

## The Impact of Maternal Age on Maternal and Neonatal Outcomes among Primipara Mothers at SMCH

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### Abstract

Childbirth is one of the most awaited and cherished events in a woman's life, wherein she steps into a world of creation, such as becoming a mother. Maternal age  $\geq 35$  at the anticipated date of delivery is considered advanced maternal age (AMA). Fertility decreases with age, particularly beyond the mid-thirties. Pregnancy-related difficulties are more likely to occur in women who conceive later in life. The study's goal is to evaluate how maternal age affects primiparous mothers' pregnancy outcomes, to evaluate how maternal age affects newborn outcomes in primiparous women, to link the chosen demographic factors of primiparous mothers with the effect of maternal age on pregnancy and newborn outcomes. A quantitative descriptive study of primiparous women aged 17 to 35 years was carried out. 50 primiparous women were given a self-structured questionnaire as a means of gathering data. Non-probability purposive sampling was used to choose the participants. SPSS statistical analysis was used to analyse the data. 29 (58%) primiparous mothers experienced labor lasting 10 to 12 hours, 36 (72%) had a normal vaginal delivery, 33 (66%) had babies weighing 2.5 to 3.5 kg, 38 (76%) had a history of education below the 12th standard, and 36 (72%) had a genetic history of preterm birth. The duration of labour ( $\chi^2=11.064$ ,  $p=0.026$ ) showed a statistically significant association with the level of maternal risk factors among primiparous mothers at the  $p<0.05$  level, while the other demographic variables did not exhibit a statistically significant association with the level of maternal risk factors among primiparous mothers.

**Keywords:** Maternal Age, Maternal Outcome, Neonatal Outcome, Preterm Baby, Primiparous Mother.

### Introduction

One of a woman's most anticipated and treasured life events is giving birth, which into the world of creation that is motherhood. For the woman and her family, the physiological shift from being pregnant to being a mother is a huge emotional and physical triumph. The mystery of pregnancy and labour is that problems can occur at any time and jeopardise both the mother's and the fetus's lives. Extremely young mothers might have extremely difficult pregnancies [1]. A woman's age at the beginning of her pregnancy is the single most significant element that

unquestionably affects the course of the pregnancy and labour, but other factors also have an impact on her reaction to being pregnant [2]. Early and late pregnancies must be assessed as an extraordinary bunch, and follow-ups must be arranged in this regard [3] Pregnancy among adolescents and the elderly are both adolescent and elderly pregnancy are considered to be high risk, as they have unique outcomes [4]. Whether an adverse environment, inadequate prenatal care, or biological inexperience could be responsible for the association between teenage pregnancy and adverse birth outcomes remains subject to

discussion. [5-7]. Maternal age  $\geq 35$  at the anticipated date of delivery is considered advanced maternal age (AMA). According to some research, AMA is defined as being 40 years of age or older, while women who are 45 or 50 years of age have been proposed to fall into the category of "very advanced maternal age" [8]. Younger maternal age was fundamentally and consistently associated with decreased risks of adverse obstetric outcomes and more significant risks of fetal weakening and passage [9]. Anaemia, fetal and neonatal mortality, and premature birth were all associated with younger mother ages [10]. Currently, there is no universally agreed-upon definition of advanced reproductive age in women, in part because the consequences of increasing age occur as a continuum, rather than as a threshold effect. Social trends have encouraged women to delay their first pregnancy secondary to late marriages, improved access to education, career opportunities, and availability of better contraceptive options and assisted reproductive techniques, leading to a trend of shifting family planning and childbearing towards advanced maternal age [11]. The risk of low birth weight or preterm birth is not independently correlated with advanced maternal age. Delivery among women with a minimum of two live births [12]. Young primigravidae are more likely to have an unconstrained vaginal conveyance, without compromising the maternal or neonatal outcome [13]. Expanding maternal age was essentially related to higher wage levels and higher rates of corpulence, pre-existing diabetes, and hypertension. With the expanding maternal age, the rate of obstetric complications, including gestational diabetes, preeclampsia, placenta previa, placental abruption, and cesarean delivery, has increased. Maternal age was too emphatically connected with perinatal dreariness, including preterm birth and moo birth weight. Furthermore, progressed maternal age was a

risk factor for hospitalisation, some time recently delivery, more outpatient visits, and readmission after delivery. These perceptions were kept up within the multivariate examination comes about [14, 15]. Special attention should be paid to enrolling teenagers into adequate prenatal care in early pregnancy [16]. No obvious difference in the obstetric and perinatal outcomes, birth weight, APGAR score and admission to Neonatal Intensive Care Unit (NICU) between younger and older mothers [17]. One of the Joint Together Nations' Thousand Years Advancement Objectives of 2000 was to decrease maternal mortality by 75% in 15 years; in any case, this challenge was not met by many industrialised nations. As normal maternal age proceeds to rise in these nations, related possibly life-threatening extreme maternal depression has been understudied [18]. The increase in risk of neonatal mortality and morbidity is largely explained by increased rates of very preterm birth [20, 21]. Therefore, there is a chance that the mother's advanced age will hurt the newborn. For these high-risk pregnancies, rigorous prenatal monitoring is required. [22]. Good maternal and perinatal outcomes may result from early booking, careful monitoring during the prenatal and postpartum phases, and obstetric interventions that are timed appropriately [23].

