A DESCRIPTIVE STUDY ON LABOR AND DELIVERY OUTCOMES AMONG WOMEN WHO ATTENDED LAMAZE SESSIONS DURING PREGNANCY

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by

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Under the Supervision and Guidance of

Dr. Swapnil Gadhave

2025

cloudnine

CERTIFICATE

This is to certify that **Saumya Kaushal** in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the **IIHMR University, Jaipur** has successfully completed her dissertation at **Cloudnine Hospital, Bangalore** during Mar 10 - May 31, 2025.

Place: Bangalore

Date: 16-06-2025

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This is to certify that dissertation titled "**A DESCRIPTIVE STUDY ON LABOUR AND DELIVERY OUTCOMES AMONG WOMEN WHO ATTENDED LAMAZE SESSIONS DURING PREGNANCY**" is a record of the research work undertaken by **SAUMYA KAUSHAL** in partial fulfillment of the requirements for the award of the degree of MBA Hospital and Health Management from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled 'A Descriptive Study On Labor and Delivery Outcomes Among Women Who Attended Lamaze Sessions During Pregnancy' is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

(Signature)

Saumya Kaushal

22-05-2025

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Saumya Kaushal

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ABBREVIATIONS

S. No.	Abbreviation	Meaning
1.	MRD	Medical Records Department
2.	GPTW	Great Place To Work
3.	IVF	In Vitro Fertilization
4.	NICU	Neonatal Intensive Care Unit
5.	PICU	Paediatric Intensive Care Unit
6.	2D	Two – Dimensional
7.	3D	Three – Dimensional
8.	CT Scan	Computed Tomography Scan
9.	IUI	Intra uterine Insemination
10.	FET	Frozen Embryo Transfer
11.	OPD	Out Patient Department
12.	ENT	Ear, Nose and Throat
13.	HK	House keeping
14.	IP	In Patient
15.	GRE	Guest Relations Executive
16.	CRE	Customer Relations Executive
17.	OT	Operation Theatre
18.	LDR	Labor Delivery Room
19.	EDD	Expected Due Date
20.	GDM	Gestational Diabetes Mellitus
21.	GH	Gestational Hypertension
22.	PIH	Pregnancy Induced Hypertension

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ABSTRACT

Lamaze childbirth education is a structured, evidence-based approach designed to prepare women for labour and delivery through breathing techniques, relaxation, movement, and informed decision-making. 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.

Objective of the study was to describe the labour duration and delivery outcomes among women who attended Lamaze sessions during their antenatal period. Secondary objectives included evaluating maternal pain perception, usage of Lamaze techniques during labour, and maternal feedback on the usefulness of the sessions.

A descriptive cross-sectional study design was employed. The study was conducted at a tertiary-level maternal and child healthcare hospital in India, where Lamaze sessions are routinely offered as part of antenatal care. The sample consisted of 92 women who attended Lamaze sessions between November 2024 and May 6, 2025, and delivered at the same hospital. Data was collected retrospectively from hospital records and prospectively through structured feedback questionnaire administered during the postpartum period. Variables included age, gravidity, birth order, medical history, type of delivery, labour duration, peak pain score, and maternal perception of Lamaze effectiveness. Data was analyzed using Microsoft Excel and summarized through descriptive statistics—frequencies, percentages, means, and standard deviations. Visual representations such as bar charts were used. 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. The obstetric profile of the patients reveals that 63 percent of the women were primigravida and rest were multigravida. 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. Out of all the Lamaze techniques Breathing technique was

most commonly used followed by movement technique by the participants. 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.

The findings suggest that Lamaze childbirth education is a beneficial and well-accepted intervention in hospital-based antenatal care. Women who attended Lamaze sessions demonstrated active use of non-pharmacologic techniques, experienced labour durations within normal ranges, and reported high satisfaction and confidence during childbirth. The results align with previous studies that support the utility of Lamaze in reducing anxiety, enhancing coping, and promoting physiologic birth.

The study highlights the importance of institutionalizing structured childbirth education programs in maternity care settings. Although descriptive in nature and without a control group, this study provides a foundation for future comparative research on the effectiveness of Lamaze techniques in improving maternal outcomes.

CHAPTER 1: An Overview of Cloudnine Hospital

Cloudnine hospital is a single speciality private hospital chain which is a leading name as far as the maternal and childcare sector is concerned. It was established in year 2007 by the Founder Dr. Kishore Kumar and has till date done more than 2 lakh deliveries and still counting. 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 and has won various awards such as in year 2022 The Financial Express – best hospital in mother and child care (gold category), Akhil Bhartiya Private Chikitsa Foundation Noida awarded the cloudnine hospital al, Noida for best care to the patients and highest success rates in IVF so on.[1] It has been ranked in top 10 of all the Times of India rankings for Best Hospitals National. The organization is currently in an expansion phase and continues to expand in northern cities as well.

1.1 SERVICES PROVIDED BY ORGANIZATION: Cloudnine provides a range of services that caters to maternal and child care.

a) Maternity services: Cloudnine is one of the best maternity hospital in India, obstetrics team is well equipped to take care from inception of maternity to delivery of the baby, team consists of gynaecologist, radiologist, paramedical staff, etc. they are supported by level 3 NICU to manage complications as well.
b) Gynaecology: The hospital has an experienced department of gynaecologists to cater to women of all age groups having varied health issues as it focuses to provide holistic care.
c) Paediatric care: They provide comprehensive child care services ranging from general paediatric services to NICU, PICU, etc. One of the distinguish services that cloudnine offers is baby screening which involves just after birth Guthrie test and new-born hearing test which helps in early detection.
d) Radiology: There is latest technology equipments in radiology which includes both direct and computed radiography. Besides 2D and 3D scans they also offer services like mammography, CT Scan, Ultrasound, X- Ray, etc.

