



## EFFECTS OF MATERNAL AGE ON PREGNANCY, LABOUR, AND FOETAL OUTCOME - A RETROSPECTIVE STUDY

<sup>1</sup>Jayashree S., <sup>2</sup>Rajathi S.\*, <sup>3</sup>Hemamalini M.

1-Asst. Professor, 2- Vice-Principal, 3- Principal, Hindu Mission College of Nursing, West Tambaram, Chennai-45, Affiliated to the Tamil Nadu Dr. M.G.R Medical University, Chennai, Tamil Nadu, India.

### ARTICLE INFORMATION

#### Article History:

**Received:**  
May 30<sup>th</sup> 2023

**Revised:**  
Nov 30<sup>th</sup> 2023

**Accepted:**  
Dec 9<sup>th</sup> 2023

**Corresponding  
Author:**  
Rajathi Sakthivel

**Email ID:**  
rajathisakthi80@  
gmail.com

**Mobile No:**  
9176642487

### ABSTRACT

**Background:** Pregnancies of advanced maternal age have become more prevalent over the last few decades. It is considered a major risk factor for adverse maternal, perinatal, foetal, and neonatal outcomes. **Aims and**

**Objectives:** This study aimed to assess and associate the effects of maternal age on pregnancy, labour, and foetal outcome. **Methodology:** A retrospective research design was adopted. A total of 40 postnatal mothers were selected through a nonprobability sampling technique. The Obstetrics and gynecology case sheets of the mothers aged 30 years and above were scrutinised by the Medical Record Department. Based on the Inclusion criteria, the data was collected with a structured questionnaire and analysed using descriptive and inferential statistics. **Results:** Postnatal mothers had significant pregnancy-related effects - 38% of mothers had gestational diabetes mellitus, 32% had hypothyroidism or hyperthyroidism, 12% had a spontaneous abortion, and 12% had pregnancy-induced hypertension, labour-related effects of postnatal mothers - 69% mothers had a lower segmental cesarean section, 13% had a vaginal delivery, 10% had cephalopelvic disproportion during labour, 2% had

early rupture of membrane; foetal outcome related effects - 56% mothers had macrosomia baby, 17% each had low birth weight babies and low APGAR score babies, 4% had Intrauterine growth retardation and 6% had foetal distress. **Conclusion:** Advanced maternal age is markedly connected with adverse obstetrical and perinatal outcomes. Therefore, it is essential for healthcare providers to counsel couples in order to ensure safe motherhood and a healthy foetus.

**Keywords:** Maternal age, pregnancy, labour, foetal outcome, obstetrical, perinatal, prenatal, anomaly, antepartum.

Jayashree S., Rajathi S., Hemamalini M, Effects of maternal age on pregnancy, labour, and foetal outcome - A Retrospective study, ICCRJNR, Jan – Jun 2023, 8(1): 85-93

## I INTRODUCTION

Pregnancy is a unique, galvanic, and often joyful period in a woman's life, as it highlights the woman's creative and fostering powers while providing a bridge to the future. A pregnant woman needs to be liable to support the well-being of her future child.<sup>1</sup> A high-risk pregnancy is one in which a woman and her foetus face a higher-than-normal chance of experiencing problems and this increases the rates of mortality.<sup>2</sup>

Advanced maternal age generally signifies age after 35 years at the time of delivery.<sup>3</sup> A significant proportion of women are choosing to postpone their pregnancy late into the fourth and fifth decades and the trend of delaying pregnancy and childbearing is rising globally irrespective of race and economic status.<sup>4</sup>

Worldwide, in 2021, 31.9% of women got pregnant at the age of 35 to 37, 22.1% at the age of 38 to 40, 12.4% at the age of 41 to 42, 5% at the age of 43 to 44 and, 1% at >44 years of age. Pregnancy in advanced maternal age has become more common in both developed and developing countries over the decades.<sup>5</sup> In the United States (US), the mean age of women having their first birth in 2020 was 27.1 years compared with 21.4 years in 1970 and nearly 19% of all pregnancies and 11% of all first pregnancies in the US were in women aged 35 years and older.<sup>6</sup> A study conducted in 29 countries in Africa, Asia, the Middle East, and Latin America in 2014 revealed that the magnitude of pregnant women with advanced maternal age was 12.3%.<sup>7</sup>

Women with advanced maternal age usually have a relatively lower tendency to achieve pregnancy within a short period, fertility in women starts to decrease in the early thirties and even decreases faster after the mid and late thirties<sup>8</sup>. The main reason behind advanced maternal age is the wide educational and career choices that encourage women to pursue their professional goals. Easy access to modern contraceptive methods has also enabled them to achieve better control of fertility. Increasing rates of divorce are another cause for delay in conceiving. In India, the premise is different where poor socio-economic status, lack of contraceptive knowledge, religious issues, desire for a male child, the concept of a large family, and women conceiving from marriage to menopause, are the common causes of pregnancy with advanced maternal age<sup>9</sup>.