## Methods And Materials

The methodology of the research study is defined as the way the information is gathered to answer the question or analyse the research problem. It includes aspects like research design, setting of the study, population, sample, sample size, sample technique, and criteria of the sample selection, scoring interpretation, data collection procedure and data analysis. Research Approach: A Quantitative research approach was used in this study to accomplish the objectives framed for the study. **Research Design:** The research design adopted for this study was descriptive.

**Research Setting:** The study was conducted at Saveetha Medical College and Hospital, Thandalam, Chennai. **Sample:** The sample was the primiparous and elderly age mothers at Saveetha Medical College and Hospital, Thandalam, Chennai. **Sample Size:** The sample size of the study comprises 50 primiparous and elderly age mothers who have fulfilled the criteria. **Sampling Technique:** The samples were selected by a non-probability purposive sampling technique.

## Results And Discussion

Women presenting to the study sites for antenatal care were enrolled in the study and followed up for collection of maternal and

neonatal outcomes at 1, 7 and 30 days postpartum. The study's primary outcomes were the incidence of maternal and newborn complications and factors associated with adverse neonatal outcomes. Statistical significance was evaluated at a significance level of  $P < 0.05$ . The below table 1 shows that most of the primi parous mothers, 26(52%) were aged between 17 – 19 years, 39(78%) had non-consanguineous marriage, 29(58%) had 10 – 12 hours as duration of labour, 36(72%) had normal vaginal delivery, 33(66%) of their babies were weighing 2.5 – 3.5 kg, 38(76%) were educated <12<sup>th</sup> std and 36(72%) had genetic history of preterm baby.

**Table 1.** Frequency and Percentage Distribution of Demographic Variables of Primiparous Mothers

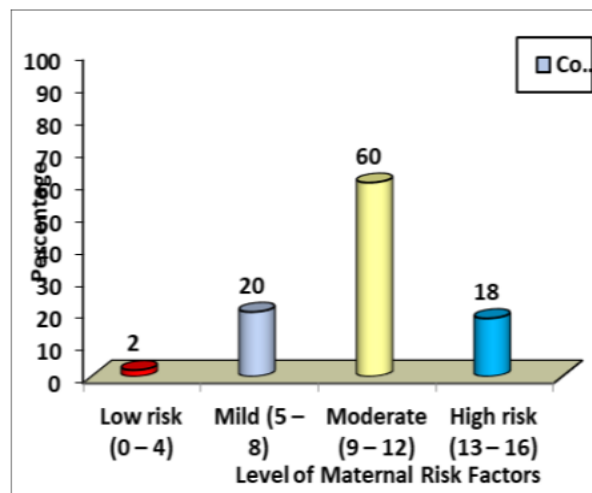
Demographic Variables	F	%
<b>Age at pregnancy in years</b>		
17 – 19	26	52.0
20 – 30	20	40.0
30 – 35	4	8.0
<b>Type of marriage</b>		
Consanguineous marriage	11	22.0
Non-consanguineous marriage	39	78.0
<b>Duration of labour</b>		
10 – 12 hrs	29	58.0
12 – 14 hrs	14	28.0
14 – 18 hrs	7	14.0
<b>Mode of delivery</b>		
Normal vaginal delivery	36	72.0
LSCS	12	24.0
Instrumental delivery	2	4.0
<b>Weight of the baby</b>		
Below 2.5 kg	10	20.0
2.5 kg – 3.5 kg	33	66.0
More than 3.5 kg	7	14.0
<b>Education</b>		
Degree holder	8	16.0
<12 <sup>th</sup> std	38	76.0
Uneducated	4	8.0
<b>Genetic history</b>		
Congenital anomalies	4	8.0
Preterm baby	36	72.0

**Table 2.** Frequency and Percentage Distribution of Level of Maternal Risk Factors among Primiparous Mothers.

N = 50

Level of Maternal Risk Factors	F	%
Low risk (0 – 4)	1	2.0
Mild (5 – 8)	10	20.0
Moderate (9 – 12)	30	60.0
High risk (13 – 16)	9	18.0

The above table shows that 30(60%) had moderate risk, 10(20%) had mild risk, 9(18%) had high risk and 1(2%) had low risk.



**Figure 1.** Percentage Distribution of Level of Maternal Risk Factors among Primiparous Mothers

**Table 3.** Assessment of Maternal Risk Factors among Primiparous Mothers

N = 50

Variables	Score
Minimum	7.00
Maximum	14.00
Median	10.00
Mean	10.14
S.D	1.92

Above Table 3 shows that the mean score was 10.14±1.92. The median score was 10.0, with a minimum score of 7.0 and a maximum score of 14.

