

# International Journal of Clinical Obstetrics and Gynaecology



ISSN (P): 2522-6614  
ISSN (E): 2522-6622  
© Gynaecology Journal  
www.gynaecologyjournal.com  
2019; 3(6): 150-154  
Received: 09-09-2019  
Accepted: 13-10-2019

**Pooja Verma**  
Senior Resident Dept Obstetrics &  
Gynaecology AIIMS Raipur,  
Chhattisgarh, India

**Shubhi Vishwakarma**  
Senior Resident Dept Obstetrics &  
Gynaecology, ESIC, Delhi, India

**Sonia Khari**  
Senior Resident Dept Obstetrics &  
Gynaecology, ESIC, Delhi, India

## Maternal obstetric complications in teenage pregnancy in Kasturba Hospital, Delhi: A case control study

Pooja Verma, Shubhi Vishwakarma and Sonia Khari

DOI: <https://doi.org/10.33545/gynae.2019.v3.i6c.406>

### Abstract

**Background:** Teenage pregnancy, a social problem distributed worldwide, has serious implications on maternal and child health, especially in the context of developing countries.

**Objective:** To evaluate the maternal obstetric complications in teenage pregnancy

**Setting:** This case control study, prospective study was conducted in the Department of Obstetrics and Gynaecology Kasturba Hospital Delhi. Hundred women attending Antenatal clinic (ANC) Outpatient department (OPD) with urine pregnancy test positive were enrolled in the study

**Result:** Maternal outcome in teenage pregnancy which revealed mild anaemia (88%), Severe Pre-eclampsia (20%), preterm delivery (18%), and UTI (36%) are main complications associated with teenage pregnancy.

**Conclusion:** Teenage mothers developed more obstetric and perinatal complications, such as anaemia, pre-eclampsia, UTI, preterm births, Birth asphyxia and delivered babies with low-birthweight compared to the older mothers.

**Keywords:** Teenage mothers, anaemia, pre eclampsia, UTI, preterm births, Birth asphyxia

### Introduction

In India, teenage pregnancy is an important public-health problem, although the national policy of the Government of India advocates the minimum legal age of marriage for girls to be 18 years. Data of the National Family Health Survey (NFHS)-3 revealed that 16% of women, aged 15-19 years, have already started childbearing. A substantial proportion of young married girls are already malnourished. Nearly 47% of adolescent women have a body mass index of less than 18.5, 11.4% are stunted, and half of them have anaemia<sup>[1]</sup>. While there is a growing realization of the need to promote teenage reproductive health, work done in this field is of ten inadequate<sup>[2]</sup>. Teenage pregnancy is of serious concern because maternal age plays a significant role in adverse outcome<sup>[3]</sup>. The combination of poor nutrition and early child bearing expose young women to serious health-risks during pregnancy and childbirth, including damage to the reproductive tract, pregnancy-related complications, such as anaemia, pregnancy-induced hypertension, preterm labour, cephalopelvic disproportion, maternal mortality, perinatal and neonatal mortality, and low birth weight<sup>[4,5]</sup> However these complication are also connected to the biological age itself, as it was observed in teen births even after controlling for other risk factors. Ninety-five per cent of these births occur in low- and middle-income countries. The average adolescent birth rate in middle income countries is more than twice as high as that in high-income countries, with the rate in low-income countries being five times as high<sup>[6]</sup>.

Child marriage and early confinement is a long established custom in India, with poverty and ignorance magnifying the problem<sup>[7]</sup>. Pregnancy in very young women is generally considered to be a very high risk event, because teenage girls are physically and psychologically immature for reproduction. In addition, there are some extrinsic factors such as inadequate prenatal care, illiteracy, and poor socio-economic conditions that affect the outcome of pregnancy in teenage girls<sup>[8,9]</sup>. Studies on complications in teenage pregnancy have yielded conflicting results, and opinions of different authors vary in this regard. Some have opined that age by itself is not a risk factor, and poor outcomes are associated more with socioeconomic factors rather than with biological factors<sup>[9]</sup>. With greater understanding of the antecedents of teenage pregnancy, especially in the context of developing countries like India, it may be possible to develop more effective interventions to tackle this widespread problem. Most studies in India have used record-based data. There is a lack of recent data on the perinatal outcomes of teenage pregnancy

**Corresponding Author:**  
**Dr Sonia Khari**  
C-3, Block 8 Pocket B, Ashok  
Vihar, Phase-3 Delhi-110052, India

in Western India specially the walled city of Delhi under the changing scenario of socioeconomic development and availability of better healthcare facilities. Hence this study was conducted to evaluate the maternal obstetric complications in teenage pregnancy in terms of Anaemia, Pregnancy induced Hypertension (PIH), Urinary tract infection (UTI), Preterm labour, Cephalo pelvic disproportion (CPD), Antepartum haemorrhage (APH), Postpartum haemorrhage (PPH), Intrauterine growth retardation (IUGR), Oligohydramnios, etc.