Advanced maternal age is considered an independent risk factor for adverse maternal and foetal outcomes which in turn increased maternal and prenatal morbidity and mortality. Hence as researchers, we felt a need to conduct a study on the effects of maternal age on pregnancy, labour, and foetal outcome, thus providing information to mothers regarding the risk and complications of advanced maternal age in pregnancy and thereby, supporting the mother and the baby.

### ***Statement of the problem***

A retrospective study to assess the effects of maternal age on pregnancy, labour, and foetal outcome.

### ***Objectives***

1. To assess the effects of maternal age on pregnancy, labour, and foetal outcome.
2. To associate the effects of maternal age on pregnancy, labour, and foetal outcome with their selected demographic variables.

### ***Null Hypothesis***

**H<sub>0</sub>**: There is no significant association between maternal age on the effects on pregnancy, labour, and foetal outcome.

## **II MATERIALS AND METHODS**

A univariable, retrospective research design was adopted. The accessible population was the age group of 30 years and above, postnatal mothers admitted to Hindu Mission Hospital, West Tambaram, Chengalpattu district. Totally 40 postnatal mothers' case sheets were selected through a Nonprobability convenient sampling technique.

### ***Description of the tool***

The researcher adopted a structured questionnaire regarding the effects of maternal age on pregnancy, labour, and foetal outcome tool on the basis and nature of the study. The tool consists of two sections.

**Section A: Demographic variables of postnatal mothers-** Age, educational status, occupation, family income, order of childbirth, mode of delivery, place of living, type of family, and age of marriage.

**Section B:** includes a **Structured Questionnaire** regarding the effects of maternal age on pregnancy, labour, and foetal outcome. It has 24 questions with Yes or No responses.

### *Data Collection Procedure*

Formal permission was obtained from the medical records department, of Hindu Mission Hospital, Chennai. Individual anonymity and confidentiality were maintained throughout the study. As per inclusion criteria the OBG case sheets were scrutinised in the period from January 2021-September 2021. It took about 20 minutes to collect the needed information from each record. Finally, the collected data was analysed by descriptive and inferential statistics.

