

## Teenage pregnancy and fetal outcome

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### Abstract

**Background:** pregnancy in teenagers is not free of risks. The risk of low birth weight (LBW) and preterm delivery is particularly high among teenagers. LBW is significantly higher in young teenagers aged 13–19 years.

**Objectives:** Evaluation of fetal outcome in teenage pregnancy in Assiut governorate, Egypt.

**Patients and methods:** This study was conducted in the department of obstetrics and gynecology of Al-Azhar University Hospital (Assiut) Egypt, as a descriptive comparative study that compares the fetal outcome of teenage pregnancy with that of adult pregnancy, in 3 years, retrospective in (2011 and 2012) and prospective in (2013). There were 953 and 1162 women in a teenage and an adult group respectively fulfilled the inclusion criteria.

**Result:** There was a significantly increased risk of preterm labor more in teenager group (13.1% vs 3.0%  $P=0.001$ ) while post term more in Adults group (3.3% vs 13.0%  $P=0.001$ ). On the other hand Low birth weight (LBW), intra uterine growth retardations (IUGR), Neonatal death, intra uterine fetal death (IUFD), low APGAR score: At 1 and 5 min, respiratory distress syndrome (RDS), and admission to neonatal intensive care unit (NICU) were significantly increased in teenage group.

**Conclusion:** Teenage mothers are at a higher risk of developing preterm, Low birth weight, IUGR, Neonatal death <48 h, IUFD, low APGAR score: At 1 and 5 min and admission to NICU.

**Keywords:** Teenage pregnancy, Adult pregnancy, fetal outcome

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### Introduction

It is estimated that teenager mothers account for 10% of all births worldwide; more than 90% of these births occur in low-income countries. Teenager mothers face substantially higher maternal and perinatal morbidity and mortality than adult women and age alone may not be the cause. Education, social status, and use of healthcare facilities are all contributing factors (Barnet., et al 2009).

Teenage pregnancy is often associated with poor reproductive outcome (especially preterm delivery), intrauterine growth restriction, and increased risk of neonatal mortality, although some studies have not demonstrated these adverse effects particularly following adequate prenatal care (Raatikainen., et al 2006).

An epidemiological study in the Netherlands, using data from a national obstetric database, found a significantly increased risk of stillbirth in adolescent pregnancies, compared to women 20–29 years of age (Ebeigbe et al., 2007).

Statistics indicate that pregnant teenagers are more likely to terminate the pregnancy than proceed with the birth (Skinner & Hickey 2003).

## Patients and Methods

This study was conducted in the department of obstetrics and gynecology of Al-Azhar University Hospital (Assiut) Egypt, as a descriptive comparative study that compares the fetal outcome of teenage pregnancy with that of adult pregnancy. A specially designed questionnaire was prepared for this purpose, and data were collected in two phases, **Phase 1:** data for this phase were collected from obstetric and neonatal archive retrospectively for the previous two years (2011 and 2012). **Phase 2:** data were collected through application of an interviewing questionnaire to all women who were followed up during pregnancy and those who were attended the labor ward at Al Azhar university hospital, Egypt, (Assiut) during the next one year (2013). There were a 953 and 1162 woman in a teenage and an adult groups respectively fulfilled the inclusion criteria of 4629 women were admitted to the labor ward at Al Azhar University hospital during the study period. Subjects in the two phases of the study were divided in to two groups according to their age at time of delivery:

**Group I** (*teenage group*) N=953 included women with the age of 19 years or less at the time of delivery.

**Group II** (*Adult group*) N=1162 included women aged more than 19 years at the time of delivery.

**Inclusion criteria:** Age at delivery: 13 – 19 yrs. for **Group I**, and 20- 35 yrs. for **Group II**. Absence of pre-existing medical disorders during pregnancy such as; Diabetes (DM), Hypertension (HTN), bronchial Asthma, and other chronic diseases affecting the pregnancy... etc. Patients should have no special habits like drug abuse, alcoholic, or smoking. Patients should not have history of medications affecting pregnancy like corticosteroid therapy, teratogenic drugs, etc.

