

## Pregnancy Complications and Outcome among Teenager in AL-Fallujah Maternity and Children Teaching Hospital

<sup>1</sup>Sawsan Ghazi Jassim  
MBChB, FIBGO, CABOG

<sup>2</sup>Zeena Muaed AL-Naqeeb  
MBChB, CABOG

<sup>1</sup>coreesponding Author, AL-Fallujah Medical College, Al-Amrai general hospital  
[sawsan.g.jasim@uoFallujah.edu.iq](mailto:sawsan.g.jasim@uoFallujah.edu.iq)

<sup>2</sup> Al-Amrai general hospital  
Thezins85@gmail.com

### Abstract

**Background:** Adolescent pregnancy is considered as one of the most important social and public health problems all over the world. Early marriage is the contributing factor to high maternal morbidity and mortality.

**Aim of the study:** To evaluate the obstetrical complications and neonatal outcome of teenage pregnancies in comparison with adult pregnancy in AL-Fallujah Maternity and Children Teaching Hospital.

**Subjects and Methods:** A comparative cross sectional study. The study was carried out during the period from September 2024 through March 2025 . A convenient sample was collected from Department of obstetrics and gynecology in AL-Fallujah Maternity and Children Teaching Hospital. The study group composed of 60 pregnant teenagers in the third trimester aged between 15-19 years and the comparable group composed of 60 pregnant women aged 20-29 years in the third trimester age. Informed verbal consent was obtained from all the study subjects.

**Results:** The mean age of teenage pregnant women was significantly younger than controls ( $p<0.001$ ). No significant differences were observed between study groups regarding residence ( $p=0.2$ ). Illiteracy was significantly related to teenage pregnant women ( $p<0.001$ ). There was a statistically highly significant association between lack of contraception use and teenage pregnancy ( $p<0.001$ ). No significant differences were observed between study groups regarding antenatal care visits ( $p=0.6$ ) and mode of delivery ( $p=0.5$ ). A highly significant association was observed between hypertensive disorders of pregnancy and controls ( $p<0.001$ ). The anemia was significantly highly prevalent in teenage pregnancy than controls ( $p=0.005$ ). No significant differences were observed between study groups regarding obstructed labour ( $p=0.6$ ), preterm labour ( $p=0.4$ ), low birth weight ( $p=0.4$ ) and fetal status ( $p=0.3$ ), however, fetal mortality rate between teenage pregnant women was 1.7%, while no dead fetuses in controls.

**Conclusion:** Illiteracy was significantly related to teenage pregnant women ( $p<0.001$ ). Teenage pregnant mother had significantly lower level of education, they were less likely to use family planning and contraception methods and they have a high rate of pregnancy complications like PET, gestational hypertension, anemia.

**Key Words;** Teenage Pregnancy, Maternal Complications, Maternal outcome

## Introduction

Teenage pregnancy occurs when women aged less than 20 years become pregnant. World Health Organization defines adolescent or teenage pregnancy as pregnancy in a woman aged 10–19 years with age being defined as her age at the time the baby is born. <sup>(1)</sup>

Teenage pregnancy constitutes about 13 million pregnancies every year in the world, accounting for 10% of all births worldwide. <sup>(2)</sup> More than 90% of these are in the developing countries. <sup>(3)</sup> The reasons behind the elevated adolescent's pregnancy rate in the developing societies are multifactorial including behavioral, traditional, social, educational or religious backgrounds, the poverty and the low socioeconomic status. <sup>(4)</sup> In societies where adolescent marriage is uncommon, young age at first intercourse and of contraceptive use may be factors in teen pregnancy. Most teenage pregnancies in the developed world appear to be unplanned. <sup>(5)</sup>

In Iraq, age at marriage play determinant factor in reproductive

## Subjects and Methods

A comparative cross sectional study was done. The women included in this study were 60 women aged 15-19 years as a case group & 60 women aged 20-29 years as a comparative group. Age between 20 and 29 years was considered since this age- group is generally regarded as safe for childbirth. The data were collected by direct interview with pregnant women in both groups after the purpose and aim of the study were explained to all pregnant women and their verbal consent were obtained.

health of women, where early pregnancy and unplanned childbirth may have physical, psychological and social consequences. <sup>(6)</sup> Teenage pregnancy in Iraq was increasing from 38 per 1000 women ages 15-19 years in 2011 to 80 per 1000 women aged 15-19 in 2014. <sup>(7)</sup> Pregnancy in teenage, predispose to complications especially at the antenatal and intra-partum period. Among these include: unsafe abortion, pregnancy-induced hypertension, nutritional anaemia in pregnancy, preterm labour, low birth weight babies, poor maternal weight gain, sexually transmitted infections, feto-pelvic disproportion, increased obstetric intervention, all culminating in increased maternal, peri-natal and neonatal morbidity and mortality. <sup>(8, 9)</sup>

The aim of the study was to evaluate the obstetrical complications and neonatal outcome of teenage pregnancies in comparison with adult pregnancy in AL-Fallujah Maternity and Children Teaching Hospital.

