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# The Prevalence and Determinants of Caesarean Section among Antenatal Mothers in Selected Hospitals, Thrissur, Kerala

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## I. INTRODUCTION

Pregnancy is a significant and transformative event in a woman's life, marked by excitement, anticipation, and often anxiety. The method of delivery is an essential decision, and Caesarean section (C-section) has become a common surgical procedure for the delivery of babies through an incision in the abdominal wall, especially when complications arise. While C-sections are life-saving in high-risk pregnancies, their increasing prevalence raises concerns. Caesarean section (CS), a surgical procedure involving the delivery of a baby through incisions in the mother's abdomen and uterus, is a life-saving intervention when vaginal delivery poses risks to the mother or fetus.[1] However, the global rate of CS has been steadily rising, exceeding the World Health Organization's (WHO) recommended rate of 10-15% in many countries. This increase raises concerns about the potential overuse of CS and its implications for maternal and neonatal health. In Kerala similar trends have been observed, with a notable surge in CS rates within Thrissur District. Understanding the factors contributing to this trend is crucial for optimizing obstetric practices and ensuring appropriate utilization of CS. In India, the rate of C-sections has risen substantially, from 17.2% in 2016 to 21.5% in 2021. Globally, the C- section rate has reached 21.1%, but these figures vary significantly by region, ranging from as low as 5% in sub-Saharan Africa to 42.8% in Latin America. In India, disparities in C-section rates are evident, with some districts reporting rates as low as 6.5%, while urban areas can reach as high as 47.2%. In 2024, Kerala's C-section rate reached 44% overall, with five districts exceeding 50%, including Alappuzha (56%), Kollam54%, Pathanamthitta54%, Idukki53%, and Ernakulam52%, Thrissur 46%. This geographic variation indicates the influence of maternal factors, fetal factors, and healthcare factors, making it essential to explore the underlying reasons for this rise.

Despite the growing body of research on C-sections, there remains a gap in understanding the local factors contributing to the rising C-section rates, particularly in Kerala. While the state has a well-established healthcare system and high literacy rates, its growing C-section prevalence warrants further investigation. This study aims to investigate the prevalence and determinants of CS in selected hospitals, focusing on the factors contributing to the observed increase in CS rates. By identifying the key determinants, we can provide evidence-based recommendations for improving obstetric care and promoting appropriate CS utilization."

This study aims to examine the prevalence and determinants of C-sections among antenatal mothers in selected hospitals in Thrissur, Kerala. There is a need for localized research to understand how maternal, fetal and healthcare-related factors influence C-section decisions in this context. By addressing these gaps, this study will provide insights that can inform policies and guidelines, ensuring that C-sections are performed when medically necessary, and help reduce unnecessary interventions, ultimately improving maternal and infant health outcomes.[2]

### *A. Background of the Study*

The rising rate of caesarean deliveries is a global phenomenon, with significant variations across regions and healthcare settings. While CS has undoubtedly contributed to reducing maternal and perinatal mortality, its overuse can lead to increased risks of complications, including haemorrhage, infection, and adverse effects on future pregnancies [3.]

Several factors may contribute to this increase. Changes in obstetric practices, such as the liberal use of electronic fetal monitoring and the redefinition of dystocia, have been implicated [4]Additionally, the growing prevalence of maternal comorbidities, such as obesity and diabetes, may necessitate CS in some cases.[1] Maternal preferences and concerns about vaginal birth, also play a role.[1] The availability of advanced obstetric technologies, such as improved anaesthesia and surgical techniques, may further contribute to the perception of CS as a safe and convenient option.

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Furthermore, the structure and organization of healthcare services, including the availability of resources and the training of healthcare providers, can influence CS rates. The presence of financial incentives for CS or the lack of standardized protocols for managing labour and delivery may also contribute to the observed increase. A detailed analysis of these factors is essential to understand the underlying causes of high CS rates and to develop integrated intervention strategies to improve maternal and fetal outcome.[5]

### *B. Need and Significance of the Study*

The alarming rise in caesarean section rates has become a pressing concern globally, with significant implications for maternal and fetal health. The increasing CS rates not only impose a substantial burden on the health care system but also pose risk to maternal and fetal health. Therefore, it is essential to investigate the factors contributing to the escalating CS rates.[6] Despite World health organizations (WHO) recommendation that CS rates should not exceed 10-15%, many countries, including India have reported rates far exceeding this threshold. This phenomenon necessitates a comprehensive investigation into the underlying cause of high CS rates, as well as the effective intervention strategies to improve maternal and fetal outcome.[7] Present study aims to address this knowledge gap by exploring determining factors contributing to high CS rates, and provide valuable insights for policymakers, health care providers and stakeholders to implement evidence- based policies and practices to optimize childbirth out come

## II. REVIEW OF LITERATURE

A literature review serves as a guide to help the researcher develop a deeper understanding of the problem by compiling relevant studies that address the topic under investigation.[8] It provides a comprehensive account of what is already known about a specific phenomenon. [8] In this study, a literature review has been conducted to examine the prevalence and determinants of Caesarean Section (CS) deliveries. The benefits of the literature review lie in its ability to identify key factors influencing CS rates, understand regional variations, and provide insights into effective strategies for improving maternal health outcomes and optimizing delivery practices.

### *A. Prevalence and Determinants of Caesarean Section*

Several studies have examined the prevalence and determinants of Caesarean sections, identifying key factors such as maternal age, previous caesarean delivery, and institutional settings.[9]

Tsegahun Asfaw and Alemnesh Tesema (2016) conducted a study on the determinants, trends, and outcomes of caesarean delivery at Debre Berhan Referral Hospital in Ethiopia. Their hospital-based cross-sectional study, which included data from 2015 and 2016, found that the rate of caesarean sections increased from 17% in 2015 to 19.3% in 2016. Fetal distress was the most common indication for caesarean delivery. Furthermore, mothers who did not attend antenatal care (ANC) were 3.16 times more likely to experience fetal death compared to those who had regular ANC follow-ups.[10]

Neetu Singh et al. (2019) conducted a study in a tertiary care centre in India, including 150 women who underwent caesarean delivery. The study found that primigravida women had a significantly higher rate of emergency caesarean sections compared to elective ones. Moreover, women with a history of previous lower segment caesarean section (LSCS) were more likely to have an elective caesarean section.[11]

Dr. Saravanakumar T.V. et al. (2019) analysed the prevalence and determinants of caesarean sections in Trivandrum District, Kerala. Their study, which included data from 800 women in four maternity hospitals, revealed a caesarean section rate of 38.14% in 2010. They found that the prevalence was higher in private hospitals (40.87%) compared to public institutions (35.58%). The study also indicated that maternal age and education level were strongly associated with an increased likelihood of undergoing a caesarean section.[12]

Merin Baby and Sruthi M.V. (2019) conducted a case-control study in a tertiary hospital in Kerala, India. Their findings showed that women with a history of previous caesarean sections, prolonged labour, and fetal distress were more likely to undergo caesarean deliveries. Interestingly, the study also noted a statistically significant association between the timing of delivery and holidays/festivals, suggesting cultural influences on delivery decisions.[13]

Idris et al. (2019) performed a retrospective study at Dekemhare Hospital, Eritrea, in 2019. They found that the caesarean section rate was 10.1%, with the most common indications being malposition, obstructed labour, and fetal distress. Their study also highlighted that nulliparous woman, women referred from other facilities, and those with a history of stillbirth were more likely to undergo a caesarean section.[14]