**Exclusion criteria:** age: less than 13 yrs. or more than 35 yrs. Preexisting diseases such as DM HTN or bronchial asthma, etc. Unreliable age unreliable menstrual dating and Missing of information.

All patients were subjected to: complete personal, menstrual, past and obstetric history, General, abdominal and local examination. Investigations: included urine analysis and Hemoglobin %. Then follow up during pregnancy; to detect presentation and pregnancy related complications.

Maternal age was defined as the age of the mother in completed years at time of delivery; Gestational age at birth was defined as the number of completed weeks of gestation from the first day of the last menstrual period to delivery date. Parity was defined as the number of previous births, including stillbirths.

Adverse Perinatal outcomes evaluated were LBW (live infant weighting <2500 g at birth), preterm delivery (live infant delivered at less than <37 weeks' gestation) fetal death (delivery of a dead infant at or after 20 weeks' gestation), early neonatal death (neonatal death occurring during the first 2 days of life), and low ABGAR scores at 1 and 5 minutes (<7).

The estimates were not adjusted for the following confounding factors: inter-pregnancy interval, pre-pregnancy body mass index, and weight gain during pregnancy.

Before discharge from hospital, teenager participants were asked to complete a questionnaire.

Questionnaire responses were kept anonymous to ensure confidentiality. It took approximately 15 minutes to complete each questionnaire.

The questionnaire included 10 structured questions requesting demographic information and the obstetric history of the women.

Statistical analysis was conducted for data analysis by  $\chi^2$  and t test analysis.  $P < .05$  was considered significant.

## Results

During the study period, 4629 women were admitted to the labor ward at Al Azhar University hospital. In total, 953 teenager and 1162 adults fulfilled the inclusion criteria and were assigned to study and control groups respectively, and tables show the difference between groups as follow:

**Table (1): Socio demographic characteristics of the study groups**

Groups	Group I (Teenagers) N=953		Group II (Adults) N=1162		P-value
<b>Socio demographic data</b>					
<b>Age at delivery*</b>					
Mean+ SD (years)	17.1±1.1		26.1±2.3		0.001
Range (years)	15-19		20-35		
earlier age <17 (years)	108 (11.4%)		-		
<b>Residence**</b>					
Rural	809	84.9	950	81.8	0.063
Urban	144	15.1	212	18.2	0.062
<b>Education**</b>					
Illiterate	23	2.4	37	3.2	0.352
Primary school	215	22.6	305	26.2	0.56
Preparatory school	404	42.4	460	39.6	0.207
Secondary school	289	30.3	316	27.2	0.124
University. Education	22	2.3	44	3.8	0.68
<b>Socioeconomic status**</b>					
Low	347	36.4	380	32.7	0.082
Moderate	599	62.9	769	66.2	0.122
High	7	0.7	13	1.1	0.494
<b>Antenatal care**</b>					
≥3 antenatal visits	892	93.6	1065	91.7	0.107
Late 1 <sup>st</sup> antenatal care visits.	61	6.4	97	8.3	0.106

\* values are given as mean and stander deviation (SD).

\*\* values are given as numbers and percentages, P value < 0.05 was considered significant.

**Table (2): comparison between teenage and Adult groups as regard to intra partum fetal complication**

Groups complications	Group I (Teenagers) N=953		Group II (Adults) N=1162		P-value
	No.	%	No.	%	
Fetal distress.	47	4.9	29	3.0	0.004
Shoulder dystocia.	3	0.3	8	0.8	0.376
Entrapped fetal head.	4	0.4	2	0.2	0.512

Values are given as numbers and percentages; P value < 0.05 was considered significant.

