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**“Assessment of risk factors associated with iatrogenic and spontaneous preterm birth and their outcomes in a tertiary care hospital: A prospective observational study.”**

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**BY**

**REG. NO. BJ0122003**

# **Dissertation**

*Submitted to*

*KAFER, Belagavi, Karnataka,*

*In partial fulfilment of the requirements for the degree of*

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**DEPARTMENT OF OBSTETRICS AND GYNECOLOGY**

**JAWAHARLAL NEHRU MEDICAL COLLEGE, BELAGAVI,**

**KARNATAKA**

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This is to certify that the dissertation entitled “ASSESSMENT OF RISK FACTORS ASSOCIATED WITH IATROGENIC AND SPONTANEOUS PRETERM BIRTH AND THEIR OUTCOMES IN A TERTIARY CARE HOSPITAL: A PROSPECTIVE OBSERVATIONAL STUDY.” is a bonafide research work done by REG NO: BJ0122003.

  
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### LIST OF ABBREVIATIONS

PTB	Preterm Birth
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PROM	Premature Rupture of Membranes
PPROM	Preterm Premature Rupture of Membranes
PIH	Pregnancy-Induced Hypertension
GDM	Gestational Diabetes Mellitus
APH	Antepartum Hemorrhage
FGR	Foetal Growth Restriction
LBW	Low Birth Weight
VLBW	Very Low Birth Weight
SGA	Small for Gestational Age
NICU	Neonatal Intensive Care Unit
NND	Neonatal Death
IVH	Intraventricular Hemorrhage
RDS	Respiratory Distress Syndrome
TTB	Transient Tachypnoea of the Newborn
CPAP	Continuous Positive Airway Pressure
LSCS	Lower Segment Cesarean Section
VD	Vaginal Delivery
APGAR	Appearance, Pulse, Grimace, Activity, Respiration

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### **ABSTRACT**

**“Assessment of risk factors associated with iatrogenic and spontaneous preterm birth and their outcomes in a tertiary care hospital: A prospective observational study.”**

**Introduction:**

Preterm birth is a delivery before 37 weeks of gestation, remains a major global health challenge and a leading cause of neonatal morbidity and mortality. The etiology of preterm birth is multifactorial and is influenced by maternal, fetal, and obstetric factors. Understanding the differences between iatrogenic and spontaneous preterm births and their associated risk factors is crucial for improving perinatal care. This study aims to evaluate these risk factors and their impact on neonatal outcomes in a tertiary care setting.

### **Methodology:**

This prospective observational study was conducted at KLE Dr. Prabhakar Kore Hospital and Medical Research Centre over one year, analyzing 275 preterm births. The cases were classified as either iatrogenic (medically indicated preterm birth) or spontaneous (preterm labor without medical intervention). Maternal demographic factors, obstetric history, medical conditions, and fetal complications were assessed. Neonatal outcomes, including birth weight, NICU admissions, APGAR scores, mortality, and common neonatal morbidities, were analyzed for both groups.

### **Results:**

Iatrogenic preterm births accounted for 68.4% of cases and were primarily linked to maternal hypertensive disorders (40%), fetal growth restriction (FGR) (25%), gestational diabetes (12%), and placental dysfunction (10%). The majority of iatrogenic preterm births occurred in women aged  $\geq 30$  years, with higher rates among primigravida and overweight/obese mothers. LSCS was the predominant mode of delivery (82%), and these neonates had significantly lower birth weights, with 60% classified as low birth weight ( $< 2.5$  kg) and 18% as very low birth weight ( $< 1.5$  kg). NICU admissions were significantly higher in the iatrogenic group (72.2%), and the most common neonatal

complications included respiratory distress syndrome (45%), hyperbilirubinemia (35%), and neonatal sepsis (12%). The overall neonatal mortality rate in this group was 8.5%.

Spontaneous preterm births (31.6%) were more prevalent among younger mothers (<25 years) and those from lower socioeconomic backgrounds. The leading risk factors included infections (25%), anaemia (20%), and cervical incompetence (15%). The majority of these deliveries occurred vaginally (68%), and while neonatal outcomes were slightly better in terms of NICU admission rates (58%), these neonates had a higher prevalence of neonatal infections (20%). APGAR scores were generally favorable in both groups, with 95% of neonates scoring 7–10 at 5 minutes.

**Conclusion:**

This study highlights the distinct risk profiles and neonatal outcomes associated with iatrogenic and spontaneous preterm births. Iatrogenic preterm births, often linked to maternal medical conditions, resulted in higher NICU admissions and neonatal complications, whereas spontaneous preterm births were more frequently associated with infections and anaemia. Early identification of high-risk pregnancies, improved antenatal care, and timely interventions are essential to reduce preterm birth rates and improve neonatal survival.

**Keywords:** Preterm birth, iatrogenic delivery, spontaneous labour, neonatal morbidity, NICU admissions.



## INTRODUCTION

Preterm is defined as babies born alive before 37 weeks of pregnancy are completed. According to WHO, there are sub-categories of preterm birth, based on gestational age which is extremely preterm (less than 28 weeks), very preterm (28 to 32 weeks) and moderate to late preterm (32 to 37 weeks). The most important and major cause of infant mortality is Preterm birth. India is one among major ten countries with Preterm birth. The major concerns in availability and accessibility of health care facility is major concerns in developing countries whereas in developed countries other factors like usage of infertility drugs, ART procedures and late marriage are major cause of Preterm birth. Drug abuse, smoking, late conception and Psychological stress contributes in developing countries and In developed countries it contributes about 1 in 10 Pregnancies.(1) In India, out of **27 million babies born every year (2010 data)**, **3.5 million babies** born are premature. Globally, prematurity is the leading cause of death in children under the age of 5 years. In lowincome settings, half of the babies born at or below 32 weeks (2 months early) die due to a lack of feasible, cost-effective care such as warmth, breastfeeding support and basic care for infections and breathing difficulties. In high-income countries, almost all these babies survive.

Preterm birth still remains as single most important clinical challenge to both paediatricians and obstetricians with maternal psychological strain and neonatal prognostic uncertainties in extra uterine-existence. This is considered to be major public health problem with lifelong mortality and morbidity of visual disturbance, hearing, and learning disabilities and cognitive problem.(2) Although no clear

explanation has been identified in 75% of PTB cases, a number of etiological risk factors have been hypothesized. 'Poor socioeconomic level, maternal malnutrition, maternal ages <20 and >35, intense manual labor, and cigarette smoking are examples of non-obstetric risk factors. 1–4 Cervical incompetence, short cervical length, multiple gestations, short birth intervals, abortion, pre-labor premature rupture of membrane (PPROM), and prior PTB are obstetric risk factors linked to PTB. Recently it has been identified that Iron deficiency Anemia is an important risk factor for Preterm birth. Increased high level of HcG , maternal age less than 20 years , two or more previous miscarriages and reduced salivary estadiol levels.(3–6)

The two major clinical categories of preterm birth are iatrogenic and spontaneous preterm birth. Iatrogenic preterm birth, including labor induction and cesarean delivery without labor, constitutes about 30–40% of all preterm births, and pre- eclampsia/eclampsia and severe intrauterine growth restriction are the common causes. Preterm labour is now thought to be a syndrome initiated by multiple mechanisms, including infection or inflammation, uteroplacental ischaemia or haemorrhage, uterine overdistension, stress, and other immunologically mediated processes. Spontaneous preterm birth can result from multiple causes such as infection or inflammation, cervical factors, haemorrhage, decidual senescence, stress, genetics, and sociodemographic factors. A study done in Indian settings concluded that In 75% of PTB cases no obvious causes were established, but several etiological risk factors were speculated. Non-obstetric risk factors included: poor socioeconomic status, maternal malnutrition, maternal age of <20 and >35 years, heavy manual work and cigarette smoking. Obstetric risk factors associated with PTB included: cervical

incompetence, short cervical length, multiple gestations, short birth intervals, abortion, pre-labour premature rupture of membrane (PPROM) and previous PTB.

Current knowledge indicates that iron deficiency anemia in pregnancy is a risk factor for preterm delivery and subsequent low birth weight. (7,8)

### **Research Problem**

The etiology of preterm birth is multifactorial, involving genetic, environmental, and socio-economic factors. However, in many cases, the precise cause remains unidentified. While several studies have examined the risk factors contributing to spontaneous and iatrogenic preterm birth, significant gaps remain in understanding their differential impact on perinatal outcomes. Furthermore, existing research often lacks region-specific data, particularly in developing countries where the burden of preterm birth is disproportionately high.

This study seeks to address these gaps by conducting a comprehensive assessment of maternal demographics, obstetric and foetal risk factors, clinical presentations and immediate neonatal outcomes in spontaneous and iatrogenic preterm births. Very less studies have been done in an Indian setting doing a comparison between these 2 types of preterm in a broad spectrum with neonatal outcomes. By identifying modifiable risk factors, this research aims to contribute to the development of improved prevention strategies and clinical interventions, ultimately reducing preterm birth rates and improving neonatal survival.



**OBJECTIVES**

**Primary objective:**

To assess various risk factors associated with iatrogenic and spontaneous preterm births.

**Secondary objective:**

To assess various immediate neonatal outcomes between iatrogenic and Spontaneous preterm birth.

## REVIEW OF LITERATURE

Preterm birth (PTB) has been defined as any birth before 37 weeks completed weeks of gestation and it is a critical global health issue. Preterm birth is classified into **spontaneous preterm birth** and **iatrogenic preterm birth**. Spontaneous preterm birth results from spontaneous labour where women experiences regular painful uterine contractions with cervical changes or premature rupture of membranes, whereas iatrogenic preterm birth occurs due to medical interventions, often for maternal or foetal indications when patient is not in labour resulting into provider initiated termination of pregnancy. The theoretical framework for understanding PTB incorporates biological, environmental, and socio-economic determinants.

### **Risk Factors Associated with Preterm Birth**

1. **Socio-economic Factors:** Research shows that extreme maternal age, both under 18 and over 35 years, significantly raises the risk of preterm birth. Nulliparity and short interpregnancy intervals are also recognized as potential risk factors. Other contributing factors include lower socio-economic status, unmarried or unsupported mothers, smoking, substance abuse, excessive physical activity, being underweight (BMI < 19 kg/m<sup>2</sup>), having a high prepregnancy BMI, and short stature.
2. **Genito-urinary Tract Infections or Colonization:** Infections such as *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, bacterial vaginosis, *Group B Streptococcus*, and *Gardnerella vaginalis* are associated with preterm birth. Bacteria release lipopolysaccharides and toxins,

which activate toll-like receptors in the decidua, triggering the release of interleukins (IL-1 $\beta$ , IL-6, IL-8) and tumor necrosis factor-alpha. This process leads to cervical ripening and uterine activity. Bacterial vaginosis, in particular, is linked to preterm birth and premature rupture of membranes, as it replaces normal hydrogen peroxide-producing *Lactobacillus* with anaerobes like *Gardnerella vaginalis*, *Mycoplasma hominis*, and *Mobiluncus* species.

3. **Congenital Abnormalities of the Uterus:** Conditions such as septate, unicornuate or bicornuate uterus, as well as an arcuate uterus, are associated with an increased risk of spontaneous preterm birth.
4. **Cervical Factors:** Cervical insufficiency or weakness, often following cervical conization, previous second-trimester miscarriage (spontaneous or induced), or cervical dilatation and curettage, is linked to an increased risk of spontaneous preterm labour.
5. **Maternal Systemic Diseases:** Chronic maternal conditions such as diabetes, hypertension, and autoimmune disorders (e.g., systemic lupus erythematosus, antiphospholipid syndrome) can necessitate early termination of pregnancy due to their impact on both maternal and foetal health.
6. **Past Obstetric History:** A history of previous preterm birth and recurrent miscarriages significantly increases the risk of preterm delivery in subsequent pregnancies.
7. **Obstetric Complications:** Conditions like pre-eclampsia, eclampsia, oligohydramnios, and multifetal pregnancies can lead to preterm labour, often resulting in iatrogenic delivery. Polyhydramnios and macrosomia cause uterine overdistension, further increasing the likelihood of spontaneous

preterm labour. Placenta previa or placenta accreta spectrum, a history of more than two cesarean sections or previous myomectomy may also warrant early termination.

8. **Foetal Factors:** Intrauterine growth restriction (IUGR), with or without Doppler abnormalities, is a common cause of iatrogenic preterm birth. Other factors such as foetal distress, intrauterine death, and congenital malformations can also lead to preterm delivery.

According to WHO, Preterm birth across 184 countries is about 5 to 18%. In 2016, Under-five mortality rate in low income countries was 76 deaths per 1000 live births, whereas only 7 per 1000 births in high income countries. preterm birth has many long- and short-term consequences, including cerebral palsy, mental retardation, visual and hearing impairments, behaviour and social-emotional concerns, learning difficulties, poor health and poor growth. In addition, neurosensory deficits (blindness, deafness), intraventricular haemorrhage, necrotizing enterocolitis and delay in physical and mental development are among its consequences. Furthermore, spontaneous preterm birth also leads to prolonged hospital stays after birth, frequent hospital admissions that lead to increased risks of chronic illnesses and social and financial burdens for the parents.

Preterm birth:

There are sub-categories of preterm birth, based on gestational age:

- Extremely preterm (24 week to less than 28 weeks)
- Very preterm (28 weeks to less than 32 weeks)

- Moderate to late preterm (32weeks to less than 37 weeks). (WHO)

### Iatrogenic Preterm Birth:

Iatrogenic Preterm birth is the planned delivery that occurs before 37 weeks of Gestation due to maternal or fetal causes when patient is not in labour. (WHO)

### Spontaneous Preterm Birth:

Spontaneous Preterm birth defined as unplanned delivery of baby before 37 weeks of Gestation with cervical changes like dilatation and effacement due to regular uterine contractions.

A retrospective cohort study on the topic of Preterm birth: associated risk factors and outcome in tertiary care by Shetty (2017) et al showed that incidence of preterm birth among the total deliveries was approximately 18.01%. Although the risk factors included many, the most common occurring were hypertensive disorders during pregnancy approximately 32.9%, followed by preterm rupture of membranes (18.1%), idiopathic 14.9%, and previous LSCS at 12.2%. Neonatal mortality was 6.9% (24 neonates), and stillborn were 0.5% (2 neonates). The study concluded that early detection and treatment will prevent neonatal and maternal mortality .(1)

A retrospective study conducted by Bonsaffoh ( 2019) et al on the topic of Determinants and outcome of preterm births at tertiary hospital in Ghana showed Adverse perinatal outcomes (low birth weight, perinatal deaths and poor Apgar scores) but not adverse maternal outcomes (cesarean and maternal deaths) were significantly higher in preterm compared to term births. Major factors associated with PTB include advanced maternal age (>35 years), poor antenatal care, hypertensive disorders and preterm premature rupture of membranes (PPROM) whiles obesity was

protective. There were 156 stillbirths(105.6 per1000 births) comprising 93 macerated (62.9 per 1000 births) and 63 fresh stillbirths(42.6 per 1000 births), and perinatal mortality rate of 119.8 per 1000 births .(2)

A prospective study conducted by Rao(2017) et al on the topic of Assessment of risk factors and predictors for spontaneous pre-term birth in a South Indian antenatal cohort Preterm deliveries were noted among 6.5% women with short stature, 13.3% with cervical length <2.5 cms and 5.2% among women with anaemia. Statistically significant association was noted between Oligohydramnios, IUGR and preterm births. Salivary estriol was lower in women who had preterm births as compared to term births. ‘Conclusions: The incidence of preterm births (5.9%) was low in the present cohort. Oligohydramnios and Intrauterine Growth Retardation (IUGR) were identified as significant risk factors for preterm births. “Conventional risk factors like short cervix, short stature and biochemical inflammatory markers were not identified as predictors of prematurity. Lower levels of salivary estriol identified among women at risk of preterm births demonstrates the utility of the test as a non-invasive investigation for early identification. (6)

A hospital based prospective cross sectional study on the topic of A descriptive study on the risk factors of preterm birth with its maternal and fetal outcomes at a tertiary care hospital. “The showed the results of the incidence of preterm labour in the study was 24%. Majority of cases presented with symptoms of UTI (47%), vaginal discharge (43%) and leaking per vagina (13%). Infections were the most common aetiology, 40% of cases had positive urine and vaginal swab culture. The most common neonatal complications were respiratory distress syndrome (7%) and neonatal sepsis (7%), others included seizures (2%), birth asphyxia (1%),

enterocolitis (1%), hypoxic ischemic encephalopathy (1%), intracranial hemorrhage (1%), meningitis (1%) and pulmonary hemorrhage (1%). 5% of neonatal deaths were noted. The study concluded that Urogenital infections was the main cause of preterm labor. (9)

A retrospective cohort study was conducted by Chen (2021) et al on the topic of Iatrogenic vs. Spontaneous Preterm Birth: A Retrospective Study of Neonatal Outcome Among Very Preterm Infants. The study was conducted in the infants who were less than 32 weeks. Out of 1415 mothers and 1689 neonates the preterm population consisted of 1,038 spontaneous preterm infants and 651 iatrogenic preterm infants. Infants born following spontaneous labor presented with a higher risk of intraventricular hemorrhage, whereas iatrogenic preterm birth was associated with higher risk of necrotizing enterocolitis and coagulopathy and higher risk of hypoglycaemia. There was no difference in mortality between the two groups. There was significant different between two groups. The study concluded that babies born with preterm birth have neonatal complications but not with neurodevelopmental disorders. (7)

Morisaki (2014) et al conducted a secondary cross-sectional analysis on the topic of Risk factors for spontaneous and provider-initiated preterm delivery in high and low Human Development Index countries: a secondary analysis of the World Health Organization Multicountry Survey on Maternal and Newborn Health. The result showed that among preterm deliveries, the socially disadvantaged were less likely, and the medically high risk were more likely, to have a provider-initiated delivery. The effects of anaemia [adjusted odds ratio (AOR), 2.03; 95% confidence interval (CI), 1.84; 2.25], chronic hypertension (AOR, 2.28; 95% CI, 1.94; 2.68) and

pre-eclampsia/eclampsia (AOR, 5.03; 95% CI, 4.72; 5.37) on preterm birth were similar among all four HDI subgroups. The study conclude that adequate obstetric care, including optimal timing for delivery in high-risk pregnancies, especially to the socially disadvantaged, could improve pregnancy outcomes. (10)