Information obtained included the age of the pregnant women, residence, educational status, booking status, pregnancy complications, estimated gestational age, mode of delivery, neonatal birth weight.

The inclusion criteria were: women with single viable pregnancy admitted to labor ward, while women with pre-exist medical problems, women with multiple pregnancy, and women aged  $\geq 30$  years were excluded.

The certainty of gestational age was established according to last menstrual period &/or early ultrasound examination. Antenatal complications of pregnancy were recorded either from antenatal records if available or from a history taken from the patient. All women were sent for laboratory investigations including hemoglobin level, Anemia was defined as hemoglobin level of less than 10 g/dl.<sup>(10)</sup> Hypertension was present when blood pressure is equal or more than 140/90 mm Hg on two separate occasions 4 hours apart.<sup>(11)</sup> Adequate antenatal care (ANC) is defined as receiving a minimum of four ANC visits, the first visit being in the first trimester. Inadequate care is defined as late initiation of ANC visits (either during second or third trimester), less than four visits. Spontaneous preterm labour was defined as occurrence of spontaneous labour resulting in delivery before 37 completed week's gestation. Low birth weight (LBW) is the weight at birth of less than 2500 gram irrespective of the gestational age.<sup>(12)</sup> All women were followed for the followings: mode of delivery, neonatal body weight.

Statistical analysis was performed with chi-square test and t-test. Significance was set as P-value less than 0.05.

### Results

The mean age of teenage pregnant women was significantly younger than controls ( $p < 0.001$ ). No significant differences were observed between study groups regarding residence ( $p = 0.2$ ). Illiteracy was significantly related to teenage pregnant women ( $p < 0.001$ ) as shown in Table 1.

There was a statistically highly significant association between lack of contraception use and teenage pregnancy ( $p < 0.001$ ). No significant differences were observed between study groups regarding antenatal care visits ( $p = 0.6$ ) and mode of delivery ( $p = 0.5$ ). A highly significant association was observed between hypertensive disorders of pregnancy and comparative group ( $p < 0.001$ ). The anemia was significantly highly prevalent in teenage pregnancy than controls ( $p = 0.005$ ), (Table 2 and Figures 1, 2).

No significant differences were observed between study groups regarding obstructed labour ( $p = 0.6$ ), preterm labour ( $p = 0.4$ ), low birth weight ( $p = 0.4$ ) and fetal status ( $p = 0.3$ ), however, fetal mortality rate between teenage pregnant women was (1.7%), while no dead fetuses in controls, (Table 3 and Figure 3).

Table 1: Distribution of pregnant women according to general characteristics

	Study groups		P-value
	Teenage group	Comparative group	
Age Mean±SD (years)	17.4±1.2	24.4±2.8	<0.000*
Residence			
Urban	30 (50%)	36 (60%)	0.2 <sup>NS</sup>
Rural	30 (50%)	24 (40%)	
Educational level			<0.000 <sup>S</sup>
Illiterate	59 (98.3%)	2 (3.3%)	
Primary level	0 (0%)	22 (36.7%)	
Secondary level	1(1.7%)	28 (46.7%)	
Institute	0 (0%)	8 (13.3%)	

*S =Significant, NS=Not significant.*

**Table 2:** Distribution of pregnant women according to obstetrical characteristics.

	Study groups				P-value
	Teenage		Control		
	No.	%	No.	%	
contraception use					<b>0.00<sup>S</sup></b>
	2	3.3	50	83.3	
	58	96.7	10	16.7	
Antenatal care visit					<b>0.6 NS</b>
	42	70.0	44	73.3	
	18	30.0	16	26.7	
Hypertension					<b>0.00<sup>S</sup></b>
	5	9.8	14	23.0	
	19	31.7	46	76.3	
Anemia					<b>0.005<sup>S</sup></b>
	24	40.0	10	16.7	
	36	60.0	50	83.3	
Mode of delivery					<b>0.5 NS</b>
	39	65.0	42	70.0	
	21	35.0	18	30.0	