e) Fertility: Cloudnine offers highly professional and successful services in fertility sector considering its sensitive nature the specialists also cater to emotional support for overall well-being of the patient. It provides comprehensive infertility treatments, to name a few, IUI, IVF, FET, Blastocyst Transfer, Ovulation Induction and Cycle Monitoring, Time Lapse Embryo Monitoring, are a part of it.

f) Nutrition and Dietetics: There is a separate department which aims to provide best and most relevant nutritional advice to different categories of patients namely, expectant mothers, new mothers, babies, kids, and teenagers as well. There are various milestones in a baby's life; in terms of nutrition as well, Weaning is an important milestone in a baby's nutrition journey, dedicated team provides full support and guidance to parents for this.

g) Physiotherapy: Apart from various other services, physiotherapy is also provided to have a smoother pregnancy and birth. Lamaze is also done under physiotherapy services, as a part of antenatal care.

h) Breastfeeding support: Cloudnine has a centre for lactation support to provide comprehensive breastfeeding support to new mothers as it can be exhausting and challenging for them. Expert lactation consultants are there who visits all the new mothers during their hospital admission and are also available for OPD consultations as well.

i) Stem cell banking: Cryonine is a cloudnine initiative to enable parents to preserve their child's stem cells in order to safeguard their health as there is a wide range of diseases that can be cured with stem cells.

j) Home care services: It's cloudnine initiative to provide home care services to their patients as they extend their services from hospital to home. Be it home ear piercing, home care nursing for mother and baby, cloudnine does it all. (2)

k) Allied services: The hospital also provides holistic care services comprising of endocrinology, dermatology, ENT, etc.

l) Momeaze: Cloudnine also has its own maternity and childcare retail store as well as online services, it's a one place stop of all the prime brands in mother and child care products, be it clothes, swaddle, baby nest, lotions, diapers, manual and electric breast pumps.

m) Community: There's a Cloudnine Mamas Community in which new as well as all the expecting mothers are connected in an online community where daily online blogs are uploaded by the doctors and patients can also post their queries which are answered by the experts. This community also helps the mother community to connect with each other so that they don't feel alone in this journey as they share their experiences among themselves.

n) Courses: There are various courses to educate new and expecting parents as they undergo a challenging yet unexplored part of their lives. Few of the courses include Master in Baby Affairs, IVF Masterclass Series, Starting Solids Course, etc.