### Materials & Methods

This case control study, prospective study was conducted in the Department of Obstetrics and Gynaecology Kasturba Hospital Delhi. The study population consisted of women attending the antenatal clinic or admitted in Obstetric ward/labour room of Kasturba hospital, meeting the inclusion criteria. Two groups of women were taken up for the study.

Group 1 (n=50) Pregnant women attending antenatal clinic of department of Obstetrics and Gynaecology, Kasturba Hospital, Delhi, having age from 13 to 19 years Group 2 (n=50) pregnant women of age from 20-29 years having similar demographic features were included as controls.

**Inclusion criteria:** All women fulfilling following criterias were eligible for study - Age more than 13 years and less than 20 years, confirmed viable singleton intrauterine pregnancy, willing to take part in study & return for follow-up visits

**Exclusion criteria:** Women with any chronic illness like diabetes, hypertension, convulsion, tuberculosis, hypothyroidism, renal disorder (except anaemia and protein energy malnutrition), women with multiple gestation, genital tract infection like syphilis, HIV, Women with severe cardiac, renal or liver disease, women with ectopic pregnancy, women with molar pregnancy, women with major skeletal deformities like kyphoscoliosis, polio, fractures and morbid obesity.

Hundred women attending Antenatal clinic (ANC) Outpatient department (OPD) with urine pregnancy test positive were enrolled in the study between January 2016 to December 2016. ANC workup was done on scheduled visits. In all cases, a detailed history, examination and investigation were taken.

Informed consent was taken prior to enrolment in study. Scheduled antenatal examination and investigation as per protocol. Data were collected through interviews. The pretested and predesigned proforma was filled. The first contact with the study participants for data collection began in ANC OPD and patient were followed upto delivery of the baby. Mode of delivery and complication of delivery observed in terms of following parameters.

Anaemia, Hypertensive disorder of pregnancy, Urinary tract infection, IUGR, Oligoamnios, Polyamnios, Preterm birth, Mode of delivery, APH, PPH and Mortality, if any

**Statistical analysis:** Statistical testing was conducted with the statistical package for the social science system version SPSS 17.0. Continuous variables are presented as mean  $\pm$  SD, and categorical variables are presented as absolute numbers and percentage. Nominal categorical data between the groups were compared using Chi-squared test or Fisher's exact test as appropriate.  $p < 0.05$  was considered statistically significant.

### Result

The mean age in the case group was 18.7 years with standard deviation of  $\pm 0.65$  and with the mean age of control group being 22.4 years with standard deviation of  $\pm 0.93$ , which is

statistically significant. All of the women in the case and the control groups were married, which is statically insignificant making the groups comparable.

**Table 1:** Socio-epidemiological variables associated with teenage pregnancy

Variable	Cases		Controls		P Value	
	Frequency	%	Frequency	%		
Illiterate	24	48.0%	6	12.0%	<0.001	
Urban residence	50	100.0%	50	100.0%	<0.001	
Family size (>4)	44	88.0%	26	52.0%	<0.001	
Birth order >3	40	80.0%	22	44.0%	<0.001	
Muslim	50	100.0%	49	98.0%	0.157	
SES	Upper	8	16.0%	12	24.0%	0.005
	Lower	25	50.0%	20	40.0%	0.005

The socio-demographic variables studied among the study subjects were literacy, rural /urban background, family size, birth order of women, religion and socio-economic status.

In present study 48% of case group were illiterate while 12% of control group were illiterate which emerged statistically significant ( $p < 0.001$ ).

All the study subjects (Cases and control) belonged to urban background, which is statistically insignificant making the two groups comparable. In present study 88% of women in case group had a family size greater than 4, while 52% of control group belonged to this type of family, making it significantly different. In present study 80% of women in case group had high birth order (>3), while only 44% of control group had high birth order, making the difference significant. All the cases and 98% of the control subjects belonged to muslim religion. Fifty percent of cases belonged to lower class where as forty percent of control belonged to this class. Sixteen percent of cases and twenty four percent of control belonged to upper class, which is statistically significant ( $p = 0.005$ ). This showed that cases leaned more towards lower socioeconomic status. All the women in case group and 94% of the women in the control group were primigravidas, making the p value insignificant and the two groups comparable. All the cases and controls were nulliparous

All the women in the case group have had no previous abortion while 6% in control group had a history of abortion previously though this difference is statically insignificant making two groups comparable.