**S=Significant, NS=Not significant.**

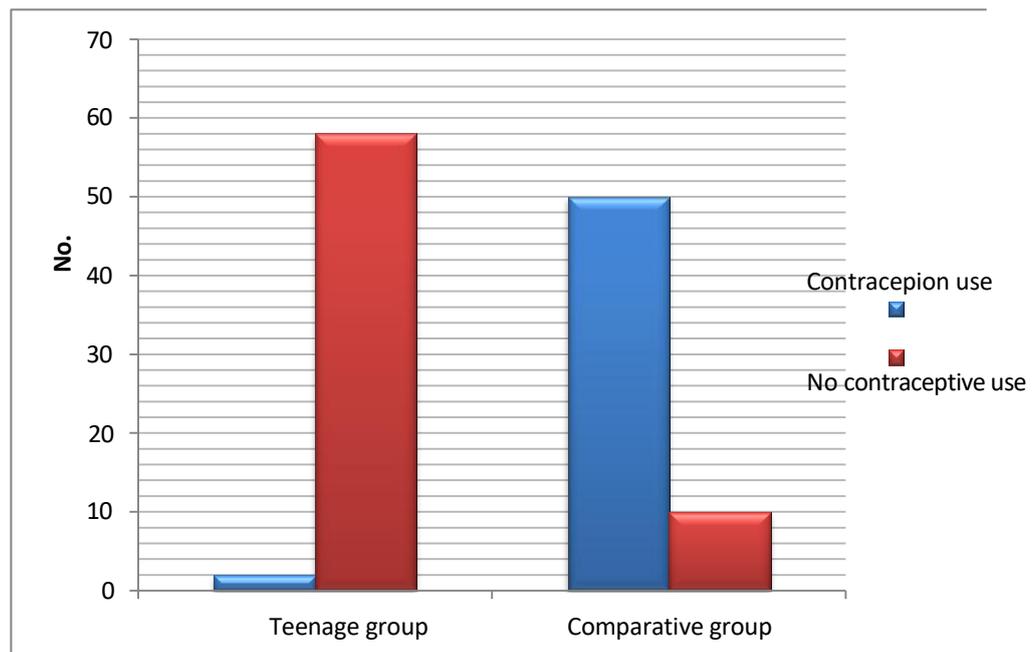


Figure 1: Contraception history in regard to study groups.

