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Teenager Pregnancy Outcomes: A Comparative Study

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Abstract:

Objective: To assess whether teenage pregnancies are linked to an increased risk of adverse obstetric outcomes compared to pregnancies in older women.

Materials and Methods: This case-control study analyzed the obstetric outcomes of 90 teenage pregnancies compared to 90 adult pregnancies during the same period at Al-Basra General Hospital.

Results: There were no significant differences between the two groups in terms of medical, obstetric, or neonatal complications, such as pregnancy-induced hypertension, diabetes mellitus, urinary tract infections, antepartum and postpartum hemorrhage, premature rupture of membranes, stillbirth, or the rate of cesarean sections. However, anemia was significantly more common in teenage pregnancies (27.8% vs. 13.3%). Additionally, teenage pregnancies were associated with a higher incidence of preterm labor (20% vs. 6.67%), low birth weight (17.78% vs. 5.6%), and neonatal intensive care unit admissions (23.3% vs. 11.1%), while labor augmentation was less frequent in teenage pregnancies (45.5% vs. 61.1%).

Conclusion: Teenage pregnancies are generally associated with favorable outcomes, except for a higher prevalence of anemia, preterm labor, and low birth weight.

Keywords: teenagers, obstetric outcomes, early pregnancy.

Introduction: The World Health Organization (WHO) defines teenage pregnancy as any pregnancy occurring in girls aged 10 to 19 years[(1)], based on their age at the time of childbirth. The terms "teenage pregnancy" and "adolescent pregnancy" are often used interchangeably [(1, 2)]. Globally, pregnancy and childbirth are seen as natural events, but they also place significant physical stress on a woman's body, increasing vulnerability to various disorders. This risk is amplified by pregnancy-related complications, which can severely affect both maternal and fetal health. According to WHO, one woman dies every minute from complications related to pregnancy and childbirth, amounting to over half a million deaths annually [(3)].

The impact is especially tragic when girls become mothers before they are physically and emotionally mature. Globally, one in ten births is to a mother who is still a child. Each year, more than 13 million adolescent girls give birth, with over 90% of these occurring in developing countries[4]. Pregnancy and childbirth complications are the leading cause of death among girls aged 15 to 19 in developing nations, with girls in their teens facing twice the risk of dying from pregnancy-related issues compared to older women. Younger mothers, particularly those aged 10 to 14, have a maternal mortality rate five times higher than women aged 20 to 24[2,5].

Teenage pregnancy rates vary worldwide, with the lowest found in the Netherlands (14 per 1,000) and the highest in Sub-Saharan Africa (143 per 1,000). Seven countries—India, Bangladesh, Brazil, the Democratic Republic of the Congo, Ethiopia, Nigeria, and the United States—account for half of all adolescent births.[3,6] While there is no universal consensus on an ideal age for first pregnancy, pregnancies between the ages of 20 and 29 are generally considered the least risky. Reproductive age and gynecological age, the time from menarche to conception, are critical indicators of physiological maturity. Pregnancies occurring within two years of menarche are often considered high risk due to adolescents' lack of knowledge and experience in accessing reproductive health services. (7-10)

Patients and Methods

Study Design and Setting: This prospective case-control study was conducted from April to October 2018 to assess and compare obstetric outcomes between teenage pregnancies and pregnancies in older women (non-teenagers). The study was carried out at Al-Basrah General Hospital and included women who were primigravida, with a single viable pregnancy, in their third trimester, admitted either in labor or for the management of obstetrical complications.

All participants received standard labor care, including a thorough medical history, physical examinations, and necessary laboratory investigations. Gestational age was confirmed using the last menstrual period and/or ultrasound examination. Non-teenage mothers were limited to those aged 35 years or younger to avoid confounding factors related to advanced maternal age.

Study Population: The study included two groups: 90 primigravida teenage mothers (study group) and 90 primigravida women aged 20-35 years (control group). Data were collected on patient characteristics (age, education, gravidity, parity, gestational age, and booking status), medical and obstetric complications (e.g., anemia, pregnancy-induced hypertension, preterm labor), labor management (e.g., spontaneous labor, induction, augmentation), delivery mode (e.g., normal vaginal delivery, cesarean section), and fetal outcomes (e.g., birth weight, NICU admissions, Apgar scores).