1.2 Hospital's Organogram

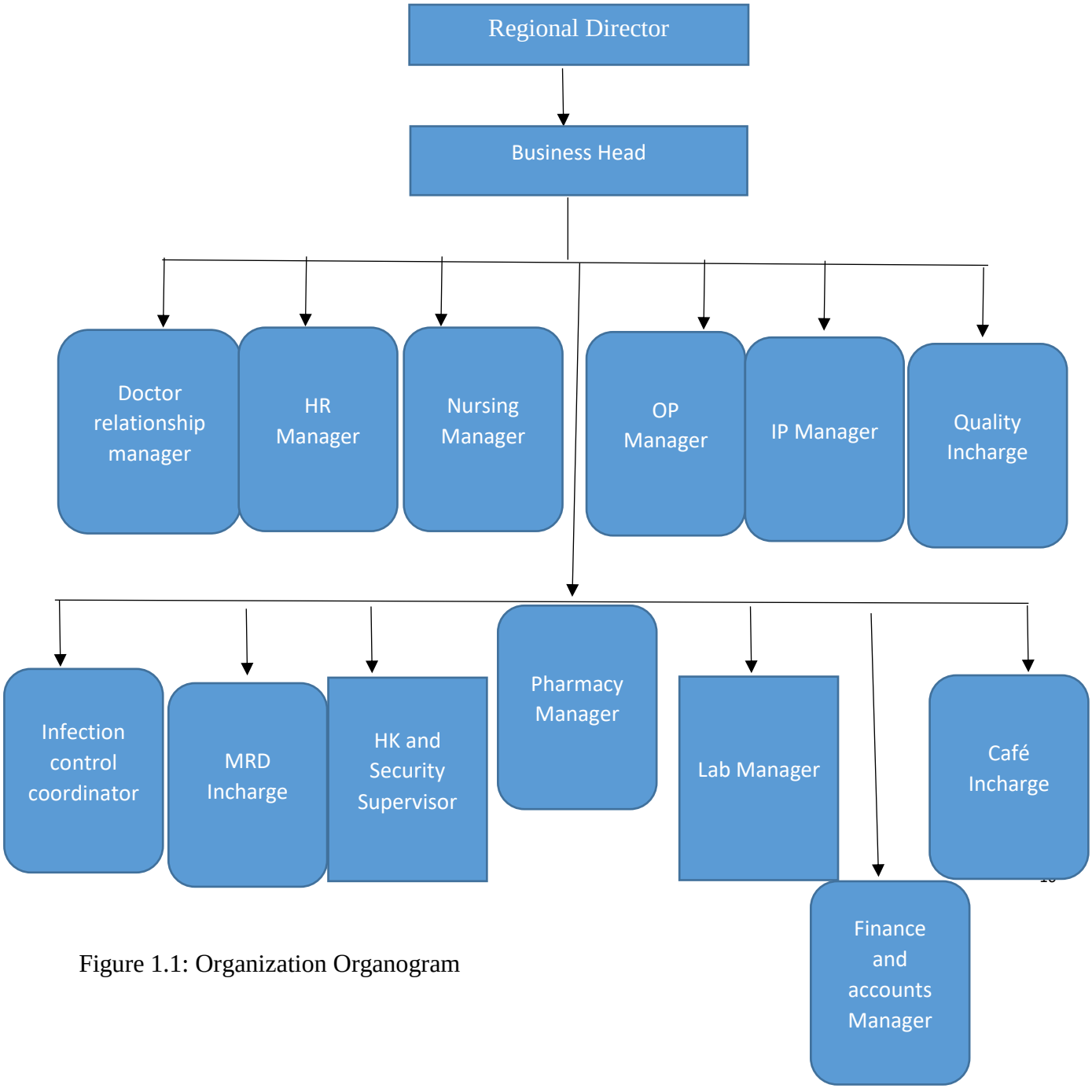

Figure 1.1: Organization Organogram

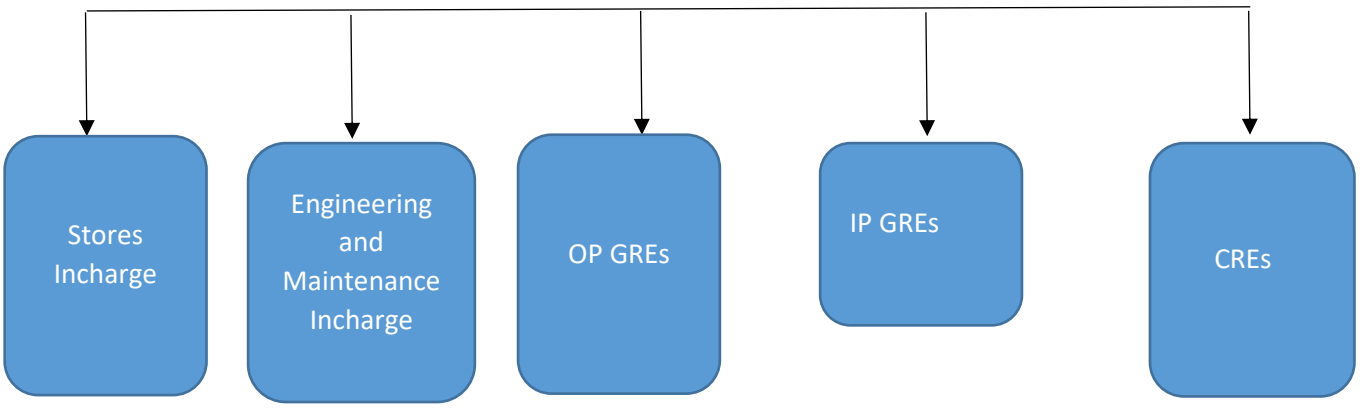

Figure1.1 continued

Figure 1.2: Cloudnine Hospital

Figure1.3: Waiting area

Figure 1.4: OT/LDR

Figure 1.5: NICU

Figure 1.6: Suite rooms

Figure1.7: IP Ward

CHAPTER 2: INTRODUCTION

Childbirth is a complex physiological and emotional process, involving physical pain, anxiety, and uncertainty. For decades, 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. Among all the methods available, antenatal education plays a vital role in preparing women for labor and childbirth journey.

The Lamaze method, developed by French Obstetrician Dr. Fernand Lamaze which popularized in West in the mid – 20th 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.

2.1 Purpose of research

Historically, Lamaze has been associated with enhanced maternal coping, confidence and a sense of control during labor. In modern days, Lamaze practices are linked with safe, healthy and evidence based birth practices. It is included into maternity services in tertiary care hospitals as a part of antenatal care and is given in form of structured classes undertaken by either a physiotherapist or Lamaze instructor. As far as Indian context of antenatal services is concerned Lamaze is unknown in rural settings but there is increased adaptation in urban tertiary health settings; especially in private hospitals. However, there is less evidence; specifically at the facility level – regarding labor and delivery outcomes of women attending Lamaze sessions. There are only few hospitals that offer Lamaze as a part of their antenatal services and only few among them systematically documents the experiences during labor, hospital stay, overall satisfaction, and the delivery outcomes among the Lamaze attendees. This evidence gap needs to be overcome given the growing focus on maternal satisfaction, and non – pharmacological pain relief methods.

The research was undertaken as a part of MBA curriculum and follows a descriptive study design. Data was collected for women who took Lamaze sessions between

November 2024 to May 5, 2025. This study has been conducted in a tertiary single speciality maternity and childcare hospital which conducts regular and structured Lamaze sessions by the in-house physiotherapist as a part of their antenatal care services. The study specifically focuses on describing labour duration, pain perception, mode of delivery, and maternal perceptions among Lamaze attendees and who delivered at the same hospital. The data has been collected from hospital records and feedback collected from the participants.

2.2 Problem Investigated

Problem that is being investigated is the lack of descriptive data and explanation of facility based data on how Lamaze attendees align with labour and delivery outcomes along with pain perception. Although Lamaze is nowadays being promoted, but its practical implications in Indian Hospital settings – especially from the perspective of maternal experience, pain perception and delivery and labour outcomes still remain underexplored. Most of the available literature existing on Lamaze is either international or analytical in nature, comparing it with other pain reduction mechanisms.

2.3 Aim of the study

In contrast to the already available literature, this study aims to provide context-specific descriptive insights (type of delivery, age, birth order) about the labor and delivery outcomes along with pain perception among the Lamaze attendees.

2.4 Importance of the Problem and Context

Understanding the pattern of labour and delivery outcomes, delivery mode, and pain experience among Lamaze attendees is essential for various reasons.

- Firstly, it will allow the hospital administrators and clinicians to know the effectiveness and relevance of childbirth education as a part of ante natal care.
- Secondly, it will help in recording the maternal coping mechanisms during labour which often remains unrecorded.
- Thirdly, it will provide foundational data for future researches and will in turn motivate more and more maternal hospitals to take up ante natal care more effectively for their patients.

- Fourth, it will provide the basis to conduct more and more research in the domain of non-pharmacological approaches of pain relief.

