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# Assessment of health outcomes for pregnancy mothers over age 40 with a statistical evaluation of newborns in Iraq.

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**Abstract**

**Introduction:** Since a few years ago, late pregnancies have been a touchy matter in both society and the medical community. In fact, maternal age has been rising for a number of years, with many of these late pregnancies occurring in women between the ages of 40 and 45. According to the World Health Organization (WHO), maternal mental health is a significant factor in determining the morbidity and mortality of both mothers and their children. **Objective:** This paper aims to assess of health outcomes for pregnancy mothers over age 40 with a statistical evaluation of newborns in Iraq. **Patients and Methods**: This study has focused on the assessment of assessment of health outcomes for pregnancy mothers where data were collected from health outcomes for pregnancy mothers in different hospitals in Iraq between 4th July 2021 to 6th January 2022, for pregnancy mothers with ages were <30 years and women with ages >40. These data were divided into two kinds of groups where the first one was considered pregnancy women below 35 years with 40 cases while the second one was represented pregnancy women above 40 years with 50 cases. A statistical study was conducted for health outcomes for pregnancy mothers using the SPSS program. **Results and Discussion:** In our demographic, women over the age of 40 had much higher rates of parity and gravidity than do those under that age. With their higher BMIs and prenatal weight gain, they experience shorter labor phases and a higher frequency of pregnancy problems such as gestational diabetes and hypertension. According to our paper, maternal age is a distinct risk factor for obstetric and neonatal problems. In fact, gestational diabetes, pre-eclampsia, and gestational hypertension were three of the most prevalent conditions associated with pregnancy that multivariate analysis revealed significant findings for. Moreover, Older women appear to be more likely to experience pregnancy problems such as gestational hypertension and diabetes, as well as greater rates of neonatal clavicle fracture and perinatal mortality and caesarean sections. **Conclusion:** In conclusion, older women appear to be more likely to experience pregnancy issues such as gestational hypertension and diabetes, as well as perinatal mortality, and to require caesarean sections more frequently. Because of this, it is the responsibility of the obstetrician to educate these women, comfort them, and modify the monitoring of their pregnancies in accordance with the risk factors, the method of conception, and the multifetal gestation.

**Keywords**: Caesarean sections; World Health Organization; Blood pressure; Diabetes; Heart disease.

## Introduction

Since a few years ago, late pregnancies have been a touchy matter in both society and the medical community. In fact, maternal age has been rising for a number of years, with many of these late pregnancies occurring in women between the ages of 40 and 45. According to the most recent INSEE study, the percentage of pregnant women in France who are over 35 increased from 19.3 to 21.3% between 2010 and 2016 [1]. According to this study, 5% or so of women who give birth are 40 years of age or older. From 29.5

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in 2003 to 30.4 in 2016, the average age of the first pregnancy rose. According to the scientific literature, the threshold for "late" pregnancy has changed over the years from 35 years to 40 years, 43 years, or even 45 years [2]. This is explained by a society development characterized by a steadily rising level of studies by women who put off starting a family in favor of focusing on their professional careers since they have more obligations at work [3].

Moreover, there has been a recent resurgence in the development of medically assisted reproduction (ART), notably with the availability of oocyte donation in European nations [4,5]. A comprehensive study found that older moms are more likely to have a stillbirth, while the extent and underlying causes of this risk are yet unknown. Even the frequency of cesarean sections rises in step with the mother [6]. Since they are more prone to utilize assisted reproductive technologies and because twin pregnancies are known to have a higher complication rate, older women (35 years or older) have a greater likelihood of multiple pregnancies [7, 8,9]

Preterm labor's complex pathophysiology, which has been linked to challenging social and environmental factors, is not fully understood. Around 50% of these births are thought to continue beyond delivery with no clear explanation. Poor maternal nutrition, brief gestation (6 months or less), prior preterm birth, illness, smoking, and anemia are risk factors for prematurity [10,11]. The elevated preterm rates in the piPTB group are caused by repeated pregnancies as well as illnesses that might harm the fetus, including pre-eclampsia, placental fragility, and fetal growth restriction. [12,13]

anemia and associated factors among preterm and term deliveries and their association with poor maternal and perinatal outcomes because preterm birth is closely linked to neonatal morbidity and mortality as well as the presence of anemia. [14]