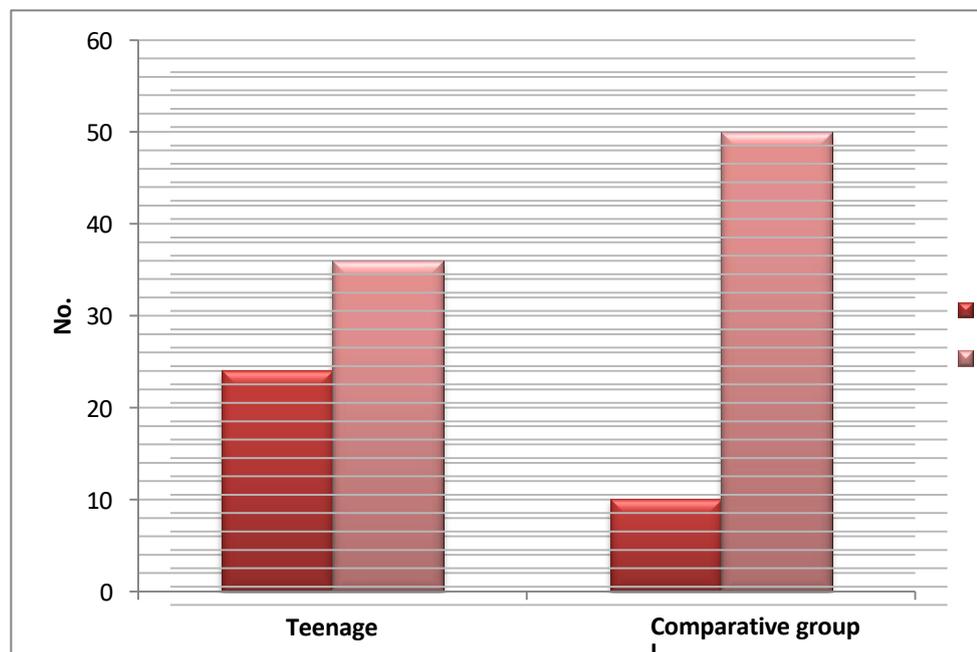
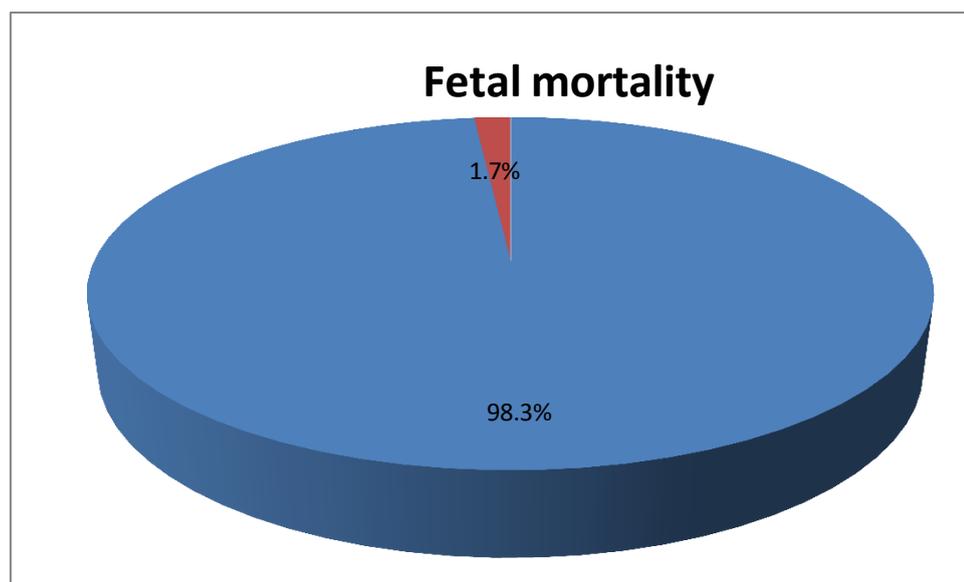


Figure 2: Anemia in regard to study groups.

**Table 3: Distribution of outcomes according to study groups.**

	Study groups				P-value
	Teenage		Control		
	No.	%	No.	%	
<b>Obstructed labour</b>					<b>0.6</b>
	16	26.7	14	23.3	
	44	73.3	46	76.7	
<b>Preterm labour</b>					<b>0.4</b>
	4	6.7	2	3.3	
	56	93.3	58	96.7	
<b>Low birth weight</b>					<b>0.4</b>
	9	15.0	6	10.0	
	51	85.0	54	90.0	
<b>Fetus death</b>					<b>0.3</b>
	59	98.3	60	100.0	
	1	1.7	0	-	

*NS=No significant.*



**Figure 3: Fetal mortality in teenage pregnancy.**

## Discussions

In the present study, The mean age of teenage pregnant women was significantly younger than comparative group ( $p < 0.001$ ), the mean age of teenage women was  $17.4 \pm 1.2$  years and mean age of comparative group was  $24.4 \pm 2.8$ , this finding is in agreement with study done in Baghdad by in 2012,<sup>(13)</sup> and with other study done in Jordan in 2006.<sup>(14)</sup> This result of early age of marriage is due to socio-cultural reasons.

No significant differences were observed between study groups regarding residence ( $p = 0.2$ ), the explanation for this is that our study done in one general hospital, we need same comparison study to be done in private hospital in AL-Falluja area to see if there is difference.

Illiteracy was significantly related to teenage pregnant women ( $p < 0.001$ ). Teenage pregnant mother had significantly lower level of education than adult mothers, which is in agreement with study done in India in 2003.<sup>(15)</sup> Early marriage may lead to leave school early and a delay in marriage will lead to consequent delay in pregnancy so would have opportunities for higher education.

No significant differences were observed between study groups regarding antenatal care visits and mode of delivery, Pregnant women in both groups had similar average ante-natal visit & majority conduct the primary health care center with high frequency of ante-natal care visits more than 3 time during pregnancy (70.0% and 73.3%) in teen age & control group respectively.