Hersoug Nedberg et al. (2017) explored factors associated with caesarean sections among primiparous women in Georgia. Their study, which involved 17,065 women, found that increased maternal age, obesity, and high birth weight were strongly linked to higher odds of caesarean delivery.[15]

Susan Nantume et al. (2019) investigated factors associated with high caesarean section rates at Mengo Hospital in Uganda. Their study found a caesarean section rate of 64% based on primary data, and they identified previous caesarean delivery, maternal preference, and the influence of family and friends as major factors influencing the decision for caesarean delivery.[16]

Fantu Eyowas Abebe et al. (2013) conducted a retrospective analysis in Felegehiwot Referral Hospital, Ethiopia. Their study revealed that obstructed labour, fetal distress, and abnormal presentation were the primary indications for caesarean sections. They also found that rural residents and women with pregnancy risk factors were more likely to undergo caesarean sections.[17]

Nivedita Roy et al. (2021) analysed the changing scenario of caesarean section delivery in India using data from the National Family Health Survey (NFHS-4 and NFHS-5). Their study showed significant regional variations in caesarean section rates across states, with higher rates observed in southern India. The study found that maternal age, education, wealth status, and type of delivery facility were strong determinants of caesarean sections.[18]

Mohammad Masudur Rahman and Mohammad Rifat Haider (2014) explored determinants of caesarean sections in Bangladesh using data from the Bangladesh Demographic and Health Survey. Their findings highlighted that maternal age, obesity, urban residence, and higher levels of antenatal care were associated with higher caesarean section rates.[19]

Abrham Tesfaye Habteyes and Mihret Debebe Mekuria (2020) conducted a meta-analysis on the prevalence of caesarean sections in Eastern Africa. The pooled prevalence of caesarean section across the region was found to be 24%. They identified urban residency, higher wealth status, advanced maternal age, and previous caesarean deliveries as key factors associated with higher rates of caesarean sections.[20]

A study conducted at Ayub Teaching Hospital, Abbottabad, Pakistan found that the prevalence of caesarean sections was 51.58%, with a rising trend compared to previous studies. Factors such as maternal age, education, and health facility type were significantly associated with caesarean delivery.[4]

Variations in caesarean section rates in Tamil Nadu and Chhattisgarh (2021) showed that caesarean deliveries increased from 17.2% in 2016 to 21.5% in 2021. The study found that women aged 35-49, those who were overweight, and those delivering in private hospitals were more likely to undergo caesarean sections. It also highlighted that socio-economic status and institutional factors played significant roles in caesarean delivery rates.[21]

## III. AIMS AND OBJECTIVES

### A. *Statement of Problem*

A study to assess the prevalence and determinants of caesarean section among antenatal mothers in selected hospitals, Kerala.

### B. *Aims*

The aim of this study is to investigate the prevalence of caesarean birth and explore the determining factors that contribute to the increasing trend of caesarean sections among antenatal mothers in hospitals.

### C. *Objectives*

1) To determine the prevalence of caesarean section among antenatal mothers in selected hospitals Thrissur.
2) To identify the maternal, fetal and health care -related factors associated with caesarean section
3) To find out association between determinants for caesarean section with selected sociodemographic variable of antenatal mothers in selected hospitals Thrissur

### D. *Assumption*

It is assumed that prevalence of cesarean section is significant and various maternal, fetal factors contribute the occurrence of caesarean section.

### E. *Hypothesis*

H0 There is no association between prevalence rate and determinants of caesarean section among antenatal mothers

*F. Operational Definitions*

*1)* Antenatal Mother: A woman admitted to the hospital for delivery within the age group of 20 to 45 years.
*2)* Determinants: Factors such as maternal, fetal, and other factors that contribute to the occurrence of a Caesarean section.
*3)* Prevalence Rate: The proportion of Caesarean sections performed during the period from July 2024 to December 2024 in the selected hospitals.

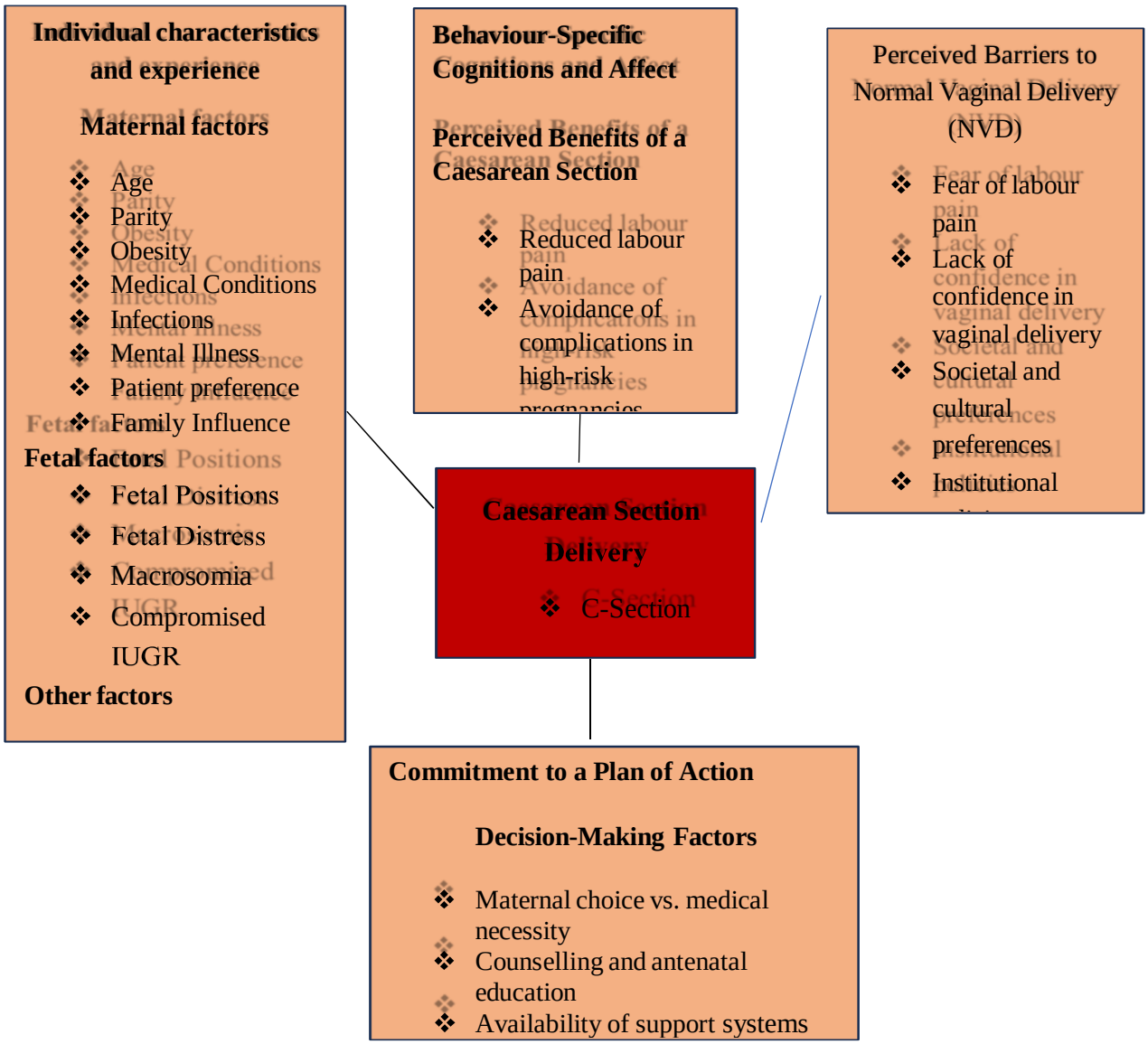
*G. Conceptual Frame Work*

Conceptual framework is a theoretical approach to study the problems that are scientifically based which emphasize the selection, arrangement and classification of its concepts. [22]