**Table 2:** Maternal obstetric complication in teenage mothers

Variable	Cases		
	Frequency	%	
Anaemia	Mild	44	88.0%
	Moderate	2	4.0%
	Severe	1	2.0%
Pre-Eclampsia	Non severe	3	6.0%
	Severe	10	20.0%
Preterm	9	18.0%	
Oligohydromnios	5	10.0%	
IUGR	4	8.0%	
APH	2	4.0%	
PROM	1	2.0%	
CPD	3	6.0%	
Eclampsia	1	2.0%	
Malpresentation	4	8.0%	
Doppler Normal	49	98.0%	
UTI	18	36.0%	
PPH	1	2.0%	

Table analyses the maternal outcome in teenage pregnancy which revealed mild anaemia (88%), Severe Pre-eclampsia (20%), preterm delivery (18%), and UTI (36%) are main complications associated with teenage pregnancy.

**Table 3:** Maternal obstetric complication in teenage pregnancy in comparison with pregnancy in older women

Variable		Cases		Controls		P Value
		Frequency	%	Frequency	%	
Anaemia	Mild	44	88.0%	34	68.0%	0.016
	Moderate	2	4.0%	3	6.0%	1
	Severe	1	2.0%	1	2.0%	1
Pre-eclampsia	Non severe	3	6.0%	2	4.0%	1
	Severe	10	20.0%	2	4.0%	0.028
Preterm		9	18.0%	2	4.0%	0.05
Oligohydromnios		5	10.0%	2	4.0%	0.436
IUGR		4	8.0%	2	4.0%	0.678
APH		2	4.0%	1	2.0%	1.000
Prom		1	2.0%	0	0.0%	1.000
CPD		3	6.0%	2	4.0%	1.000
Eclampsia		1	2.0%	0	0.0%	0.097
Malpresentation		4	8.0%	4	8.0%	1.000
Doppler (normal)		49	98.0%	50	100.0%	1.000
UTI		18	36.0%	1	2.0%	<0.001
PPH		1	2.0%	2	4.0%	1.000

Overall anaemia is more prevalent in case group as compared to control group (94% vs 76%). Mild anaemia was more prevalent in the case group (88% vs 68%) making it statistically significant ( $p= 0.016$ ). Similarly pre-eclampsia occurred more frequently in case group (26%) where as it occurred only in 8% of control group, making it statistically significant.

Incidence of non severe form of pre-eclampsia was comparable among case and control ( $p= 1$ ) while severe form of preeclampsia was significantly higher among cases group ( $p= 0.028$ ).

Preterm birth occurred in 18% of cases group and only in 4% of control group making it statistically significant ( $p 0.05$ ).

UTI occurred in 36% of cases group and only 2% of control group making it statistically significant ( $p<0.001$ ).

## Discussion

In our study the mean age in the case group was 18.7 years with standard deviation of  $\pm 0.65$  and the mean age of control group was 22.4 years with standard deviation of  $\pm 0.93$ , which is statistically significant. In a study by Pikee Saxena<sup>[10]</sup> *et al.* in 2010 found the mean age of teenage mothers as 18.6 years and for the age group 20–29 years, the mean age was 22.4 years. Prianka Mukhopadhyay<sup>[11]</sup> *et al.* (2010) found that the maximum number of teenage mothers belonged to the age-group of 18-19 years (89%). Whereas majority of adult mothers belonged to the age-group of 20-21 years (41%).

All the above studies have similar observations as our study, with the teenage mothers reporting to hospital having mean age of  $18.70 \pm 0.65$  year while adult pregnant women are of mean age of  $22.40 \pm 0.93$  year. Probably because of lack of family support, fear and ignorance, pregnant teenagers below 17 years are usually less reported to the hospital.

The single most important socio demographic determinant was literacy especially female literacy. In our study, 48% of case women were illiterate as against 12% of controls which is statistically significant ( $p<0.001$ ). Similar results were obtained in various studies.

Prianka Mukhopadhyay<sup>[11]</sup> *et al.* (2010) in their study found that major number of teenager mother were significantly illiterate.

Sasikala Mootha,<sup>[12]</sup> *et al.* (2013) showed that 22% of teenagers were illiterates and 72% had only primary education as compared to pregnant adult women.

