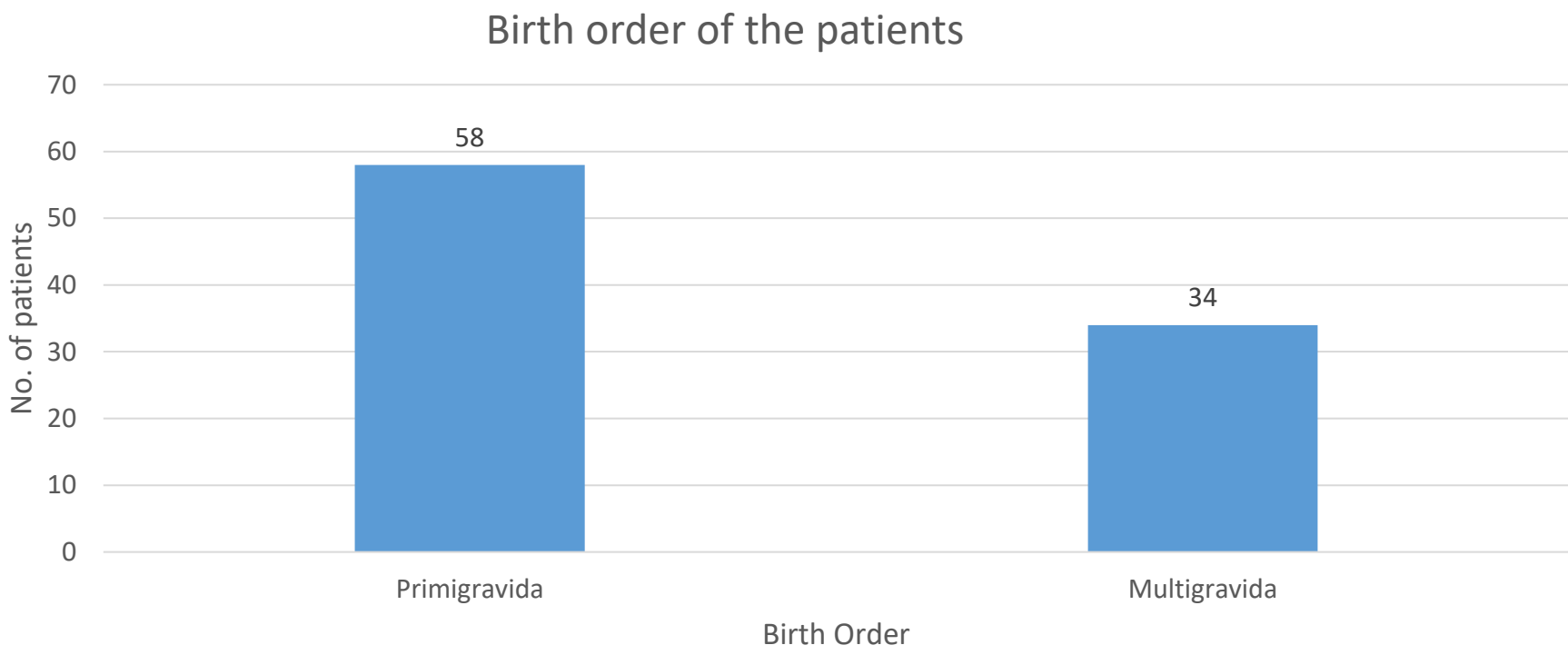
RESULTS

- Demographic profile of the patients : This profile gives us the analysis about the demography of the participants.
- A majority of patients were in the age group of 30 and above. The mean age of the patient is 30.5 years



N = 92

- Birth order profile: In this figure birth order distribution of patients is given, which shows 58 out of 92 patients were primigravida and 34 out of 92 were multigravida.



- Obstetric profile of participants :

This description reveals about the gestational history of patients whether they had Gestational diabetes (GDM) or hypertension (GH/PIH).

