



# Frequency of Advance Maternal Age Pregnancy, Its Associated Risk Factors, Complications and Impact on Fetal Outcome

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## Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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## ABSTRACT

**Objective:** To determine the frequency of Advance maternal age pregnancy, its associated risk factors and complications, and to evaluate the obstetric and fetal outcome.

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**Methods:** Cross-sectional study, carried out at a Tertiary Care Hospital of Nawabshah, with a total of 125 Advance age (> 35 years) mothers who gave birth during the study period. Questionnaire based data was collected, statistically analyzed and results were tabulated.

**Results:** A total of 125 (17.85%) Advance age mothers (>35 years) were recruited for the study. Among this study group Cesarean Section (52%) remained the most observed mode of delivery. Pregnancy related complications included Postpartum hemorrhage (44%), Gestational diabetes (22.4%), and Pregnancy induced hypertension (16%). The neonatal complications mostly observed were, still birth (35%), Low birth weight (17.5%), Preterm birth (26.3%), and Neonatal death (14%).

**Conclusion:** Advancing age exposes mother to have pregnancy related complications and adverse neonatal outcomes.

*Keywords: Advance maternal age mothers; maternal complications; neonatal complications.*

## 1. INTRODUCTION

With the changing time a lot of advancements have been carried out in almost every field of life, particularly in field of science and technology, which on one aspect is comforting human race and on other making humans, especially females to struggle more to obtain a well-established career before starting a family, and providing spouses with quality of life [1,2], since more and more females are becoming working women due to availability of job opportunities, which makes them growing their family as secondary choice through contraception due to preoccupation. This proclivity is also becoming noticeable in our part of the world, particularly among urban areas, where the new generation from both the upper and lower socioeconomic status is becoming more career-oriented.

The prevalence of women getting pregnant in advance maternal age is 12.3% in almost twenty-nine countries including Africa, Asia, Latin America, and the Middle East [3]. Maternal age does not only have effect on the mother but her child as well, and there is enough evidence present to support that extreme age is the contributing factor for fetal adverse outcomes such as still birth. Studies have constantly implicated that advance maternal age as prime contributors to unexplained stillbirth, intrauterine growth retardation, birth asphyxia, fetal distress and pre-term [4,5].

A case control study was conducted in 2006, which highlighted the risk factors for maternal death among the women of 35-49 years of age as compared to women who were 15-24 years old. Other risk factors included religious and ethnic association, lack of

education and poor decision making especially in matters concerning pregnancy and delivery preparedness [6].

Advance age childbearing is becoming common in both industrialized and non-industrialized countries now. A study was conducted in using population-based data from year 2000 National Health survey of Oman to assess the hypothesis that advance maternal age (35 years or above) is associated with much higher risk of developing adverse pregnancy outcome. The advance maternal age group was compared with women between the ages of 20-34 years, which results showed significantly marked demarcation between both age groups. Women in advance maternal age had increased risk of abortions, gestational diabetes, pregnancy induced hypertension, prolonged labor and high number of caesarian sections [7,8].

Pakistan is a country which is still striving to overcome the issue of maternal morbidity and mortality. It is failed in achieving the Millennium Development Goals but changes in recent trends have empowered women to peruse their career and education which have coerced women to delay childbearing especially in upper middle class. A review of Pakistan demographic health survey witnessed that frequency of advance maternal age conception is increasing, which can have adverse long-term consequences on the health status of both the mother and child in this country [9].

Hence, the present study was designed to determine the frequency of Advance age pregnancy its associated risk factors, various complications, and to evaluate the obstetric and fetal outcome.

## 2. METHODS

This cross-sectional study was conducted in the departments of Community Medicine, Pathology and Gynecology & Obstetrics, at Peoples University of Medical and Health Sciences, Nawabshah, and Suleman Roshan Medical College Tando Adam, from January 2019 to June 2020. A total of 125 advance age (> 35 years) mothers who gave birth during the study period were recruited in this study, compared with a reference (sub age) group also of 125 mothers aged 31-34 years. Mothers younger than the study age group, with twin pregnancy, or those with any kind of major chronic diseases were excluded from the study. The data collected through questionnaire was analyzed statistically and results were tabulated.

## 3. RESULTS

A total number of 700 deliveries were performed during the study period at the study site, out of which the Advance age mothers (>35 years) were n=125 (17.85%), compared with n=125 Reference (sub age) group (31-34 years) meeting inclusion criteria were included in this study.

Mode of delivery was assessed among all the participants from both the groups, and it was observed, that mothers with advance maternal age had higher number of cases 52% (n=65), for Cesarean Section and 8% (n=10) for Instrumental delivery as compared to the reference group, which had higher cases of Normal vaginal deliveries 63.5% (n=79) (Table 1).

On observing pregnancy related complications among both the groups, the most common complication of pregnancy observed among was Postpartum hemorrhage 44% (n=55), followed by Gestational diabetes 22.4% (n=28). Other complications such as Pregnancy induced hypertension, Repeated abortions and Anemia, were observed among both the groups with relative difference (Table 2).