In addition to all the clinical and research based relevance this study will also have its effect on patient education, as it will help them know about the possible positive outcomes of good antenatal care. By documenting maternal feedbacks on usefulness of Lamaze, it will help identify the strengths as well as weak points in the antenatal care delivery. This is of utter importance as in today's evolving maternal expectations, satisfaction regarding childbirth experience is seen as an essential criteria of quality of care.

2.5 Objectives of the Study

The research question guiding this study is: What are the labour and delivery outcomes among women who attended Lamaze sessions during pregnancy?

As per the research question, 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.

CHAPTER 3: REVIEW OF LITERATURE

Table 3.1: 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 principles and applications of Lamaze breathing.
2.	A Study to Assess the Effectiveness	Divya B R (2024)	Apollo Women's	30 Primigravida mothers	Purposive sampling	This study uses the one-group pretest and post test design

	of Lamaze Breathing Technique in Pain Management During the First Stage of Labour[3]		Hospital, Chennai, India			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	2023 Nayak BS	Kasturba Hospital, Manipal, India	-	Block Randomization	It performs a single blinded RCT, in which the intervention group received Lamaze sessions in their antenatal period ; the

	Controlled Trial[5]					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 Women[7]	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.
13.	The Combined Effects of Lamaze Breathing Training and Nursing Intervention on the Delivery in Primipara: A PRISMA Systematic	Chao Wu, Yiling Ge, Xinyan Zhang, Yanling Du, Shizhe He, Zhaohua Ji, Hongjuan Lang (2021)	Not applicable as it's a systematic review and meta-analysis	14 studies included	-	This is a systematic review and meta-analysis that focused on the combined effects of Lamaze training and nursing interventions on pregnant women. The findings included that the combined intervention caused

	Review Meta – Analysis[14]					decrease in duration of labor, and pain intensity and showed overall improved outcomes.

CHAPTER 4: METHODOLOGY

This Chapter elaborates about research methodology used in this study along with the study design attributes.

4.1 Research Methodology

This study is a quantitative, descriptive cross sectional study. Descriptive study aims at providing description of characteristics of the subjects involved in the study rather than studying or establishing the cause – effect relationship. These studies describe individuals, situations, and groups. Cross sectional studies focus on the data collected at a single point of time. In this research study, it aims at describing labour and delivery outcomes among pregnant women who attended Lamaze sessions as a part of their antenatal program.

Since it is a descriptional study (observational and not analytical) there is no hypothesis testing rather just observing and describing the characteristics of the study population. This aligns with the purpose of understanding the characteristics, frequencies rather than determining the causal relationships.

4.2 Key Research Question

The research question of this study is:

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

Throughout the study this question was the central focus, and to address this question various variables were examined such as labor duration, Mode of delivery, pain perception, usage of Lamaze during labor, and patient reported outcomes and feedback through a short feedback post their delivery.

4.3 Research Design

A Descriptive (Observational) Cross sectional study design was used throughout this study. This study design is adopted when there is just observation and capturing of the

data variables at a particular point of time without causing any intervention, experiment or establishing any cause-effect relationship. In this study data was collected both retrospectively via hospital records and prospectively as well via patient's feedback to describe the various characteristics and experiences of the women who took Lamaze classes as a part of their antenatal care. In this study design quantitative data and categorical data both types were covered and were summarized using descriptive statistics. There was no control group or experimental manipulation or intervention done, which showcased the natural maternal outcomes.

4.4 Study setting and Population

This study was conducted at a tertiary single speciality maternal and childcare private hospital situated in the city of Bangalore, it has 13 branches in Bangalore alone and the study was done in one of its branches. In this hospital properly structured Lamaze classes were conducted as a part of the antenatal care for expecting mothers. The hospital has a high load of obstetric patients which sometimes leads to a maximum of 130 deliveries in a month. The study population consisted of women who attended Lamaze sessions and delivered at the same hospital, and the time period is from November 2024 to 5 May 2025. A total of 92 participants were included in the study.

4.5 Structured Lamaze Sessions

Since the whole study revolves around the structured Lamaze sessions so there is a need to discuss and formulate how a Lamaze session was being conducted in the hospital. The session was conducted by the Physiotherapist who was associated with the hospital full time. When a pregnant woman comes for gynaecology consultation and is nearing their EDD they are enrolled in the Lamaze session as a part of their antenatal care. Few weeks before their EDD pregnant women come to attend the Lamaze sessions, they are advised most probably to come with their partner or some family member.

In the Lamaze class there is one physiotherapist that greets them and makes them sit comfortably. Firstly, she introduces herself followed by everybody's small introduction, required for ice – breaking. The entire session is divided as- introduction about Lamaze, followed by briefing about Labor (stages of labor), what are the do's and don'ts they

should follow and preparing them for normal delivery and labor followed by the exercises involving breathing and movements and constant partner support.

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.

Figure 4.1 Lamaze session

Figure 4.2 Exercises during Lamaze session

Figure 4.3 Lamaze exercises

Figure 4.4 Briefing about Lamaze and Labor

Figure 4.5 Demonstration of exercises

Figure 4.6 Interactive Lamaze session

4.6 Inclusion and Exclusion Criteria

The study population consists of pregnant women who attended Lamaze session and delivered in the same hospital between November 2024 to 5 May 2025. But there are few inclusion and exclusion criteria.

Table 4.1: Inclusion Criteria

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.

Table 4.2 Exclusion Criteria

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.

4.7 Research Procedures, Sampling instruments and Approaches

This study used quantitative approach for data collection and analysis. These methods were useful for data summarization and to identify pattern, whether Lamaze is being considered useful or not.