Definitions: Teenage pregnancy was defined as any pregnancy in a girl under 19 years at the time of childbirth [1]. Anemia was defined as a hemoglobin level below 10 g/dL, and urinary tract infection was diagnosed based on symptoms and urinalysis results. Hypertension was considered

present if blood pressure was equal to or greater than 140/90 mmHg. Preterm labor was defined as spontaneous labor resulting in delivery before 37 completed weeks, and low birth weight (LBW) was defined as a birth weight under 2500 grams. An Apgar score below 7 at five minutes was considered low.[1,11-12]

Statistical Analysis: Categorical variables were expressed as frequencies and percentages and analyzed using Fisher's exact test. Continuous variables were presented as means ± standard deviation (SD) and analyzed using the paired Student's t-test. A p-value of <0.05 was considered statistically significant. SPSS version 17 was used for all analyses.

Results: A total of 180 primigravida women were included, 90 in the teenage group and 90 in the control group. The mean age of teenage mothers was 17.9 ± 1.1 years, with none being younger than 15 years. In the control group, the mean age was 28.4 ± 3.7 years.

As shown in figure 1, a majority of teenage mothers had only a primary education (58.9%), whereas most older mothers had intermediate or higher education levels, with similar illiteracy rates in both groups. The p values for the illiterate, primary, intermediate, secondary schooling and university were (0.66, <0.0001, 1.0, 0.0002 and <0.0001) respectively.

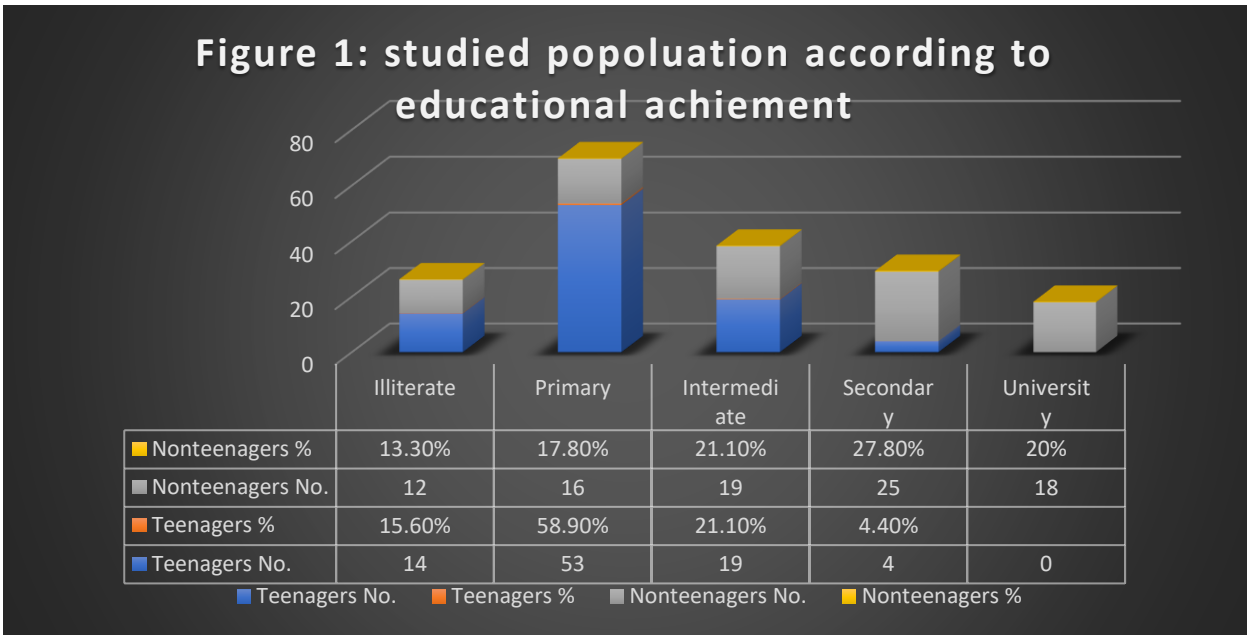

Figure (1) shows that 50% of teenage mothers had more than three antenatal visits. However, there was no significant difference between the groups in terms of the number of antenatal visits or booking status, where p values were (0.29, 0.36, and 0.59) respectively.