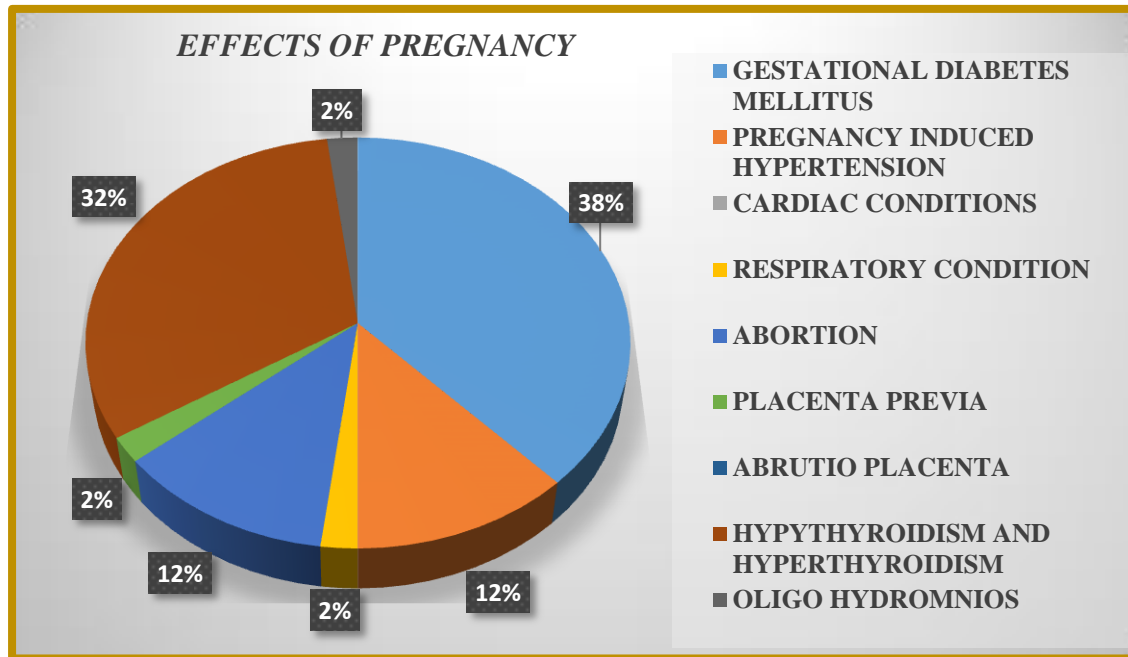
### *Ethical Considerations*

The study was approved by the Hindu Mission College of Nursing, Chennai. However, in this retrospective study, confidentiality and anonymity of the data was maintained.

## **III RESULTS**

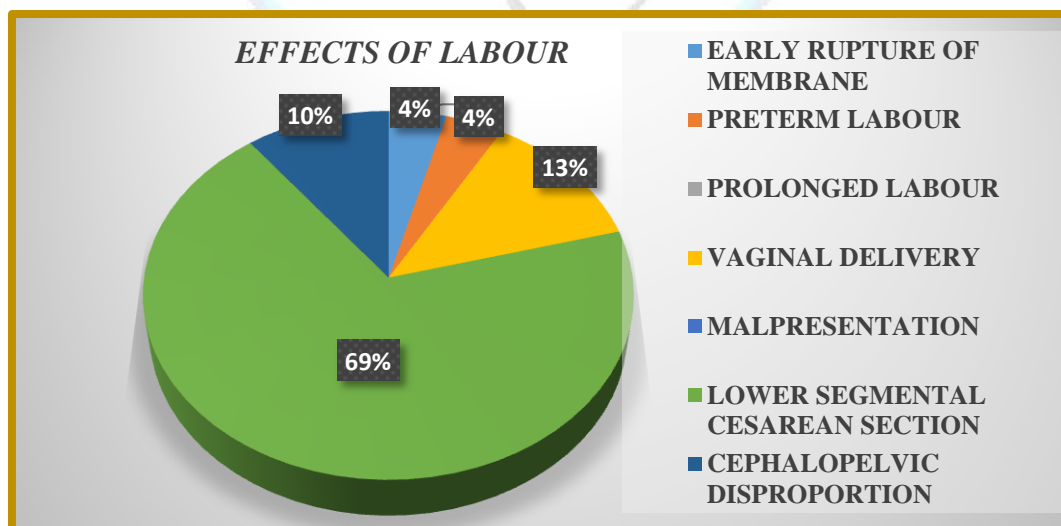
### *Demographic Variables*

Regarding the demographic variables, among the 40 postnatal mothers who participated in the study 82.5% belonged to the age group of 30-33 years, 42.5% had received secondary education, 70% were homemakers, 45% had 2<sup>nd</sup> order childbirth, 82.5% had undergone lower segment cesarean section, 97.5% were residing in urban area. Regarding their type of family, 50% were from the nuclear family, and 40% were married above the age of 28 years.



**Fig1.Distribution of postnatal mothers according to the effects of maternal age on pregnancy**

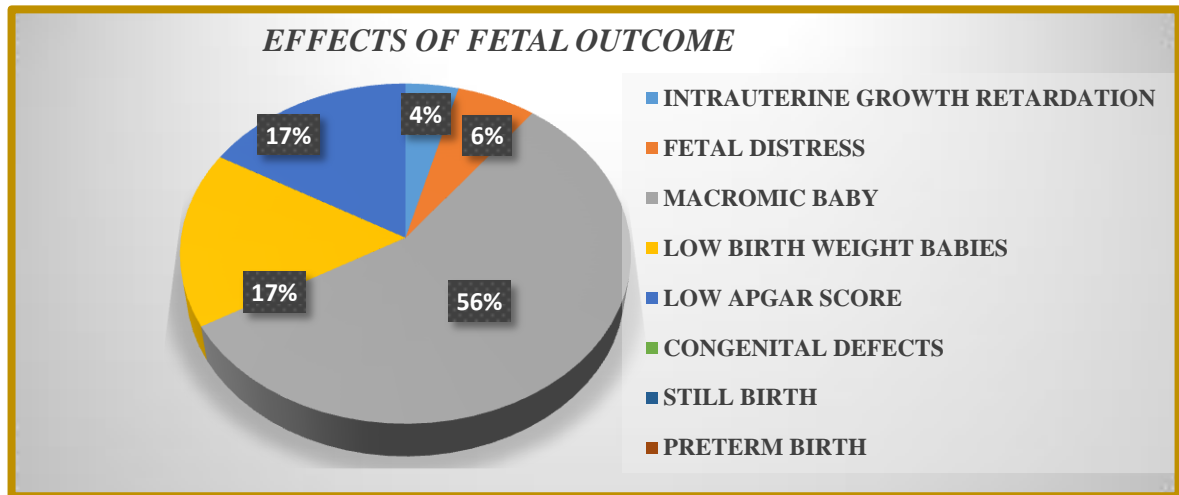
The above figure (1) shows the distribution of postnatal mothers according to the effects of maternal age on pregnancy among 40 samples, 38% had Gestational Diabetes mellitus, 32% had hypothyroidism or hyperthyroidism, 12% had Pregnancy induced hypertension, 12% had abortion, 2% had asthma, 2% had placenta previa and 2% had oligohydramnios.