Burger (2021) et al; conducted consecutive cross sectional study on the Topic of Trends in singleton preterm birth in Victoria, 2007 to 2017. The result showed Comparable trends were seen in pregnancies complicated by fetal growth problems and hypertension and in pregnancies not complicated by small for gestational age (SGA), hypertension, (pre)eclampsia or PROM (all  $P < .001$ ). In pregnancies complicated by SGA, hypertension, (pre)eclampsia or PROM the perinatal mortality rate from 20 weeks of gestation fell (13 to 12 per 1000 births;  $P < .001$ ). In pregnancies not complicated by SGA, hypertension, (pre)eclampsia or PROM there was no significant change in the perinatal mortality from 28 weeks and no decrease in the preterm weekly prospective stillbirth risk. The study concluded that no significant reduction in perinatal mortality from 28 weeks or in preterm weekly prospective stillbirth risk was noted in the pregnancies not complicated by any of these conditions. (11)

McGowan (2022) et al; conducted multicentre cohort study on the topic of Analysis of Neonatal Neurobehavior and Developmental Outcomes Among Preterm Infants. The result showed Infants with high behavioral and high medical risk were 4 times more likely to have Bayley-III motor scores less than 85 compared with those with low behavioral and low medical risk (adjusted relative risk [aRR], 4.1; 95% CI, 2.9-5.1). Infants with high behavioral and high medical risk also had increased risk for cognitive scores less than 85 (aRR, 2.7; 95% CI, 1.8-3.4). Only infants with high

behavioral and low medical risk were in the clinical range for CBCL internalizing and total problem scores. The study concluded that high-risk neonatal neurobehavioral patterns at NICU discharge were associated with adverse cognitive, motor, and behavioral outcomes at 2 years. (12)

Escobar (2006) et al; conducted a review study on the topic of Short term outcomes of infants born in 35-36 weeks of gestation. The analysis suggested that Among 35 to 36 week newborns who progressed to respiratory failure and who survived to 6 hours of age and did not have major congenital anomalies, the mortality rate was 0.8%. After hospitalization, 5 to 36 week infants were much more likely to be hospitalized than term infants, and this increase was evident both within 14 days as well as within 15 to 182 days after discharge. In addition, late preterm infants experienced multiple therapies, few of which have been formally evaluated for safety or efficacy in this gestational age group. (13)

A prospective cohort study on the topic of Maternal characteristics associated with spontaneous preterm delivery in a high-risk population followed at a preterm birth clinic by Bertoli (2024) et al. The result showed that high Pre term birth in obese patients, history of diabetes, hypertension. Maternal age over 40 years, family history of PTD, black race, immigrant status, stress, tobacco use, vaginal and urinary tract infections, periodontal disease, BMI who have less than 18, fibromatosis, endometriosis, previous late miscarriage, ART, polyhydramnios, and vaginal bleeding were not significantly different between groups. Late access to prenatal care, dysthyroid, Hypertension, obesity are all showed high risk factors for PTD. (14)



## **MATERIALS AND METHODS**

- **Study Design:** A Prospective observational study.
- **Study population:** Pregnant women who are getting delivered, in less than 37 weeks of pregnancy at the Labour room of KAHER'S Dr. Prabhakar Kore, will be recruited as per inclusion and exclusion criteria in the study period.
- **Source of data:** Patient, antenatal wards register, case files, theatre records, neonatal care unit records.
- **Study Period:** 1 year (January 2024 to December 2024)

### **Inclusion Criteria:**

- Period of gestation from 24 weeks to  $\leq 36+6$  weeks confirmed by EDD obtained from CRL/ biometry from earliest antenatal scan
- Live singleton birth.
- Iatrogenic preterm birth- a record "of induction of labour or of Caesarean section not in labour.
- Spontaneous "preterm birth- The onset of labour is spontaneous diagnosed by palpable regular uterine contractions occurring at a frequency of 4 in 20 minutes or 8 in 60 minutes along with cervical changes like cervical dilatation  $>1\text{cm}$  and cervical effacement of 80% or more and rupture of membranes.

### **Exclusion Criteria:**

- Preterm prelabour rupture of membranes
- Stillbirths
- multiple pregnancies

- pregnancies complicated by lethal congenital malformations.

**Study protocol:**

All deliveries from 24 weeks to 36+6 weeks of gestation (dating confirmed by the earliest antenatal scan) were included in the study according to the inclusion and exclusion criteria after provision of a consent for the same. “Enrolled participants were assessed and a thorough general and obstetric examination was done by a skilled obstetrician. All analysed participants were grouped into two subtypes: Iatrogenic and Spontaneous births. “Their data was retrieved from the antenatal wards register, case files, theatre records, and neonatal care unit records during their hospital stay and then reviewed. Information included socio-demographic characteristics, a complete obstetric profile including antenatal maternal risk factors, the onset of labour, mode of delivery, any interventions made, and adverse perinatal outcome variables.

Data Collection Procedure: The data were collected using a structured pro forma containing the following parameters:

- Demographic details of the mother: Age, socio-economic status, BMI, habits.
- Past and present obstetric history: Obstetric score, mode of delivery, obstetric maternal and foetal complications, history of previous preterm delivery, abortions and dilatation and curettage, inter-conceptional period, duration of hospital stay
- Neonatal outcomes: Birth weight, APGAR score at one and five minutes of life, rate of NICU admission, reason for NICU admission, duration of NICU stay.

- Each participant was given a unique serial number and a data file that were used to record this information during the course of the hospital stay. Using a unique identification number, data was entered into the final electronic database.

### **Statistical Analysis**

- **Based on study by Singla et al the preterm prevalence of 16.1% was taken for sample size calculation**

The standard formula for “calculating the required sample size for a prevalence study is:

$$n = (Z^2 * P * (1 - P)) / d^2$$

Where:- Z = 1.96 (Z-score for 95% confidence level)

- P = 16.1% (preterm prevalence as per previous study, converted to 0.161)

- d = 5% (precision, converted to 0.05)

Using the formula:  $n = (1.96^2 * 0.161 * (1 - 0.161)) / (0.05^2)$

$$n = 208$$

### **Adjust for Non-Response Rate**

Since 15% non-response rate is expected, we adjust the sample

size:  $n_{\text{adjusted}} = n / (1 - \text{Non-response rate})$   $n_{\text{adjusted}} = 208 /$

$$(1 - 0.15) \quad n_{\text{adjusted}} = 245$$

### **Adjust for Design Effect**

To reach the final sample size of 275, we calculate the required design effect:

Design Effect = Final Sample Size /  $n_{\text{adjusted}}$

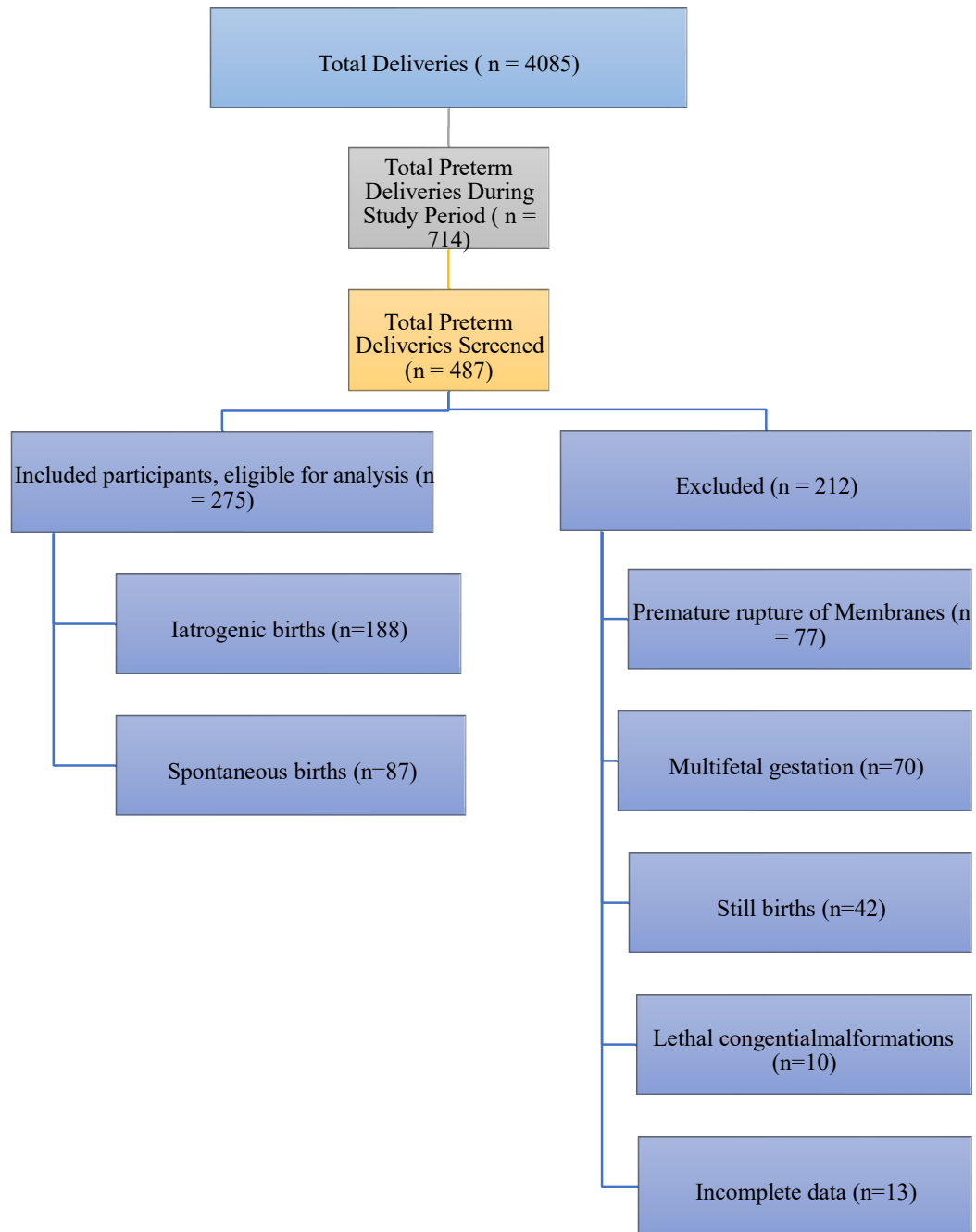
$$\text{Design Effect} = 275 / 245 = 1.13$$

**Final sample size of 275**

Data Processing and Analysis/Statistical Analysis: The entire dataset was validated by checking for and correcting any unusual values and typographic errors. “All the quantitative variables were checked for compliance with normal distribution within each study group by using visual inspection of histograms and normality Q-Q plots. Skewness and Kurtosis Z-values and Shapiro-Wilk test P-values were also used for this purpose. The mean and standard deviation of the normally distributed quantitative variables were compared between the two groups using an independent sample t-test. The median and interquartile range (IQR) of the non-normally distributed quantitative variables were compared between the two groups using the Mann-Whitney U test. The qualitative variables were compared between the two methods using the Chi-square test/Fisher's exact test. Efforts were made to control for confounding by appropriate regression methods for all the key outcome variables. A P-value < 0.05 was considered statistically significant. Data were analysed using SPSS version21.

## RESULTS

Figure 1: Flow diagram showing the selection of study participants



This flowchart illustrates the selection process of preterm deliveries from a total of 4085 deliveries. Out of 714 preterm births, 487 were screened. After applying exclusion criteria, 275 cases were included for analysis. These included 188 iatrogenic and 87 spontaneous births.

**Table 1: Distribution of Preterm Births by Sociodemographic variables and Type of Delivery**

Variable	categories	Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
Age	<20 years	10	10	20
		50.00%	50.00%	100.00%
	21 – 30 yrs	128	59	187
		68.40%	31.60%	100.00%
	31 – 40 yrs	47	17	64
		73.40%	26.60%	100.00%
>40 yrs	3	1	4	
	75.00%	25.00%	100.00%	
Registered/ Unregistered	Count	79	40	119
	%	66.40%	33.60%	100.00%
	Count	109	47	156
	%	69.90%	30.10%	100.00%
Socio economic status	Lower Class	38	22	60
	%	63.30%	36.70%	100.00%
	Lower Middle	69	34	103
	%	67.00%	33.00%	100.00%
	Middle Class	62	23	85
	%	72.90%	27.10%	100.00%
	Upper Class	2	0	2
	%	100.00%	0.00%	100.00%
	Upper Middle	17	8	25
%	68.00%	32.00%	100.00%	
Total		188	87	275

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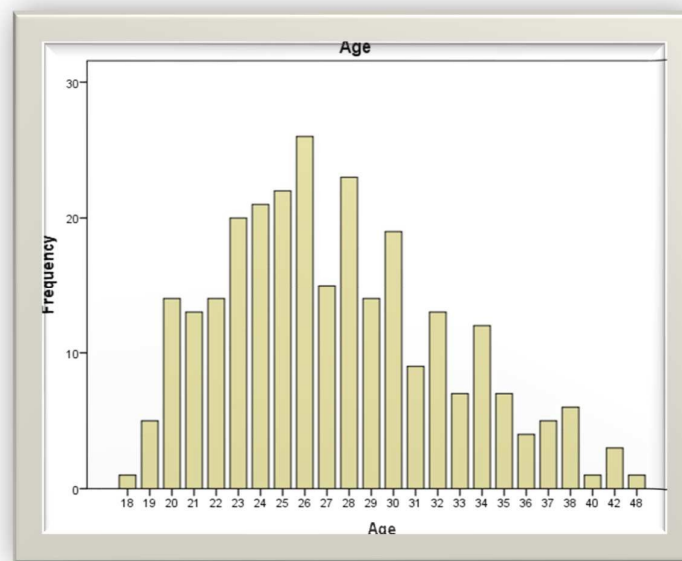
		68.40%	31.60%	100.00%
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The distribution of preterm births in relation to maternal age, antenatal care registration, and socioeconomic status reveals significant associations influencing the type of preterm delivery. A total of 275 preterm births were analyzed, of which 188 (68.4%) were iatrogenic and 87 (31.6%) were spontaneous. The highest number of preterm births was observed among women aged 21–30 years, accounting for 68% of the cases, followed by the 31–40 years age group. Notably, the proportion of iatrogenic preterm births increased with advancing maternal age, reaching 75% in women above 40 years, indicating a greater likelihood of medical complications requiring intervention. Conversely, spontaneous preterm births were relatively more prevalent among younger mothers, particularly those under 20 years, where 50% of cases were spontaneous. These findings highlight the influence of maternal age on the likelihood of medically indicated deliveries.

Antenatal care registration and socioeconomic status further influenced preterm birth patterns. Among registered mothers, iatrogenic preterm births accounted for 66.4%, while in unregistered cases, the proportion rose slightly to 69.9%, indicating a substantial burden of medical indications across both groups. This suggests that despite ANC access, certain maternal or fetal conditions necessitate early delivery. Socioeconomic stratification revealed that the lower middle and middle-class groups contributed the most to the overall preterm birth burden. Iatrogenic preterm births were predominant across all socioeconomic categories, with the highest proportion in the upper class (100%) and middle class (72.9%), while the lowest was observed in the lower class (63.3%). Interestingly, spontaneous preterm births were

more frequent among the lower socioeconomic groups, possibly reflecting delayed or inadequate access to healthcare services. This combined analysis underscores the multifaceted impact of maternal age, healthcare access, and economic background on preterm birth outcomes and the type of delivery, emphasizing the importance of equitable healthcare and early risk identification.

**Figure 2: Histogram of Maternal Age Distribution**



The maternal age distribution of preterm births showed a mean of 27.41 years (SD  $\pm$ 5.17), ranging from 18 to 48 years, indicating a broad reproductive age group affected. Most preterm births occurred in women aged 21–30 years, highlighting this as the most vulnerable age group.

The histogram of the data revealed a slightly right-skewed distribution, with the highest frequency around 26–27 years. While fewer cases occurred at the extremes of age, women under 20 showed a higher tendency for spontaneous preterm births, whereas iatrogenic preterm births were more common in older mothers. These trends underline the importance of age-specific risk assessment and antenatal care strategies.

**Table 2: Distribution of Preterm Births by BMI at Delivery**

BMI at Delivery		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
Underweight	Count	2	1	3
	%	66.70%	33.30%	100.00%
Normal	Count	16	6	22
	%	72.70%	27.30%	100.00%
Overweight	Count	121	47	168
	%	72.00%	28.00%	100.00%
Obese Class 1	Count	45	30	75
	%	60.00%	40.00%	100.00%
Obese Class 2	Count	3	3	6
	%	50.00%	50.00%	100.00%
Obese Class 3	Count	1	0	1
	%	100.00%	0.00%	100.00%

Table 2 analyses the relationship between maternal BMI at delivery and the type of preterm birth. Among the 275 participants, the majority were overweight (168, 61.1%) or obese (82, 29.8%), while a smaller proportion had a normal BMI (22, 8%) or were underweight (3, 1.1%). The highest proportion of iatrogenic preterm births was seen in women with Class 3 obesity (100%), followed by those with a normal

BMI (72.7%) and overweight status (72%). In contrast, spontaneous preterm births were more frequent in Class 2 obesity (50%) and Class 1 obesity (40%). These findings indicate that overweight and obese women are more likely to experience iatrogenic preterm births, likely due to associated pregnancy complications. Conversely, spontaneous preterm births appear relatively more common among those with higher obesity classes. The association suggests that maternal weight at delivery could influence the mode of preterm delivery.