S. No.	Criteria	No. of Patients
1.	GDM	12
2.	GH/PIH	7

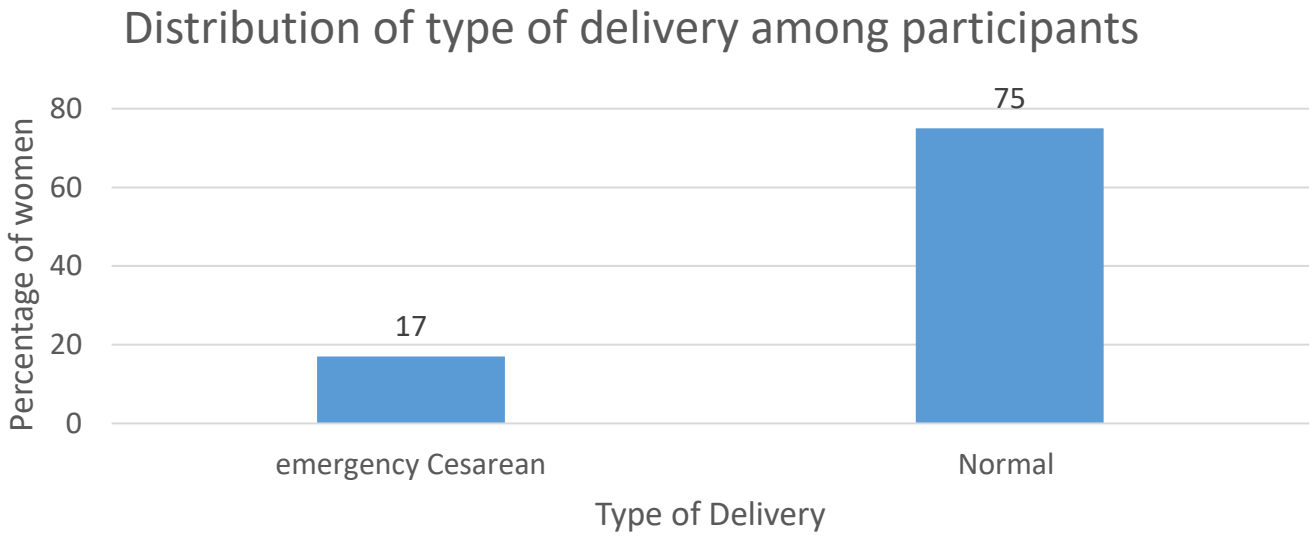
- 12 out of 92 patients had obstetric history of GDM and 7 out of 92 had GH/PIH.

- Data analysis of Lamaze usage among the participants: in the post natal feedback it was asked from the patients whether they used the Lamaze techniques during labor, and the responses were to be chosen from:
  Y – yes
  N – no
  P – Partially

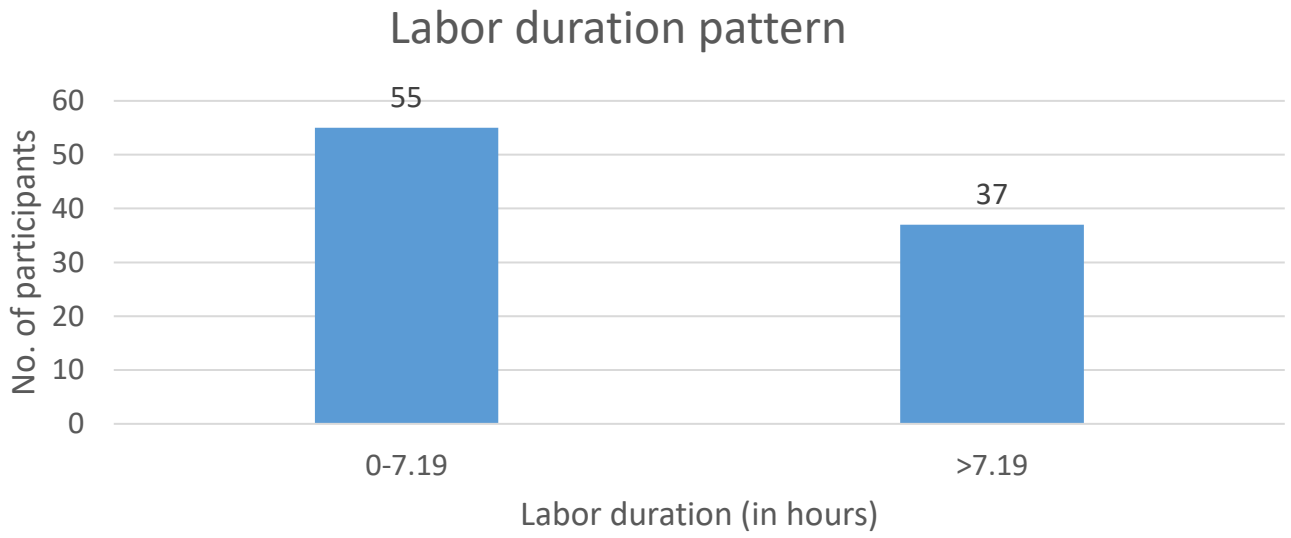
Lamaze Usage	Total
YES	79
PARTIALLY	13
TOTAL	92

- Majority of the patients used Lamaze technique during labor while 13 out of 92 used partially means not doing the techniques throughout or as told by the physiotherapist. Out of all the Lamaze techniques Breathing technique was most commonly used followed by movement technique.