According to the World Health Organization (WHO), maternal mental health is a significant factor in determining the morbidity and mortality of both mothers and their children [15, 16]. The period from a year before to birth to 18 to 24 months following the baby's birth is known as the perinatal period. Depression that first appears during pregnancy and just after delivery is one example of perinatal mood disorders. If untreated, perinatal depression may have significant impacts on breastfeeding and newborn feeding outcomes, delays in cognitive, linguistic, and physical development, and long-term repercussions on future mental health. Age at first pregnancy is on the rise in Italy, where it was 25.2 years in 1981 and 28.2 years in 1996. [17,18]

In Italy, there is a trend of increasing age at first pregnancy which was 25.2 years in 1981 and 28.2 years in 1996. In our clinic between 2001 and 2006 the mean age at first pregnancy is 30.6 years (5.22 ±), women over 40 years old represent about 6 % of cases. The steady increase in the age of women who are born and give birth raises questions regarding the potential for increased obstetric risks and outcomes in such pregnancies. In singleton pregnancies conceived via in vitro fertilization (IVF), women 35 and over are more likely to be affected by pregnancy-induced hypertension, but there are no measurable differences in preterm delivery or neonatal asphyxia, which Refers to the occurrence of obstetric complications in induced pregnancies that may not depend on the advanced maternal age. [19]

Advanced age at first birth is also associated with a higher risk of Lloydia and chromosomal defects, and white women over the age of 40 appear to be more likely to have neonatal congenital anomalies such as esophageal atresia. Although in previous studies children born to mothers over the age of 40 accounted for about 3% of all births, they accounted for 5% of those requiring neonatal intensive care [20]. Fortunately, the increased frequency of pregnancies at an advanced age is accompanied by an improvement in perinatal care, making the advanced maternal age each time more compatible with successful pregnancies [21]. This paper aims to assess of health outcomes for pregnancy mothers over age 40 with a statistical evaluation of newborns in Iraq.

**Patients and Methods**

This study has focused on the assessment of assessment of health outcomes for pregnancy mothers where data were collected from health outcomes for pregnancy mothers in different hospitals in Iraq between 4$^{th}$ July 2021 to 6$^{th}$ January 2022, for pregnancy mothers with ages were <30 years and women with ages >40. These data were divided into two kinds of groups where the first one was considered pregnancy women below 35 years with number 40 cases while the second one was represented pregnancy women above 40 years with number 50 cases. A statistical study was conducted for health outcomes for pregnancy mothers

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Date of Publication:24-03-2023

using the SPSS program. This paper was collected data to assess the health outcomes of women pregnancy for new burns above 40 years. As a result, this study was focused to compare between women with pregnancy above 40 years and with women pregnancy below 35 years. To build that, This paper studied the demographic data of outcomes results where it included age, Gravida within a part of 0, 2, > 2, Parity within a part of 0, 2, > 2, smoking with two kinds of evaluation yes and no, anaesthesia technique have general, other techniques, and comorbidities which included blood pressure, diabetes, heart disease, and other diseases where all these details can be represented in **Table 1**. In the distribution of cases, this paper was conducted a comparison between two groups of pregnancy women below 35 years and pregnancy women above 40 years according on the mode of conception where the first conception mode is spontaneous pregnancy, and the second conception mode is pregnancy with ART which can be shown in **Figure 1**. This study was analysed postpartum outcomes for mothers which can evaluate the outcomes by these parameters postpartum haemorrhage, blood transfusion, admission of the mother in the intensive care unit, a delivery mode which includes scheduled caesarean, emergency caesarean, and aginal delivery and which can be seen in **Table 2**. Furthermore, this paper was extended to evaluate the association of outcomes between age and complications for pregnancy women above 40 years which these parameters were represented by gestational hypertension, gestational diabetes, preeclampsia, fetal death in utero, fetal deformity, and birthweight where these outcomes have seen in **Table 3**. Besides to complications, this study focused on the assessments of results of the Apgar score for pregnant women between below 35 years and above 40 years through using two scores APGAR at 1° minute and APGAR at 5° minute and all these outcomes can be noticed in **Table 4**. Moreover, this study assessed psychology outcomes of mothers' pregnancy between the age below 35 years and above 40 years The fear, anxiety, and depression which all these outcomes were represented in **Table 5**.