Data was collected using two key procedures (sampling instruments):

1. Hospital records – were used to collect data variables namely, unique patient ID, name and age of the patient, birth order (primigravida or multigravida), presence of GDM (gestational diabetes mellitus) or GH (gestational hypertension) also known as PIH (pregnancy induced hypertension), date of attending Lamaze session and delivery,

labor duration and type of delivery. Pain scale is also being managed and recorded by the nursing staff, although its captured throughout the hospital stay but for this study the pain scale value of the first stage of labor is being recorded based on the perception of the patient. There are four stages of labor:

a) first stage of labor: it starts with mild contractions and cervix dilation which ends at 10 cm dilation of cervix.

b) 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.

c) third stage of labor: in this stage placenta is delivered.

d) fourth stage of labor: is recovery in which cervix dilation comes back to normal and mother's body recovers.

2. Short feedback postnatal – a feedback was taken by the hospital staff during the patient's hospital stay after delivery. In this feedback data is collected on user's perception whether they used Lamaze fully or partially, if they used Lamaze then what technique they used, was Lamaze useful to them and is there any additional feedback. All this feedback was collected by hospital staff as a part of their routine follow up. Only data of the required study variables were taken into account for the study.

Data is then anonymized and recorded in excel spreadsheet for analysis and graphical representation.

4.8 Sampling technique

This study has adopted convenience sampling, a non-probability sampling. All women pregnant women who met the inclusion criteria were included in the study. Total 92 women who took Lamaze session and delivered during November 2024 to 5 May 2025 were included in the study. No specific sample size calculation formula was used for the study as this is not an analytical or hypothesis testing study, rather a descriptive study.

4.9 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.

4.10 Statistical Methodology

All the data will be entered into Microsoft Excel and analyzed using SPSS. Descriptive statistics was performed using Excel. Frequency and percentage are calculated for variables like type of delivery, usage of Lamaze techniques, patient satisfaction in finding Lamaze as useful. Mean / average is calculated for variables like labor duration, pain score, etc. Graphical representation will be included as per needed. No hypothesis testing, inferential statistics were being used as it is a descriptive study.

4.11 Ethical Consideration

This study followed all the institutional guidelines in which this 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.

CHAPTER 5: RESULTS

This chapter presents all the results and data analysis part of the descriptive study. Data collected is of 92 pregnant women who attended Lamaze session as a part of their antenatal care and delivered at the same hospital between November 2024 to 6 May 2025. The data variables collected in the study are already being discussed in the methodology chapter 4.

Here is the data analysis of the entire study collected via hospital records and post-natal feedback.

- Demographic profile of the patients

This profile gives us the analysis about the demography of the participants.

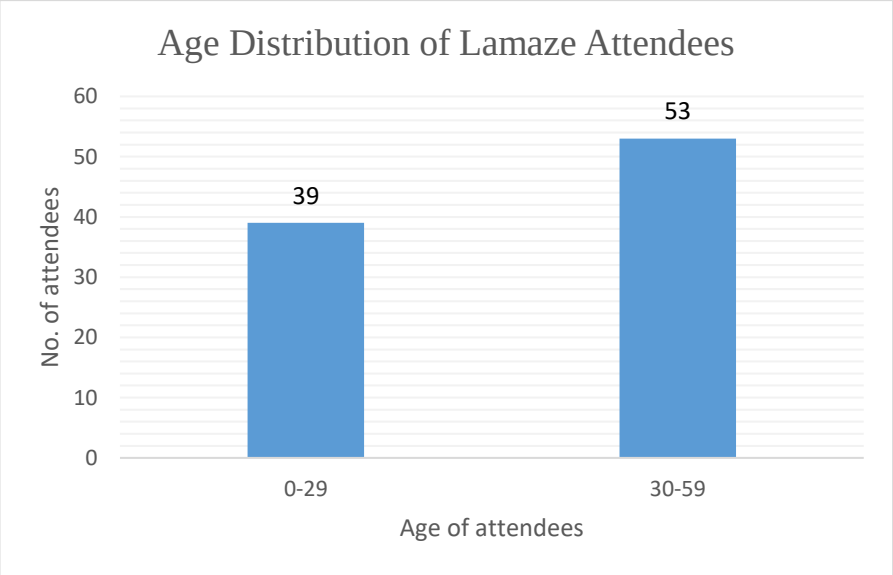

Figure 5.1: Age distribution of Lamaze attendees

A majority of patients were in the age group of 30 and above. The mean age of the patient is 30.5 years.

- Birth order profile: In this figure birth order distribution of patients is given. In birth order:

1 stands for Primigravida

2 stands for Multigravida

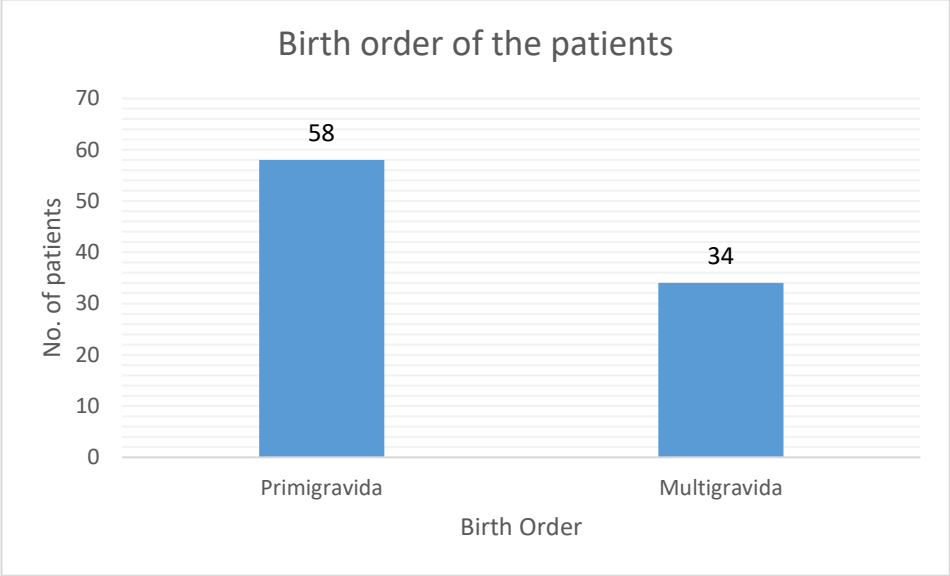

Figure 5.2: Birth order distribution of patients

58 out of 92 patients were primigravida (63 percent) and 34 out of 92 (37 percent) were multigravida.