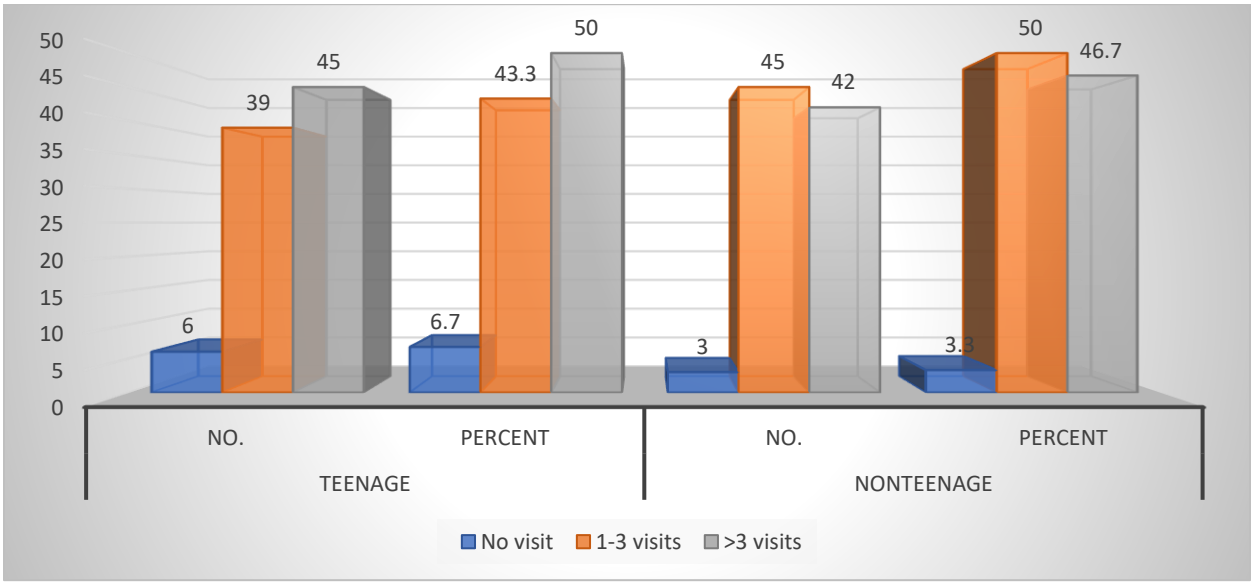

Figure (2): Comparison according to number of antenatal visits

Table one highlights that spontaneous preterm labor was significantly more common in teenage pregnancies (p=0.008). There were no significant differences between the groups in the rates of antepartum hemorrhage, postpartum hemorrhage, pregnancy-induced hypertension, premature rupture of membranes, or abnormal fetal presentations.

Table:(1) Distribution according obstetric complication of both groups:

Obstetric Complication	**Teenagers**		**Non Teenagers**		
Antepartum Hemorrhage	**Number**	**Percent**	**Number**	**Percent**	**P Value**
Antepartum Hemorrhage	**3**	**3.3%**	**2**	**2.2%**	**0.63**
Preterm Labour	**18**	**20%**	**6**	**6.67%**	**0.008**
Pregnancy Induced Hypertension	**9**	**10%**	**10**	**11.1%**	**0.810**
Intra-Partum Complications					
Presentation Abnormal	**3**	**3.3%**	**4**	**4.4%**	**0.72**
Premature Rupture Of Membrane	**5**	**5.6%**	**5**	**5.6%**	**1.00**
Fetal Distress	**6**	**6.67%**	**4**	**4.4%**	**0.51**
Postpartum Complications					
Postpartum Hemorrhage	**5**	**5.6%**	**7**	**7.78%**	**0.559**

The majority of women in both groups delivered vaginally, as shown in figure 3. Cesarean sections were more common among teenagers (21.1% versus 17.8%), though the difference was not statistically significant (p=0.557). Non-teenagers had a higher rate of labor augmentation (61.1% vs. 45.6%, p=0.03). No significant difference was observed in the rates of induced vaginal delivery (P=0. 845).