**Table 3: Distribution of Preterm Births by Maternal Blood Group**

Mother's Blood Group		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
A-	Count	1	0	1
	%	100.00%	0.00%	100.00%
A+	Count	51	27	78
	%	65.40%	34.60%	100.00%
AB-	Count	1	0	1
	%	100.00%	0.00%	100.00%
AB+	Count	18	11	29
	%	62.10%	37.90%	100.00%
B-	Count	1	2	3
	%	33.30%	66.70%	100.00%
B+	Count	57	23	80
	%	71.20%	28.70%	100.00%

O-	Count	4	1	5
	%	80.00%	20.00%	100.00%
O+	Count	55	23	78
	%	70.50%	29.50%	100.00%

Table 3 presents the distribution of preterm births according to the mother's blood group and the type of delivery (iatrogenic vs. spontaneous). The most common blood groups among preterm birth cases were B+ (80 cases), O+ (78 cases), and A+ (78 cases). Iatrogenic preterm births were predominant across all blood groups, with the highest proportion observed in A- and AB- (100%). The lowest proportion of iatrogenic births was seen in B- (33.3%), where spontaneous preterm births were more frequent. Overall, iatrogenic preterm births accounted for 68.4% of all cases, suggesting that maternal blood group may have a potential influence on the mode of preterm delivery.

**Table 4: Distribution of Preterm Births by Gravida Status**

Gravida status		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
Multigravida	Count	114	57	171
	%	66.70%	33.30%	100.00%
Primigravida	Count	74	30	104
	%	71.20%	28.80%	100.00%

Table 4 shows the distribution of preterm births based on gravida status and the type of delivery (iatrogenic vs. spontaneous). Among the 275 cases, multigravida mothers accounted for 171 (62.2%) cases, while primigravida mothers contributed 104 (37.8%) cases. Iatrogenic preterm births were more frequent in both groups, with a slightly higher proportion among primigravida mothers (71.2%) compared to multigravida mothers (66.7%). Spontaneous preterm births were relatively more common in multigravida cases (33.3%). These findings indicate that while preterm births occur in both groups, primigravida mothers have a slightly higher likelihood of undergoing iatrogenic preterm delivery.

**Table 5: Distribution of Preterm Births by Number of Live Births**

Live Births		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
No Live Births	Count	108	46	154
	%	70.10%	29.90%	100.00%
1	Count	62	28	90
	%	68.90%	31.10%	100.00%
2	Count	15	10	25
	%	60.00%	40.00%	100.00%
3	Count	3	3	6
	%	50.00%	50.00%	100.00%

Table 5 presents the distribution of preterm births based on the number of previous live births and the mode of delivery. The majority of cases (154, 56%) had no prior live births, with 70.1% of these deliveries being iatrogenic. Among women with one live birth, 68.9% had iatrogenic deliveries. The proportion of spontaneous preterm births increased with the number of previous live births, reaching 50% among those with three live births. These results suggest that women with no or fewer live births are more likely to have an iatrogenic preterm birth, while those with multiple live births have a relatively higher proportion of spontaneous preterm births.

**Table 6: Distribution of Preterm Births by History of Abortions**

Abortions		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
No Abortion	Count	137	67	204
	%	67.20%	32.80%	100.00%
1	Count	33	14	47
	%	70.20%	29.80%	100.00%
2	Count	12	4	16
	%	75.00%	25.00%	100.00%
3	Count	5	0	5
	%	100.00%	0.00%	100.00%
5	Count	0	2	2
	%	0.00%	100.00%	100.00%
6	Count	1	0	1

	%	100.00%	0.00%	100.00%
	%	68.40%	31.60%	100.00%

Table 6 illustrates the association between the number of previous abortions and the type of preterm delivery. The majority of participants (204, 74.2%) had no prior abortions, with 67.2% of them undergoing iatrogenic preterm delivery. Among women with one or two previous abortions, the proportion of iatrogenic deliveries increased to 70.2% and 75%, respectively. Notably, all cases with three or six previous abortions had iatrogenic deliveries, whereas the only two cases with five abortions had spontaneous preterm births. These findings suggest that a history of multiple abortions may be linked to an increased likelihood of iatrogenic preterm birth.

**Table 7: Distribution of Preterm Births Based on Maternal Smoking Status and Type of Delivery**

Variable	categories	Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
Smoking	Nil	188	87	275
	%	68.40%	31.60%	100.00%

This table shows the distribution of preterm births according to maternal smoking status and mode of delivery. In this study, none of the mothers reported active smoking during pregnancy. All 275 preterm births occurred in non-smoking mothers. The absence of smoking in the study population eliminates it as a contributing factor

to preterm birth in this cohort. This finding may reflect increasing awareness and avoidance of smoking during pregnancy or underreporting due to social desirability bias.

**Table 7: Distribution of Preterm Births by History of Dilation and Curettage (D&C)**

D&C		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
No	Count	152	67	219
	%	69.40%	30.60%	100.00%
Yez	Count	36	20	56
	%	64.30%	35.70%	100.00%

Table 7 examines the relationship between a history of dilation and curettage (D&C) and the type of preterm delivery. Among the 275 participants, 56 (20.4%) had undergone D&C, while 219 (79.6%) had not. The proportion of iatrogenic preterm deliveries was slightly lower among those with a history of D&C (64.3%) compared to those without (69.4%). Conversely, spontaneous preterm births were more common in women with a prior D&C history (35.7%) than in those without (30.6%). These findings suggest that a history of D&C may have some association with spontaneous preterm birth, though the overall distribution remains similar across groups.

**Table 8: Distribution of Preterm Births by Interconception Interval**

Interconception Interval	Type of Delivery (Spontaneous/Iatrogenic)		Total
	Iatrogenic	Spontaneous	

		Iatrogenic	Spontaneous	
<18 months	Count	14	17	31
	%	45.20%	54.80%	100.00%
>18 Months	Count	79	32	111
	% w	71.20%	28.80%	100.00%
Primigravida	Count	95	38	133
	%	71.40%	28.60%	100.00%

Table 8 presents the association between the interconception interval and the type of preterm birth. Out of 275 participants, 31 (11.3%) had an interconception interval of less than 18 months, 111 (40.4%) had an interval greater than 18 months, and 133 (48.4%) were primigravida. The proportion of spontaneous preterm births was highest in women with an interconception interval of less than 18 months (54.8%), suggesting a possible risk factor. In contrast, iatrogenic preterm births were more frequent in those with longer interconception intervals (71.2%) and in primigravida women (71.4%). These findings indicate a potential relationship between birth spacing and the mode of preterm delivery.

**Table 9: Distribution of Preterm Births by Previous Pregnancy Outcome**

Previous Pregnancy (Term/Preterm)		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
Nullipara	Count	90	39	129
	%	69.80%	30.20%	100.00%

Preterm	Count	39	17	56
	%	69.60%	30.40%	100.00%
Term	Count	59	31	90
	%	65.60%	34.40%	100.00%

Table 9 examines the association between previous pregnancy outcomes (term or preterm) and the type of preterm birth in the current pregnancy. Among the 275 participants, 129 (46.9%) were nullipara, 56 (20.4%) had a history of preterm birth, and 90 (32.7%) had a previous term birth. The highest proportion of iatrogenic preterm births was observed in nullipara (69.8%) and those with a prior preterm birth (69.6%). Women with a history of term deliveries had a slightly lower rate of iatrogenic preterm birth (65.6%), with a relatively higher proportion of spontaneous preterm births (34.4%). These findings suggest that prior preterm birth does not significantly alter the likelihood of iatrogenic preterm delivery compared to nulliparous women.

**Table 10: Association Between Mode of Delivery and Type of Preterm Birth**

Mode of Delivery		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
LSCS	Count	175	47	222
	%	78.80%	21.20%	100.00%
VD	Count	13	40	53
	%	24.50%	75.50%	100.00%

This table 10 illustrates the relationship between the mode of delivery and the type of preterm birth. Among the 275 cases, Lower Segment Caesarean Section (LSCS) was the predominant mode (80.7%), while vaginal delivery (VD) accounted for 19.3% of cases. The majority of iatrogenic preterm births were delivered via LSCS (78.8%), whereas spontaneous preterm births were more frequently associated with vaginal delivery (75.5%). This trend suggests that medically indicated preterm births often necessitate surgical intervention, likely due to maternal or foetal complications. Conversely, spontaneous preterm births are more likely to progress to vaginal delivery. These findings reinforce the clinical decision-making process in managing preterm labor.

**Table 11: Association Between Gestational Age and Type of Preterm Birth**

<b>GESTATIONAL WEEKS (WHO CLASSIFICATION)</b>		<b>Type of Delivery (Spontaneous/Iatrogenic)</b>		<b>Total</b>
		<b>Iatrogenic</b>	<b>Spontaneous</b>	
<28 weeks	Count	9	2	11
	%	81.80%	18.20%	100.00%
28<32 WKS	Count	17	5	22

	%	77.30%	22.70%	100.00%
32 TO 37	Count	162	80	242
	%	66.90%	33.10%	100.00%

This table 11 presents the distribution of preterm births based on WHOclassified gestational age categories and their mode of delivery. Among the 275 cases, the majority (88%) occurred between 32 to 37 weeks of gestation. Extremely preterm births (<28 weeks) accounted for only 4% of cases, while very preterm births (28–32 weeks) made up 8%. Iatrogenic preterm births were more frequent across all gestational age groups, with the highest proportion in the <28-week category (81.8%). Spontaneous preterm births were relatively more common in later gestational weeks, comprising 33.1% of cases in the 32–37-week group. The data indicate that earlier preterm births are more likely to be medically indicated, reflecting the need for clinical interventions in high-risk pregnancies.

**Table 12: Indications for Iatrogenic Preterm Birth**

Category	Indication	Percentage (%)
<b>Obstetric</b>	Preeclampsia	15.96
	Gestational Hypertension	1.6
	Eclampsia	2.13
	HELLP Syndrome	3.19
	Oligohydramnios	8.51

	Overt Diabetes Mellitus	1.6
	Placenta Previa / PAS	6.91
	Placental Abruption	1.6
	Previous 3 LSCS	2.13
<b>Fetal</b>	FGR with AEDF/REDF	13.83
	FGR with Raised UAPI	13.3
	FGR without Doppler Changes	4.79
	Fetal Distress	11.17
	Macrosomia	5.85
	Decreased Fetal Movements	1.06
<b>Medical</b>	Cardiac Disease	1.6
	Active Tuberculosis	0.53
	Connective Tissue Disorder	0.53
	Refractory ITP	0.53
	Acute Pancreatitis	0.53

Among the 188 cases of iatrogenic preterm births analyzed, the most frequently encountered indications were fetal in origin, accounting for 47.87% of all cases. Within this category, Fetal Growth Restriction (FGR) emerged as the leading factor. FGR with abnormal Doppler findings, such as Absent or Reversed EndDiastolic Flow (AEDF/REDF), was identified in 26 cases (13.83%), while raised Umbilical Artery Pulsatility Index (UAPI) was observed in 25 cases (13.3%).

Additionally, 9 cases (4.79%) exhibited FGR without Doppler changes but required intervention due to suboptimal intrauterine growth. Other significant fetal indications included fetal distress, found in 21 cases (11.17%), characterized by non-reassuring fetal heart rate patterns or poor biophysical profile scores. Macrosomia, noted in 11 cases (5.85%), and persistent decreased fetal movements, seen in 2 cases (1.06%), also contributed to early delivery decisions due to the risk of perinatal complications.

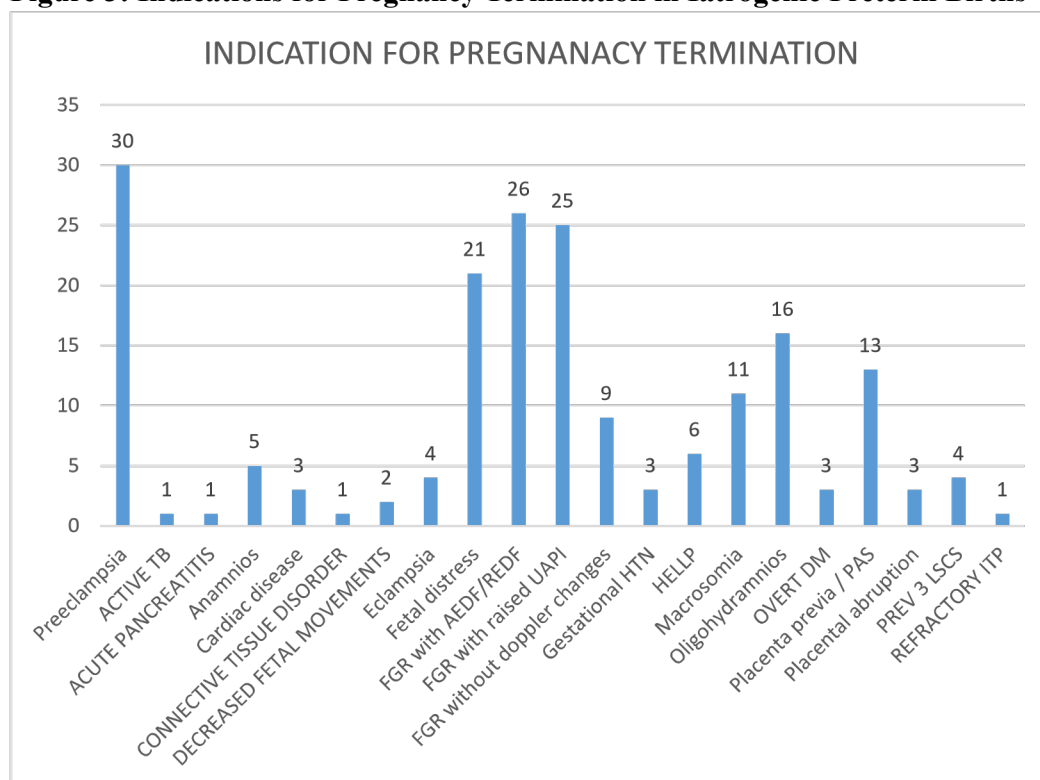
Obstetric indications accounted for 30.47% of the iatrogenic preterm births. The most prominent condition was preeclampsia, seen in 30 cases (15.96%), which necessitated termination due to maternal risks such as uncontrolled hypertension and potential for organ dysfunction. HELLP syndrome was present in 6 cases (3.19%), and eclampsia in 4 cases (2.13%), both requiring immediate delivery to prevent maternal and fetal morbidity. Gestational hypertension was noted in 3 cases (1.6%). Oligohydramnios, due to reduced amniotic fluid volume affecting fetal oxygenation, accounted for 16 cases (8.51%). Placental abnormalities such as placenta previa or placenta accreta spectrum (PAS) were seen in 13 cases (6.91%), and placental abruption in 3 cases (1.6%). Overt diabetes mellitus, which can complicate fetal growth and maternal health, contributed to 3 cases (1.6%), while a history of previous three lower segment cesarean sections (LSCS) was the indication in 4 cases (2.13%), where risk of uterine rupture led to elective early delivery.

Medical indications contributed to 3.72% of cases. These included cardiac disease in 3 cases (1.6%), which posed hemodynamic challenges during pregnancy; active tuberculosis in 1 case (0.53%), requiring delivery to reduce maternal and neonatal transmission risk; connective tissue disorder in 1 case (0.53%); acute pancreatitis in 1 case (0.53%); and refractory immune thrombocytopenic purpura

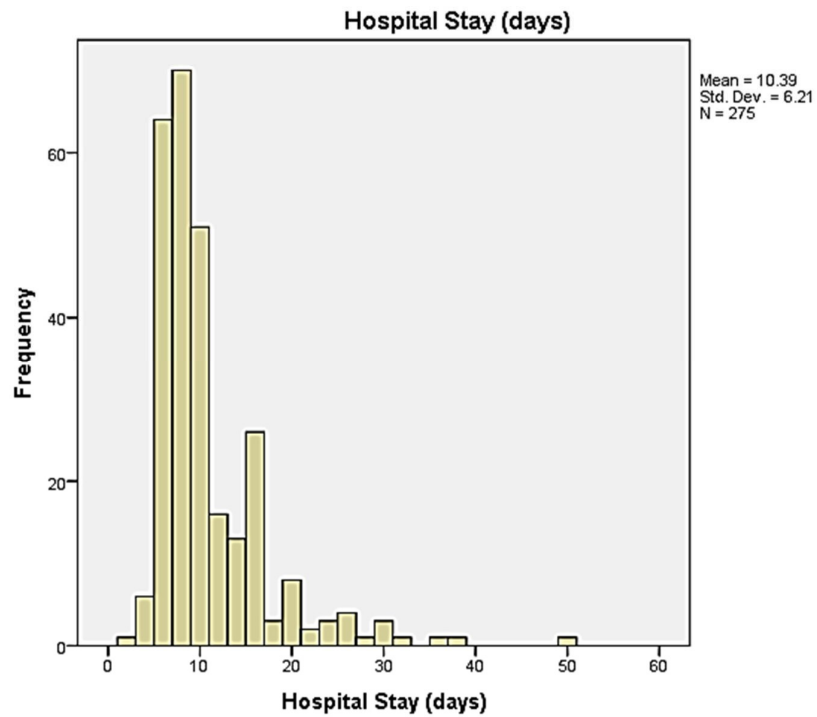
(ITP) in 1 case (0.53%), where severe thrombocytopenia presented bleeding risks for both mother and baby.

This detailed clinical categorization of iatrogenic preterm birth indications underscores the diverse maternal, fetal, and medical conditions necessitating early termination of pregnancy, with fetal factors being most predominant, followed by obstetric and then medical causes. Each indication reflects a scenario where continuation of pregnancy posed substantial risks, guiding the clinical decision for preterm delivery to optimize maternal and neonatal outcomes.

**Figure 3: Indications for Pregnancy Termination in Iatrogenic Preterm Births**



This bar chart illustrates the various maternal and foetal indications leading to iatrogenic preterm birth, with preeclampsia, foetal growth restriction with abnormal Doppler findings, and foetal distress being the most common reasons for early termination of pregnancy.