- Obstetric profile of participants: This description reveals about the gestational history of patients whether they had Gestational diabetes or hypertension.

Table 5.1: Gestational History

S. No.		
1.	**GDM**	12
2.	**GH/PIH**	7

12 out of 92 (13 percent) patients had obstetric history of GDM and 7 out of 92 (0.08 percent) 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

Table 5.2: Lamaze technique usage

Technique used (Y/N/P)	**Total**
Partially	13
Yes	79
Grand 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:

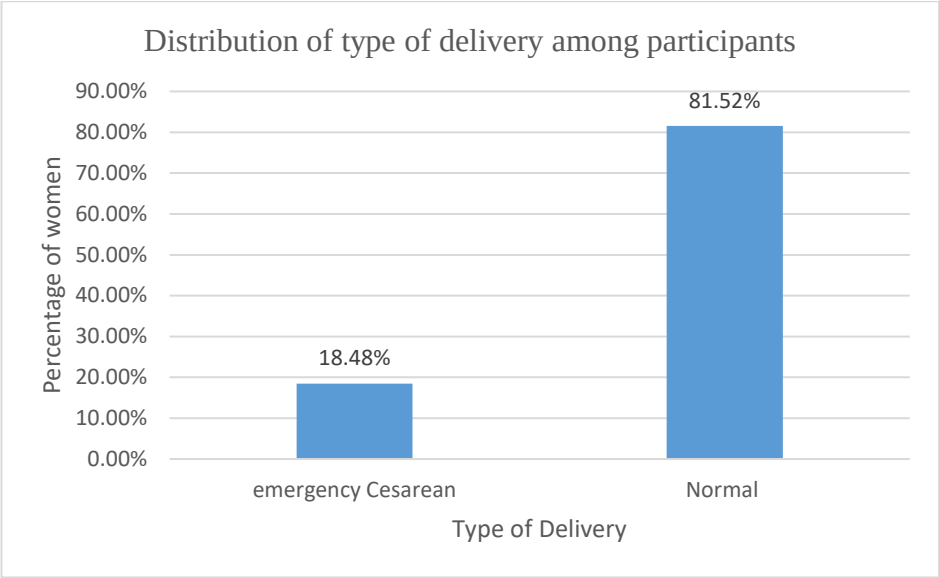

Figure 5.3: Type of delivery Distribution among participants

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.

- <u>Labor duration trends among the participants:</u>

The mean of the labor duration was analysed to be 7.19 hours, as per the labor durations data recorded from the hospital records

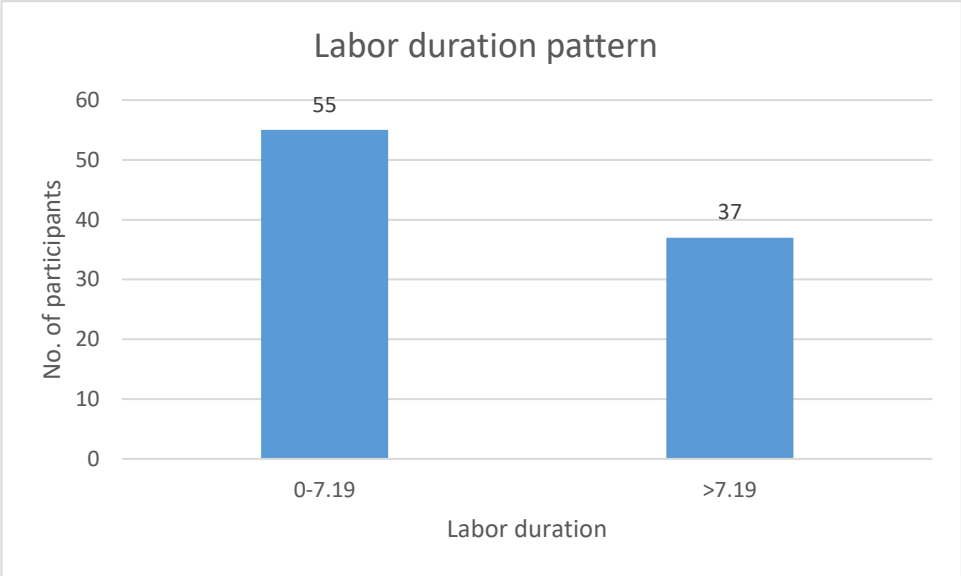

Figure 5.4: Labor duration pattern among participants

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.