The conceptual framework in this study is based on Pendersen health promotion theory Model which views :

1. Individual Characteristics and Experiences: Maternal Factors: Age, Parity, Medical history. Fetal Factors: Fetal distress, Abnormal presentation, Multiple gestation, Macrosomia. 2.Behavior-Specific Cognitions and Affect: Perceived Benefits of a Caesarean Section: Reduced labour pain, Avoidance of complications in high-risk pregnancies 3. Perceived Barriers to Normal Vaginal Delivery (NVD): Fear of labour pain, Lack of confidence in vaginal delivery, Societal and cultural preferences, Institutional policies

Conceptual Frame Work




Modified Pendersen health Promotion theory

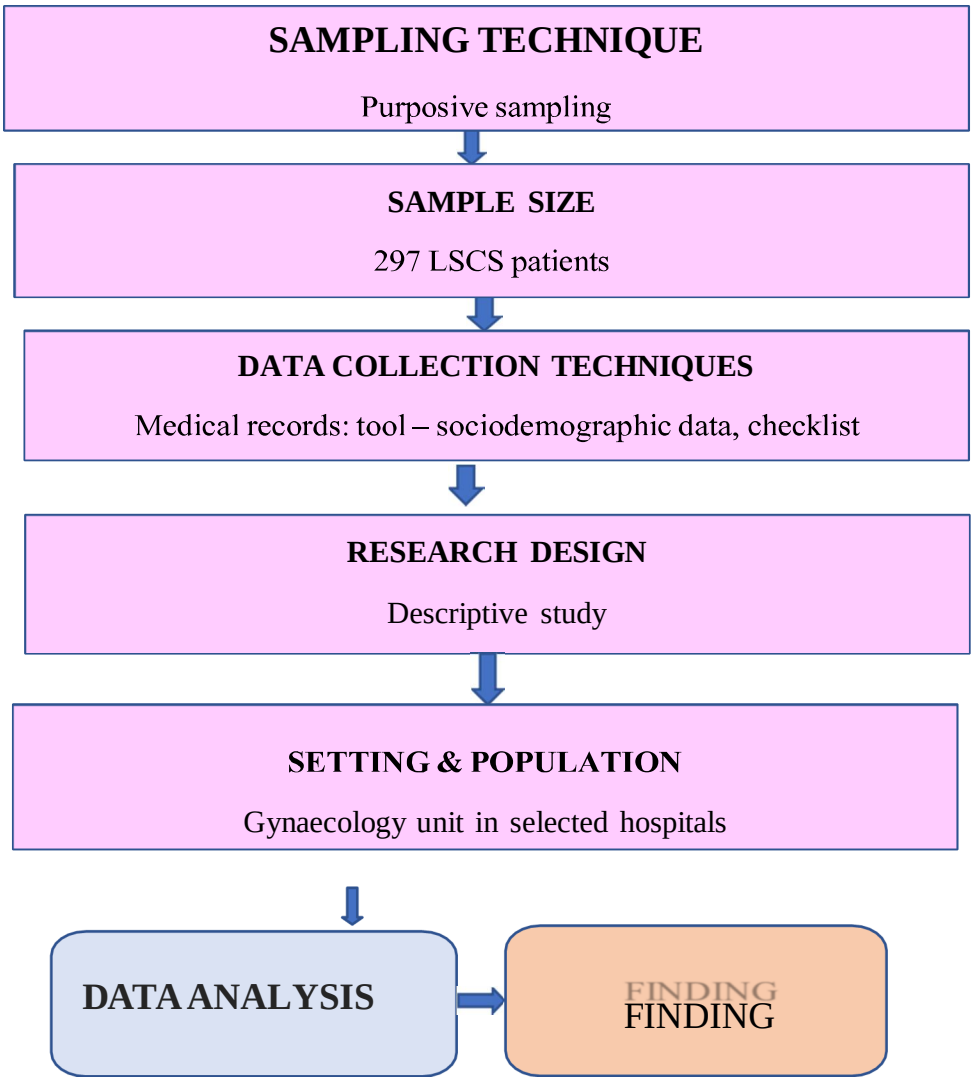
## IV. MATERIAL AND METHODS

Research methodology is the systematic framework a researcher uses to conduct a study. It's the "how" behind the research, detailing the specific methods and procedures employed to gather the data. It encompasses the strategies, techniques and procedures used to collect and analyse data.[23]

1) Research Methodology: A research methodology is the steps, procedures and strategies for gathering and analysing data in the study. This chapter presents the description of methodology adopted to collect and organize the data for investigations.[8]
2) Research Approach: Research approach provides the researcher with the information as to what data to collect and how to analyse it. In view of the nature of the problem selected for the study and the objectives to be accomplished, a quantitative research approach was selected for the present study.[24]
3) Research Design: Research design is the overall plan for addressing a research question, including specifications for enhancing the integrity of the study. Research design is also known as a blueprint that guides the researcher in carrying out the study. [25]
4) Study population: Population referred to as the target population, is the entire set of individuals who met the sampling criteria. [25]The study population consist of antenatal mothers who are admitted to selected hospitals in Thrissur District.
5) Sample Size: A sample is a small portion of the population selected to participate in a research study[26]

The sample size for this study will consist of antenatal mothers who have undergone a caesarean section between July 2024 and December 2024 (6 Months) in the selected hospitals of Thrissur.

Schematic Representation Of Research Study



*6)* Sampling technique: Sampling refers to the process of selecting the portion of population, which represents the entire population.[26] The present study adopted purposive sampling technique to achieve the objectives

*A. Sampling Criteria Inclusion Criteria*

- Antenatal mothers who have undergone a Caesarean Section (CS) between July 2024 and December 2024 at the selected hospitals in Thrissur.
- Antenatal Mothers who are aged between 20 and 45 years.

*B. Exclusion Criteria*

- Antenatal mother who has undergone vaginal delivery or other types of delivery (e.g., instrumental delivery).
- Antenatal Mothers with incomplete medical records or insufficient data on delivery outcomes.

*C. Development of the Tool*

The tool consists of two main sections:

*1) Section 1: Sociodemographic Data of Antenatal Mothers*

A customized data sheet will be created to collect essential sociodemographic information from antenatal mothers. This section will include questions related to the following variables:

- Age
- Religion
- Marital Status
- Parity
- Gestational Age at Delivery

*2) Section 2: Structured Questionnaire*

The purpose of this section is to assess the prevalence and determinants of caesarean sections among antenatal mothers. This structured questionnaire will serve as the instrument for gathering data on factors influencing caesarean deliveries. Data will also be collected from medical records.

The questionnaire is organized into sections based on the research objectives, focusing on:

- Maternal Health Conditions (e.g., diabetes, hypertension)
- Fetal Factors (e.g., fetal distress, fetal presentation)
- Other Influencing Factors (e.g., hospital protocols)

This tool is designed to effectively capture relevant data for a comprehensive analysis of the prevalence and determinants of caesarean sections among antenatal mothers.

*D. Content validity*

Validity of the tool was established in consultation with five experts from the field of Obstetrics and gynaecology, Medical surgical, Child health nursing department. Minor modifications were made as per the suggestions of experts and in consultation with the guide.