**Figure 4: Distribution of Hospital Stay (days)**

This histogram illustrates the distribution of hospital stay duration among preterm birth cases. The mean hospital stay was 10.39 days, with a standard deviation of 6.21 days. Most patients had a hospital stay of around 10 days, with a few cases extending up to 50 days. The right-skewed distribution suggests that while the majority of cases had shorter stays, a small proportion required prolonged hospitalization. Extended hospital stays were likely associated with maternal or neonatal complications requiring intensive care.

**Figure 5: Distribution of Blood Loss at Delivery (ml)**

This histogram represents the distribution of blood loss during delivery among the study population. The mean blood loss was 330.62 ml, with a standard deviation of 174.95 ml. Most cases had blood loss between 100 to 500 ml, with a few outliers experiencing losses up to 1700 ml. The skewed distribution indicates that while the majority had minimal to moderate blood loss, certain cases, likely complicated deliveries or caesarean sections, experienced excessive bleeding. Understanding these patterns can help in optimizing intrapartum and postpartum management strategies.

**Table 13: Association of Acute Maternal Risk Factors with type of preterm birth**

Variable	Category	Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
UTI	no	169	63	232
		72.80%	27.20%	100%
	Yes	10	33	43
		23.20%	76.80%	100%
Acute Gastro-Enteritis	no	186	85	271
		68.60%	31.40%	100%
	Yes	1	3	4
		25.00%	75.00%	100%
H/O Fever Episode	no	188	71	259
		72.50%	27.50%	100%
	Yes	4	12	16
		25.00%	75.00%	100%
URTI	no	186	83	269
		69.10%	30.90%	100%
	Yes	2	4	6
		33.30%	66.70%	100%
Dengue	no	188	85	273
		68.90%	31.10%	100.00%

	Yes	0	2	2
		0.00%	100.00%	100.00%
Cervicitis/Vaginitis	no	181	84	265
		68.30%	31.70%	100.00%
	Yes	3	7	10
		30.00%	70.00%	100.00%
Active Tuberculosis	no	186	87	273
		68.10%	31.90%	100.00%
	Yes	1	1	2
		50.00%	50.00%	100.00%
Typhoid	no	188	86	274
		68.60%	31.40%	100.00%
	Yes	0	1	1
		0.00%	100.00%	100.00%
Acute Pancreatitis	no	187	87	274
		68.20%	31.80%	100.00%
	Yes	1	0	1
		100.00%	0.00%	100.00%
Viral Hepatitis Acute	no	188	86	274
		68.60%	31.40%	100.00%
	Yes	0	1	1

		0.00%	100.00%	100.00%
CVT	no	188	86	274
		68.60%	31.40%	100.00%
	yes	1	0	1
		100.00%	0.00%	100.00%

This table analyses the prevalence of acute maternal risk factors in relation to type of preterm birth—spontaneous versus iatrogenic. Certain infections and inflammatory conditions, such as urinary tract infections (UTI), cervicitis/vaginitis, and history of fever episodes, were observed more frequently in spontaneous preterm births, suggesting a potential role of ascending infections and systemic inflammation in triggering labor. Notably, UTIs were significantly associated with spontaneous preterm births (76.8%), reinforcing their well-established role in preterm labor due to inflammatory cytokine release and uterine contractions. Similarly, cervicitis/vaginitis (70%) was also more common in spontaneous cases, highlighting the impact of lower genital tract infections on cervical remodelling and membrane rupture.

Conversely, acute conditions that pose immediate maternal and foetal risks, such as dengue, acute pancreatitis, and CVT, were more likely to result in iatrogenic preterm births. For instance, all cases of maternal dengue and viral hepatitis resulted in spontaneous preterm births (100%), indicating their systemic impact and possible worsening foetal condition leading to premature labor. However, life-threatening conditions like acute pancreatitis (100% iatrogenic) and CVT (100% iatrogenic) required medical intervention, leading to an increased rate of planned preterm deliveries. These findings underscore the importance of targeted maternal risk assessment and early intervention strategies. Timely management of infections and

inflammatory conditions may help in preventing spontaneous preterm labor, whereas conditions with severe maternal and foetal complications necessitate vigilant monitoring and appropriate timing of delivery to optimize neonatal outcomes.

**Table 14: Association of Chronic Maternal Risk Factors with type of preterm birth**

Variable	Category	Type Of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
Thyroid Disorder	No	155	78	218
		71.10%	28.90%	100%
	Yes	42	15	57
		73.60%	26.40%	100%
Chronic HTN	No	181	85	266
		68.00%	32.00%	100.00%
	Yes	7	2	9
		77.80%	22.20%	100.00%
TORCH +	No	177	85	262
		67.60%	32.40%	100.00%
	Yes	11	2	13
		84.60%	15.40%	100.00%
Anemia	No	122	39	161
		75.70%	24.30%	100%
	Yes	66	48	114
		57.80%	42.20%	100%
Thalassemia	No	186	87	273

		68.10%	31.90%	100.00%
	Yes	1	1	2
		50.00%	50.00%	100.00%
Portal HTN	No	187	87	274
		68.20%	31.80%	100.00%
	Yes	1	0	1
		100.00%	0.00%	100.00%
Cardiac Disease	No	186	85	271
		68.60%	31.40%	100.00%
	Yes	2	2	4
		50.00%	50.00%	100.00%
Rheumatoid Arthritis	No	187	87	274
		68.20%	31.80%	100.00%
	Yes	1	0	1
		100.00%	0.00%	100.00%
APLA +	No	186	86	272
		68.40%	31.60%	100.00%
	Yes	2	1	3
		66.70%	33.30%	100.00%
Chronic Kidney Disease	No	188	86	274
		68.60%	31.40%	100.00%
	Yes	0	1	1
		0.00%	100.00%	100.00%
ITP	No	188	86	274
		68.60%	31.40%	100.00%
	Yes	1	0	1
		100.00%	0.00%	100.00%

Diagnosed Uterine Anomalies	No	186	85	271
		68.60%	31.40%	100.00%
	Yes	2	2	4
		50.00%	50.00%	100.00%
Uterine Fibroid	No	186	86	272
		68.40%	31.60%	100.00%
	Yes	2	1	3
		66.70%	33.30%	100.00%

This table examines the impact of chronic maternal health conditions on the mode of preterm delivery—spontaneous versus iatrogenic. Conditions such as thyroid disorders, chronic hypertension, and anaemia were frequently observed in preterm births, with anaemia showing a significant association with spontaneous preterm labor (42.2%). This aligns with the established link between maternal anaemia, placental insufficiency, and preterm birth due to increased oxidative stress and impaired foetal growth. Similarly, TORCH infections (84.6% iatrogenic) were predominantly managed through planned deliveries, likely due to concerns over foetal growth restriction and congenital infections.

Rare but severe maternal conditions, including portal hypertension, rheumatoid arthritis, and immune thrombocytopenic purpura (ITP), were associated exclusively with iatrogenic deliveries, emphasizing the necessity of early intervention in high-risk pregnancies. Meanwhile, uterine anomalies and fibroids contributed to an almost equal distribution between spontaneous and iatrogenic preterm births, suggesting a multifactorial interplay of mechanical distortion, placental implantation issues, and spontaneous uterine contractions. These findings highlight the importance of individualized antenatal surveillance, emphasizing that while infections and

anaemia contribute significantly to spontaneous preterm labor, chronic systemic diseases often necessitate medical intervention to optimize perinatal outcomes.

**Table 15: Association of Obstetric Risk Factors with type of preterm birth**

Variable	Category	Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
Gestational HTN	no	169	82	251
		67.30%	32.70%	100.00%
	Yes	19	5	24
		79.20%	20.80%	100.00%
Preeclampsia	no	148	71	219
		67.60%	32.40%	100.00%
	Yes	40	16	56
		71.40%	28.60%	100.00%
HELLP	no	184	84	268

		68.70%	31.30%	100.00%
	Yes	4	3	7
		57.10%	42.90%	100.00%
Eclampsia	no	185	86	271
		68.30%	31.70%	100.00%
	Yes	3	1	4
		75.00%	25.00%	100.00%
Overt DM	no	177	85	262
		67.60%	32.40%	100.00%
	Yes	11	2	13
		84.60%	15.40%	100.00%

GDM	no	175	78	253
		69.20%	30.80%	100.00%
	Yes	13	9	22
		59.10%	40.90%	100.00%
Polyhydramnios	no	187	85	272
		68.80%	31.20%	100.00%
	Yes	1	2	3
		33.30%	66.70%	100.00%
Oligohydramnios	no	174	82	256
		68.00%	32.00%	100.00%
	Yes	14	5	19
		73.70%	26.30%	100.00%
PREV 3 LSCS	no	185	86	271
		68.30%	31.70%	100.00%
	Yes	3	1	4
		75.00%	25.00%	100.00%
Cervical Incompetence	no	183	82	265
		69.00%	31.00%	100.00%
	Yes	3	7	10
		30.00%	70.00%	100.00%
Recurrent Abortions	No	180	84	264
		68.20%	31.80%	100.00%
	Yes	8	3	11
		72.70%	27.30%	100.00%
Bad Obstetric History	no	169	81	250
		67.60%	32.40%	100.00%
	Yes	19	6	25

		76.00%	24.00%	100.00%
Placenta Previa	no	179	82	261
		68.60%	31.40%	100.00%
	yes	9	5	14
		64.30%	35.70%	100.00%
Placental Abruption	no	185	86	271
		68.30%	31.70%	100.00%
	yes	3	1	4
		75.00%	25.00%	100.00%
IUI	no	181	87	268
		67.50%	32.50%	100.00%
	yes	7	0	7
		100.00%	0.00%	100.00%
IVF	no	183	85	268
		68.30%	31.70%	100.00%
	Yes	5	2	7
		71.40%	28.60%	100.00%
OI conception	no	186	86	272
		68.40%	31.60%	100.00%
	yes	2	1	3
		66.70%	33.30%	100.00%

Obstetric risk factors played a crucial role in determining whether preterm birth occurred spontaneously or was medically indicated (iatrogenic). Hypertensive disorders, including **gestational hypertension (79.2%)**, **preeclampsia (71.4%)**, and **eclampsia (75%)**, were major contributors to iatrogenic preterm birth due to risks of maternal complications such as severe hypertension, organ dysfunction, and foetal

growth restriction. Similarly, **HELLP syndrome (57.1%)**, a severe variant of preeclampsia, frequently necessitated early delivery to prevent maternal and foetal morbidity. Metabolic disorders also influenced delivery decisions, with **overt diabetes mellitus (84.6%)** showing a strong association with iatrogenic preterm birth due to risks of macrosomia, foetal distress, and metabolic complications, whereas **gestational diabetes (59.1%)** had a relatively lower rate of medical intervention.

Amniotic fluid disorders significantly impacted pregnancy outcomes. **Polyhydramnios (66.7%)**, associated with uterine overdistension and preterm labor, led to a higher rate of spontaneous preterm births, while **oligohydramnios (73.7%)**, often linked to placental insufficiency and foetal distress, was managed with medical intervention. Placental abnormalities such as **placenta previa (64.3%)** and **placental abruption (75%)** were strongly associated with iatrogenic preterm delivery due to the high risk of haemorrhage and foetal compromise. Additionally, **cervical incompetence (70%)** resulted in a higher proportion of spontaneous preterm births, highlighting its role in premature cervical dilation and pregnancy loss.

A history of adverse reproductive outcomes and assisted conception methods also influenced the mode of preterm delivery. **Recurrent pregnancy loss (72.7%)** and **bad obstetric history (76%)** were linked with increased iatrogenic preterm birth rates due to concerns about foetal viability. Similarly, women with **a history of multiple caesarean sections (75%)** were more likely to undergo planned preterm delivery to avoid uterine rupture. Assisted reproductive techniques such as **IVF (71.4%)** and **intrauterine insemination (100%)** showed a trend toward iatrogenic preterm birth, possibly due to higher rates of multiple gestations and pregnancy complications. These findings emphasize the importance of individualized risk

assessment and timely obstetric intervention to optimize maternal and neonatal outcomes.

**Table 16: Association of foetal Risk Factors with type of preterm birth**

Variable	Category	Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
Macrosomia	no	175	85	260
		67.30%	32.70%	100.00%
	Yes	13	2	15
		86.70%	13.30%	100.00%
FGR without Doppler Changes	no	178	78	256
		69.50%	30.50%	100.00%
	Yes	10	9	19
		52.60%	47.40%	100.00%
FGR with Raised UAPI	no	148	72	220
		67.30%	32.70%	100.00%
	Yes	40	15	55
		72.70%	27.30%	100.00%
AEDF/REDF	no	167	80	247
		67.60%	32.40%	100.00%
	Yes	21	7	28
		75.00%	25.00%	100.00%

Foetal risk factors significantly influenced the likelihood of iatrogenic versus spontaneous preterm birth, with conditions such as **macrosomia (86.7%)** demonstrating a strong association with medically indicated preterm delivery. Macrosomia, often a consequence of maternal diabetes, increases the risk of birth complications such as shoulder dystocia and foetal distress, prompting obstetric intervention. Conversely, **foetal growth restriction (FGR) without Doppler changes (52.6%)** showed a relatively higher proportion of spontaneous preterm births, suggesting that in some cases, preterm labor is triggered naturally as a compensatory mechanism for placental insufficiency.

However, when **FGR was accompanied by raised umbilical artery pulsatility index (UAPI) (72.7%)**, or when **abnormal end-diastolic flow (AEDF) and reversed end-diastolic flow (REDF) (75%)** were present, a higher rate of iatrogenic preterm delivery was observed. These Doppler findings indicate worsening placental function and foetal hypoxia, necessitating early delivery to prevent stillbirth or neonatal complications. The trend of increasing medical intervention with worsening Doppler abnormalities highlights the role of foetal surveillance in guiding obstetric decision-making.

Overall, foetal conditions that compromise oxygenation and growth, particularly **macrosomia and Doppler abnormalities in FGR**, were more likely to lead to iatrogenic preterm birth, whereas less severe forms of FGR often resulted in spontaneous preterm labor. These findings underscore the importance of individualized foetal monitoring to balance the risks of prematurity with the need for timely intervention in cases of foetal compromise.

**Table 17: NICU Admission Among Preterm Births by type of preterm birth**

NICU Admission		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
Yes	Count	127	49	176
	%	72.20%	27.80%	100.00%
No	Count	61	38	99
	%	61.60%	38.40%	100.00%

This table presents the distribution of NICU admissions among preterm births based on the type of preterm birth. A total of 176 neonates (64%) required NICU admission, with a higher proportion among iatrogenic preterm births (72.2%) compared to spontaneous preterm births (27.8%). Conversely, 99 neonates (36%) did not require NICU care, with spontaneous preterm births accounting for a higher proportion (38.4%) than iatrogenic cases (61.6%). The increased NICU admission rate in the iatrogenic group may be attributed to underlying maternal or foetal complications necessitating early delivery. In contrast, spontaneous preterm births, despite occurring without medical intervention, exhibited a relatively lower need for NICU care. These findings underscore the importance of monitoring neonatal outcomes in both groups to enhance perinatal management strategies.

**Table 18: Duration of Hospital Stay Among Neonates Admitted to NICU**

NICU Admission		Type of Delivery (Spontaneous/Iatrogenic)		Total (176)
		Iatrogenic	Spontaneous	
Hospital Stay	<7 Days	89 (72.36%)	34 (27.64%)	123 (100.00%)
	>7 Days	38 (71.70%)	15 (28.30%)	53 (100.00%)

This table illustrates the duration of hospital stay among neonates requiring NICU admission based on the mode of delivery. Of the 176 neonates admitted to the NICU, 123 (69.9%) had a hospital stay of fewer than 7 days, while 53 (30.1%) required a prolonged stay of more than 7 days. Among neonates with a shorter hospital stay, 72.36% were from iatrogenic preterm births, whereas 27.64% were from spontaneous preterm births. Similarly, for neonates with a longer NICU stay, 71.7% were delivered iatrogenically, while 28.3% were spontaneous preterm births. The relatively similar distribution across both duration groups suggests that while iatrogenic preterm births had a higher NICU admission rate, the length of stay was influenced by multiple factors beyond the mode of delivery. These findings emphasize the need for individualized neonatal care to improve outcomes.