- Type of delivery Distribution among participants: Above figure depicts the type of delivery distribution among pregnant women attending Lamaze sessions. Approximately, 81 percent of them went for Normal delivery and 19 percent had to undergo emergency C-section due to some unavoidable circumstances.

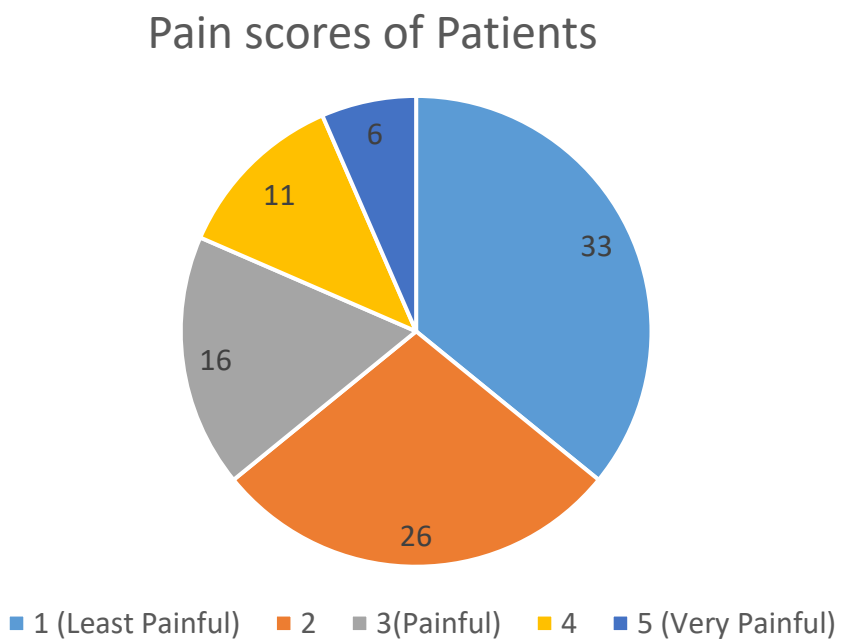


- Labor duration trends among the participants:The mean of the labor duration was analysed to be 7.19 hours, as per the labor durations data recorded from the hospital records. Since the mean value of all the labor durations among the participants is 7.19 hours, therefore the graph grouping has been done into two groups; from zero to 7.19 hours, and another group having values more than 7.19 hours.



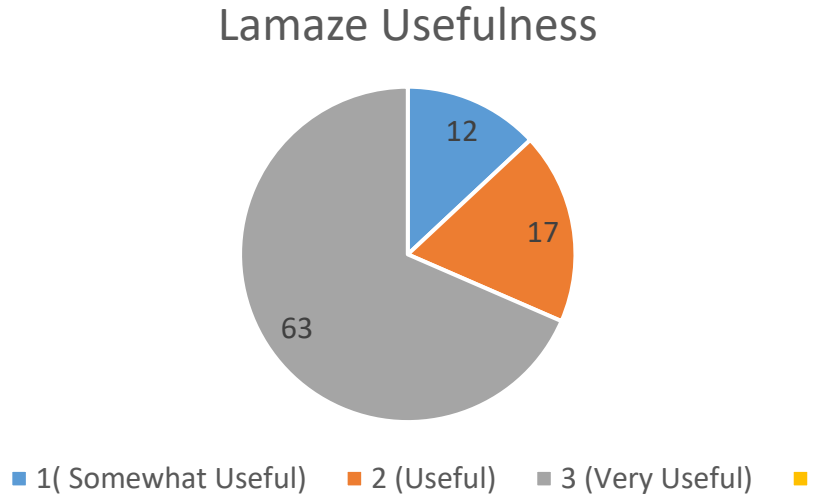
- Pain score analysis of the participants: Pain perception was captured by the nursing team throughout the hospital stay of the patient. For the purpose of the study, pain score of the first stage of labor are considered. Since pain can't be constant throughout the entire labor duration therefore the peak value of the pain scale as recorded for that patient is considered as the pain scale score for that particular patient. Pain scale values are out of 5 and given by the patients as per their perception and personal view.

N = 92
1 = Least Painful
2= less painful
3= Painful
4= Moderately Painful
5= Very Painful