*E. Reliability*

Reliability of an instrument is the degree of the consistency or dependability with which an instrument measures the attribute.[8] Reliability of the tool was calculated

*1) Data Collection Process*

The study was conducted over a six-month period, from July 2024 to December 2024, at two selected hospitals. Prior to commencing the study, ethical clearance was obtained from the institutional ethics committee, and formal permission was granted by the hospital administration. Systematic data collection was performed using medical records, which included demographic details, obstetric history, indications for caesarean sections, maternal and fetal factors, and other relevant factors influencing the decision to perform a caesarean section.

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*2) Plan for Data Analysis*

Data analysis will be conducted in alignment with the study's objectives, employing both descriptive and inferential statistics. The data will be analysed for frequency and percentage distributions, as well as for associations between demographic variables and the determinants influencing the occurrence of caesarean sections. These associations will be assessed using the chi-square test.

## V. OBSERVATIONS AND RESULTS

The analysis of data involves the translation of the information collected during the course of the research project into interpretable, convenient and descriptive terms and to draw inferences from them using statistical methods.[8] The purpose of analysis is to summarize, compare and test the proposed relationships and prove findings.[22] The collected data was tabulated and analysed using descriptive and inferential statistical in order to meet the objectives of the study, and to test the assumption.

### *A. Organization of the findings*

Analysis of the study findings has been organized under the following headings.

- Section 1: Baseline characteristics of the subjects
- Section 2: Prevalence rate of caesarean section
- Section 3: Determinants of caesarean section among the antenatal mothers causing increased rate.
- Section 4: Association between the determinants and socio demographic variable

*1) Section 1: Baseline characteristics of the subjects*

The subjects considered in this study are 297 antenatal mothers who have undergone caesarean section in the selected hospitals in Thrissur district.

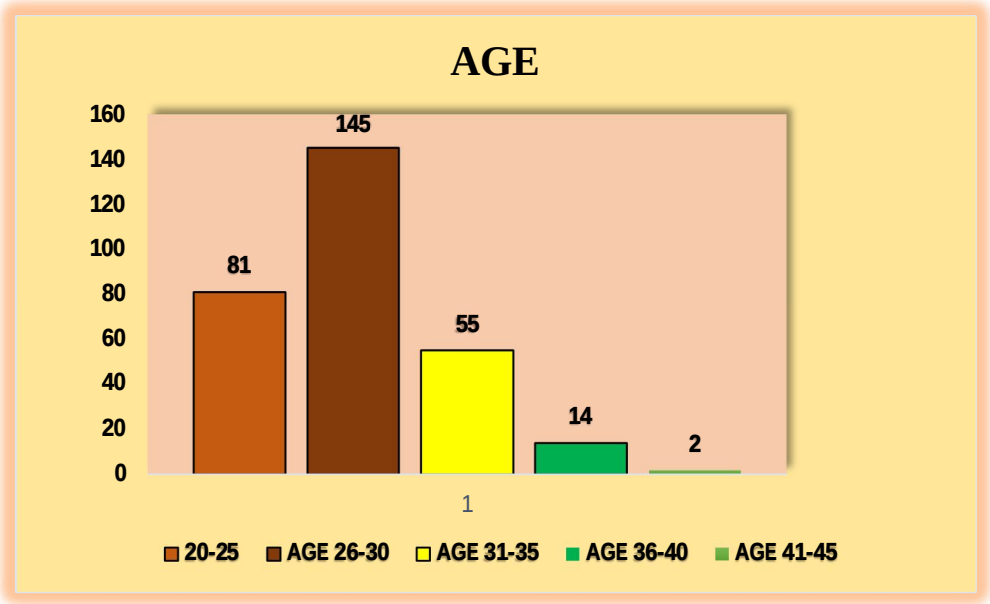



Figure 1 Bar diagram showing the distribution of subjects according to the age

Distribution of subjects according to the age shows that, the antenatal mothers belong to the age group of 26-30 are 145 (49%), age group 20-25 are 81(27%), age group 31-35 are 55(18.5), age group 36-40 14 (4.71%) and age group 41-45 are 2(0.67%)

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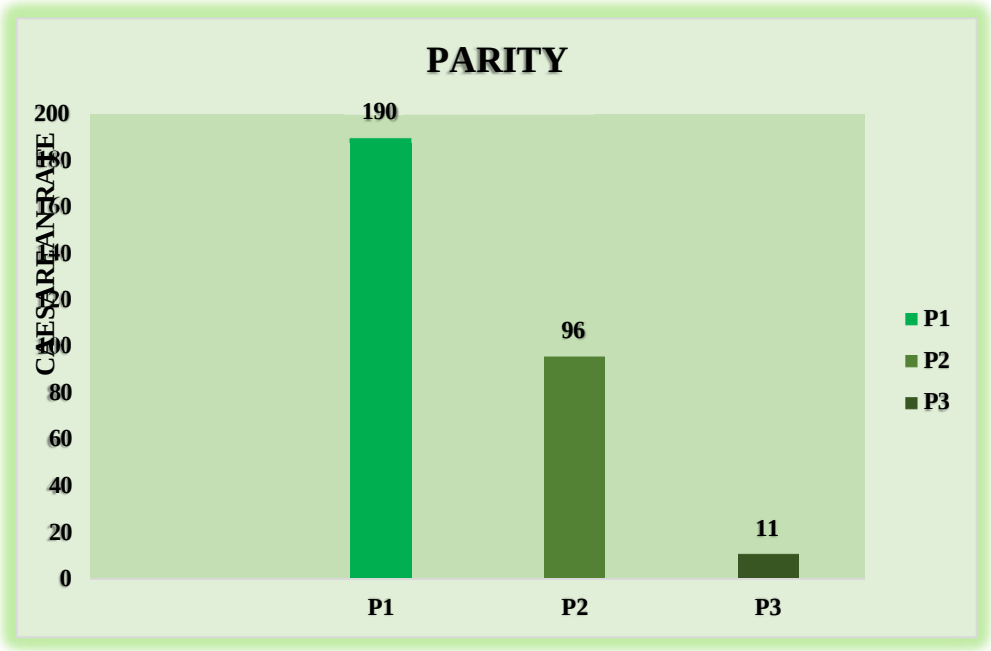



Figure 2 Bar diagram showing the distribution of subjects according to the Parity

Distribution of subjects according to the Parity shows that, the antenatal mothers belong to the P1 are 190 (63.9%), P2 are 96 (32.3%), P3 are 11 (3.7 %)