**Fig. 2: Distribution of postnatal mothers according to the effects of maternal age on labour**

The above figure (2) shows the distribution of postnatal mothers according to the

effects of maternal age on labour, 69% had Lower Segment Caesarean Section, 13% had a vaginal delivery, 10% had cephalopelvic disproportion, 2% had early rupture of membrane and 4% had preterm labour.



**Fig. 3: Distribution of postnatal mothers according to the effects of maternal age on foetal outcome**

The above figure (3) shows the distribution of postnatal mothers according to the effects of maternal age on foetal outcome, 56% had macrosomic babies, an equal percentage of 17% had low birth weight babies and low Apgar babies, 6% had foetal distress conditions and 4% had intrauterine growth retardation.

#### *Association of postnatal mothers according to the effects of maternal age on pregnancy, labour, and foetal outcome*

The Chi-square test was used to associate the effects on pregnancy, labour, and foetal outcome with maternal age. There was no significant association of maternal age on pregnancy, labour, and foetal outcome.

## IV DISCUSSION

Advanced maternal age is highly linked with the occurrence of pregnancy-induced hypertension, Diabetes mellitus, maternal near-miss, increased cesarean delivery, malpresentation in the foetus, or even maternal or foetal death.<sup>11</sup>

Regarding the significant effects on pregnancy, labour, and foetal outcome, the present study identified that postnatal mothers in pregnancy had significant effects such as Gestational

diabetes mellitus, hypothyroidism, hyperthyroidism, pregnancy induced hypertension, respiratory condition like asthma, abortion, and placenta previa. Concerning labour, the postnatal mothers had significant effects such as lower sectional cesarean section, vaginal delivery, cephalopelvic disproportion, early rupture of membrane, and preterm labour. Regarding foetal outcome, significant effects such as macrosomia, low birth weight and low Apgar score babies, foetal distress, and intrauterine growth retardation were identified.

The results of the present study was supported by Glick I, et al., (2021) who reported that the mothers with advanced maternal age (>35 years) women, had effects such as gestational hypertension, gestational diabetes mellitus, and spontaneous abortion.<sup>12</sup> Similarly, Ambrogio P., et al., (2019) reported that among 22,933 mothers, maternal age over 40 years was an independent risk for preterm delivery (95% CI 1,16-1,61), Gestational diabetes mellitus (95% CI 1.71), Caesarean delivery (QR 1.99 99% CI 1.78-2.23)<sup>10</sup>.

Considering the association of the effects of pregnancy, labour, and foetal outcome with maternal age, no significant association was found. Hence the null hypothesis  $H_{01}$ , stated earlier was accepted for the demographic variable of maternal age.

In a similar study with a contrasting view, Khalil et al (2013) reported that advanced maternal age was associated with an increased risk of miscarriage 2.32 (95% CI), preeclampsia (91.49 95%) and, Gestational diabetes mellitus (OR, 1.88 95%).<sup>13</sup>

### ***Nursing Implications***

The nurses in the hospital should provide the utmost care to antenatal mothers who are in advanced age groups and be vigilant towards the complications during pregnancy and labour. The nursing fraternity in the community and public health, as well as the stakeholders in the community, can be trained to conduct antenatal surveillance programs to improve the outcomes in the higher age group mothers. Nurse educators can provide prenatal classes to young women to highlight the importance of obstetrical consequences that may occur due to increased maternal age. Researchers can conduct similar studies with larger samples to generalise the findings at various other hospitals and as an experimental study to primigravida mothers by using instructional media on the impact of age on pregnancy, labour, and foetal outcomes.

### ***Limitations***

The time constraints, small sample size, and the study settings were the limitations of the present study.

