

# Maternal age as a risk factor of preterm labor in Al Hassa , Saudi Arabia

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## Abstract:

**Purpose:** Preterm is the primary predictor of infant morbidity and mortality. Because of increased rate of preterm labor in our society, our study's aim is to investigate the maternal age as a risk factor of preterm labor. **Subjects & Methods:** This retrospective study is carried on Maternity and Child Hospital Alhasa, KSA. The data was obtained from the hospital records which included preterm labor that occurs in a period from 2011 to 2013. **Results:** 101 preterm labors occurred during this period. The mean maternal age was  $27.4 \pm \text{sd}$  while the mean gestational age was  $32 \pm \text{SD}$ . The mean parity of included mothers was  $2.3 \pm \text{SD}$ . The maternal age was grouped into 3 groups and the most affected group to have preterm labor was the middle age group (25 – 35); where the percentage of extremely preterm births was 70.6% and the preterm births was 53.7%. In general there was significant negative correlation between maternal age and gestational age. In **Conclusion:** Maternal age is independent risk factor of preterm birth in Alhasa. The group to be at risk was the middle age group.

**Key word:** risk factor of preterm labor, maternal age, preterm birth

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Preterm birth , is a major determinant of neonatal mortality and morbidity and has long-term adverse

## Introduction:

(over 35 to 40) is not associated with an increased risk of preterm labor. However, older women are more likely to have other conditions (such as hypertension and diabetes) that can cause complications requiring preterm delivery <sup>7-8</sup>.

In KSA few studies was observed to investigate the incidence of preterm labor and it's relative risk factors <sup>9</sup>. The prevalence of preterm in Jazan is high compared to that in other cities in Saudi Arabia and other developed country <sup>10</sup>.

Because of increasing rate of preterm birth in our society , and decreasing awareness about this issue , *the aim of present work* is to determine maternal age as a risk for preterm birth rate in Al Hassa governorate , and raise awareness of society to reduce this phenomenon.

#### **Subject and method:**

A retrospective cohort study was held at maternity and children hospital in Al-hasa - Saudi Arabia. After taking the permission to access to the medical records. Sample size include 101 randomly selected mothers who have spontaneous preterm labor in a period from 2011 to 2013. The data obtained were the maternal and gestational age, gravity and parity of women between 18 to 42 year-old excluding those who have cesarean section, uterine abnormalities, infections and duration of previous pregnancy.

consequences for health<sup>1</sup>. Children who are born prematurely have higher rates of cerebral palsy, sensory deficits, learning disabilities and respiratory illnesses compared with children born at term. The morbidity associated with preterm birth often extends to later life, resulting in enormous physical, psychological and economic costs <sup>2</sup>.

The highest rates of preterm birth were in Africa and North America (11.9% and 10.6% of all births, respectively), and the lowest were in Europe (6.2%) <sup>3</sup>. Preterm birth rates have been reported to range from 5% to 7% of live births in some developed countries, but are estimated to be substantially higher in developing countries. It shows a dramatic rise over the past 20 years <sup>4</sup>.

Factors possibly contributing in preterm birth , increasing rates of multiple births, greater use of assisted reproduction techniques, such as greater use of elective Caesarean section. A history of previous preterm birth is the most important historical risk factor for subsequent preterm delivery , and increases in the proportion of births among women over 34 or less than 16 years of age <sup>5</sup>.

Young teenager , and especially those of low gynecologic age , appear prone to increase risk of preterm birth <sup>6</sup>. Older maternal age alone

*Table 1*: shows the sociodemographic data of the studied sample where there is no significance difference between them in all variables. *Table 2* a Chi-square analysis between different maternal age groups and preterm groups. It shows that mothers who have delivered their babies extremely preterm were found mainly in the age group between 25-35 years old (70.6 %), preterm babies were also mainly in the age group between 25-35 (53.7%) and woman who delivered near term were similar in the age groups less than 25 (47.6%) and between 25-35 (45.2%). There is significant is relationship between the maternal age and preterm labor with a P.value 0.037. *Figure 1* shows significant negative correlation between maternal age and gestational age with R (-.311) and P.value (0.001).

*Statistical analysis*: The data was analyzed by using the SPSS program version 17 using the Chi-square and correlation tests. Mean and slandered deviations for numerical variable were obtained. the P.value is considered significant at 0.05.