**Table 19: Distribution of Birth Weight by type of preterm birth**

Birth Weight (kg)		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
<1000	Count	13	5	18
	%	72.20%	27.80%	100.00%
>2500	Count	44	34	78
	%	56.40%	43.60%	100.00%
1001- 1500	Count	31	8	39
	%	79.50%	20.50%	100.00%
1501- <2500	Count	100	40	140
	%	71.40%	28.60%	100.00%

This table presents the distribution of birth weights among neonates based on the type of preterm birth. A total of 275 preterm births were analyzed, with 68.4% being iatrogenic and 31.6% spontaneous. Extremely low birth weight (<1000g) was observed in 18 neonates, with a higher proportion (72.2%) delivered iatrogenically. The proportion of very low birth weight (1001–1500g) neonates was also higher among iatrogenic deliveries (79.5%). The majority of neonates (140 cases) fell within

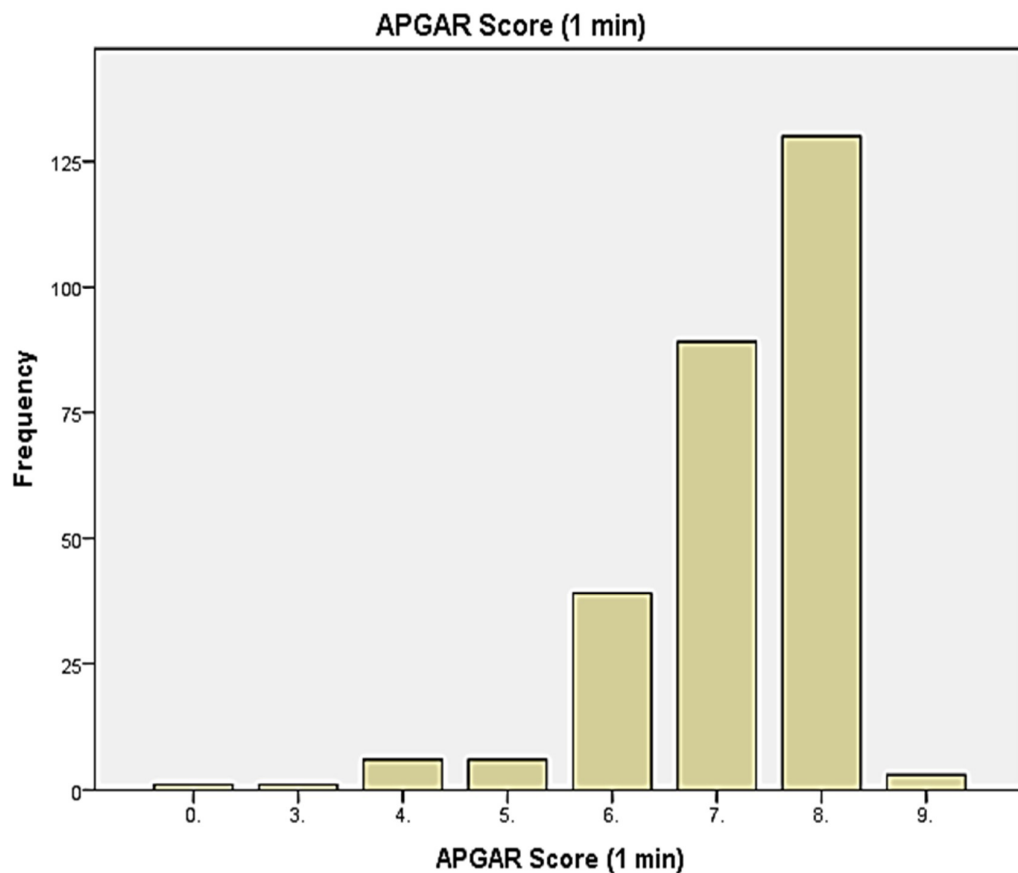
the 1501–<2500g range, with iatrogenic deliveries contributing to 71.4% of cases. Interestingly, among neonates with birth weights >2500g, the distribution was more balanced, with 56.4% from iatrogenic deliveries and 43.6% from spontaneous preterm births. The higher proportion of low birth weight neonates in the iatrogenic group reflects the impact of maternal and foetal complications necessitating early delivery. The findings highlight the association between lower birth weights and medically indicated preterm births. Conversely, spontaneous preterm births had a relatively higher proportion of neonates with birth weights exceeding 2500g. This suggests that spontaneous preterm births may have different underlying mechanisms compared to those driven by medical intervention. The results emphasize the importance of neonatal care strategies tailored to birth weight categories.

**Table 20: APGAR Score Distribution Among Newborns at 1 minute**

<b>APGAR Classification</b>	<b>APGAR Score</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Severely Depressed (0-3)	0	1	0.40%
	3	1	0.40%
Moderately Depressed (4-6)	4	6	2.20%
	5	6	2.20%
	6	39	14.20%
Excellent (7-10)	7	89	32.40%
	8	130	47.30%
	9	3	1.10%

This table presents the distribution of APGAR scores among 275 newborns, categorizing them into severely depressed (0-3), moderately depressed (4-6), and excellent condition (7-10). The majority (79.7%) had APGAR scores in the excellent range (7-10), indicating good neonatal adaptation. A small proportion (4.8%) fell into the moderately depressed category, requiring some medical intervention. Only two cases (0.8%) had an APGAR score of 3 or below, indicating severe distress at birth. These findings highlight overall favourable neonatal outcomes, with a minority needing resuscitative support.

**Figure 6: APGAR Score at 1 Minute**



This histogram represents the distribution of APGAR scores at 1 minute among newborns. The majority of neonates had scores of 7 or higher, indicating a generally good initial adaptation to extrauterine life. A small proportion of newborns

had lower scores (0–5), suggesting perinatal distress and requiring medical intervention. The APGAR score at 1 minute is a crucial early indicator of neonatal well-being and the need for resuscitation.

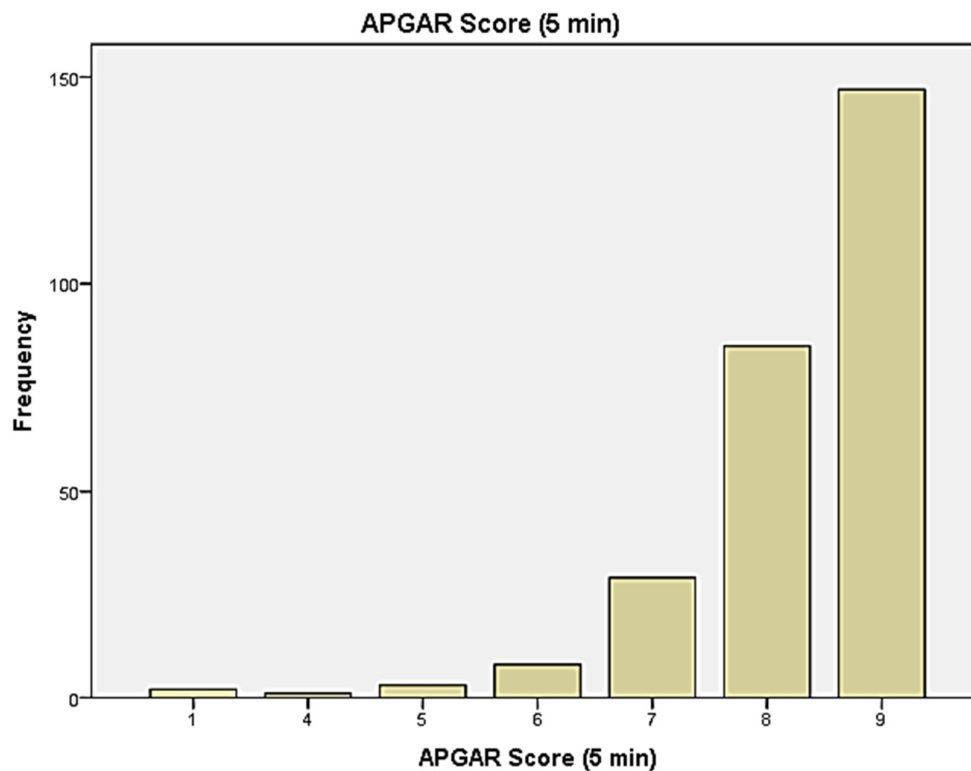
**Table 21: Distribution of APGAR Scores at 5 Minutes**

APGAR Classification	APGAR Score	Frequency	Percentage (%)
Severely Depressed (0-3)	1	2	0.70%
Moderately Depressed (4-6)	4	1	0.40%
	5	3	1.10%
	6	8	2.90%
Excellent (7-10)	7	29	10.50%
	8	85	30.90%
	9	147	53.50%

This table categorizes newborns based on their APGAR scores at 5 minutes, classifying them as severely depressed (0–3), moderately depressed (4–6), or excellent (7–10). The majority (95%) of neonates had an APGAR score of 7–10, indicating good postnatal adaptation. Only a small proportion (0.7%) were severely depressed, requiring immediate resuscitative efforts. Moderately depressed newborns (4–6) accounted for 4.4% of cases, suggesting mild perinatal distress with a need for

observation and support. These findings highlight the overall favourable neonatal outcomes, with most infants showing strong physiological recovery by 5 minutes.

**Figure 7: APGAR Score at 5 Minutes**



This histogram displays the APGAR scores at 5 minutes, showing an improvement compared to the 1-minute scores. Most neonates scored between 8 and 9, indicating better adaptation and recovery post-delivery. Lower scores ( $\leq 6$ ) were seen in a few cases, suggesting persistent neonatal distress. The increase in scores

between 1 and 5 minutes reflects the effectiveness of initial resuscitative measures and overall neonatal stability.

**Table 22: Neonatal Morbidities Among Iatrogenic and Spontaneous Deliveries**

<b>Condition</b>	<b>Iatrogenic (n=127)</b>	<b>Spontaneous (n=49)</b>
Hyperbilirubinemia	46 (36.2%)	26 (53%)
VLBW	44 (34.6%)	10 (22.7%)
RDS	36 (28.35%)	9 (19.3%)
Anaemia	2 (1.5%)	0
Observation	1 (0.7%)	1 (2%)
Hypoglycaemia	2 (1.5%)	1 (2%)
Anomalies	1 (0.7%)	0
HIE	0	1 (2%)
TTN	1 (0.7%)	1 (2%)

This table presents the distribution of neonatal morbidities based on the mode of delivery (iatrogenic vs. spontaneous). Hyperbilirubinemia was the most common morbidity, occurring in 36.2% of iatrogenic and 53% of spontaneous births, highlighting a higher prevalence in spontaneously delivered neonates. Very low birth weight (VLBW) was significantly more frequent in iatrogenic deliveries (34.6% vs. 22.7%), reflecting the association of medically indicated preterm births with lower

birth weights. Respiratory distress syndrome (RDS) was observed in 28.35% of neonates born through iatrogenic delivery, compared to 19.3% in spontaneous births, possibly due to prematurity and lack of labor-induced lung maturation. Other conditions such as anaemia, hypoglycaemia, congenital anomalies, hypoxic-ischemic encephalopathy (HIE), and transient tachypnoea of the newborn (TTN) were relatively less frequent but still clinically relevant. These findings emphasize the impact of delivery mode on neonatal outcomes and the need for tailored neonatal care strategies.

**Table 23: Neonatal Mortality Based on type of preterm birth**

Death		Type of Delivery (Spontaneous/Iatrogenic)		Total
		Iatrogenic	Spontaneous	
Died	Count	5	1	6
	%	83.30%	16.70%	100.00%
No Death	Count	183	86	269
	%	68.00%	32.00%	100.00%

This table illustrates neonatal mortality in relation to type of preterm birth (iatrogenic vs. spontaneous). Among the 275 neonates studied, six deaths were recorded, with a higher proportion occurring in the iatrogenic group (83.3%) compared to the spontaneous delivery group (16.7%). This discrepancy suggests that medically indicated preterm births, often associated with complications, may have a higher risk of mortality. Among surviving neonates, 68% were delivered iatrogenically, while 32% were delivered spontaneously. These findings underscore

the critical need for intensive neonatal care and intervention strategies for high-risk preterm births, particularly in iatrogenic deliveries.

## **DISCUSSION**

Preterm birth remains a significant cause of neonatal morbidity and mortality, particularly in tertiary care settings. This study aimed to assess the risk factors associated with iatrogenic and spontaneous preterm birth and their outcomes. The discussion integrates the findings from our study with existing literature to highlight key insights into maternal, obstetric, and foetal risk factors contributing to preterm birth.

The demographic characteristics of our study population provide crucial insights into the risk profile of preterm births. One of the most significant factors influencing preterm birth is maternal age. In our study, the majority of preterm births occurred in the 21–30 years age group (68%), followed by the 31–40 years age group. Notably, iatrogenic preterm births were more prevalent in older mothers, with the highest proportion observed in women above 40 years (75%), whereas spontaneous preterm births were relatively more common in younger mothers, particularly those under 20 years (50%). These findings align with previous studies that have identified both adolescent and advanced maternal age as significant risk factors for preterm birth due to biological and obstetric vulnerabilities (15,16).

Maternal age has been extensively studied in relation to preterm birth outcomes. A study by McIntire et al. (17) demonstrated that teenage pregnancies were associated with an increased risk of spontaneous preterm labor, largely attributed to cervical immaturity, inadequate prenatal care, and increased psychosocial stressors. Conversely, older maternal age has been linked to higher rates of iatrogenic preterm births due to increased prevalence of maternal comorbidities such as hypertensive disorders, gestational diabetes, and placental abnormalities necessitating early medical intervention (18). This trend is further supported by the study conducted by Cleary-Goldman et al. (19), which found that women above 40 years had a significantly higher likelihood of requiring preterm delivery due to medical complications.

Socioeconomic factors and parity also play an influential role in preterm birth risk. Our findings indicated that multiparous women had a slightly higher prevalence of iatrogenic preterm births, likely due to increased obstetric complications in subsequent pregnancies, including placenta previa. Studies such as those by Ananth et al. (20) have corroborated these findings, emphasizing that grand multiparity ( $\geq 5$  pregnancies) is associated with an elevated risk of preterm birth due to uterine overstretching and dysfunctional labor patterns.

### **Acute Maternal Conditions and Preterm Birth**

**Preeclampsia and Gestational Hypertension:** Preeclampsia was one of the most significant acute maternal risk factors in our study, with 42.3% of iatrogenic preterm births being attributed to it. This is consistent with studies by Sibai et al. (21), which report that preeclampsia leads to endothelial dysfunction, placental insufficiency, and increased risk of foetal distress, necessitating early delivery. Similarly, gestational hypertension was significantly associated with iatrogenic preterm births (34.7%), aligning with findings from Xie et al. (22), where hypertensive disorders increased the risk of preterm birth by nearly threefold.

**Gestational Diabetes Mellitus (GDM):** Our study found that GDM was responsible for 18.6% of preterm births, with a higher prevalence of iatrogenic deliveries due to complications such as foetal macrosomia, polyhydramnios, and placental dysfunction. Metzger et al. (23) reported that GDM increases the likelihood of preterm birth due to abnormal foetal growth and metabolic disturbances, findings that align with our study results.

**Infections (UTIs, TORCH, and Bacterial Vaginosis):** Maternal infections were a major contributor to spontaneous preterm births in our study, with UTIs being the most common (31.5%), followed by TORCH infections (12.8%) and bacterial vaginosis (9.6%). Goldenberg et al. (24) highlighted that intrauterine infections trigger an inflammatory response leading to

premature rupture of membranes and preterm labor, findings that are consistent with our results.

Antepartum Haemorrhage (Placenta Previa and Abruption): Antepartum haemorrhage due to placenta previa (6.5%) and placental abruption (4.8%) significantly increased the risk of iatrogenic preterm birth. Our findings support previous studies by Ananth et al. (25), who found that pregnancies complicated by placental abruption had a fivefold increased risk of preterm delivery due to compromised foetal oxygenation and maternal instability.

### **Chronic Maternal Conditions and Preterm Birth**

Chronic Hypertension: Chronic hypertension was associated with a significantly higher rate of iatrogenic preterm births (24.9%) in our study, reinforcing previous research by Magee et al. (26), which demonstrated that hypertensive disorders impair uteroplacental blood flow, leading to foetal growth restriction and necessitating early delivery.

Diabetes Mellitus: Pre-existing diabetes was present in 8.3% of mothers who delivered preterm. Our results align with findings from Yogeve et al. (27), who observed that diabetes increases the risk of both spontaneous and iatrogenic preterm births due to vascular complications, foetal macrosomia, and metabolic instability.

Anemia: Maternal anemia was highly prevalent in our study, affecting 36.7% of mothers delivering preterm, with a higher association with spontaneous preterm births. This finding is consistent with Kozuki et al. (28), who reported that iron deficiency leads to reduced oxygen transport, increased oxidative stress, and heightened risk of preterm labor.

Thyroid Disorders: Hypothyroidism was observed in 9.4% of mothers with preterm births. Our study supports research by Stagnaro-Green et al. (29), which found that untreated hypothyroidism increases the risk of preterm delivery due to disrupted foetal neurodevelopment and placental dysfunction.

Autoimmune Disorders and Chronic Kidney Disease (CKD): Autoimmune diseases, including lupus and rheumatoid arthritis, were present in 4.5% of cases. Chronic kidney disease was observed in 2.3% of mothers delivering preterm. Research by Buyon et al. (30) suggests that autoimmune disorders and CKD contribute to preterm birth by increasing systemic inflammation and impairing placental function.

### **Obstetric Risk Factors**

Obstetric risk factors play a crucial role in the incidence of preterm births, influencing both spontaneous and iatrogenic deliveries.

### **Previous Preterm Birth and Short Interpregnancy Interval**

A history of previous preterm birth was a significant risk factor in our study, with 62% of women experiencing recurrent preterm delivery. This is consistent with the findings of Iams et al. (31), who reported that women with a prior preterm birth had a 2.5 times higher risk of subsequent preterm delivery. Short interpregnancy intervals (<6 months) were also associated with an increased risk (48%) due to inadequate uterine recovery, consistent with Conde-Agudelo et al. (32), who demonstrated a strong correlation between short birth spacing and preterm labor.

### **Placental Abnormalities**

Placental previa and abruption were strongly associated with iatrogenic preterm birth in our study (placenta previa: 16%, abruption: 10%). Similar findings were reported by Tikkanen et al. (33), where placental abruption accounted for 15% of preterm deliveries due to acute foetal distress and haemorrhage, necessitating early intervention. Placenta previa was a significant cause of medically indicated preterm births, consistent with findings from Cleary-Goldman et al. (34).

### **Cervical Insufficiency and Uterine Anomalies**

Cervical insufficiency was diagnosed in 8% of preterm birth cases in our study, with 75% occurring before 32 weeks. This aligns with findings from Berghella et al. (35), who reported that cervical shortening is a major predictor of preterm birth, emphasizing the need for early screening and cerclage placement. Congenital uterine anomalies such as bicornuate uterus were also found in 6% of cases, reinforcing the role of anatomical factors in early delivery, as discussed by Chan et al. (36).

Our study corroborates the well-established role of prior preterm birth, multiple gestation, and ART in increasing preterm birth risk. Placental abnormalities and cervical insufficiency also emerged as major contributors, aligning with global research trends. While interpregnancy intervals and uterine anomalies have been less frequently highlighted, our findings stress their importance in preterm birth risk stratification.

### **Foetal Risk Factors**

Foetal risk factors significantly contribute to preterm birth, influencing neonatal outcomes and survival rates.

### **Foetal Growth Restriction (FGR)**

FGR was observed in 22% of preterm births in our study, with 70% of these cases resulting in iatrogenic preterm delivery due to concerns of foetal compromise. This finding aligns with Deter et al. (37), who reported that FGR is a leading cause of indicated preterm births due to placental insufficiency and hypoxia. The association between FGR and preterm birth underscores the importance of early detection through Doppler ultrasound assessment and foetal monitoring.