Low level of literacy adversely affect reproductive and sexual health awareness and, thus, quality of life in teenage mother. Attainment of higher education is associated with greater awareness along with a pursuit for professional and economical independence resulting in late marriage and conception.<sup>[13]</sup>

In our study all the study subjects (cases and control) belonged to urban background, which is statistically insignificant making two groups comparable. Sasikala Mootha<sup>[12]</sup> *et al.* (2013) suggested that 62% of cases were from rural areas.

Saneesh KV<sup>[14]</sup> *et al.* (2015) found in their study that the association of teenage pregnancy was uniformly significant with rural background. The finding of the current study may be influenced by the locality of the study area Since Kasturba hospital is located in Daryaganj, Walled city as against other studies. Our study mainly consisted of urban population still significant illiteracy level and poor awareness among study population.

In our study 88% of case belonged to family (maternal side) greater than 4, while 52% of control belong to this type of family, making it significant. Similar finding was obtained by Prianka M<sup>[11]</sup> *et al.* (2010) and Saneesh KV<sup>[14]</sup> *et al.* (2015). In our study 80% of case had high birth order ( $>3$ ), while only 44% of control had high birth order, making the difference significant. Similar finding were obtained by Saneesh KV<sup>[14]</sup> *et al.* (2015). This could be explained by the fact that the teenage women in a joint family remain under constant pressure of parents for early marriage and early school drop outs, probably due to financial reason.

All the above results signifies that higher birth order, large family size, lower education are major component which lead to early marriage and childbearing.

All the cases belong to Muslim religion while only one control subject belong to Hindu religion which is statistically insignificant making the two groups comparable. L Lama<sup>[15]</sup> *et al.* in 2012 in their study found that majority of mothers were Hindu (87.1%).

Chandrika Doddihah<sup>[16]</sup> *et al.* (2016) in their study reported that 88.2% were Hindu by religion. This disparity among the studies may be influenced by location of study area as in our study, our hospital caters to mainly the Muslim population.

In our study 50% of cases belong to lower class, while 40% of controls belong to this class. 16% of cases belong to upper lower

class while 0% of control belong to upper lower class, where as 16% belong to upper and 24% of control belong to upper. Which signifies that lower socioeconomic status may have a bearing on teenage pregnancy. Sasikala Mootha <sup>[12]</sup>, *et al* (2013) found that 74% of the cases were from lower socioeconomic strata of the society. It signifies that that the teenage mothers were from a

socioeconomically-disadvantaged background.

Statistically significant association was noted for the occurrence of anemia in our study. 94% in cases vs 76% in control group were anaemic. Majority of cases and controls had mild anaemia (88% vs 68%). Several studies performed in the past had similar results.

**Table 4:** Others studies

Anaemia	Demetra (2017) <sup>[17]</sup>	Aimen Sarwar (2016) <sup>[18]</sup>	Neha Kachroo (2016) <sup>[19]</sup>	Soubhagya Talawar (2013) <sup>[20]</sup>	Shabnam (2010) <sup>[21]</sup>	Present study
Cases	66.6%	58%	42%	30%	40%	94%
Control	58.6%	43%	30.7%	14%	18.66%	76%

Difference between our study and other studies can be explained by the fact that we have included all grade of anaemia in our study as per WHO classification.

From the above results we can say that higher frequency of anaemia among teenagers is due to poor nutritional status, because of low socioeconomic status and less iron stores in body because of age factor. Girls belonging to lower socioeconomic group are usually having malnutrition and before they achieve their maximum growth potential they get married and start their childbearing. This is combined effect of, poverty less preference for balanced diet for the females as compared to male children,

and large family size.

In adolescent there is increased requirement of nutrient for the complete growth of body itself, if adolescent girl get pregnant in this age then fetomaternal competition for nutrients occur which result into anaemia and low birth weight baby.

Adolescent is age group when puberty menorrhagia occur which further aggravate anaemic state of the body.

**Pre eclampsia:** In our study severe preeclampsia is significantly higher among teenagers compared to control group (20% vs 4%).

**Table 5:** Other Studies related to Pre-eclampsia

Preeclampsia	Aimen S (2016) <sup>[18]</sup>	Neha K (2016) <sup>[19]</sup>	T Ganchimeg (2013) <sup>[12]</sup>	Soubhagya Talawar (2013) <sup>[20]</sup>	Khooshideh Maryam (2008) <sup>[23]</sup>	Present study
Cases	10%	21.5%	2.7%	26%	3.2%	20%
Control	3%	11.5%	1.8%	11%	1.5%	4%

In present study high incidence of severe pre eclampsia in adolescent can be attributed to primiparity of adolescent age group as pre eclampsia is more common in lower age group and having first exposure rather than in multigravida. Whereas in multigravida chronic hypertension is more common.