The average/ mean value for the 92 pregnant women came to be 2.25 as per the analysis. The tabular representation of the following analysis is as follows:

Table 5.3: Pain scale values of the participants

Pain Scale peak Value	**No. of patients**
1	33
2	26
3	16
4	11
5	6
Grand Total	**92**

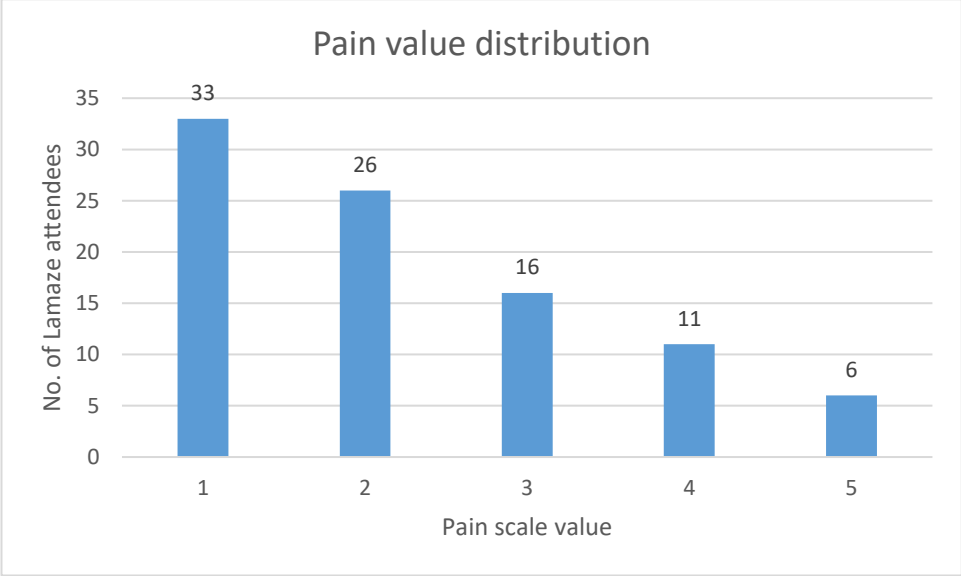

Figure 5.5: Pain scale distribution among the Lamaze attendees

33 out of 92 women had least value of the pain scale and 6 out of 92 women had highest pain perception value.

- Maternal feedback regarding Lamaze usefulness

A post-natal feedback form was filled by the participants during their hospital stay and it was focused to know whether Lamaze was useful to the participants during their labor experience.

Table 5.4: Lamaze usefulness among participants

Lamaze useful(1,2,3)		**No. of women**
(somewhat useful)	1	12
(useful)	2	17
(Very useful)	3	63
Grand Total		**92**

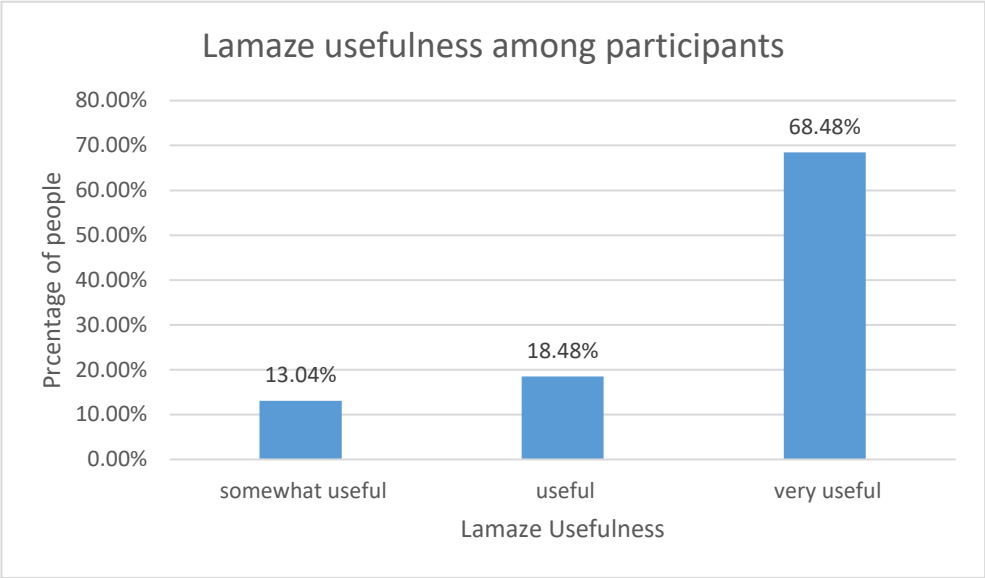

Figure 5.6: Graphical representation of Lamaze usefulness

As per the graph, 68 percent of the attendees found Lamaze to be very useful, 18 percent found it to be useful and 13 percent found it to be somewhat useful(not upto the mark).

- Pain coping due to Lamaze: 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.

Table 5.5: Lamaze helpful in pain coping

Pain coping Helpful(Y/S/N)	**Total**
no	14.13%
somewhat	23.91%
yes	61.96%
Grand Total	**100.00%**

5.1 Key Results

On the basis of all the data variables collected during the study, data analysis was carried out and all the results were summarized above as mentioned.

1) Majority of the women who attended Lamaze sessions retained what they were taught and used the techniques during labor and delivery.

2) Out of all the Lamaze techniques breathing techniques are used most widely by the attendees followed by movement techniques.

3) Normal vaginal deliveries were high and the average labor duration came to be 7.19 hours.

4) Majority of the Lamaze attendees reported Lamaze sessions to be useful and helpful in pain coping.

CHAPTER 6: DISCUSSION

This chapter contains an interpretation of the results mentioned in the previous chapter, and also compares them with the findings of other studies conducted by other researchers. This study aims to describe the labor and delivery outcomes among women who attended Lamaze sessions during pregnancy and delivered in the same hospital. As mentioned earlier data was collected from hospital records and postnatal feedback form, with emphasis on labor duration, pain score, type of delivery, Lamaze technique usage and usefulness of the techniques undertaken.

6.1 Interpretation of key results

Majority of women (86%) used Lamaze technique during labor; while 14% reported to use the techniques partially, this results in the interpretation of the result as there is effective recall and practical application of techniques among the women.