## V CONCLUSION

The study concluded that advanced maternal age had significant effects on pregnancy, labour, and foetal outcomes. Hence, as healthcare providers, we hold the responsibility to educate young women on the biological advantages of having a child at a younger age, the age-related risk of foetal aneuploidies (Presence of one or more extra chromosome or the absence of one or more chromosome), and the increased risk of both early and late complications of pregnancy. It is important that older women should also be offered progressive use of antepartum investigations to ensure safe motherhood and a healthy foetus.

## VI REFERENCES

1. Introduction to pregnancy - trimesters, stages of Labor & More [Internet]. [cited 2022 Dec 11]. Available from: <https://www.mentalhelp.net/pregnancy/>
2. High-risk pregnancy: Risk factors, Complications & Treatment [Internet]. [cited 2022 Dec 11]. Available from: <https://my.clevelandclinic.org/health/diseases/22190-high-risk-pregnancy>
3. Shan D, Qiu P-Y, Wu Y-X, Chen Q, Li A-L, Ramadoss S, et al. Pregnancy outcomes in women of Advanced Maternal age: A retrospective cohort study from China. *Scientific Reports*. 2018;8(1). doi:10.1038/s41598-018-29889-3
4. Dietl A, Cupisti S, Beckmann M, Schwab M, Zollner U. Pregnancy and obstetrical outcomes in women over 40 years of age. *Geburtshilfe und Frauenheilkunde*. 2015;75(08):827–32. doi:10.1055/s-0035-1546109
5. Rachel G. Overview and help for getting pregnant after 35 - Verywell family [Internet]. [cited 2023 Dec 11]. Available from: <https://www.verywellfamily.com/what-are-your-chances-of-getting-pregnant-after-35-1959931>
6. Osterman M, Hamilton B, Martin J, Driscoll A, Valenzuela C. Births: Final data for 2020. *National Vital Statistics Reports*. 2022 Feb 7;70(17):1–50. doi:10.15620/cdc:112078
7. Laopaiboon M, Lumbiganon P, Intarut N, Mori R, Ganchimeg T, Vogel JP, et al. Advanced maternal age and pregnancy outcomes. *Obstetric Anesthesia Digest*. 2015;35(1):27. doi:10.1097/01.aoa.0000460397.65046.b9
8. Having a baby after age 35: How aging affects fertility and pregnancy [Internet]. [cited 2022 Dec 11]. Available from: <https://www.acog.org/womens-health/faqs/having-a-baby-after-age-35-how-aging-affects-fertility-and-pregnancy>



9. Chloe Z, Ruth C. Pregnancy and advanced maternal age, Progress Obstetric and Gynecology. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2020; 9(3):1159. doi:10.18203/2320-1770.ijrcog20200893
10. Londero AP, Rossetti E, Pittini C, Cagnacci A, Driul L. Maternal age and the risk of adverse pregnancy outcomes: A retrospective cohort study. BMC Pregnancy and Childbirth. 2019;19(1). doi:10.1186/s12884-019-2400-x
11. Mehari M, Maeruf H, Robles CC, Woldemariam S, Adhena T, Mulugeta M, et al. Advanced maternal age pregnancy and its adverse obstetrical and perinatal outcomes in Ayder Comprehensive Specialized Hospital, Northern Ethiopia, 2017: A comparative cross-sectional study. BMC Pregnancy and Childbirth. 2020;20(1). doi:10.1186/s12884-020-2740-6
12. Glick I, Kadish E, Rottenstreich M. Management of pregnancy in women of advanced maternal age: Improving outcomes for mother and baby. International Journal of Women's Health. 2021;Volume 13:751–9. doi:10.2147/ijwh.s283216
13. Khalil A, Syngelaki A, Maiz N, Zinevich Y, Nicolaides KH. Maternal age and adverse pregnancy outcome: A cohort study. Ultrasound in Obstetrics & Gynecology. 2013;42(6):634–43. doi:10.1002/uog.12494

**VII SOURCE OF SUPPORT:** Nil

**VIII CONFLICTS OF INTEREST:** None declared

#### **IX ACKNOWLEDGEMENT**

The authors would like to convey their special gratitude to the Head of the department of the Hindu Mission Hospital and all the postnatal mothers for the successful completion of the study.

#### **X CONTRIBUTORS**

**SJ:** Conceptualisation of the study, data collection, and analysis, **RS:** Edited and critically evaluated the manuscript. **MH:** Tool correction and finalising the manuscript.