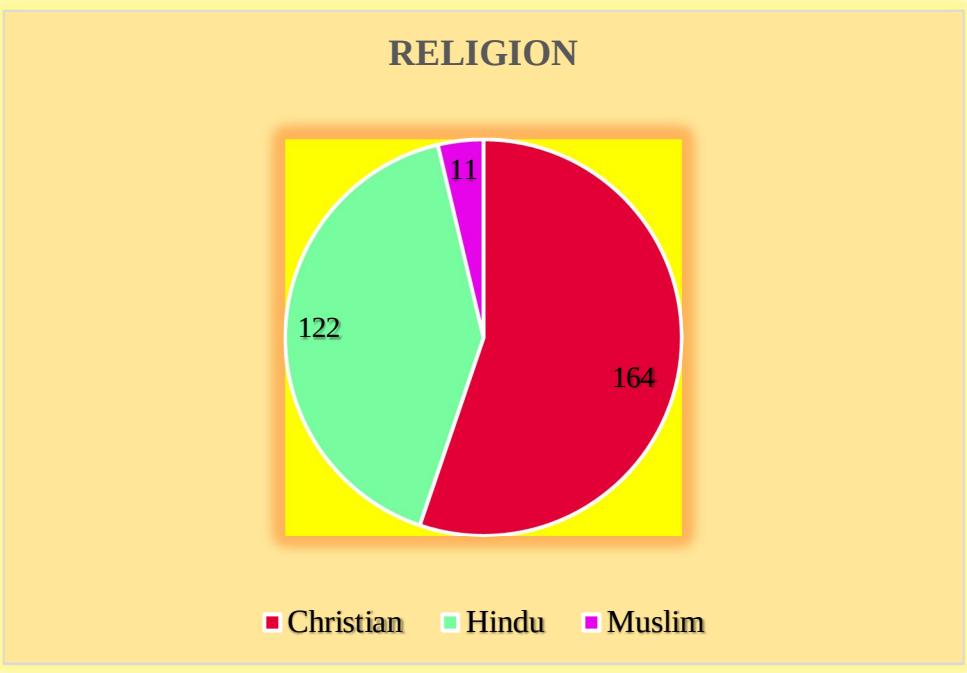



Figure 3 Pia diagram showing the distribution of subjects according to the Religion

Distribution of subjects according to the Religion shows that, 164 (55.2%) antenatal mothers belong to Hindu religion, 122 (41%) belongs to Christian and 11 (3.7 %) belongs to Muslim religion.

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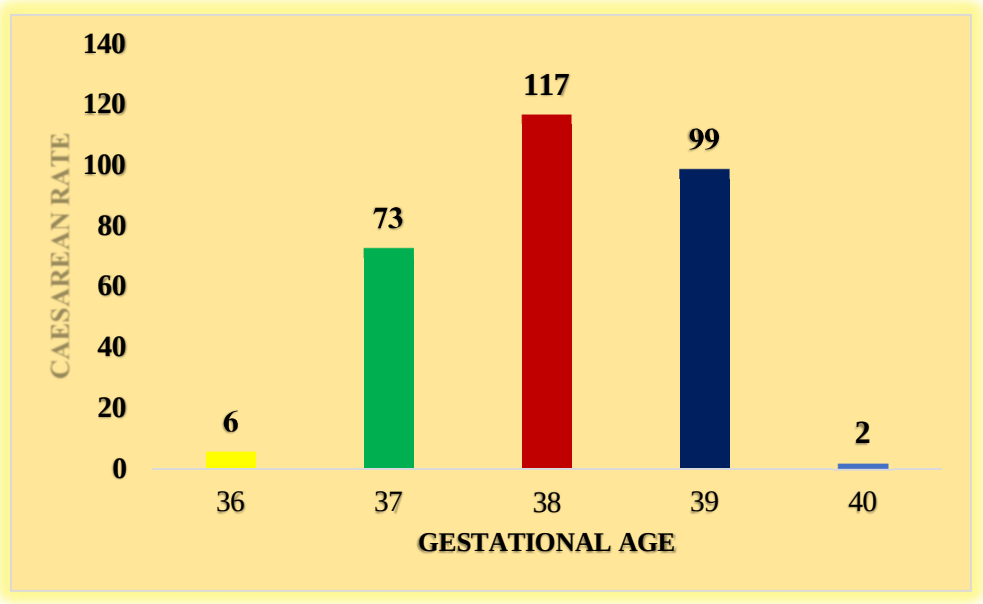



Figure 4 Distribution of subjects according to the Gestational age

Distribution of subjects according to the Gestational age shows that, the antenatal mothers belong to the gestational age 36 weeks are 6 (2 %), 37 weeks are 73 (24.57%), 38 weeks are
117 (39.9 %) ,39 weeks are 99(33.3%) and 40 weeks are 2(0.67%)

*2) Section 2: Prevalence of caesarean section*

Table 1: Prevalence of maternal factors among antenatal mothers causing caesarean section.

| Sl. No | Maternal Factors | Frequency | % |
|---|---|---|---|
| 1 | CPD | 114 | 38.3 |
| 2 | Previous CS | 42 | 14.1 |
| 3 | Bleeding in late Pregnancy | 10 | 3.36 |
| 4 | PIH | 5 | 1.68 |
| 5 | GDM | 7 | 2.35 |
| 6 | Pre. Term Labour | 4 | 1.34 |
| 7 | Failed induction | 28 | 9.42 |
| 8 | Abnormalities of Amniotic fluid | 12 | 4.04 |
| 9 | Multiple pregnancy | 2 | 0.67 |
| 10 | Dystocia | 2 | 0.67 |
| 11 | PROM | 11 | 3.70 |

Table 1 presents the data on antenatal mothers who underwent caesarean sections due to various maternal factors. The most common indication was cephalopelvic disproportion (CPD), with 114 cases, accounting for 38.3% of the total. Other indications included previous caesarean sections (42 cases or 14.1%), bleeding in late pregnancy (10 cases or 3.36%), and pregnancy- induced hypertension (PIH) (5 cases or 1.68%). Additionally, gestational diabetes mellitus (GDM) was noted in 7 cases (2.35%), while preterm labour accounted for 4 cases (1.34%). Failed induction was another significant factor, with 28 cases (9.42%). Other maternal factors included abnormalities of amniotic fluid (12 cases or 4.04%), multiple pregnancy (2 cases or 0.67%), dystocia (2 cases or 0.67%), and premature rupture of membranes (PROM) (11 cases or 3.70%). This table underscores the diverse maternal factors contributing to the decision to perform caesarean sections.

Table 2: Prevalence of fetal factors among antenatal mothers causing caesarean section.

| Sl. No | Fetal Factors | Frequency | % |
|---|---|---|---|
| 1 | Cord Prolapse | 2 | 0.67 |
| 2 | Cord around the neck | 7 | 2.35 |
| 3 | Fetal distress | 20 | 6.73 |
| 4 | IUGR | 7 | 2.35 |
| 5 | Malpresentations | 17 | 5.72 |

Table 2: Presents the prevalence of fetal factors contributing to caesarean sections among antenatal mothers. The data indicate that cord prolapse occurred in 2 cases, representing 0.67% of the total. The presence of the cord around the neck was noted in 7 cases, accounting for 2.35%. Fetal distress was a significant factor, observed in 20 cases (6.73%). Additionally, intrauterine growth retardation (IUGR) was identified in 7 cases (2.35%), while malpresentation was reported in 17 cases, constituting 5.72% of the total. This table highlights the various fetal factors that may necessitate a caesarean section.

Table 3: Prevalence of Other Contributing factors for caesarean section among antenatal mothers.

| Sl.No | Other Factors | Frequency | % |
|---|---|---|---|
| 1 | Medical emergency | 6 | 2.02 |

Table 3: Presents the prevalence of other factors contributing to caesarean sections among antenatal mothers. Specifically, a medical emergency was identified as a factor in 6 cases, accounting for 2.02% of the total. This table underscores the role of additional factors that may necessitate a caesarean section in this population.