Among the session's techniques Breathing technique was most commonly used, followed by other techniques. This interprets as Lamaze technique especially breathing technique is readily used by the patients as a mechanism of pain coping among all the other non-pharmacological tools of labor comfort. The average labor duration pattern came to be 7.19 hours among the Lamaze attendees, while some had the labor duration to be as short as 3 hours to as long as 12 hours 40 minutes, but as an average calculation it came as 7.19 hours, which is within normal physiologic range of labor duration. As far as type of delivery is concerned 81.5% of women went for normal delivery and rest for emergency caesarean section. These rates lean towards favourable labor progression among Lamaze trained women.

Pain perception was also captured during the entire hospital stay of the patient and the peak value of the pain scale was used for analysis. The value was out of 5 and was captured by the nursing team of the hospital, with an average of 2.25. Thirty out of 92 women had least value of the pain scale and 6 out of 92 women had highest pain perception value. It suggests partial efficacy of Lamaze technique in pain modulation. However, it is important to note that pain perception is highly subjective and may vary from person to person depending upon one's tolerance, emotional preparedness, etc.

As per the post natal feedback given by the pregnant women, 68 percent of them found Lamaze to be very useful, 18 percent found it to be useful and 13 percent found it to be somewhat useful(not upto the mark). These findings reflect acceptance towards the perceived benefits of Lamaze sessions as part of the ante natal care services.

6.2 Comparison with previous researches

Although the studies conducted earlier followed different – different study designs yet the findings can be discussed. The findings obtained from the study are in accordance with the results reported by Akshaykumari jhala (2017), which stated that breathing exercise of Lamaze significantly reduced pain and anxiety during labor of primigravida mothers in a community setting. The study reported significant decrease in the pain levels post-intervention, quite similar to the pain scale scores that we obtained in our participants.

Similarly, study by Heim and Makuch (2023) concluded that breathing relaxes the pain and anxiousness of the mothers and this aligns with the post-natal feedback given by the pregnant women resulting in the usefulness of Lamaze in pain coping.

In a systematic review carried out by Chao et al. (2021) it was revealed that Lamaze breathing combined with nursing interventions leads to reduced labor duration and improved maternal outcomes. Although this research is based on descriptive design and doesn't involve interventions but the mean labour duration of 7.19 hours suggests potential positive effects of Lamaze on labor progression.

These findings from various studies reinforces the usefulness of Lamaze as a non-pharmacological antenatal approach in improving labor experiences and outcomes.

6.3 Strengths and limitations of the study

Strengths of the study include:

1. The study is conducted in a hospital setting with real world implications thus this enhances its practical relevance.

2. It includes both qualitative (feedback) and quantitative (labor duration and pain scores) aspects.
3. It includes both clinical outcomes (labor duration, type of delivery, etc.) and subjective feedbacks (pain perception, usefulness of Lamaze).
4. This study contributes to the local hospital evidence when there is limited literature on Lamaze in Indian healthcare settings.
5. There is limited literature available for Lamaze especially in Indian setting so, this study contributes to that as well.

Limitations of the study include:

1. Since it is a descriptive study, therefore absence of a comparative group (women who didn't attend Lamaze) restricts the comparative analysis.
2. Owing to a descriptive study there is no statistical association or causation established.
3. Pain scores are self-reported and hence may contribute to recall bias and is subjective from person to person.
4. Some clinical aspects such as exact cervix dilation at the time of admission was not taken into consideration as a part of labor duration.
5. 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.

CHAPTER 7: CONCLUSION

This chapter includes summarization of the key findings, implications of the study and recommendations for way forward. This descriptive study was conducted to describe labor and delivery outcomes among women who attended Lamaze sessions during their antenatal period conducted at a tertiary maternity hospital. A total of 92 women were included in this study.

Key findings are summarised as:

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.

These findings suggest that Lamaze sessions are beneficial in supporting maternal confidence and helpful in pain coping, promoting non-pharmacological means of pain management.

7.1 Implications of the study

- This study fills in for the lack of studies for Lamaze in Indian context and the results of the study highlights the practical significance of integrating structured childbirth education techniques especially Lamaze, into routine antenatal care.
- The findings of the study, like, observed trends of Lamaze facilitating in labor progression, significant role in pain coping and managing anxiety levels; help in institutionalizing the role of non-pharmacological means of pain management during labor.
- It will help the healthcare settings like maternity hospitals, etc. to know about the consequences of Lamaze on pregnant women and will help them to incorporate more of such sessions in the antenatal care routine of the patients.
- It also implies on clinical outcomes like, labour room outcomes may be positively influenced by antenatal education.
- It helps the healthcare providers to emphasize more on antenatal care aspect of the pregnancy as well.

7.2 Recommendations

Based on the study findings here are few recommendations:

- To institutionalize Lamaze based education: Hospitals should essentially integrate Lamaze sessions as part of routine antenatal services, particularly in maternity hospitals.
- Strengthening healthcare providers: Capacity building of the healthcare providers/educators should be encouraged so that it uplifts the quality of Lamaze sessions provided and effectively deliver the services.
- Standardize the content for the session: The Lamaze session content should be streamlined and consistent to make it an effective session and maintain its uniformity through every session.

- Promote timely participation: appropriate timing for Lamaze session is during third trimester and thus women should be encouraged to timely attend session in third trimester so that they can get enough time to practise the techniques.
- Including partner support: partner/family support should be encouraged through sessions as well in terms of participation as it may add significantly to the effectiveness and success of techniques, by providing support and comfort to the expecting mothers.
- Constant feedback: regular feedbacks and follow-ups should be done via structured tools to routinely capture participant feedback and monitor clinical outcomes as well.

This study reinforces that Lamaze techniques are practical and acceptable and also contribute positively towards labor progression and pain coping.

With appropriate training, and patient engagement Lamaze education has the potential to enhance the quality and experience of labor and delivery outcomes, by integrating into the routine antenatal care services.

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