The outcome of labour was favorable in teenager in comparing with comparative group with no significant difference in the frequency of caesarean section, which could be due to the fact that more of the teenagers in those studies had antenatal care thus reducing the incidence of labour related

complications. This is in agreement with other studies.<sup>(16, 17)</sup> But this result in disagreement with other studies which show that the teenage mothers had a significantly higher number of preterm deliveries and low birth weight compared to the adult mothers.<sup>(18, 19)</sup>

There was a statistically highly significant association between lack of contraception use and teenage pregnancy ( $p < 0.001$ ). Current study reported that the using of contraception among teenage group was significantly lower than adult group which agrees with other study in India.<sup>(20)</sup> This lower percentage of using contraception method in the teenage women is due to family pressure of childbearing or poor knowledge about the family planning methods.

A highly significant association was observed between hypertensive disorders of pregnancy and controls ( $p < 0.001$ ). About 98.3% of teenage group had PET and gestational hypertension in comparison to 76.7% of adult group, this agrees with study in Egypt in 2016 that showed gestational hypertension is the major maternal complications among teenage pregnancy.<sup>(21)</sup> And this finding also agree with other study done Mozambique which show Pre-eclampsia often severe and eclampsia has been a common problem teenage pregnancy.<sup>(22)</sup>

The anemia was significantly highly prevalent in teenage pregnancy than controls ( $p = 0.005$ ). In the present study it was found that the teenage pregnant women had a higher percentage of anemia (40.0%) in comparison with adult pregnant women (16.7%). This result agrees with study done in Babylon in 2015,<sup>(23)</sup> but it disagrees with another study done in Jordan in 2006 which found anemia higher in adult group.<sup>(14)</sup>

This complication may be due to poor nutritional behavior and also teenage mothers are more likely to be in worse nutritional conditions before conception than older women, and the effect of poor pre-pregnancy nutrition is exacerbated by increased nutritional demand placed on them by the growing fetus.

In this study, the highest mean age of pregnancy among teenage occur at 17.4 years old, while mean age among second group is at 24.4 years. It is important to distinguish between older teenage (17-19 years) whose reproductive capacity is good & those age below 16 years in whom obstetric complications are significantly greater.<sup>(24)</sup> This explain the non-significant difference between the study group & the comparative group regarding the obstructed labour ,preterm labour, low birth weight. But this result is in disagreement with another study done in India by mukhopadhyay *et al.*<sup>(20)</sup> who *show* that teenage mothers had a higher proportion of preterm deliveries compared to the adult mothers & has low birth weight babies. Also another study done in North western Region of England shows that the risk of preterm birth was increased in mothers aged 14-17 years compared to the reference group, birth weight was also reduced in the mothers aged 14- 17 years.<sup>(25)</sup> However, fetal mortality rate between teenage pregnant women was (1.7%), while no dead fetuses in controls.

### Conclusions

Illiteracy was significantly related to teenage pregnant women ( $p < 0.001$ ).

Teenage pregnant mother had significantly lower level of education, they were less likely to use family planning and contraception methods and they have a high rate of pregnancy complications like PET, gestational hypertension, anemia.

### Recommendation

- 1) Acts and rules against child marriage need to be uniformly implemented
- 2) We advocate for the increase of school attendance until high school level to reduce the risk of early pregnancy in adolescents.
- 3) Family and community education is very important in delaying marriage and subsequently delaying childbearing
- 4) Contraceptive practices need to be promoted among married adolescents so that future pregnancy could be delayed till they reach maturity.
- 5) Steps should be taken to educate adolescent mothers about the health hazards of too early and repeated successive pregnancies.
- 6) In situations where pregnancy has occurred, provision of comprehensive social, educational and health services for this group will help to prevent and or give room for early detection of pregnancy complication, thus ensuring safe motherhood. And protecting the young girl from being exposed to the various complications of teenage pregnancy
- 7) The findings of this study are however limited by the sample size and being a hospital based study, more further a population based study in AL – Fallujah city is recommended to improve the findings.