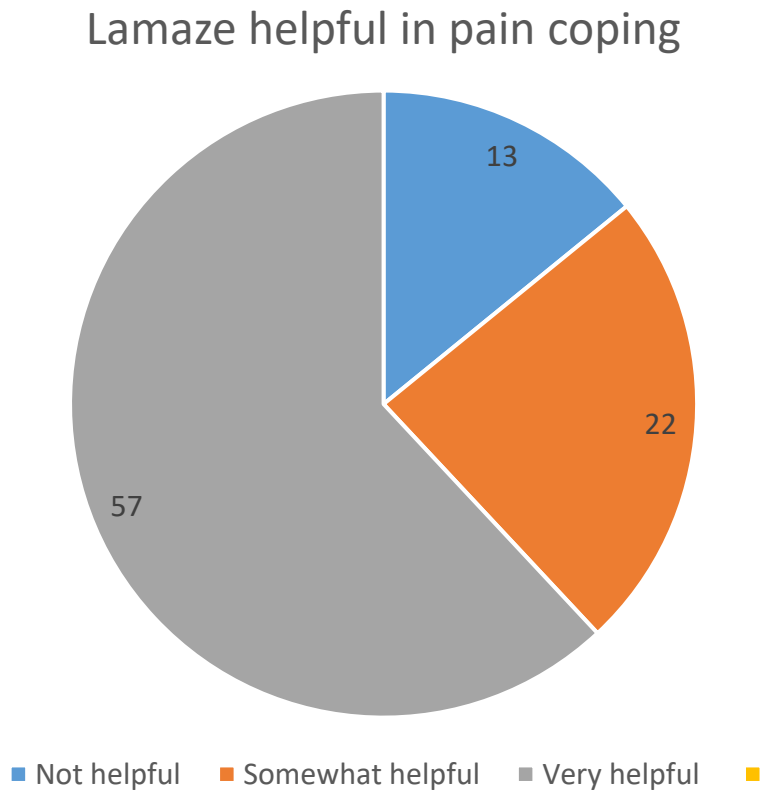
- <u>Lamaze usefulness among participants:</u> A post-natal feedback was collected by the participants during their hospital stay and it was focused to know whether Lamaze was useful to the participants during their labor experience.

N = 92



- <u>Pain coping due to Lamaze</u>: As a part of the post-natal feedback, participants were asked whether they found Lamaze useful in specifically as far as pain coping is considered. Sixty-one percent of them found that Lamaze was indeed helpful in pain coping, twenty-three percent of them found it to be somewhat helpful and 14 percent found it to be not helpful at all.

N = 92



STRENGHTS & LIMITATIONS

Strengths :

- The study is conducted in a hospital setting with real world implications thus this enhances its practical relevance.
- It includes both qualitative (feedback) and quantitative (labor duration and pain scores) aspects.
- It includes both clinical outcomes (labor duration, type of delivery, etc.) and subjective feedbacks (pain perception, usefulness of Lamaze).
- There is limited literature available for Lamaze especially in Indian setting so, this study contributes to that as well.

Limitations :

- Owing to a descriptive study there is no statistical association or causation established.
- Pain scores are self-reported and hence may contribute to recall bias and is subjective from person to person.
- Some clinical aspects such as exact cervix dilation at the time of admission was not taken into consideration as a part of labor duration.
- If participants had taken any other intrapartum intervention, that has been unknown to the study results, as it is a descriptive study not an experimental one in which other interventions can be regulated.

CONCLUSION

1. Approximately fifty-eight percent of the participants were either 30 years or above, the mean age of all the participants came out to be 30.5 years.
2. The obstetric profile of the patients reveals that 63 percent of the women were primigravida and rest were multigravida.
3. Apart from this, findings revealed that 13 percent of the participants had GDM and less than percent had GH/PIH.
4. Majority of patients (69 percent) used Lamaze technique as interpreted from the post-natal feedback of the women, which reinforces that Lamaze is progressively being considered as useful in labor experience for managing pain and anxiety levels. This interprets majority of the women who attended Lamaze sessions retained what they were taught and used the techniques during labor and delivery.
5. Out of all the Lamaze techniques Breathing technique was most commonly used followed by movement technique by the participants.
6. Most common mode of delivery was normal vaginal delivery (81 percent) and rest opted for emergency C-section.
7. The mean labor duration was analysed to be 7.19 hours, as per the labor durations data recorded from the hospital records, which is within expected range.
8. For the purpose of the study, pain score of the first stage of labor is considered. Pain scale values are out of 5 and given by the patients as per their perception and personal view.The average/ mean value for the 92 pregnant women came to be 2.25 as per the analysis, reflecting that Lamaze techniques may contribute to pain coping.

RECOMMENDATIONS

- **Integrate Lamaze into Routine Care**: Incorporate Lamaze sessions into standard antenatal services, especially in maternity hospitals.
- **Enhance Educator Training:** Invest in capacity building for healthcare providers to improve the quality and delivery of Lamaze sessions.
- **Standardize Session Content**: Streamline and maintain consistency in Lamaze session materials to ensure effectiveness.
- **Encourage Timely Participation**: Promote attendance of Lamaze sessions during the third trimester to allow sufficient practice time.
- **Implement Regular Feedback:** Use structured tools for continuous feedback and follow-ups to monitor and improve outcomes.

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