**Table 4.** Association of the Level of Maternal Risk Factors among Primiparous Mothers with Selected Demographic Variables.

N = 50

Demographic Variables	Frequency	Chi-Square Test & p-value
<b>Age at pregnancy in years</b>		$\chi^2=1.554$
17 – 19	26	d,f=4
20 – 30	20	p=0.817
30 – 35	4	N.S

Demographic Variables	Frequency	Chi-Square Test & p-value
<b>Type of marriage</b>		$\chi^2=1.096$
Consanguineous marriage	11	d,f=2
Non-consanguineous marriage	39	p=0.578 N.S
<b>Duration of labour</b>		$\chi^2=11.064$
10 – 12 hrs	29	d,f=4
12 – 14 hrs	14	p=0.026
14 – 18 hrs	7	S*
<b>Mode of delivery</b>		$\chi^2=1.953$
Normal vaginal delivery	36	d,f=4
LSCS	12	p=0.744
Instrumental delivery	2	N.S
<b>Weight of the baby</b>		$\chi^2=3.122$
Below 2.5 kg	10	d,f=4
2.5 kg – 3.5 kg	33	p=0.538
More than 3.5 kg	7	N.S
<b>Education</b>		$\chi^2=6.747$
Degree holder	8	d,f=4
<12th std	38	p=0.150
Uneducated	4	N.S
<b>Genetic history</b>		$\chi^2=6.714$
Congenital anomalies	4	d,f=4
Preterm baby	36	p=0.152
Low birth weight baby	10	N.S

\*p<0.05, S – Significant, N.S – Not Significant

Table 4 shows that the demographic variable duration of labor ( $\chi^2=11.064$ ,  $p=0.026$ ) had shown a statistically significant association with the level of maternal risk factors among primiparous mothers at a  $p<0.05$  level, and the other demographic variables had not shown a statistically significant association with the level of maternal risk factors among primiparous mothers.

The table below 4 shows that the demographic variable duration of labor ( $\chi^2=11.064$ ,  $p=0.026$ ) had shown a statistically significant association with the level of maternal risk factors among primiparous mothers at  $p<0.05$  level and the other demographic variables had not shown a statistically significant association with the level of maternal risk factors among

primiparous mothers. Adjusting for socio-economic, demographic, and health service utilisation variables did not markedly change the odds ratios associated with age. The increased risks associated with adolescent motherhood are lowest for first births supported by our study results. These findings could help identify at-risk groups for additional support and tailor interventions to minimise the risk of adverse outcomes for these vulnerable groups [19]. The rate of abortions, gestational diabetes, gestational hypertension, hypothyroidism, and stillbirth was more common in the elderly group, and preterm deliveries, (19-22) IUGR, fetal malpresentation, IUD, and neonatal death were common in the adolescent group as compared to the control group. There was a statistically

significant difference regarding APGAR scores and admission to the neonatal intensive care unit. Primigravida women admitted to the labour ward were divided into three groups: adolescent (<19> elderly group (> 30 years), and control group (20-29 years). The adolescent and elderly groups were compared with the control group for the maternal and perinatal outcomes. [22-23]. Short interpregnancy intervals appear to be associated with increased risks for adverse pregnancy outcomes for women of all ages; maternal risks at short intervals may be greater for older women, whereas fetal and infant risks may be greater for younger women [24]. Women who are approaching the upper limit of fecundity are at greater risk for having children who are preterm and SGAA. An analysis of perinatal outcomes about maternal age in the Indian population will provide important knowledge that may be used to further improve social, antenatal, obstetric, and neonatal care and reveal risk groups that in particular may need more attention in antenatal care [25-27]. Women aged 35 years and older should be regarded as a risk group for very preterm birth, irrespective of parity [28].

## Conclusion

This study concludes that primiparous mothers over the age of 30 years, 30(60%) had moderate maternal risk, 10(20%) had mild risk, 9(18%) had high risk, and 1(2%) had low risk. Maternal age has a significant role in the

pregnancy outcome. Adolescent and elderly maternal age is a risk factor for adverse pregnancy outcomes. Early booking, close supervision in the antenatal and intrapartum period, and appropriately timed obstetrical intervention may contribute to good maternal and perinatal outcomes.

## Conflict of Interest

The authors have declared that no competing interests exist.

## Funding Source

Nil.

## Delimitation of the Study

The study is delimited to a period of data collection. Need careful counselling preconceptionally and closer monitoring prenatally for the delivery and neonatal outcomes (14).

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## Authors Contribution

Sathiyabama framed the concepts and design of the study. Mahalakshmi and Sathiyabama did data curation, analysis and drew results, and Sathiyabama prepared a manuscript finally reviewed and accepted for publication.

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