**Results**

**Table 1:** Demographic results between pregnancy women below 35 years and pregnancy women above 40 years.

| **Items** | **Pregnancy women below 35 years (N=40)** | **Pregnancy women above 40 years (N=50)** | **P-value** |
|---|---|---|---|
| **Age (mean ± SD)** | 28±2.5 | 36±3.3 | 0.0421 |
| **Gravida** | | | |
| 0 | 10 (25%) | 15 (30%) | 0.0436 |
| 2 | 12 (30%) | 14 (28%) | 0.0487 |
| > 2 | 18 (45%) | 21 (42%) | 0.0477 |
| **Parity** | | | |
| 0 | 11 (27.5%) | 11 (22%) | 0.0428 |
| 2 | 14 (35%) | 17 (34%) | 0.0491 |
| > 2 | 15 (37.5%) | 22 (44%) | 0.04155 |
| **Smoking** | | | |
| Yes | 11 (27.5%) | 15 (30%) | 0.04752 |
| No | 29 (72.5%) | 35 (70%) | 0.04833 |
| **Anaesthesia technique** | | | |
| General | 26 (65%) | 32 (64%) | 0.0496 |

ISSN NO: 2770-2936
Date of Publication:24-03-2023

| | | | |
|---|---|---|---|
| Other techniques | 14 (35%) | 18 (36%) | 0.049 |
| **Comorbidities** | | | |
| Blood pressure | 8 (20%) | 9 (18%) | 0.048 |
| Diabetes | 11 (27.5%) | 14 (28%) | 0.0497 |
| Heart disease | 18 (45%) | 18 (36%) | 0.0411 |
| Other diseases | 3 (7.5%) | 9 (18%) | 0.0388 |

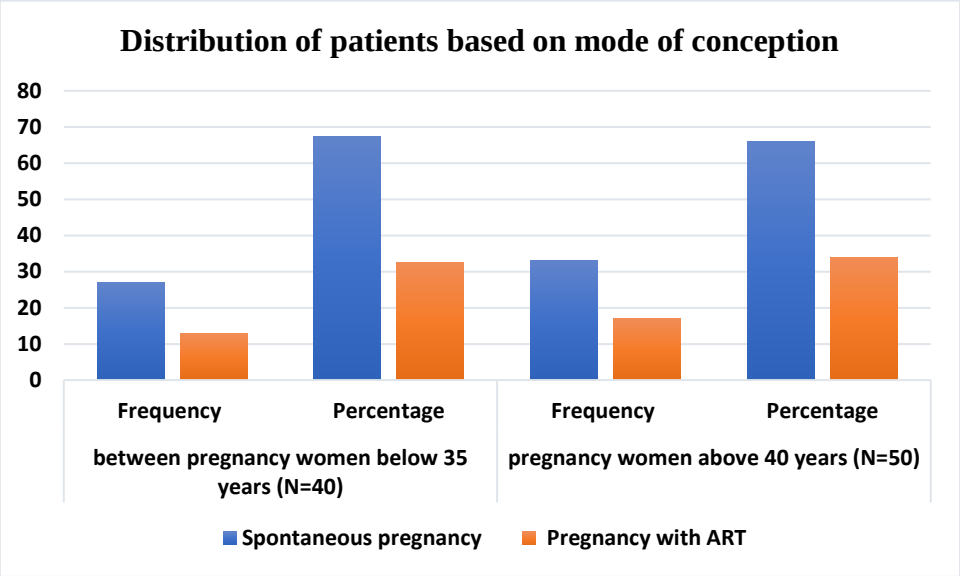


**Figure 1.** Outcomes of samples with pregnancy women between ages below than 35 years and over 40 years.

**Table 2:** Postpartum outcomes for mothers.

| **Items** | **Pregnancy women below 35 years (N=40)** | **Pregnancy women above 40 years (N=50)** | **P-value** |
|---|---|---|---|
| Postpartum haemorrhage | 9 (22.5%) | 17 (34%) | 0.0344 |
| Blood transfusion | 18 (45%) | 21 (42%) | 0.04721 |
| Admission of the mother in the intensive care unit | 9 (22.5%) | 12 (24%) | 0.0488 |
| **- Delivery mode** | | | |
| Scheduled caesarean | 19 (47.5%) | 21 (42%) | 0.0472 |
| Emergency caesarean | 14 (35%) | 16 (32%) | 0.04731 |
| Vaginal delivery | 7 (17.5%) | 13 (26%) | 0.0244 |