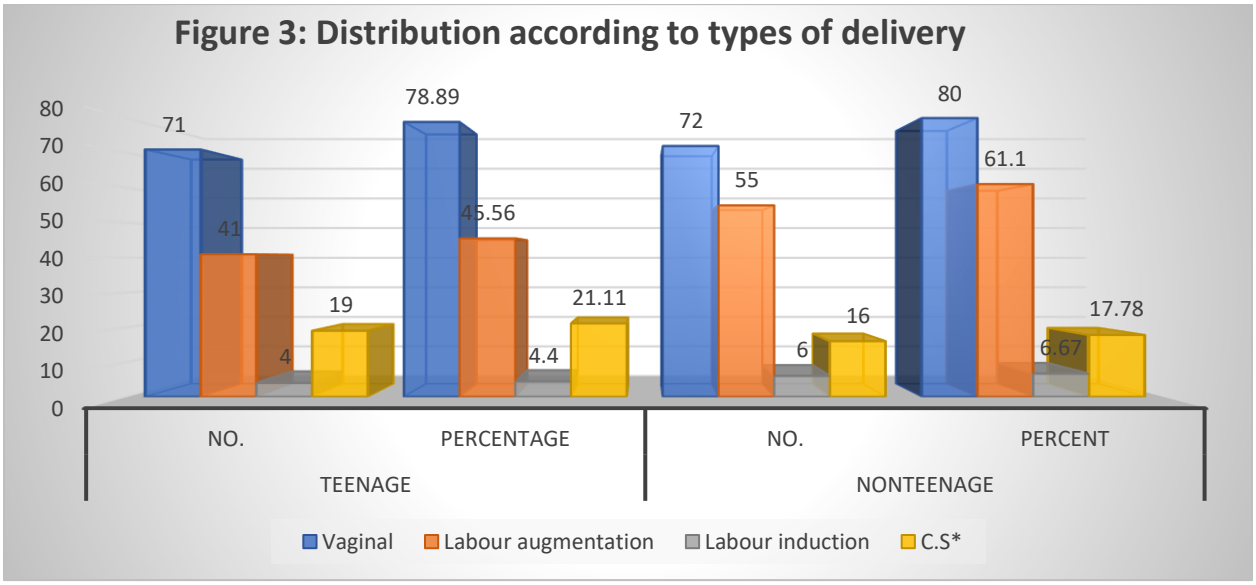

Figure (3)