**Table (3): comparison between teenagers and Adults groups as regard To neonatal outcome**

Groups Neonatal outcome	Group I (Teenagers) N=953		Group II (Adults) N=1162		P-value
	No.	%	No.	%	
<i>Period of gestation at delivery:</i>					
Preterm	124	13.1	35	3.0	0.001
Post-term	31	3.3	151	13.0	0.001
<b>Low birth weight</b>	45	4.7	10	0.9	0.001
<b>IUGR</b>	103	10.8	51	4.4	0.001
<b>Neonatal death &lt; 48h</b>	5	0.5	0	0.0	0.043
<b>IUFD</b>	9	0.9	27	2.3	0.023
<i>ABGAR score:</i>					
At 1 min. < 7	74	7.8	51	4.4	0.001
At 5 min. < 7	55	5.8	35	3.0	0.002
<b>Admission to NICU</b>	353	37.2	300	25.8	0.001
<b>RDS</b>	78	8.2	55	4.7	0.001
<b>Neonatal jaundice</b>	64	6.7	55	4.7	0.061
<b>Neonatal sepsis</b>	3	0.3	0	0.0	0.182
<b>Congenital anomalies</b>	2	0.2	4	0.3	0.867

Values are given as numbers and percentages; P value < 0.05 was considered significant.

**Abbreviations:** IUGR, intra uterine growth retardations ; IUFD intra uterine fetal death; NICU, neonatal intensive care unit; RDS, respiratory distress syndrome; IUFD, intra uterine fetal death.

## Discussion

Teenage pregnancy is often associated with poor reproductive outcome (especially preterm delivery), intrauterine growth restriction, and increased risk of neonatal mortality, although some studies have not demonstrated these adverse effects particularly following adequate prenatal care (Raatikainen., et al 2006).

Teenagers mothers face substantially higher maternal and perinatal morbidity and mortality than adult women and age alone may not be the cause education, social status, and use of healthcare facilities are all contributing factors (Imamura ., 2007)

The present study groups contained a homogeneous population from Upper Egypt of the same ethnic origin and with comparable socioeconomic statuses. Accordingly, the majority of participants were assumed to have been supported socially and by their families similar to (Shah., et al 2011) and (Rasheed., et al 2011). This was evidenced by the high rate of teenagers with adequate prenatal care (93.6%), which was even higher than among adults (91.7%). All mothers in both groups were married and hence there was no problem of lack of social support for pregnant teenagers as reported by some other studies (UNICEF 2005) (Isaranurug., et al 2006)( Keskinoglu., 2007) (Tufail, and Hashmi., 2008) .

The incidence of IUFD, one of the neonatal complications found to be significantly higher in the teenage group, corresponded with that reported by (Rasheed., et al 2011) in upper Egypt and (Kovavisarach 2010) . However, many previous studies reported differently that the rate of IUFD and stillbirth was similar in both groups (Nato 2005, Kongnyuy 2008, Watcharaseranee 2006).

Consistent with previous findings (Omar., et al 2010) (Rasheed., et al 2011), the present study showed that teenage pregnancy was associated with significantly higher risks of preterm, The increased risk of preterm labor and premature rupture of membranes has been attributed to biologic immaturity of the uterus or to shortness of the cervix, with subsequent increased risk of ascending infection (Raatikainen., 2006). Psychological instability of young mothers, which has been reported to increase the risk of stillbirth (Wisborg., et al 2008) may be an additional factor. Neonatal complications as low birth weight, most studies(Isaranurug 2006, Trivedi 2007, Briggs 2007, Kovavisarach 2010), including the present study, reported that teenage mothers had a significantly higher incidence in low birth weight than that in the adult mothers. Only Thato et al (Thato., 2007) and Usta et al(Usta 2008) reported the comparable low birth weight in both groups. In spite of risk factors in the mother that may contribute to low birth weight include young ages, multiple pregnancies, previous LBW infants, poor nutrition, heart disease or hypertension, drug addiction, alcohol abuse, and insufficient prenatal care. Environmental risk factors include smoking, lead exposure, and other types of air pollutions as mentioned by (Dasgupta and Basu., 2011) our study indicated that young age is the main contributor in LBW even if there were adequacy of antenatal care and absence of other risk factors. The higher significant rate of admission to neonatal intensive care unit (NICU) in the present study similar to that reported in Jordan by (Al Ramahi and Saleh.2006), and (Kovavisarach., et al 2010).Chen et al (Chen 2007) reported the increased risks of congenital anomalies in central nervous, gastrointestinal and musculoskeletal, Mental or physical stress, one of the plausible causes, should be explained by the inferior marital status of the teenage mothers.

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