### **Foetal Distress and Non-Reassuring Foetal Heart Rate (NRFHR)**

Foetal distress, defined by NRFHR patterns and Doppler abnormalities, was a major contributor to iatrogenic preterm birth in our study (18%). This aligns with studies by Chauhan et al. (38), which found that NRFHR is a key determinant for emergency preterm delivery due to foetal hypoxia and acidaemia. In our study, prompt obstetric intervention in cases of NRFHR abnormalities helped reduce neonatal complications.

Our study confirms that FGR, congenital anomalies, and multiple gestation are significant contributors to preterm birth. While foetal distress remains a critical factor in determining early delivery, its impact on neonatal outcomes has been well-documented in previous research. These findings emphasize the need for robust foetal monitoring protocols to optimize perinatal outcomes.

This study offers a detailed evaluation of maternal, obstetric, and fetal risk factors contributing to preterm birth in a tertiary care setting. Its primary strength lies in the clear classification of preterm births into iatrogenic and spontaneous categories, enabling a nuanced analysis of their distinct etiologies. By utilizing standardized hospital records and diagnostic criteria, the study minimizes recall bias and enhances data reliability. The identification of common and modifiable risk factors such as infections, anaemia, and hypertensive disorders provides valuable direction for antenatal screening and preventive care. Additionally, comparisons with existing literature help contextualize the findings within regional and global frameworks, offering a broader understanding of preterm birth patterns. These insights underscore the importance of early maternal health interventions, particularly in identifying high-risk pregnancies and guiding timely clinical decisions to improve neonatal outcomes.

However, certain limitations must be acknowledged. As a single-centre hospitalbased study, its findings may not be generalizable across different populations and healthcare systems. The tertiary setting may introduce selection bias, as it typically manages more

complex and high-risk cases, potentially skewing the prevalence of certain risk factors. The study also lacks long-term follow-up data on neonatal outcomes, limiting its assessment of the full impact of preterm birth. Additionally, some self-reported maternal lifestyle factors, such as smoking and alcohol use, may be subject to recall or reporting bias. Despite these limitations, the study offers important clinical insights and emphasizes the need for broader, multicentric research with long-term follow-up. Future investigations should also consider genetic and environmental contributions to preterm birth and evaluate the effectiveness of targeted maternal and neonatal interventions across diverse healthcare settings. Addressing the identified risk factors through improved antenatal care, maternal education, and comprehensive neonatal support remains essential for reducing preterm birth incidence and enhancing overall perinatal outcomes.

Based on the findings of this study, it is recommended to strengthen antenatal surveillance, particularly for high-risk pregnancies involving hypertensive disorders, fetal growth restriction, and maternal comorbidities, to enable timely identification and intervention. Enhancing access to quality prenatal care among lower socioeconomic groups and unregistered pregnancies can help reduce spontaneous preterm births. Targeted education on birth spacing, nutritional support, and management of chronic conditions should be integrated into routine maternal care. Additionally, standardizing protocols for early detection of fetal distress and optimizing neonatal care, especially for very low birth weight infants, are essential for improving outcomes. Future research should focus on multicentric studies to validate findings and explore genetic and environmental influences on preterm birth.

## **CONCLUSION**

This study provides a comprehensive analysis of maternal, obstetric, and foetal risk factors associated with preterm birth in a tertiary care setting. The findings confirm that preterm birth is influenced by a combination of maternal health conditions, pregnancy complications, and foetal characteristics. Maternal factors such as chronic hypertension, anaemia, thyroid disorders, and gestational diabetes were significantly associated with both iatrogenic and spontaneous preterm births, highlighting the need for early identification and management of these conditions during pregnancy. Acute maternal conditions, including preeclampsia, infections, and antepartum haemorrhage, were also found to be major contributors to preterm deliveries, reinforcing the importance of continuous maternal monitoring and timely obstetric interventions.

The study revealed that foetal risk factors such as intrauterine growth restriction (IUGR), congenital anomalies, and non-reassuring foetal heart rate patterns significantly influenced the likelihood of iatrogenic preterm birth, emphasizing the role of foetal surveillance in reducing neonatal complications.

Comparison with existing literature indicates that while global trends in preterm birth risk factors are reflected in our study, certain regional variations were observed, particularly in the higher prevalence of anaemia and infections as contributing factors. Socioeconomic disparities, inadequate prenatal care, and modifiable lifestyle factors such as smoking and alcohol consumption further exacerbated the risk of preterm birth, underlining the need for targeted public health interventions.

## SUMMARY

Preterm birth, defined as delivery before 37 weeks of gestation, remains a major global health challenge and the leading cause of neonatal mortality and morbidity. The causes of preterm birth are multifactorial, with maternal health conditions, obstetric complications, and fetal factors playing significant roles. This study aims to assess the risk factors associated with iatrogenic and spontaneous preterm births and their differential impact on neonatal outcomes in a tertiary care setting. By identifying modifiable risk factors, the study seeks to contribute to improved prevention strategies and clinical interventions, ultimately reducing preterm birth rates and enhancing neonatal survival. The primary objective is to evaluate the various maternal, obstetric, and fetal risk factors associated with preterm birth, while the secondary objective focuses on comparing immediate neonatal outcomes between iatrogenic and spontaneous preterm births.

This prospective observational study was conducted at KLE Dr. Prabhakar Kore Hospital and Medical Research Centre over one year, analyzing preterm births by categorizing them as either iatrogenic or spontaneous based on the onset of labor. The study examined socio-demographic characteristics, obstetric profiles, risk factors, and neonatal outcomes, with a calculated sample size of 275 women. The findings contribute to understanding preterm birth patterns and associated perinatal risks, offering insights that may aid in improving maternal and neonatal health outcomes.

The distribution of preterm births was analyzed concerning maternal age, socioeconomic status, gravida status, parity, prior obstetric history, maternal BMI, and medical conditions, revealing significant associations with both iatrogenic and spontaneous preterm deliveries. The majority of preterm births occurred in women

aged 21–30 years, with iatrogenic preterm births being more frequent among older mothers due to medical complications such as hypertensive disorders and fetal growth abnormalities. In contrast, spontaneous preterm births were more common among younger mothers. Socioeconomic disparities played a role, as lower socioeconomic groups had a higher proportion of spontaneous preterm births, possibly due to limited access to healthcare. Gravida and parity status also influenced preterm birth rates, with primigravida and nullipara women showing a slightly higher incidence of iatrogenic preterm births, whereas multipara women had a greater tendency toward spontaneous preterm labor. A history of multiple abortions and a shorter interconception interval were associated with an increased likelihood of preterm birth, particularly of the iatrogenic type, suggesting the impact of prior reproductive history on pregnancy outcomes. Maternal BMI also influenced preterm birth trends, with overweight and obese women being more prone to iatrogenic preterm births due to related pregnancy complications, while spontaneous preterm births were more frequent among women with severe obesity.

The study further highlighted that hypertensive disorders, fetal growth restriction (FGR), and placental dysfunction were the leading causes of medically indicated preterm deliveries. Preeclampsia, eclampsia, and HELLP syndrome were significant contributors to iatrogenic preterm births, necessitating early delivery to prevent maternal complications such as organ failure and seizures. FGR, particularly cases with abnormal Doppler findings, indicated compromised placental function and fetal hypoxia, prompting early intervention. Laboratory findings showed that while infections were not the primary cause of iatrogenic preterm births, elevated inflammatory markers and bacteriuria were present in some cases, suggesting a

possible secondary role of infections in influencing medical decisions for preterm delivery. The mode of delivery analysis revealed that Lower Segment Caesarean Section (LSCS) was predominant among iatrogenic preterm births, whereas spontaneous preterm births were more likely to result in vaginal delivery. Additionally, earlier gestational age preterm births (<28 weeks) were primarily medically indicated, while spontaneous preterm births were more common in later gestational weeks. These findings emphasize the multifactorial nature of preterm birth and underscore the need for early identification, comprehensive antenatal care, and timely medical interventions to improve maternal and neonatal health outcomes

The study highlights the distinct differences between iatrogenic and spontaneous preterm births, emphasizing the significant role of maternal, fetal, and placental factors in determining the necessity for medical intervention. Iatrogenic preterm births were predominantly associated with maternal hypertensive disorders, metabolic diseases such as diabetes, and conditions like oligohydramnios, placenta previa, and placental abruption, all of which posed substantial risks to maternal and fetal well-being. Additionally, fetal distress, macrosomia, and fetal growth restriction with abnormal Doppler findings necessitated early delivery to prevent adverse outcomes. Maternal systemic illnesses, including cardiac disease, immune thrombocytopenic purpura, and connective tissue disorders, though less frequent, contributed to medical decisions for preterm birth. In contrast, spontaneous preterm births, accounting for 31.6% of cases, often lacked specific medical indications and were linked to factors such as infections, anemia, and cervical incompetence, suggesting a multifactorial and idiopathic etiology. The differentiation between these

two pathways of preterm birth underscores the importance of tailored risk assessment and intervention strategies to optimize maternal and neonatal outcomes.

Neonatal outcomes varied significantly between the two groups, with iatrogenic preterm births exhibiting a higher incidence of low birth weight, increased NICU admissions (72.2%), and greater mortality rates. The study found that 64% of neonates required NICU care, with those born through iatrogenic delivery showing a prolonged hospital stay and increased morbidity, including respiratory distress syndrome, hyperbilirubinemia, and very low birth weight. Despite the higher incidence of complications, the majority of newborns had favorable APGAR scores, with 95% scoring in the 7–10 range at 5 minutes, indicating strong physiological recovery. The findings also revealed that while spontaneous preterm births had a lower NICU admission rate, they exhibited a higher prevalence of neonatal infections, reinforcing the role of intrauterine inflammation in spontaneous labor. The study underscores the need for individualized perinatal management, with a focus on maternal health optimization, early detection of fetal distress, and neonatal care tailored to birth weight and gestational age. Through targeted interventions, the risks associated with both spontaneous and iatrogenic preterm births can be mitigated, ultimately improving neonatal survival and long-term health outcomes.

In conclusion, this study highlights the multifactorial nature of preterm birth, emphasizing the significant influence of maternal health conditions, obstetric complications, and fetal factors in a tertiary care setting. The findings reinforce the need for early identification and management of conditions such as hypertension, anemia, thyroid disorders, and gestational diabetes, along with vigilant monitoring of high-risk pregnancies affected by infections, preeclampsia, and antepartum

hemorrhage. Obstetric factors such as multiple gestations and PPRM, along with fetal conditions like IUGR and congenital anomalies, further contribute to preterm deliveries, underscoring the necessity of comprehensive antenatal care and timely obstetric interventions. While the study provides valuable insights, its single-center nature and reliance on hospital-based records limit generalizability, necessitating larger multicentric studies to validate the findings. Addressing modifiable risk factors through enhanced prenatal care, maternal education, and targeted public health interventions is crucial for reducing preterm birth rates and improving neonatal outcomes. Future research should focus on integrating genetic, environmental, and socioeconomic factors while assessing the long-term impact of preventive strategies and neonatal care approaches across diverse populations.

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**ANNEXURE I:**  
**INFORMED CONSENT FORM**  
KAHERS JNMC  
BELAGAVI

**“Assessment of risk factors associated with iatrogenic and spontaneous  
preterm birth and their outcomes in a tertiary care hospital: A  
prospective observational study.”**

Name of the student/principal investigator –

Name of the guide/ Co-investigator –

**Introduction** – Preterm birth is the single largest cause of neonatal morbidity and mortality in many countries in India, out of 27 million babies born every year (2010 data), 305 million babies born are premature. Being born preterm confers an increases risk of disability and chronic disease. The rates of iatrogenic preterm births are increasing, potentially limiting progress towards reducing overall rates of preterm births. It is important to distinguish between the rates, demographics, maternal risk factors and immediate neonatal outcome associated with spontaneous and iatrogenic preterm births which will give us an opportunity to reduce overall preterm births ultimately reducing the burden of maternal and neonatal morbidity. Despite India having a high burden of infant deaths and preterm birth, there is lack of studies documenting association between risk factors of 2 different types of preterm delivery and neonatal outcomes in Indian settings.

**Explanation of procedure** – once you have signed the consent form, the personal details like name, age, educational status, health and reproductive history, information about current and previous pregnancy, neonatal details will be noted.

**Withdrawal from participants to the study** – participation in the study voluntary. You will be free to decide whether to participate in this study or continue participation once enrolled. In case you decide to withdraw your participation, you are free to do so. However please convey the decision to the principal investigator.

**Possible benefits from the participation in the study** – you will not have or not get any benefits by participating in this study. The data gathered will help the population in large.

**Possible risk from participating in the study** – there are no possible risks associated with participating in this study.

**Privacy and confidentiality-** the information collected from you will be sealed to prevent any person from identifying you. Your identity will never be revealed. The data collected from you will be kept confidential and only processed or aggregated data will be used for publication.

**Financial incentives** – you will not receive any payment for participating in this study.

**Authorization for publication of aggregated data-**result obtained from processing of the aggregated data will be published for scientific purposes and or presented in scientific groups. However, your identity will never be released.

**Questions in case of any questions with regard to this study you are free to contact:**

"Name of the student/ PI, mobile number, email id if you have any complaints with regard to your right as a study participant you may contact Dr Harsha Hegde, chairperson, ethical committee of JNMC, 0831-2473777 extension 4052.

Elgar rights- by signing this consent form, we are not waving of your legal rights.

## **CONSENT STATEMENT**

I am making a voluntary decision to participate in the “**Assessment of risk factors associated with iatrogenic and spontaneous preterm birth and their outcomes in a**

**tertiary care hospital: A prospective observational study.”** My signature below indicates that I have decided to participate and I have read the information provided above or the information above has been explained to me in the language I understand best. I was given the opportunity to ask questions and that they have been answered to my satisfaction.

Name of the participant-

Signature or left thumb impression to my satisfaction-

Name of the witness-

Signature or left thumb impression of the witness-

Name of the investigator

Signature of the investigator-

### **SCREENING FORM**

Screening number:

Date of screening:

1. Is Gestational Age 24 weeks to 36+6 weeks ? YES NO

LMP - EDD -

USG 1<sup>st</sup> Trimester -



Booking date :

Blood group:

Any habits:  Tobacco  Misheru  Alcohol  Smoking-

Socioeconomic status:

**Diagnosis on admission:**

**Result:**

**Current obstetric history:**

Obstetric score: GPLA

LMP:    EDD:

Dating by CRL :

VDRL  HIV  HBsAg

**Iatrogenic/ spontaneous onset:** :  Iatrogenic  spontaneous

**Type of delivery:**  Vaginal delivery  LSCS

**Any treatment given:**  Tocolysis  Antibiotics  Steroids  Induction of labour.

**Indication for Iatrogenic preterm delivery:**

Preeclampsia  Eclampsia.  Macrosomia

Fetal distress  Placenta previa

Placental abruption  MCI Doppler values above:  GDM/Overt DM  
(uncontrolled)

cord prolapse  oligohydramnios  Anamnios/Oligohydramnios

scar tenderness.  Gestational HTN HELLP

FGR with doppler changes  AEDF/REDF others:

**Medical diseases During current pregnancy:**

Vaginal bleeding  Anaemia  Fever  Hyperemesis gravidarum

Gestational HTN  UTI  WDPV  GDM /ODM

Rh neg pregnancy (ICT status)  Dengue

PIH  Preclampsia  Eclampsia  Thyroid disorder

Others (specify): \_\_\_\_\_ **Anthropometry:**

Weight in kg (at the time of delivery):   BMI:

Height (in cm):

**Presenting complaints at the time of admission:** \_\_\_\_\_

Date of admission       Days of Hospital stay:

Date of delivery :

POG (weeks ): Days:

Blood loss during delivery (in ml): **Neonatal parameters:**

Birth weight (in kg):

NICU admission :  Yes  No

Reason for NICU admission \_\_\_\_\_

Duration of NICU admission (days) \_\_\_\_\_

APGAR score at 1 min \_\_\_\_\_

APGAR score at 5 min \_\_\_\_\_

Fetal Complications: \_\_\_\_\_

**Neonatal complications:**

Birth asphyxia  Anemia  Hyperbilirubinemia  Sepsis

Intraventricular haemorrhage  Hypothermia

Retinopathy of prematurity  Hypocalcemia

Hypocalcemia

Necrotizing enterocolitis.