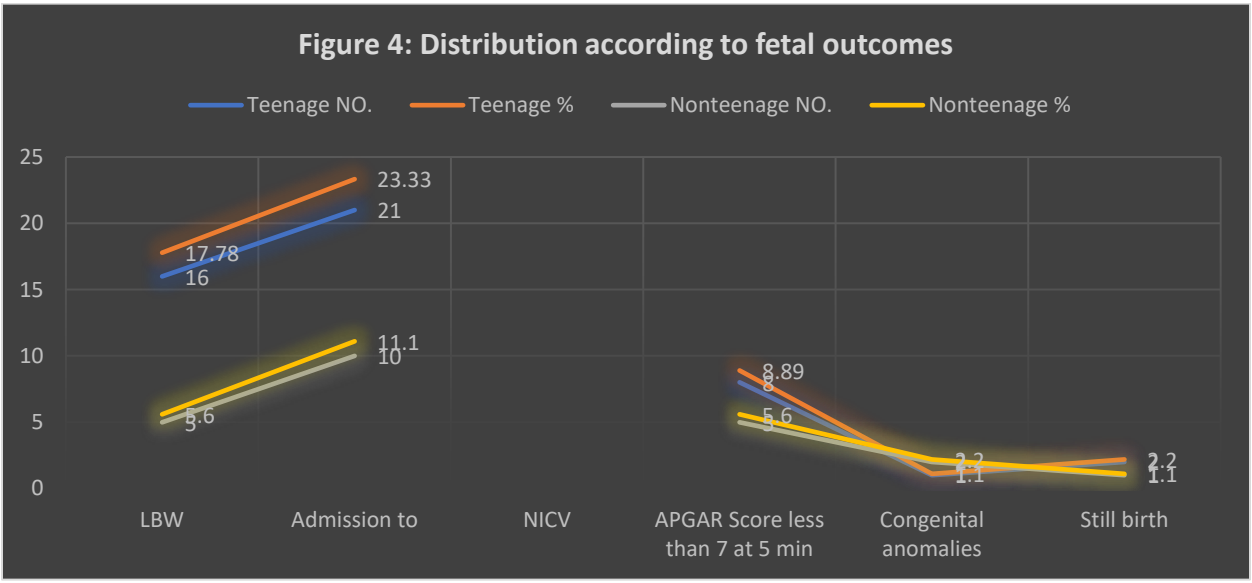

Figure (4)

As summarized in figure 4, babies born to teenage mothers had significantly higher rates of low birth weight (p=0.01) and NICU admission (p=0.03). Although stillbirths were more frequent in teenage pregnancies, the difference was not statistically significant.

Discussion: The obstetric outcomes of teenage pregnancies remain a topic of ongoing debate. In this study, we compared the obstetric performance of teenage mothers to that of adult women aged 20-35, an age range typically associated with optimal obstetric outcomes. Our findings showed no significant difference in antenatal care booking between the two groups, consistent with previous studies [11-14].

Regarding medical complications, our study found that teenage pregnancies exhibited similar rates to those in adult pregnancies, with the exception of anemia. This aligns with other research suggesting that adolescents are at higher risk for anemia, likely due to socioeconomic challenges and nutritional deficiencies commonly seen in this age group . Poor dietary habits, including dieting and irregular eating, are typical among teenagers and may contribute to this increased risk [15, 16].

Hypertensive disorders and diabetes mellitus did not show statistically significant differences between the two groups in our study, a result consistent with the findings of other researchers . Although our study was limited by the relatively small sample size, it still provides valuable insight into the relationship between teenage pregnancies and obstetric outcomes, highlighting areas for future research [14, 17].

We found that teenage pregnancies were associated with higher rates of preterm labor and low birth weight babies, which in turn led to increased neonatal intensive care admissions. This observation is supported by numerous studies that have established a link between adolescent pregnancy and preterm delivery.[18,19] . For example, Mukhopadhyay et al. reported a significantly higher proportion of preterm births (27.7%) among teenage mothers compared to adult mothers (13.1%). Similarly, research from northwest England confirmed an elevated risk of preterm birth and lower birth weights in young teenage mothers [20]

In terms of delivery modes, we observed no significant differences in the rates of vaginal delivery, cesarean section, or labor induction between the two groups. However, teenage mothers had a lower rate of labor augmentation. This may be due to the fact that many adolescents, who may receive less prenatal care, often arrive at the hospital during advanced labor stages. Additionally, factors such as better myometrial function, greater connective tissue elasticity, and lower cervical compliance, coupled with low birth weight, may contribute to a shorter active phase of labor . Similar results were reported by Dr. Ahlam Alwahab, who also found comparable delivery mode incidences [21].

Conclusion: **Current** study has identified a higher incidence of anemia, preterm birth, low birth weight, and neonatal intensive care admissions in teenage pregnancies compared to those in older

women. These findings highlight the need for targeted healthcare interventions to address the unique challenges faced by adolescent mothers.

Recommendations:

1. Enhanced Antenatal Care: Teenage mothers should receive appropriate antenatal care and specialized healthcare services, as they are at increased risk for certain obstetric complications.

2. Further Research: A large, multicenter prospective study is needed to better understand the association between maternal age and obstetric complications, as well as pregnancy outcomes

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