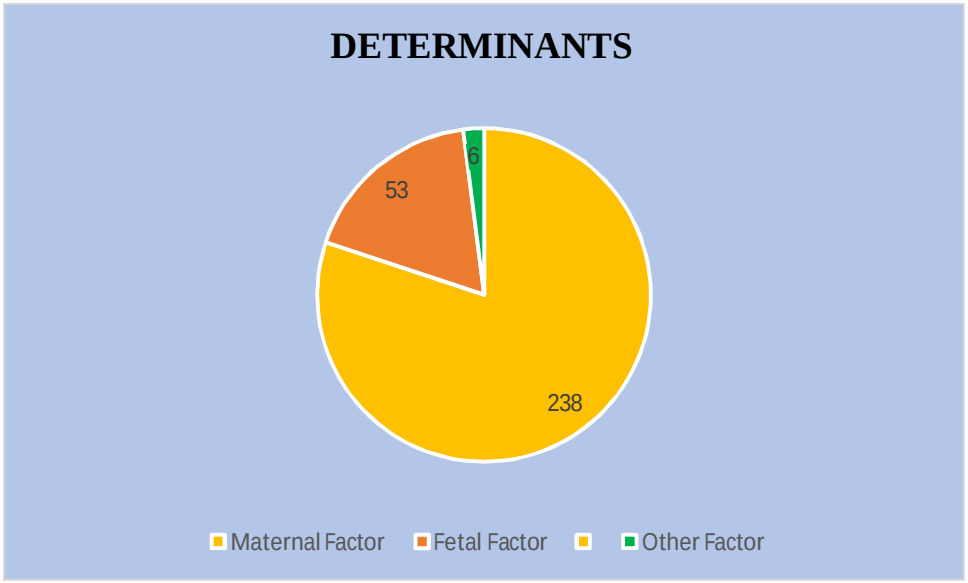



Figure 5: Presents a pie chart that visually represents the distribution of subjects according to different determinants. The majority of cases, comprising 238 subjects (80.13%), are attributed to maternal factors, indicating their significant influence on the outcomes. Fetal factors account for a smaller portion, with 53 subjects (17.8%), highlighting their role in the overall distribution. Lastly, other contributing factors are represented by just 6 cases (2.02%), suggesting that they have a minimal impact compared to maternal and fetal factors.

Table 4: Prevalence of caesarean section and Normal Vaginal Delivery among antenatal mothers from July 2024-December 2024.

| Sl. No | Month | Caesarean section | | Normal Vaginal Delivery | |
|---|---|---|---|---|---|
| | | Frequency | % | Frequency | % |
| 1 | July | 35 | 54.6 | 29 | 45.3 |
| 2 | August | 46 | 47.4 | 51 | 52.5 |
| 3 | September | 50 | 55.5 | 40 | 44.4 |
| 4 | October | 63 | 50.4 | 62 | 49.6 |
| 5 | November | 52 | 54.1 | 44 | 45.8 |
| 6 | December | 53 | 50.9 | 51 | 49.03 |

Table 4: Presents the prevalence rates of caesarean sections (CS) and normal vaginal deliveries (NVD) among antenatal mothers from July to December 2024. In July, there were 35 caesarean sections (54.6%) and 29 normal deliveries (45.3%). The following months saw fluctuations: in August, CS accounted for 46 cases (47.4%) while NVD reached 51 cases (52.5%). By September, CS increased to 50 (55.5%) and NVD dropped to 40 (44.4%).

October recorded the highest number of caesarean sections at 63 (50.4%) compared to 62 normal deliveries (49.6%). In November, 52 women underwent CS (54.1%) and 44 had normal deliveries (45.8%), while December concluded the period with 53 caesarean sections (50.9%) and 51 normal deliveries (49.03%). This table illustrates the varying rates of delivery methods throughout the six-month period.

Table 5: Association between the Age and determinants of caesarean section among antenatal mothers.
N=297

| Age | Maternal Factor | Fetal Factor | Institutional factor |
|---|---|---|---|
| 20-25 | 0.203 | 1.299 | 1.615 |
| 26-30 | 0.288 | 0.197 | 2.89 |
| 31-35 | 0.002 | 0.433 | 6.781 |
| 36-40 | 0.505 | 0.091 | 10.612 |
| 41-45 | 0.192 | 0.492 | 0.04 |

Chi−square = 25.64
The p-value is 0.0000. significant at $p < 0.05$.

The Chi-square statistic obtained is 25.64, with a corresponding p-value of 0.0000, indicating significance at $p < 0.05$. This result demonstrates a strong association between age and the determinants of caesarean sections among antenatal mothers. The calculated Chi-square value of 25.64 exceeds the table value of 15.5 at the 0.05 significance level. Therefore, these findings suggest a significant relationship between age and the determinants of caesarean section.

Table 5: Shows that Association between the parity and determinants of caesarean section among antenatal mothers
N=297

| Parity | Maternal Factor | Fetal Factor | Institutional Factor |
|---|---|---|---|
| P1 | 0.101 | 0.611 | 0.007 |
| P2 | 0.185 | 1.605 | 0.455 |
| P3 | 0.002 | 0.243 | 2.722 |

Chi−square = 5.931
The p-value is 0.0149. significant at $p < 0.05$

It shows the association between parity and determinants of caesarean section among antenatal mothers. The obtained chi square value 5.931 is lower than the table value 9.49 (0.0000) at
0.05 levels. Thus, there is significant association between the parity and determinants of caesarean section among antenatal mothers**.**

Table 5: Association between the gestational Age and determinants of caesarean section among antenatal mothers.
N=297

| Gestational Age | Maternal Factor | Fetal Factor | Institutional Factor |
|---|---|---|---|
| GA 36 Weeks | 0.078 | 0.525 | 0.121 |
| GA 37 Weeks | 0.363 | 1.799 | 1.475 |
| GA 38 Weeks | 0.055 | 0.302 | 0.171 |
| GA 39 Weeks | 0.062 | 0.628 | 0 |
| GA 40 Weeks | 0.345 | 0.175 | 22.79 |

Chi−square = 28.889
The p-value is 0.0000. significant at $p < 0.05$

It shows the association between gestational age and determinants of caesarean section among antenatal mothers. The obtained chi square value 28.889 is higher than the table value 9.49 (0.0000) at 0.05 levels. Thus, there is significant association between the parity and determinants of caesarean section among antenatal mothers.

## VI. DISCUSSION

The aim of the study is to assess the prevalence and determinants of caesarean section among antenatal mothers in selected hospitals, Thrissur, Kerala.
The findings of the study were discussed as per objectives and assumptions. In this session each major result is further related and explained in the background of similar studies.
This chapter gives a brief account of the present study. The prevalence rate and determinants of caesarean section among antenatal mothers. Data collected from the medical records from selected hospitals in Thrissur District, who had undergone caesarean section during the period from July 2024 to December 2024.Samples were selected by purposive sampling. The data were analyzed and statistically tested. The study discussed in terms of results, and findings of the study are discussed with the reference to the related literature and have been organized under the headings.

- Section 1: Baseline characteristics of the subjects
- Section 2: Identify the prevalence rate of caesarean section
- Section 3: Identify the determinants of caesarean section among the antenatal mothers causing increased rate.
- Section 4: Association between the determinants and socio demographic variable

### *1) Section 1: Baseline characteristics of the subjects*

Distribution of subjects according to the age shows that, the antenatal mothers belong to the age group of 26-30 are 145 (49%), age group 20-25 are 81(27%), age group 31-35 are 55(18.5), age group 36-40 14(4.71% and age group 41-45 are 2(0.67%) Distribution of subjects according to the Parity shows that, the antenatal mothers belong to the P1 are 190 (63.9%), P2 are 96 (32.3%), P3 are 11 (3.7 %),
Distribution of subjects according to the Religion shows that, the antenatal mothers belong to the Hindu are 164 (55.2%), Christians are 122 (41%), Muslims are 11 (3.7 %), Distribution of subjects according to the Gestational age shows that, the antenatal mothers belong to the gestational age 36 weeks are 6 (2 %), 37 weeks are 73 (24.57%), 38 weeks are 117 (39.9 %) ,39 weeks are 99(33.3%) and 40 weeks are 2(0.67%)
A study conducted at a tertiary care centre in rural central India Study on sociodemographic factors of women undergoing caesarean section by Shuchi M. Jain Department of Obstetrics and Genecology, Mahatma Gandhi Institute of Medical Sciences, Sevagram, Maharashtra, India. The data analysed the socio-demographic characteristics of women undergoing C-sections.