A total of 63 (50.4%) neonates developed complications born to the study group, compared to 23 neonates of reference age group mothers. These complications included Still birth (35%), Low birth weight (17.5%), Preterm birth (26.3%), Neonatal death (14%), Macrosomia (3.5%), Congenital anomalies (3.5%), Small for gestational age (1.6%) and Large for gestational age (3.2%) for the advance age mother (>35 years) group respectively (Table 3).

**Table 1. Mode of delivery among the advance maternal age and reference groups**

Route of delivery	Advance maternal age group (>35 years)		Reference (sub age) group (31-34 years)	
	No of cases	%	No of cases	%
Normal Vaginal delivery	50	40%	79	63.5%
Instrumental Delivery	10	8%	06	4.8%
Cesarean Section	65	52%	40	32%
<b>Total Deliveries</b>	<b>125</b>		<b>125</b>	

**Table 2. Complications associated with pregnancy among the advance maternal age and reference groups**

List of complications	No. of Advance Maternal Age Pregnancy (> 35 years)	%	Reference (Sub Age) Group (31-34 years)	%
Postpartum hemorrhage	55	44%	30	24%
Gestational Diabetes	28	22.4%	05	4%
Pregnancy Induced Hypertension	20	16%	04	3.2%
Repeated Abortions	10	8%	02	1.6%
Anemia	25	20%	16	12.8%
Premature rupture of membranes	16	12.8%	08	6.4%
Preterm Labor	09	7.2%	04	3.2%
Post term pregnancy	08	6.4%	02	1.6%
Intrauterine infection	15	12%	04	3.2%
Intrauterine growth restriction	06	4.8%	02	1.6%
Fetal malpresentation	03	2.4%	01	0.8%

**Table 3. Complications observed in neonates born to Advance Maternal Age (> 35 years) and Reference (sub age 31-34 years) group mothers**

Neonatal complications	Newborn of Advance Maternal Age group (>35 years) mothers with complications	%	Newborn of Reference (Sub Age) group (31-34 years) mothers with complications	%
Stillbirth	20	35%	06	26%
Low birth weight	10	17.5%	05	21.7%
Preterm Birth	15	26.3%	06	26%
Neonatal death	08	14%	03	13%
Macrosomia	02	3.5%	02	8.6%
Congenital Anomaly	02	3.5%	01	4.3%
Small for Gestational Age	02	1.6%	-	-
Large for Gestational Age	04	3.2%	-	-
<b>Total</b>	<b>63</b>	<b>50.4%</b>	<b>23</b>	<b>18.4%</b>

#### 4. DISCUSSION

Advance age mothers more often experience pregnancy related complications with adverse neonatal outcomes, so the purpose to conduct this study was to find out the frequency of advanced age pregnancies with maternal and fetal risks in this region.

The frequency of advance age pregnancy is on rise in the current developing era, observed through many studies recently conducted [10,11]. A study carried out by Hsieh TT et al. [12], observed an increasing pattern by 11.4% to 19.1% and somewhat similar increased frequency pattern was observed in this study as well 17.85% (n=125). The reason for this increasing frequency is usually attributed to pursuing higher education, getting career oriented and becoming more independent among female gender both in the developing and developed countries.

Majority of the advance age mothers in this study delivered through Cesarean section 52%, and our observation was in accordance with other studies 33% and 25% respectively [13,14]. This might be due to the factors that are related to complications of advance age such as fetal malpresentation, pregnancy induced hypertension, gestational diabetes and bad obstetric history. The majority of Cesarean sections mode of delivery is also electively selected as a choice by women from urban areas, having educated and wealthy background.

These study group mothers were evaluated for complication associated with pregnancy, demonstrating much higher rate and number of

complications. Majority of the mothers of advance age suffered from postpartum hemorrhage 44% (n=55), similar to findings of a study conducted by M. Jolly et al. [15] (14.25%), reason being that myometrial function deteriorates with advance age causing uterine atony leading to postpartum hemorrhage (Yogev et al. [16]). Another complication observed was Gestational diabetes 22.4% (n=28), and this age-related increase of gestational diabetes mellitus were noted, and reported in previous studies as well [17-20], reason being associated to decreased in insulin sensitivity, as pancreatic B cells function and sensitivity decline with advancing age [15]. Pregnancy induced hypertension 16% (n=20), observed among these advancing age mothers in the present study, is in similarity with previous study conducted by Mehari et al. [13] (17.6%), this might be due to the fact that as the age advances the endothelial response mediated by vasodilators weakens [21].

Advancing mother age also serve as a contributing factor to adverse neonatal outcome supported by many previously conducted studies. In this study some adverse neonatal outcomes were also observed including still birth (35%), this higher rate of Still birth was in accordance to the findings of other similar study by Kuntharee et al. [22] (13.2%), Low birth weight (17.5%), Preterm birth (26.3%), Neonatal death (14%), Macrosomia (3.5%), Congenital anomalies (3.5%), Small for gestational age (1.6%) and Large for gestational age (3.2%), all these are usually due to the increase predisposition to medical complications among advance age mothers as observed by other studies aswell [23-25].

## 5. CONCLUSION

According to the observation made through this study, the mothers conceiving at advance maternal ages are not only exposed to develop pregnancy related complications due to influence of advancing age body changes but also, they face adverse neonatal outcomes in relation to their bad obstetric history and preexisting medical conditions.

## CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

## ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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