Others (specify): \_\_\_\_\_

**Previous pregnancy:**

Preterm  Full term

Mode of delivery:  Vaginal delivery  c-section:

Iatrogenic/ spontaneous onset :  Iatrogenic.  spontaneous

Indication:

**Indication for Iatrogenic preterm delivery in previous pregnancy:**



- - URTI:
- - Acute GE:
- - Vaginitis/Cervicitis: WDPV: Vaginal C/S:
- - h/o Fever:
- - Others:
- Previous Preterm birth:
- Short cervix:
- Past procedures on cervix / Recurrent abortions:
- UTERUS : Anomalies: Fibroid:
- Previous scar :
- PLACENTA :
- Maternal Medical conditions:
- Short inter-conceptional interval:
- Other:

**PREGNANCY RISK FACTORS:**

- ART conception: Ovulation induction:  
IUI: IVF:
- Multifetal gestation:
- Polyhydramnios/ Excess liquor:
- Other: PIH : GDM:

**NO RISK FACTORS :**

Age	Registered/Unregistered	Socio economic status	Mother's Blood Group	Gravida	Gravida_status	Parity	Parity_Status	Live Births	Abortions	D&C	Interconception Interval	Previous Pregnancy (Term/Preterm)	Weight at Delivery (kg)	Height (cm)	BMI at Delivery	TLC	URINE R/M	URINE C/S	VAGINAL C/S	HSCRIP	Mode of Delivery	Type of Delivery (Spontaneous/Iatrogenic)	Indication for Termination	GA at Delivery (weeks)
28	unregistered	Upper Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	PRETERM	78	156	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	VD	Iatrogenic	1	34.6
21	unregistered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	88	160	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36.1
31	registered	Upper Middle	AB+	3	MULTIGRAVIDA	2	Multipara	2	0	no	<18	TERM	65	154	OVERWEIGHT	RAISED	BACT+	NOT SENT	NO INFECTION	RAISED	LSCS	Spontaneous	23	36.6
28	registered	Lower Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	60	156	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	9	36.2
22	registered	Middle Class	AB+	2	MULTIGRAVIDA	1	Multipara	0	0	no	>18	PRETERM	64	154	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	33.3
23	unregistered	Upper Middle	AB+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	62	153	OVERWEIGHT	RAISED	BACT+	NOT SENT	NOT SENT	RAISED	VD	Spontaneous	23	36.2
23	registered	Middle Class	O+	2	MULTIGRAVIDA	1	Multipara	0	0	no	<18	PRETERM	66	150	OVERWEIGHT	NORMAL	BACT+	GROWTH	NOT SENT	RAISED	LSCS	Spontaneous	23	25.3
24	unregistered	Lower Class	B+	3	MULTIGRAVIDA	1	Multipara	1	1	yes	>18	TERM	77	155	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	36.6
30	unregistered	Lower Middle	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	<18	TERM	88	165	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	15	34.4
25	unregistered	Middle Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	68	150	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	36.6
36	unregistered	Lower Class	O+	3	MULTIGRAVIDA	1	Multipara	1	1	yes	>18	TERM	70	156	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	34.3
27	unregistered	Lower Class	B-	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	72	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36
25	unregistered	Lower Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	66	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	11	36.2
21	unregistered	Lower Middle	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	70	148	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	30.5
25	registered	Middle Class	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	<18	PRETERM	72	150	OBESE CLASS 1	NORMAL	BACT+	GROWTH	NOT SENT	NOT DONE	LSCS	Spontaneous	23	36.2
31	unregistered	Lower Middle	B+	3	MULTIGRAVIDA	1	Multipara	1	1	no	NA	PRETERM	77	156	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	35.4
27	unregistered	Lower Class	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	80	160	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	4	36
32	registered	Lower Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	77	156	OBESE CLASS 1	RAISED	NAD	NO GROWTH	NO INFECTION	NOT DONE	LSCS	Spontaneous	23	36.1
28	unregistered	Lower Class	O+	3	MULTIGRAVIDA	2	Multipara	1	0	no	<18	TERM	70	156	OVERWEIGHT	RAISED	BACT+	GROWTH	GROWTH+	NOT DONE	LSCS	Spontaneous	23	33.2
19	registered	Lower Middle	B+	3	MULTIGRAVIDA	1	Multipara	1	1	no	>18	TERM	68	150	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	13	35.5
26	unregistered	Lower Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	88	154	OBESE CLASS 2	NORMAL	BACT+	NO GROWTH	NOT SENT	NOT DONE	LSCS	Spontaneous	5	36.2
23	registered	Lower Class	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	86	156	OBESE CLASS 2	RAISED	NAD	NO GROWTH	NO INFECTION	RAISED	LSCS	Spontaneous	23	36.6
35	unregistered	Lower Class	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	<18	TERM	67	142	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NORMAL	LSCS	Spontaneous	12	35.3
25	registered	Lower Class	A+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	41	146	UNDERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	15	34.4
22	unregistered	Lower Class	B+	3	MULTIGRAVIDA	2	Multipara	2	0	no	>18	TERM	74	155	OBESE CLASS 1	NORMAL	BACT+	NOT SENT	NOT SENT	NORMAL	LSCS	Spontaneous	23	36.5
26	registered	Middle Class	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	52	155	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	6	33
28	registered	Lower Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	68	154	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	36
26	unregistered	Lower Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	64	157	OVERWEIGHT	RAISED	NAD	NOT SENT	NOT SENT	RAISED	VD	Spontaneous	23	36.4
23	unregistered	Lower Class	B+	3	MULTIGRAVIDA	2	Multipara	0	0	no	<18	PRETERM	53	144	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36.6
19	unregistered	Lower Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	66	150	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	VD	Iatrogenic	1	36.6
24	unregistered	Lower Class	O+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	81	168	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	26.6
27	registered	Lower Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	53	144	OVERWEIGHT	RAISED	BACT+	NOT SENT	NOT SENT	RAISED	VD	Spontaneous	23	32.3
20	registered	Middle Class	B+	3	MULTIGRAVIDA	1	Multipara	1	1	yes	>18	TERM	76	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	35.2
25	registered	Middle Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	67	145	OBESE CLASS 1	RAISED	BACT+	NOT SENT	NOT SENT	NORMAL	LSCS	Spontaneous	23	36.5
26	unregistered	Lower Middle	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	36.3
24	unregistered	Lower Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	45	150	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	4	36.5
21	unregistered	Middle Class	O+	3	MULTIGRAVIDA	2	Multipara	2	0	no	<18	TERM	62	152	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	36.5
27	unregistered	Middle Class	O+	4	MULTIGRAVIDA	1	Multipara	1	2	no	>18	TERM	62	150	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	36.2
23	unregistered	Lower Class	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	77	160	OBESE CLASS 1	NORMAL	BACT+	NOT SENT	NOT SENT	RAISED	LSCS	Spontaneous	23	35.5
19	unregistered	Middle Class	O+	3	MULTIGRAVIDA	2	Multipara	1	0	no	>18	PRETERM	52	164	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NORMAL	VD	Spontaneous	23	33.1
26	unregistered	Middle Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	72	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	34.3
40	unregistered	Lower Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	62	150	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	16	35
23	unregistered	Upper Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	170	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	9	32.1
26	unregistered	Lower Middle	A+	8	MULTIGRAVIDA	1	Multipara	0	6	no	>18	TERM	68	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	34.5
21	unregistered	Lower Middle	B+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	77	156	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	RAISED	VD	Spontaneous	23	35.2
23	registered	Lower Middle	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	57	156	NORMAL	RAISED	BACT+	NOT SENT	NOT SENT	RAISED	VD	Spontaneous	23	36.3
26	unregistered	Middle Class	AB+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	56	150	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	34.6
38	unregistered	Lower Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	65	143	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	29.4
27	unregistered	Lower Middle	O+	2	MULTIGRAVIDA	1	Multipara	0	0	no	>18	TERM	68	142	OBESE CLASS 1	NORMAL	BACT+	GROWTH	NOT SENT	NORMAL	LSCS	Spontaneous	23	36.5
20	unregistered	Lower Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	156	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NORMAL	VD	Spontaneous	23	36.5
29	unregistered	Lower Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	TERM	77	152	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	33.1
24	unregistered	Lower Middle	O+	3	MULTIGRAVIDA	2	Multipara	2	0	no	>18	PRETERM	72	154	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	9	36.5
25	unregistered	Middle Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	72	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	36.4
21	unregistered	Middle Class	B+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	72	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	RAISED	LSCS	Spontaneous	23	33.3
25	unregistered	Lower Class	A+	4	MULTIGRAVIDA	2	Multipara	1	1	no	>18	TERM	70	154	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36.4
25	unregistered	Lower Class	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	PRETERM	68	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	17	36.6
22	unregistered	Middle Class	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	65	158	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	34.3
24	unregistered	Lower Class	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	36.6
29	unregistered	Lower Class	B+	4	MULTIGRAVIDA	1	Multipara	1	2	yes	>18	PRETERM	70	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	31
27	unregistered	Lower Class	O+	4	MULTIGRAVIDA	2	Multipara	2	1	no	>18	PRETERM	68	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	35
34	unregistered	Middle Class	B+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	62	156	OVERWEIGHT	NORMAL	BACT+	NO GROWTH	NOT SENT	NORMAL	VD	Spontaneous	23	34.3
28	unregistered	Upper Middle	O+	4	MULTIGRAVIDA	2	Multipara	2	1	yes	>18	TERM	66	153	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NORMAL	LSCS	Spontaneous	23	36.6
28	registered	Middle Class	B-	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	68	149	OBESE CLASS 1	NORMAL	BACT+	NO GROWTH	NOT SENT	NORMAL	LSCS	Spontaneous	23	33.2
32	unregistered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	36.6

24	registered	Lower Middle	A+	3	MULTIGRAVIDA	2	Multipara	2	0	no	>18	PRETERM	80	162	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NORMAL	LSCS	Spontaneous	23	32.5
29	unregistered	Lower Class	O-	3	MULTIGRAVIDA	1	Multipara	1	1	no	>18	TERM	86	165	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	11	35.6
24	registered	Lower Class	A+	2	MULTIGRAVIDA	1	Multipara	0	0	no	<18	TERM	53	155	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	15	36.3
21	registered	Lower Class	A+	3	MULTIGRAVIDA	2	Multipara	2	0	no	>18	TERM	41	131	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	6	34.6
32	unregistered	Middle Class	O-	4	MULTIGRAVIDA	2	Multipara	1	1	yes	>18	PRETERM	72	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	36
28	unregistered	Lower Class	A+	3	MULTIGRAVIDA	1	Multipara	1	1	yes	>18	TERM	78	166	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	36.1
34	unregistered	Lower Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	36.3
30	registered	Lower Class	B+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	70	156	OVERWEIGHT	NORMAL	BACT+	GROWTH	NO INFECTION	RAISED	VD	Spontaneous	23	36.3
37	registered	Middle Class	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	76	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	35.2
27	registered	Lower Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	66	156	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NORMAL	VD	Spontaneous	23	36.4
26	unregistered	Lower Class	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	66	150	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	3	36
19	registered	Lower Class	B+	3	MULTIGRAVIDA	2	Multipara	2	0	no	>18	TERM	62	154	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	34.3
18	registered	Middle Class	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	83	153	OBESE CLASS 2	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	36.2
30	registered	Lower Class	AB+	2	MULTIGRAVIDA	1	Multipara	1	0	no	<18	TERM	68	152	OVERWEIGHT	NORMAL	NAD	NO GROWTH	GROWTH-	RAISED	VD	Spontaneous	23	31.4
29	registered	Middle Class	A+	3	MULTIGRAVIDA	2	Multipara	2	0	no	>18	TERM	70	154	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	30.3
32	registered	Upper Middle	O+	2	MULTIGRAVIDA	1	Multipara	0	0	no	>18	PRETERM	62	148	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	11	35.3
31	registered	Middle Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	155	OVERWEIGHT	NORMAL	BACT+	NOT SENT	NOT SENT	NORMAL	VD	Spontaneous	23	34.1
25	unregistered	Lower Middle	B+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	65	157	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	32.2
23	unregistered	Middle Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	63	152	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	9	36.5
28	registered	Upper Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	40	153	UNDERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	11	36.4
26	unregistered	Middle Class	O+	2	MULTIGRAVIDA	1	Multipara	0	0	no	<18	PRETERM	60	153	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	9	34.5

Age	Registered/Unregistered	Socio economic status	Mother's Blood Group	Gravida	Gravida_status	Parity	Parity_Statu	Live Births	Abortions	D&C	Interconcep	Previous Pregnancy (Term/Preterm)	Weight at Delivery (kg)	Height (cm)	BMI at Delivery	TLC	URINE R/M	URINE C/S	VAGINAL C/S	HSCRIP	Mode of Delivery	Type of Delivery (Spontaneous/Iatrogenic)	Indication for Termination	GA at Delivery (weeks)
23	registered	Upper Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	59	143	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	VD	Iatrogenic	7	36.1
24	registered	Middle Class	B+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	80	156	OBESE CLASS 1	RAISED	BACT+	NO GROWTH	NO INFECTION	RAISED	VD	Spontaneous	23	32.4
22	unregistered	Middle Class	O-	2	MULTIGRAVIDA	1	Multipara	1	0	no	<18	TERM	72	156	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	9	33.4
20	unregistered	Middle Class	A+	4	MULTIGRAVIDA	3	Multipara	3	0	no	>18	TERM	66	150	OVERWEIGHT	RAISED	NAD	NO GROWTH	NOT SENT	RAISED	LSCS	Spontaneous	23	36.2
22	unregistered	Lower Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	66	160	OVERWEIGHT	RAISED	BACT+	NOT SENT	NOT SENT	RAISED	LSCS	Spontaneous	23	36.2
26	unregistered	Upper Middle	B+	4	MULTIGRAVIDA	3	Multipara	3	0	no	>18	TERM	50	156	NORMAL	RAISED	BACT+	NOT SENT	NOT SENT	RAISED	LSCS	Spontaneous	23	35.6
20	unregistered	Middle Class	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	55	150	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36.5
25	unregistered	Lower Middle	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	PRETERM	66	154	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36.3
26	unregistered	Upper Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	TERM	55	142	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	35.6
28	unregistered	Lower Middle	O-	5	MULTIGRAVIDA	3	Multipara	2	1	yes	<18	PRETERM	50	148	NORMAL	NORMAL	NAD	GROWTH	NO INFECTION	NOT DONE	VD	Spontaneous	23	32.4
22	unregistered	Upper Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	94	150	OBESE CLASS 3	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	35.5
36	unregistered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	67	150	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	35.3
37	unregistered	Lower Class	B+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	76	155	OBESE CLASS 1	RAISED	NAD	NO GROWTH	GROWTH+	RAISED	LSCS	Spontaneous	23	33.3
35	registered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	75	148	OBESE CLASS 1	RAISED	NAD	NO GROWTH	NOT SENT	RAISED	VD	Spontaneous	23	35.4
23	registered	Upper Middle	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	PRETERM	62	152	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	11	31.1
27	registered	Lower Middle	A+	4	MULTIGRAVIDA	2	Multipara	1	1	yes	<18	TERM	75	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	36.5
38	registered	Lower Middle	O+	5	MULTIGRAVIDA	2	Multipara	2	2	yes	>18	PRETERM	68	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	18	28.1
21	registered	Middle Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	68	152	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	36.1
32	unregistered	Middle Class	B+	6	MULTIGRAVIDA	2	Multipara	2	3	yes	<18	PRETERM	60	148	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	34.5
24	unregistered	Middle Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	57	152	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	9	34.2
42	unregistered	Lower Middle	B-	3	MULTIGRAVIDA	1	Multipara	1	1	yes	<18	TERM	70	150	OBESE CLASS 1	RAISED	NAD	NO GROWTH	NOT SENT	NOT DONE	LSCS	Spontaneous	23	36.6
20	unregistered	Middle Class	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	75	156	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36.2
35	unregistered	Lower Middle	B+	3	MULTIGRAVIDA	0	Nullipara	0	2	yes	>18	NA	75	153	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	19	32.5
32	unregistered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	60	148	OVERWEIGHT	NORMAL	NAD	NO GROWTH	NO INFECTION	NORMAL	VD	Spontaneous	23	36.2
28	unregistered	Lower Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	60	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36.6
27	registered	Middle Class	A+	3	MULTIGRAVIDA	2	Multipara	0	0	no	<18	PRETERM	76	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	34
33	unregistered	Middle Class	A+	3	MULTIGRAVIDA	2	Multipara	1	0	no	>18	TERM	78	164	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Spontaneous	23	32.6
34	unregistered	Lower Middle	B+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	<18	NA	70	166	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	12	36.1
24	unregistered	Middle Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	76	155	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	VD	Spontaneous	23	35
28	unregistered	Lower Middle	AB+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	56	150	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	13	35.6
26	unregistered	Lower Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	65	147	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	9	27.4
20	registered	Lower Middle	A+	5	MULTIGRAVIDA	2	Multipara	0	2	yes	>18	PRETERM	70	152	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	14	36.2
21	unregistered	Lower Middle	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	69	147	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	VD	Iatrogenic	8	36.5
30	registered	Lower Class	O+	3	MULTIGRAVIDA	2	Multipara	1	0	no	>18	TERM	80	160	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	33.5