The findings indicated that the majority of these women were aged between 25 -29 years, resided in rural areas, belonged to lower middle and upper lower socioeconomic classes, and had education levels up to high school. Additionally, a significant proportion were housewives. The study also noted that a substantial number of C-section cases were referrals from other health facilities, highlighting the role of healthcare accessibility and referral systems in delivery methods

The antenatal mothers undergone caesarean section caused by maternal factors are CPD in Number (114) 38.3 %, Previous CS (42) 14.1 %, Bleeding in late Pregnancy (10) 3.36 %, PIH (5) 1.68 %, GDM (7) 2.35 %, Pre. Term Labour (4) 1.34 %, Failed induction (28) 9.42%, Abnormalities of Amniotic fluid (12) 4.04%, Multiple pregnancy (2)0.67 %, Dystocia (2) 0.67 %, PROM **(**11) 3.70 %.

Prevalence rate of fetal factors among antenatal mothers causing caesarean section are Cord Prolapse in number (2) 0.67 %, Cord around the neck (7) 2.35 %, Fetal distress (20) 6.73 %, IUGR (7) 2.35 %, Malpresentations (17 )5.72 %

Prevalence rate of fetal factors among antenatal mothers causing caesarean section are Cord Prolapse in number (2) 0.67 %, Cord around the neck (7) 2.35 %, Fetal distress (20) 6.73 %, IUGR (7) 2.35 %, Malpresentations (17 )5.72 %.

Prevalence rate of Institutional factors among antenatal mothers causing caesarean section in number (6) 2.02%

Distribution of subjects according to the Maternal factors are 238 (80.13%), Fetal factors are 53 (17.8%), Institutional factors are 6 (2.02 %),

Prevalence rate of caesarean section and Normal Vaginal Delivery from July 2024-December 2024 in July CS (35) 54.6 %, NVD (29) 45.3 %, August CS (46) 47.4 %, NVD (51) 52.5 %, September CS (50) 55.5 %, NVD (40 )44.4 %, October CS (63) 50.4 %, NVD (62) 49.6 %, November CS (52) 54.1%, NVD (44) 45.8 %, December CS (53) 50.9 %, NVD (51) 49.03 %.

Association between age and determinants of caesarean section among antenatal mothers. The obtained chi square value 25.64 is higher than the table value 15.5 (0.0000) at 0.05 levels. Thus, there is significant association between the age and determinants of caesarean section among antenatal mothers

Association between parity and determinants of caesarean section among antenatal mothers. The obtained chi square value 5.931 is lower than the table value 9.49 (0.0000) at 0.05 levels. Thus, there is significant association between the parity and determinants of caesarean section among antenatal mothers

Association between gestational age and determinants of caesarean section among antenatal mothers. The obtained chi square value 28.889 is higher than the table value 9.49 (0.0000) at 0.05 levels. Thus, there is significant association between the parity and determinants of caesarean section among antenatal mothers

A study titled Prevalence of Caesarean Section and Its Indications in a Tertiary Care Hospital was conducted by Smrity Maskey, Manisha Bajracharya, and Sunita Bhandari. This descriptive cross-sectional study was done in a tertiary care hospital from July 2016 to June 2018, using convenience sampling. Total Deliveries: Out of the total deliveries, 862 (36.8%) were caesarean section deliveries, 1477 (63.1%) were vaginal deliveries, and 12 (0.51%) were instrumental deliveries. Prevalence: The prevalence of caesarean section was 36.8%, with a 95% confidence interval of 35-39%. Maternal Age: The mean age of delivering mothers was found to be 26.1 ± 0.25 years.

Indications for CS: The most common indication for CS was fetal distress (28%), followed by previous C-section (18%), non-progress of labour (12%), oligohydramnios (7%), malpresentation (7%), cephalopelvic disproportion (6.5 %), and hypertensive disorder in pregnancy (4%). There is association between the prevalence rate and determinants of caesarean section among antenatal mothers

## VII. CONCLUSION

The conclusion of the study based on the findings

*1)* Baseline characteristics of the subjects
*2)* The prevalence rate of caesarean section
*3)* The determinants of caesarean section among the antenatal mothers causing increased rate.
*4)* Association between the determinants and socio demographic variable

### A. *Nursing Implications*

The findings of the study have several implications for nursing education, practice, administration, and research which are of vital concern to the profession.

### B. *Nursing Education*

Educate nurses on identifying risk factors for CS, particularly CPD, previous CS, fetal distress, and malpresentations. Provide training on managing labour complications, recognizing signs of fetal distress, and assisting with CS procedures. Include education on patient counselling and support for women undergoing CS.

Inter professional education: Include other members of the health care team in education programs to promote team work.

Evidence-Based Practice: Incorporate research findings into nursing curricula to promote evidence-based practice and improve maternal outcomes.

### C. *Nursing Administration*

Resource Allocation**:** Ensure adequate staffing, equipment, and resources for managing high-risk pregnancies and CS deliveries. Develop protocols for timely CS interventions and emergency management.

Quality Improvement: Implement audits and reviews of CS rates to identify areas for improvement. Establish guidelines for appropriate CS indications and promote adherence to best practices.

Patient Education and Counselling: Develop standardized patient education materials on CS risks, benefits, and post-operative care. Provide counselling services to address patient concerns and anxieties related to CS. Collaboration**:** Promote interprofessional collaboration between nurses, obstetricians, and other healthcare providers to optimize patient care.

### D. *Nursing Research*

Further Investigation of Determinants: Conduct studies to explore the specific factors contributing to CPD, fetal distress, and other significant determinants. Investigate the influence of institutional factors on CS rates.

Intervention Studies: Evaluate the effectiveness of nursing interventions aimed at reducing CS rates and improving maternal outcomes. Explore the impact of patient education and counselling on CS decision-making.

Longitudinal Studies: Conduct longitudinal studies to examine the long-term effects of CS on maternal and neonatal health. Investigate the psychological impact of CS on mothers.

Qualitative Research: Conduct qualitative research to explore the experiences and perceptions of women undergoing CS.

This study revealed a significant prevalence of caesarean sections among antenatal mothers in selected hospitals, with maternal factors, particularly CPD and previous CS, being the predominant determinants. Significant associations were found between maternal age, parity, gestational age, and CS. These findings underscore the need for targeted interventions in nursing education, administration, and research. Nursing education should emphasize risk assessment and skill development, while nursing administration should focus on resource allocation and quality improvement. Further research is warranted to explore the underlying causes of significant determinants and evaluate the effectiveness of interventions aimed at reducing CS rates. Ultimately, these findings highlight the importance of optimizing maternal care to ensure safe and positive birth outcomes.

## VIII. SUMMARY

This study seeks to quantify the rate of caesarean deliveries and identify the factors influencing their occurrence among pregnant women attending specific hospitals. The research aims to determine the frequency of caesarean births and explore the associated risk factors within a defined hospital population of expectant mothers.

We investigated the prevalence of caesarean sections and the contributing factors among pregnant women receiving care at designated hospitals. The purpose of this study was to examine the rate and reasons for caesarean deliveries among antenatal mothers in a selected hospital setting.