ISSN NO: 2770-2936
Date of Publication:24-03-2023

**Table 3:** The association of outcomes between the age and complications for pregnancy women above 40 years.

| Items | Univariate | Multivariate | P-value |
|---|---|---|---|
| Gestational hypertension | 3.9 [2.04 - 4.70] | 2.42 [1.59 - 3.82] | 0.0462 |
| Gestational diabetes | 2.31 [1.84 - 2.87] | 2.44 [1.62 - 3.87] | 0.0485 |
| Preeclampsia | 2.92 [1.82 - 4.93] | 2.54 [1.56 - 4.32] | 0.0482 |
| Fetal death in utero | 2.35 [2.03 - 2.71] | 2.13 [1.74 - 2.43] | 0.0473 |
| Fetal deformity | 4.33 [2.23 - 8.62] | 4.57 [2.21 - 9.56] | 0.0488 |
| Birthweight | 4.36 [2.27 - 8.72] | 4.46 [2.23 - 9.55] | 0.0421 |

**Table 4:** Results of the Apgar score for pregnant women between below 35 years and above 40 years.

| Apgar score | Pregnancy women below 35 years (N=40) | Pregnancy women above 40 years (N=50) | P-value |
|---|---|---|---|
| APGAR at 1° minute | 8.04 (±1.21) | 8.03 (±1.12) | 0.0497 |
| APGAR at 5° minute | 8.96 (±0.64) | 9.77 (±0.41) | 0.0494 |

**Table 5:** Assessment of psychology outcomes of mothers' pregnancy between the age below 35 years and above 40 years.

| Parameters | Pregnancy women below 35 years (N=40) | Pregnancy women above 40 years (N=50) | P-value |
|---|---|---|---|
| fear | 66±7.54 | 54±6.24 | 0.0443 |
| Anxiety | 72±3.11 | 66.42±4.8 | 0.04521 |
| Depression | 76±.2.34 | 62.57±5.43 | 0.04322 |

**Discussion**

In our culture, there is a continuing trend to postpone the first pregnancy rather than a general increase in age at any pregnancy, despite the obvious rise in problems prevalent with advanced-aged pregnancies. Hence, in our opinion, it is crucial to teach women about the dangers associated with their age to prevent difficulties for both the mother and the unborn child. It is crucial to change social and cultural settings to reverse trends and reduce childbearing ages, which obviously takes a lot of effort and time. [22]

In our demographic, women over the age of 40 had much higher rates of parity and gravidity than do those under that age. With their higher BMIs and prenatal weight gain, they experience shorter labor phases and a higher frequency of pregnancy problems such as gestational diabetes and hypertension. [23]

According to our paper, maternal age is a distinct risk factor for obstetric and neonatal problems. In fact, gestational diabetes, pre-eclampsia, and gestational hypertension were three of the most prevalent conditions associated with pregnancy that multivariate analysis revealed significant findings for. Unlike several studies

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with small samples that did not discover this result in multivariate analysis, our big sample strongly supports the presence of pre-eclampsia in women aged 40 and above. [24]

When maternal ages rise, the prevalence of maternal problems is anticipated to rise with time. It will be challenging to lower the occurrence of these issues, but with the right therapy, we may lower the significant consequences of preeclampsia and gestational diabetes (including eclampsia and macrosomia) (induce delivery before 41 weeks, close monitoring of the fetus). [25]

Our paper accurately reviews the overall pregnancy course and many neonatal outcomes, despite the limitations of the retrospective design and the moderate number of patients, when compared to larger numbers in the literature, in order to identify any potential maternal or neonatal complications that may be influenced by maternal age. Finally, older women appear to be more likely to experience pregnancy problems such as gestational hypertension and diabetes, as well as greater rates of neonatal clavicle fracture and perinatal mortality and caesarean sections.

The studies indicate that the prevalence of caesarean sections rises with age. Independent of neonatal weight, infants of older mothers had a greater risk of clavicle fracture despite the higher prevalence of caesarean section and likely related to a decrease in maternal tissues' flexibility.

## Conclusion

In contemporary culture, the urge to get pregnant after 40, 45, or even 50 years will probably continue to grow. To fully enlighten these patients, it is crucial to expand the number of research done on this topic. This data supports the widespread belief among this group of women over 40 that increased maternal age is associated with more serious obstetric problems. Nonetheless, pregnancy over 40 years old can proceed normally physiologically without experiencing a greater rate of maternal death or newborn morbidity in the absence of cumulative risk factors and with the proper care. In conclusion, older women appear to be more likely to experience pregnancy issues such as gestational hypertension and diabetes, as well as perinatal mortality, and to require caesarean sections more frequently. Because of this, it is the responsibility of the obstetrician to educate these women, comfort them, and modify the monitoring of their pregnancies in accordance with the risk factors, the method of conception, and the multifetal gestation.

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