**Results:**

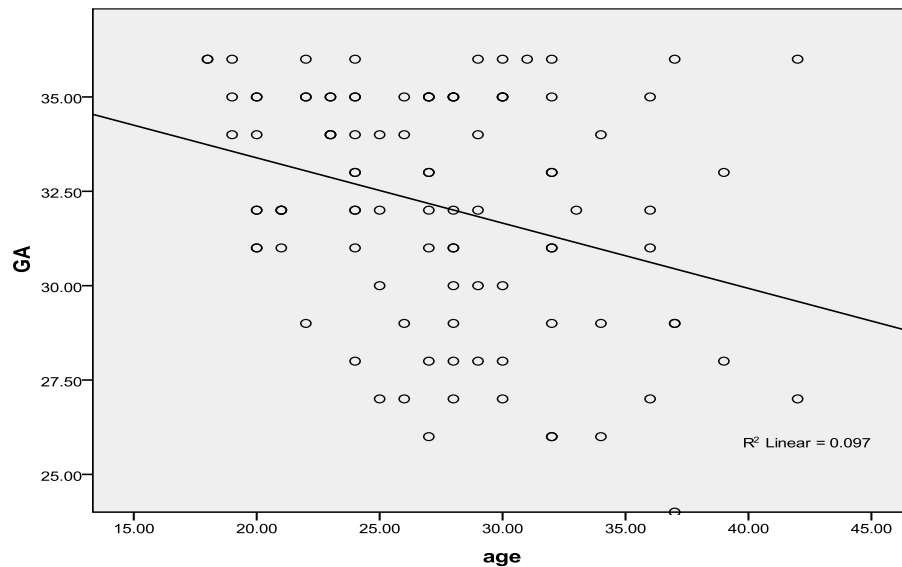
The sample consisted of 101 delivered women, the mean and standard deviation of the maternal age was  $27.4 \pm 5.6$ , gravity was  $3.9 \pm 2.3$ , parity was  $2.3 \pm 1.9$ , and Gestational age was  $32 \pm 3.1$ . The studied cases were classified according to their ages into three groups (<25), Middle age (25-35) and elderly mothers (>35).

**Table 1. Socio-demographic Data Of The Studied Groups**

Maternal group age	GroupI (<25 year)	GroupII (25-35Year)	GroupIII (> 35)	P. value
Age (mean ± SD)	21.63 ± 2	28.9 ± 2.5	37.8 ± 2.2	0.912
Gravity (mean ± SD)	3.1 ± 1.4	4.2 ± 2.5	4.7 ± 3	0.818
Parity (mean ± SD)	2 ± 1.4	2.4 ± 1.9	3.2 ± 3	0.874
GA (mean ± SD)	33.4 ± 2.1	1.5 ± 0.5	30.5 ± 4	0.698

**Table 2: Chi-Square Analysis Between Different Age Groups And Preterm Groups**

Gestational age Maternal Age	Extremely preterm 17 (17%)	Preterm 41 (41%)	Near term 42 (42%)	P.Value
Less than 25	1 (5.9%)	14 (34.1%)	20 (47.6%)	0.037
25 - 35	12 (70.6%)	22 (53.7%)	19 (45.2%)	
Above 35	4 (23.5%)	5 (12.2%)	3 (7.1%)	



## Figure 1 . Correlation Between Total Maternal Age And Gestational Age

### Discussion:

our data range between 18 – 42 and most of the woman are found in the age group 25 – 35 (N= 53 (52.5%)).

In our study we found that there is no effect of parity on the gestational age, so it is not considered as a risk factor of preterm birth. Astolfi et al. found no differential effect of parity on the risk of preterm birth among older mothers in Italy<sup>15</sup>. These findings are consistent with those in our study. In contrast, Schempf et al. described an excess risk of preterm birth among older primiparous women in the United States, and to a lesser extent also among older multiparous women<sup>14</sup>.

### Conclusion:

Maternal age could be a factor of a complex interaction of factors that lead to preterm labor .It is unclear if older maternal age is an independent

Maternal age has been widely reported to influence pregnancy outcome<sup>11</sup>. Our study showed that there is significant negative correlation between maternal age and gestational age that agreed with Christine et al. (2004); who said that mothers of older maternal age—40 years and above have more risk of preterm labor<sup>12</sup>. In contrast, Fraser et al. (1997); found that younger ages (13-17 years) were associated with preterm labor<sup>13</sup>. Schempf AH, et al (2007) also said that the age group of women from 35 and above in high risk of extremely preterm labor<sup>14</sup>. The explanation of the disagreement is that they use younger ages than we have in our data (18-42 years).

Middle aged mothers have greater risk of preterm labor (53.7%). In contrast, Nathalie Auger et al. reported that preterm birth rates were lower for mothers aged 30 to 34 years compared with 20 to 24 years<sup>15</sup>; this can be explained by the age in

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risk factor for preterm labor, or dependant. our study shows that a negative statistical . Relationship between maternal age and gestational age. Meaning that, the elderly mothers have a high risk. We must develop a better understanding of the social, biological, medical, and environmental circumstances surrounding this high-risk age group so that we have the evidence needed to inform and confine mother of any possible risks to reduce this phenomenon.

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