## IX. OBJECTIVES

1) To determine the prevalence of caesarean section among antenatal mothers in selected hospitals Thrissur.
2) To identify the maternal, fetal and health care -related factors associated with caesarean section
3) To find out association between determinants for caesarean section with selected sociodemographic variable of antenatal mothers in selected hospitals Thrissur

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## X. ASSUMPTION

It is assumed that Antenatal mothers maternal, fetal and hospital related factors influence the increased incidence of caesarean section.

Conceptual framework is a theoretical approach to study the problems that are scientifically based which emphasize the selection, arrangement and classification of its concepts. The conceptual framework in this study is based on General system theory Model which views independent variable influences the dependent variable.

Maternal factors are the factors such as advancing maternal age, obesity, parity, medical conditions, mental illness, patient preference and family influence which directly influence and leading to elective intervention as caesarean section

Fetal factors are the factors such as fetal distress, fetal positions, Macrosomia and compromised IUGR. Institutional factors are the factors such as Doctors' preference, Institutional policies, emergency medical need. Intervening factors are the factors such as, obstetrical emergencies and previous caesarean section

Research approach: in view of nature of problem and objectives to be accomplish a quantitative non-experimental approach was considered in this study

The research design in this study wad descriptive cross-sectional study design

The study population consist of antenatal mothers who are admitted to selected hospitals in Thrissur, Kerala**.** These women must be in their antenatal period and should be receiving care at the hospitals included in the study.

The sample size for this study will consist of antenatal mothers who have undergone a caesarean section between July 2024 and December 2024(6 Months) in the selected hospitals of Thrissur. Sampling technique: purposive sampling

Content Validity of the tool was established in consultation with 5 experts from the field of obstetrics and gynecology, medical surgical, child health nursing department. Number of items of the tool was restricted as per expert's review. Minor modification in the statement were made as per the suggestions of experts and in consultation with the guide. tool was prepared in English and experts checked the validity of the tool.

Reliability of an instrument is the degree of the consistency or dependability with which an instrument measures the attribute. It is designated to measure.

The study was conducted in selected private hospitals in Thrissur district for a 6-month duration, from July 2024 to December 2024 after obtaining the ethical clearance from the institutional review board. Formal permission to conduct the study was obtained from the administration of selected hospitals. Develop a standardized data extraction form or protocol to systematically collect relevant information from medical records. This may include demographic details, obstetric history, indications for caesarean section, maternal and fetal outcomes, and other variables of interest and ensure consistency and reliability in extracting information from medical records.

Data analysis used on objectives of the study using the descriptive and inferential statistics. The analyzed data was presented in the figures

Organize the data into a structured format suitable for analysis.

Create variables or recode existing variables as necessary for statistical analysis.

Descriptive analysis to summarize the characteristics of the study population and key variables

## XI. LIMITATIONS

1) Single-Centre Study: The findings may not be representative of all antenatal mothers, especially those in different regions or healthcare settings.
2) Retrospective/Cross-Sectional Design: Retrospective, data accuracy could be impacted by the quality of medical records.
3) Potential for Selection Bias: The study might have over or under represented certain populations.
4) Limited Institutional Factor Data: The study might have missed important institutional factors that influence CS rates.

## XII. SUGGESTIONS

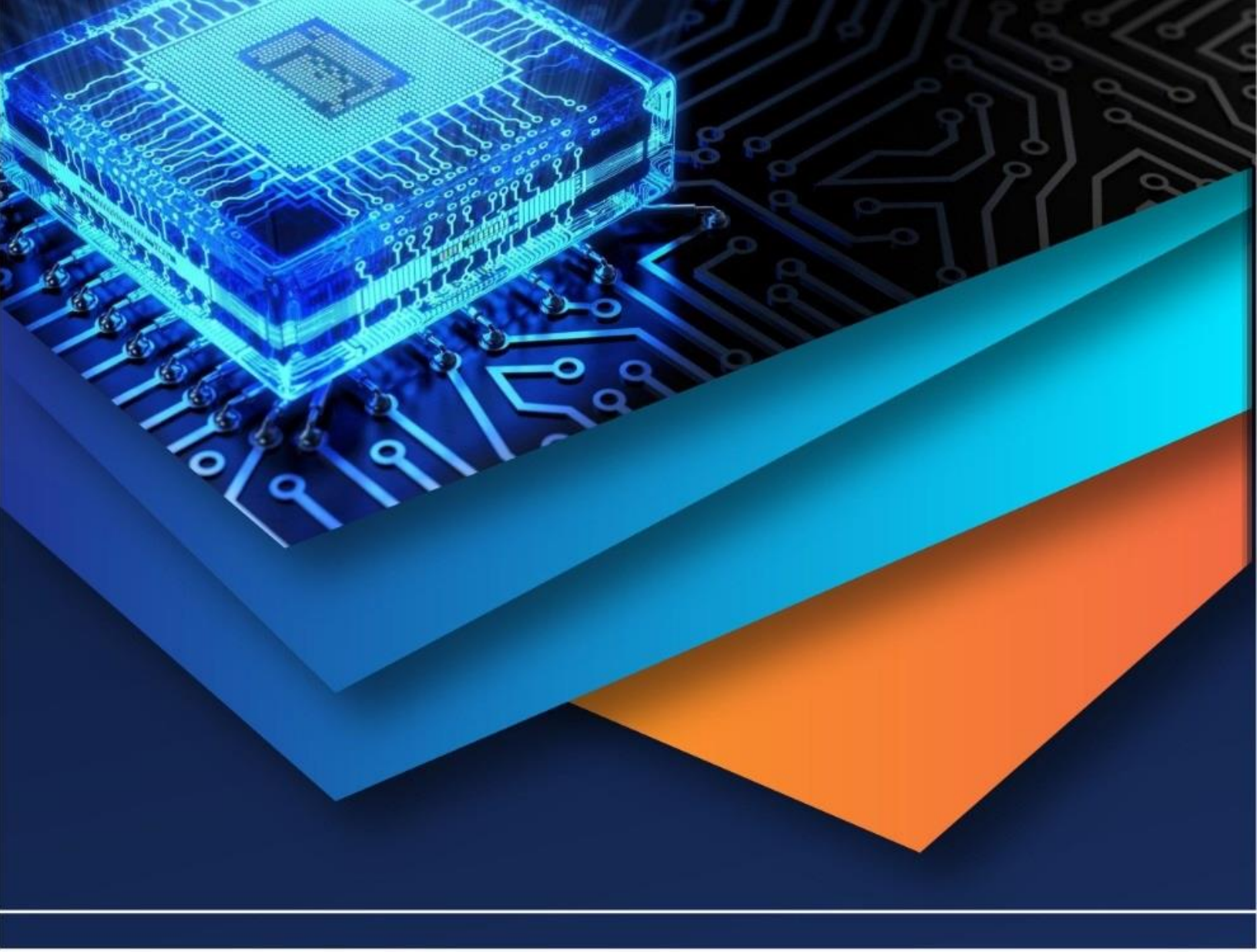
1) Multi-Centre Studies: Conduct studies involving a larger and more diverse sample of hospitals to enhance the generalizability of the findings.
2) Prospective Cohort Studies: Use a prospective cohort design to establish temporal relationships between determinants and CS and to better understand the causal pathways.

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*3)* Qualitative Studies: Conduct qualitative studies to explore the experiences and perspectives of women undergoing CS, as well as the decision-making processes of healthcare providers.

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