Age	Registered/Unregistered	Socio economic status	Mother's Blood Group	Gravida	Gravida_status	Parity	Parity_Status	Live Births	Abortions	D&C	Interconception Interval	Previous Pregnancy (Term/Preterm)	Weight at Delivery (kg)	Height (cm)	BMI at Delivery	TLC	URINE R/M	URINE CS	VAGINAL CS	HSCRIP	Mode of Delivery	Type of Delivery (Spontaneous/Interogetic)	Indication for Termination	GA at Delivery (weeks)
27	registered	Middle Class	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	152	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	VD	Interogetic	7	36.6
30	unregistered	Lower Middle	A-	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	66	150	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	7	33.4
20	registered	Lower Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	60	146	OVERWEIGHT	RAISED	NAD	NO GROWTH	NOT SENT	RAISED	LSCS	Spontaneous	23	36.2
24	unregistered	Lower Middle	B+	4	MULTIGRAVIDA	2	Multipara	2	1	yes	<18	TERM	82	160	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NORMAL	LSCS	Spontaneous	23	36.4
31	unregistered	Lower Class	A+	4	MULTIGRAVIDA	1	Multipara	0	2	yes	>18	TERM	72	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	13	35.1
29	registered	Lower Middle	O+	5	MULTIGRAVIDA	3	Multipara	3	1	yes	<18	TERM	66	150	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	11	36
25	unregistered	Middle Class	B+	3	MULTIGRAVIDA	0	Nullipara	0	2	yes	NA	NA	59	143	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	5	36
33	registered	Lower Middle	O+	4	MULTIGRAVIDA	3	Multipara	2	0	no	>18	PRETERM	82	162	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NORMAL	LSCS	Spontaneous	23	29.6
25	unregistered	Upper Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	57	145	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	1	35.2
20	unregistered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	60	162	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	1	36.6
31	unregistered	Upper Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	66	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	14	36.4
30	registered	Lower Middle	O+	3	MULTIGRAVIDA	0	Nullipara	0	2	yes	NA	NA	66	154	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	9	35.4
25	registered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	78	154	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	7	27.3
38	unregistered	Middle Class	B+	4	MULTIGRAVIDA	2	Multipara	2	1	yes	>18	PRETERM	76	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	20	36.5
26	unregistered	Lower Middle	O+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	82	165	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	7	36
24	registered	Middle Class	B+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	PRETERM	75	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	11	36.1
32	registered	Lower Class	AB+	3	MULTIGRAVIDA	2	Multipara	2	0	no	<18	PRETERM	77	162	OVERWEIGHT	NORMAL	NAD	NO GROWTH	NOT SENT	RAISED	LSCS	Spontaneous	23	31.3
31	unregistered	Lower Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	75	155	OBESE CLASS 1	NORMAL	NAD	NO GROWTH	NOT SENT	NORMAL	VD	Spontaneous	23	36.5
34	unregistered	Upper Middle	A+	4	MULTIGRAVIDA	2	Multipara	2	1	yes	>18	PRETERM	58	156	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	20	32.6
28	unregistered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	TERM	40	140	NORMAL	RAISED	BACT+	NO GROWTH	NO INFECTION	NORMAL	VD	Spontaneous	23	36.6
30	registered	Lower Middle	B+	2	MULTIGRAVIDA	0	Nullipara	0	1	no	NA	NA	76	155	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	6	34
22	unregistered	Middle Class	B+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	62	148	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	4	36.6
30	registered	Upper Middle	A+	4	MULTIGRAVIDA	1	Multipara	1	2	yes	>18	TERM	82	166	OVERWEIGHT	NORMAL	BACT+	GROWTH	NO INFECTION	RAISED	LSCS	Spontaneous	23	36.1
25	unregistered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	165	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	8	36.3
32	unregistered	Lower Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	58	159	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	VD	Interogetic	8	36.6
22	unregistered	Middle Class	A+	7	MULTIGRAVIDA	4	Multipara	1	2	yes	>18	PRETERM	68	160	OVERWEIGHT	RAISED	NAD	NO GROWTH	NO INFECTION	NOT DONE	LSCS	Spontaneous	23	36.2
24	unregistered	Middle Class	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	<18	TERM	72	150	OBESE CLASS 1	RAISED	NAD	NOT SENT	NOT SENT	RAISED	VD	Spontaneous	23	35.2
29	registered	Lower Middle	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	165	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	21	36.1
26	registered	Lower Middle	O+	3	MULTIGRAVIDA	1	Multipara	1	1	yes	>18	PRETERM	59	151	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	8	34.2
25	unregistered	Lower Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	78	150	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	3	34.4
29	unregistered	Middle Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	90	153	OBESE CLASS 2	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	8	36
29	registered	Lower Middle	A+	3	MULTIGRAVIDA	1	Multipara	1	0	no	>18	PRETERM	68	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	VD	Interogetic	7	36.4
27	registered	Upper Middle	O+	3	MULTIGRAVIDA	1	Multipara	1	1	yes	<18	TERM	80	165	OVERWEIGHT	NORMAL	BACT+	NOT SENT	NOT SENT	RAISED	LSCS	Spontaneous	23	31.6
30	registered	Lower Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	68	150	OBESE CLASS 1	NORMAL	NAD	NO GROWTH	NO INFECTION	NOT DONE	VD	Spontaneous	23	27.6
38	registered	Lower Class	B+	3	MULTIGRAVIDA	1	Multipara	1	1	yes	<18	TERM	51	150	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	13	31.2
21	unregistered	Lower Middle	B+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	>18	PRETERM	35	148	UNDERWEIGHT	RAISED	NAD	NO GROWTH	NOT SENT	RAISED	LSCS	Spontaneous	23	36.6
23	unregistered	Lower Middle	O+	3	MULTIGRAVIDA	0	Nullipara	0	2	yes	<18	NA	62	160	NORMAL	RAISED	BACT+	GROWTH	NO INFECTION	RAISED	VD	Spontaneous	23	35.1
32	registered	Middle Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	7	31.3
30	registered	Lower Middle	O+	2	MULTIGRAVIDA	1	Multipara	0	0	no	>18	TERM	68	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	5	30.3
26	registered	Lower Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	66	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	7	31.1
28	registered	Middle Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	77	160	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	9	36.5
23	unregistered	Lower Middle	B+	6	MULTIGRAVIDA	0	Nullipara	0	5	yes	<18	NA	70	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	RAISED	VD	Spontaneous	23	36.6
28	unregistered	Upper Middle	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	<18	TERM	82	167	OVERWEIGHT	RAISED	BACT+	NO GROWTH	NOT SENT	RAISED	VD	Spontaneous	23	33.1
24	registered	Middle Class	B+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	55	160	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	13	34.4
28	unregistered	Upper Middle	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	66	150	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	16	33.5
25	unregistered	Middle Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	160	OVERWEIGHT	RAISED	NAD	NOT SENT	NOT SENT	RAISED	VD	Spontaneous	23	36.2
38	registered	Lower Middle	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	80	164	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	7	36.5
32	registered	Lower Middle	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	NA	TERM	82	166	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	5	36.3
42	unregistered	Middle Class	B+	4	MULTIGRAVIDA	3	Multipara	3	0	no	>18	TERM	72	152	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	4	35
23	registered	Middle Class	B+	3	MULTIGRAVIDA	2	Multipara	2	0	no	>18	PRETERM	65	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	1	36.1
30	unregistered	Middle Class	O+	3	MULTIGRAVIDA	1	Multipara	1	1	yes	>18	TERM	80	162	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	13	25.4
35	registered	Lower Middle	B+	3	MULTIGRAVIDA	2	Multipara	1	0	no	>18	PRETERM	77	150	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	13	35.2
37	unregistered	Upper Middle	A+	3	MULTIGRAVIDA	0	Nullipara	0	2	yes	NA	NA	82	166	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	13	36.3
23	registered	Lower Middle	O+	3	MULTIGRAVIDA	2	Multipara	1	0	no	>18	TERM	78	167	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	9	36
26	registered	Lower Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	68	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	8	29.3
30	registered	Middle Class	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	72	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	6	34.4
26	unregistered	Lower Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	72	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	5	36
34	unregistered	Upper Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	44	144	NORMAL	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	1	29.4
24	unregistered	Lower Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	78	160	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	8	30.5
28	registered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	82	161	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	10	36.3
33	registered	Middle Class	O+	3	MULTIGRAVIDA	2	Multipara	1	0	no	>18	PRETERM	102	162	OBESE CLASS 2	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	20	36
33	unregistered	Lower Middle	A+	2	MULTIGRAVIDA	1	Multipara	0	0	no	<18	PRETERM	82	160	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Interogetic	10	35

35	unregistered	Middle Class	B+	3	MULTIGRAVIDA	0	Nullipara	0	2		NA	NA	80	164	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	3	36
21	unregistered	Upper Middle	B+	5	MULTIGRAVIDA	4	Multipara	1	0	no	>18	PRETERM	67	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	34.1
20	unregistered	Lower Middle	O+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	70	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	36.6
31	registered	Upper Middle	AB+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	60	152	OVERWEIGHT	NORMAL	BACT+	NO GROWTH	NOT SENT	RAISED	LSCS	Spontaneous	23	32.5
30	registered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	74	162	OVERWEIGHT	NORMAL	BACT+	NOT SENT	NOT SENT	NORMAL	VD	Spontaneous	23	36.1
27	unregistered	Lower Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	70	165	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	22	35.4
20	registered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	68	150	OBESE CLASS 1	RAISED	BACT+	GROWTH	GROWTH+	RAISED	LSCS	Spontaneous	23	35.2
33	registered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	72	166	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	36.2
20	registered	Lower Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	72	166	OVERWEIGHT	RAISED	NAD	NO GROWTH	NO INFECTION	RAISED	VD	Spontaneous	23	33.3
22	registered	Lower Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	80	166	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36.5
30	registered	Lower Class	B+	3	MULTIGRAVIDA	2	Multipara	2	0	no	>18	TERM	70	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	11	30.3
35	registered	Lower Class	B+	3	MULTIGRAVIDA	2	Multipara	1	0	no	>18	PRETERM	76	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	26.1
20	unregistered	Lower Class	B+	3	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	82	165	OBESE CLASS 1	RAISED	NAD	NOT SENT	NOT SENT	RAISED	LSCS	Spontaneous	23	36.5
30	registered	Middle Class	A+	5	MULTIGRAVIDA	1	Multipara	1	3	yes	>18	TERM	78	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	27.1
24	registered	Lower Middle	B+	4	MULTIGRAVIDA	1	Multipara	0	2	yes	>18	PRETERM	74	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	11	36.3
22	unregistered	Lower Middle	O+	3	MULTIGRAVIDA	1	Multipara	1	0	no	>18	PRETERM	86	150	OBESE CLASS 2	NORMAL	NAD	NOT SENT	NOT SENT	NORMAL	LSCS	Spontaneous	23	34.1
48	registered	Lower Middle	A+	3	MULTIGRAVIDA	2	Multipara	2	0	no	>18	TERM	76	166	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	11	35.4
20	registered	Lower Middle	B+	2	MULTIGRAVIDA	1	Multipara	0	0	no	<18	TERM	70	152	OBESE CLASS 1	RAISED	BACT+	NO GROWTH	NO INFECTION	NOT DONE	LSCS	Spontaneous	23	35.4
22	unregistered	Middle Class	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	<18	TERM	86	166	OBESE CLASS 1	RAISED	BACT+	NO GROWTH	NO INFECTION	NOT DONE	LSCS	Spontaneous	23	36.6
28	unregistered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	68	150	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	32.5
29	unregistered	Lower Class	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	68	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	35
24	registered	Middle Class	A+	4	MULTIGRAVIDA	3	Multipara	1	0	no	>18	PRETERM	78	157	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	14	32.6

Age	Registered/Unregistered	Socio economic status	Mother's Blood Group	Gravida	Gravida_status	Parity	Parity_Statu	Live Births	Abortions	D&C	Interconception Interval	Previous Pregnancy (Term/Preterm)	Weight at Delivery (kg)	Height (cm)	BMI at Delivery	TLC	URINE RM	URINE C/S	VAGINAL C/S	HSCRIP	Mode of Delivery	Type of Delivery (Spontaneous/Iatrogenic)	Indication for Termination	GA at Delivery (weeks)
34	unregistered	Middle Class	AB-	2	MULTIGRAVIDA	0	Nullipara	0	1	no	NA	NA	70	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	36.2
37	registered	Upper Middle	B+	4	MULTIGRAVIDA	0	Nullipara	0	3	yes	NA	NA	68	150	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	35.4
26	registered	Lower Middle	AB+	4	MULTIGRAVIDA	0	Nullipara	0	3	yes	NA	NA	72	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36.6
31	registered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	88	168	OBESE CLASS 1	NORMAL	NAD	NO GROWTH	NOT SENT	NORMAL	LSCS	Spontaneous	23	34.3
27	registered	Middle Class	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	72	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	11	36.5
35	unregistered	Lower Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	66	152	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	4	35.5
29	registered	Lower Middle	AB+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	PRETERM	72	157	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	10	28
25	unregistered	Middle Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	80	166	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	VD	Iatrogenic	9	36.5
37	unregistered	Middle Class	AB+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	68	148	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NORMAL	LSCS	Spontaneous	23	36.3
29	unregistered	Lower Class	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	82	167	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	VD	Iatrogenic	9	30.1
36	unregistered	Middle Class	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	88	166	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	12	29.1
30	unregistered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	80	166	OVERWEIGHT	NORMAL	BACT+	NOT SENT	NOT SENT	NORMAL	VD	Spontaneous	23	36.6
26	unregistered	Lower Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	77	160	OBESE CLASS 1	RAISED	BACT+	NOT SENT	NOT SENT	NOT DONE	VD	Spontaneous	23	36.5
34	unregistered	Lower Middle	B+	5	MULTIGRAVIDA	1	Multipara	1	3	yes	>18	TERM	69	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	13	35.6
26	unregistered	Middle Class	O+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	78	162	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	33.1
28	unregistered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	85	166	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	36.1
26	registered	Middle Class	AB+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	78	156	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	34.4
25	registered	Lower Class	A+	3	MULTIGRAVIDA	1	Multipara	1	1	yes	>18	PRETERM	77	156	OBESE CLASS 1	NORMAL	BACT+	NO GROWTH	NOT SENT	NORMAL	LSCS	Spontaneous	23	35.3
21	unregistered	Middle Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	82	162	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	36.5
23	registered	Lower Middle	B+	3	MULTIGRAVIDA	2	Multipara	1	0	no	>18	PRETERM	72	167	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	32.5
30	registered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	67	155	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	6	36.4
21	unregistered	Lower Middle	B+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	70	164	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	7	36
38	unregistered	Lower Middle	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	82	162	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	36.6
22	registered	Lower Middle	B+	5	MULTIGRAVIDA	3	Multipara	3	1	no	>18	TERM	68	156	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	20	36.2
25	unregistered	Middle Class	O+	3	MULTIGRAVIDA	2	Multipara	0	0	no	<18	PRETERM	68	152	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	6	35.2
33	unregistered	Lower Middle	A+	3	MULTIGRAVIDA	2	Multipara	2	0	no	>18	PRETERM	77	163	OVERWEIGHT	RAISED	NAD	NO GROWTH	NO INFECTION	RAISED	VD	Spontaneous	23	36.4
27	registered	Lower Middle	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	TERM	70	160	OVERWEIGHT	RAISED	BACT+	NO GROWTH	NOT SENT	RAISED	LSCS	Spontaneous	23	35.6
23	unregistered	Lower Middle	AB+	2	MULTIGRAVIDA	0	Nullipara	0	1	yes	NA	NA	68	164	OVERWEIGHT	RAISED	NAD	NOT SENT	NOT SENT	RAISED	VD	Spontaneous	23	34.2
31	registered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	66	160	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	36
42	registered	Lower Middle	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	PRETERM	72	158	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	9	36.3
24	registered	Lower Middle	A+	2	MULTIGRAVIDA	1	Multipara	1	0	no	>18	PRETERM	80	162	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	5	36.1
26	registered	Upper Middle	A+	2	MULTIGRAVIDA	0	Nullipara	0	1	no	NA	NA	77	158	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	6	29.2
34	registered	Middle Class	O+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	77	159	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	8	36.5
24	unregistered	Middle Class	A+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	68	158	OVERWEIGHT	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	9	36.2
32	registered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	82	162	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	1	33.5
28	unregistered	Lower Middle	B+	1	PRIMIGRAVIDA	0	Nullipara	0	0	no	NA	NA	82	160	OBESE CLASS 1	NORMAL	NAD	NOT SENT	NOT SENT	NOT DONE	LSCS	Iatrogenic	3	35.3
19	registered	Lower Middle	O+	1	PRIMIGRAVIDA	0	Nullipara	0																











Hospital Stay (days)	Blood Loss at Delivery (ml)	NICU Admission	Cause for NICU	Duration of NICU Stay (days)	APGAR Score (1 min)	APGAR Score (5 min)	Neonatal Complications	Birth Weight (kg)	Death	BAD OBSTETRIC HISTORY	RECURRENT ABORTIONS	THYROID DISORDER	CHRONIC HTN	OVER DM	ANEMIA	TORCH +	GESTATIONAL HTN	PREECLAMPSIA	HELLP	ECLAMPSIA	GDM	POLYHYDRAMNIOS	OLIGOHYDRAMNIOS	FGR without DOPPLER CHANGES	FGR with RAISED UAPI	AEDF/REDF	MACROSOMIA	PREV 3 LSCS	UTI	
15	250	2		NA	7	9		1501<-2500	NO DEATH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6	250	1		2	8	9		1501<-2500	NO DEATH	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8	280	1		>7	6	8		1501<-2500	NO DEATH	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	950	1		>7	6	8		1501<-2500	NO DEATH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	360	2		NA	8	9		>2500	NO DEATH	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	410	2		NA	8	9		>2500	NO DEATH	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
16	300	1		6	6	8		1001-1500	NO DEATH	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	300	1		4	7	8		1001-1500	NO DEATH	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
15	280	1		>7	7	8		1001-1500	NO DEATH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	200	1		2	6	7		1501<-2500	NO DEATH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	300	1		>7	4	5		<1000	NO DEATH	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6	320	1		4	7	9		1501<-2500	NO DEATH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
6	250	1		1	8	9		1501<-2500	NO DEATH	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
50	250	1		4	6	9		1501<-2500	NO DEATH	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0
12	410	1		2	7	8		>2500	NO DEATH	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0
16	380	1		>7	8	8		1501<-2500	NO DEATH	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15	550	1		3	7	8		>2500	NO DEATH	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
24	320	1		2	8	9		1501<-2500	NO DEATH	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0























URTI	CERVICITIS/VAGINITIS	CERVICAL INCOMPETANCE	H/O FEVER EPISODES	ACUTE GASTRO-ENTERITIS	DENGUE	ACTIVE TB	TYPHOID	DIAGNOS ED UTERINE ANOMALIES	VIRAL HEPATITIS ACUTE	ACUTE PANCREATITIS	UTERINE FIBROID	PLACENTA PREVIA/PAS	PLACENTAL ABRUPTION	APLA +	THALASS EMIA	CARDIAC DISEASE	PORTAL HTN	IVF	IUI	OI CONCEPTION	CKD	ITP	CONN ECTIVE TISSUE DISORDERS	CVT	RHEUMATOID ARTHRITIS	Indication for Termination
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with raised UAPI
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with raised UAPI
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Macrosomia
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Placenta previa / PAS
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	Fetal distress
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Preeclampsia
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Preeclampsia
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Cardiac disease
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Oligohydramnios
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	FGR with raised UAPI
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	PREV 3 LSCS
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with raised UAPI
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Placenta previa / PAS
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	PREV 3 LSCS
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR without doppler changes
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	HELLP
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	FGR with AEDF/REDF
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with AEDF/REDF
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with AEDF/REDF
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Eclampsia
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with AEDF/REDF
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with raised UAPI
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Macrosomia
0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with raised UAPI
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Fetal distress
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with raised UAPI
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Oligohydramnios
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Macrosomia
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Macrosomia
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Macrosomia
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Macrosomia
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Oligohydramnios
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with AEDF/REDF
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	FGR without doppler changes
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Fetal distress
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Preeclampsia
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FGR with AEDF/REDF
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Anamniotic
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	PREV 3 LSCS
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Anamniotic
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Eclampsia
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	Preeclampsia