## References

- 1) World Health Organization. Child and adolescent health and development: progress report 2006–2007: highlights.
- 2) Nili, F., Ralimati, M.R. and Sharifi, S.M. Maternal and Neonatal Outcome in Teenage Pregnancy in Tehran Valiasr Hospital. *Acta Medica Iranica*, 2002; 40: 55-59.
- 3) Mayor, S. Pregnancy and Childbirth Are Leading Causes of Death in Teenage Girls in Developing Countries. *BMJ*, 2004;328:1152-1153. <https://doi.org/10.1136/bmj.328.7449.1152-a>.
- 4) Moisan C, Baril C, Muckle G, Belanger RE. Teen pregnancy in Inuit communities - gaps still needed to be filled. *Int J Circumpolar Health*. 2016 Dec 9; 75:31790.
- 5) UNICEF.(2001). A League Table of Teenage Births in Rich Nations PDF
- 6) EnnasT , Al-Hadi A. Mother age at marriage as a determinant of reproductive health, *Iraqi JMED SCI* 2005 ; 4(1):57-62.
- 7)Roudi-Fahimi F, Ibrahim S. Ending child marriage in Arab region. <http://www.prb.org/pdf13/child-marriage-arab-region.pdf>. May 2013.
- 8) Nwoboro, E. and Adoke, K.U. Obstetrics Outcome of Teenage Pregnancies at a Tertiary Care Hospital in Sokoto, Nigeria. *Tropical Journal of Obstetrics and Gynaecology*, 22, 168-170. (2005) <https://doi.org/10.4314/tjog.v22i2.14520>
- 9) Loto, O.M., Ezechi, O.C., Kalu, B.K., Loto, A., Ezechi, L. and Ogunniyi, S.O. Poor Obstetrics Performance of Teenagers: It Is Age or Quality of Card Related. *Journal of Obstetrics and Gynaecology*, 2004;24:398.
- 10) Milman N,Byg KE & Agger A. Hemoglobin and erythrocyte indices during normal pregnancy & post partum in 206 women with and without iron supplementation. *Acta Obstet Scand*, 2000; 79:89-98.
- 11) Davey DA & MacGillivray I. The classification and definition of the hypertensive disorders of pregnancy. *Am J obstet Gynecol*, 1988;58:892-8.
- 12) World Health Organization. Country, region and global estimates. Geneva: WHO 2005.
- 13) Naif, L.N. The Prevalence of Adolescence Pregnancy Complication: A hospital Based Study.I.B.M.S. Al-NahrianUniversity (2012).
- 14) Al-Ramahi, M., & Saleh, S. Outcome of adolescent pregnancy at a university hospital in Jordan. *Archives of gynecology and obstetrics*, 2006;273(4): 207-210.
- 15) Sharma AK, Chhabra P. Pregnancy in adolescent. *Indian J. Prev. Soc. Med* 2003 Jan. - June, Vol. 34 No. 1 & 2.
- 16) Mahfouz AA,el- said MM. teenage pregnancy: are teenages ahigh risk group. *J obstet Gynecol*, 1995; 59:17-20.

- 17) Sarkar CS, Giri AK, Sakar B  
outcome of teenage pregnancy and labor  
. J. Indian ,Med Association. 1991;  
89(7):197-9.
- 18) Harrison, K.A. Childbearing Health  
and Social Priorities. A Survey of  
22,774 Consecutive Hospital Births in  
Zaria; Northern,(1985).
- 19) A., Riazi, K. and Mehr parvar, A.H.  
Pregnancy and Labour Complication in  
Teenagers in Tehran. International  
InternJjournal of Obstetrics and  
Gynaecology, 2002; 78: 245-  
247. [https://doi.org/10.1016/S0020-7292\(02\)00141-8](https://doi.org/10.1016/S0020-7292(02)00141-8)
- 20) Mukhopadhyay P, Chaudhuri R N,  
Paul B. Hospital-based perinatal  
outcomes and complications in teenage  
pregnancy in India. Journal of Health,  
Population and Nutrition, 2010; 494-  
500).
- 21) Mohamed A. Teenage Pregnancy in  
Upper Egypt. Int J Adv Res Biol Sci,  
2016; 3(4): 35-41. ISSN: 23488069.
- 22) Bacc, A., Manhica, G.M.,  
Machungo, F., Bugalho, A. and Cuttini,  
M. Outcome of Teenage Pregnancy in  
Maputo, Mozambique. International  
Journal of Gynecology &  
Obstetrics, 1993; 40:19-23.  
[https://doi.org/10.1016/0020-7292\(93\)90767-Q](https://doi.org/10.1016/0020-7292(93)90767-Q).
- 23) Witwit S J. Teenage Motherhood:  
Maternal & Fetal Complications.  
Journal of Babylon University/ pure and  
applied science, (2015);2(23):828- 842).
- 24) Bhalerao AR, Desdi SV, Datur NA.  
Outcome of teenage pregnancy.  
J.postgrad, Med, 1990; 36(5): 136-9.
- 25) Khashan AS, Baker PN, Kenny LC.  
Preterm birth and reduced birth weight  
in first and second teenage pregnancies:  
a register-based cohort study. BMC  
pregnancy child birth, 2010; 10:36.