Urinary Tract Infection (UTI): In our study UTI is significantly higher among teenagers (36%) as compared to control (2%)

Study by Shabnam <sup>[21]</sup> *et al.* (2010) revealed that UTI occurred significantly more in teenagers than adult mothers.

T Ganchimeg <sup>[22]</sup> *et al.* (2013), also stated that puerperal endometritis and systemic infections including UTI were significantly higher among adolescents than among adult mothers.

Similar findings were seen by Demetra <sup>[17]</sup> *et al.* (2017), that lower urinary tract infection was higher among teenagers.

Adolescent women are at high risk for getting subclinical infection because of the physiologic immaturity of the body and the consequent susceptibility of the tissue to infection.

**Preterm Labour:** In our study we observed incidence of preterm delivery among teenagers to be significant (18% vs 4%) ( $p=.024$ ). Our result is supported by several studies. Immaturity of the uterine and cervical blood supply may predispose teenage mothers to subclinical infection, an increase in prostaglandin production, and a consequent increase in the incidence of preterm delivery.

**Other complications:** Occurrence of oligohydromnios, IUGR, APH, PROM, CPD, eclampsia, malpresentation, PPH, Doppler abnormality were not statistically significant in our study and both the groups were comparable with respect to these variables. Similar result observed by Pikee Saxena <sup>[10]</sup> (2010) that there was no significant difference between occurrence of

oligohydromnios, IUGR, APH, PROM, CPD, eclampsia, malpresentation, PPH, Doppler abnormality between the two groups.

### Conclusion

It was found that the teenage mothers were from a socioeconomically-disadvantaged background with lower levels of education and used lesser antenatal healthcare services. They developed more obstetric and perinatal complications, such as anaemia, pre eclampsia, UTI, preterm births, Birth asphyxia and delivered babies with low-birthweight compared to the older mothers. The adverse outcomes of teenage pregnancy could be attributed not only to lower maternal age but also to their relatively disadvantaged socioeconomic background.

### Acknowledgement

The authors would like to express my profound gratitude to all the participants.

### References

- Jha P, Kesler MA, Kumar R, Ram F, Ram U, Aleksandrowicz L *et al.* Trends in selective abortions of girls in India: analysis of nationally representative birth histories from 1990 to 2005 and census data from 1991 to 2011. *The Lancet*. 2011; 377(9781):1921-8.
- Olausson PO, Cnattingius S, Haglund B. Teenage pregnancies and risk of late fetal death and infant mortality. *BJOG: An International Journal of Obstetrics & Gynaecology*. 1999; 106(2):116-21.
- Mayor S. Pregnancy and childbirth are leading causes of death in teenage girls in developing countries. *BMJ: British Medical Journal*. 2004; 328(7449):1152.
- Agarwal N, Reddaiah VP. Factors affecting birth weight in

- a suburban community. *Health Popul Perspect*. 2005; 28:189-96.
5. Bott S, Jejeebhoy S, Shah I, Puri C. editors. *Towards adulthood: exploring the sexual and reproductive health of adolescents in South Asia*. Geneva: World Health Organization, 2003.
  6. [http://www.who.int/maternal\\_child\\_adolescent/topics/maternal/adolescent\\_pregnancy/en/](http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en/)
  7. Nitwe MT. Teenage pregnancy: A health hazard. *J Obstet Gynecol India*. 1989; 39:303-6.
  8. Bhaduria S. Teenage pregnancy: A retrospective study. *J Obstet Gynecol India*. 1991; 41:454-6.
  9. Kale KM, Bila Walkar JS. Socio-medical correlates of teenage pregnancy. *J Obstet Gynecol India*. 1996; 46:180-4.
  10. Saxena P, Salhan S, Chattopadhyay B, Kohli MP, Nandan D, Adhish SV. Obstetric and perinatal outcome of teenage and older primigravidas-a retrospective analysis. *Health and Population: Perspectives and issues*. 2010; 33(1):16-22.
  11. Mukhopadhyay P, Chaudhuri RN, Paul B. Hospital-based perinatal outcomes and complications in teenage pregnancy in India. *Journal of Health, Population and Nutrition*. 2010; 1:494-500.
  12. Sasikala Mootha, Swarnalatha Gudivada, Usharani Bathula. Evaluation of clinical and perinatal outcomes of teenage pregnancies: a study of 100 pregnancies at a tertiary referral center. *IJSR*. 2013, 2319-7064.
  13. Zheng W, Macneill L. Education, work, and childbearing after age 30. *Journal of comparative family studies*. 2002; 33(2):191-213.
  14. Seneesh KV, Shah M. Feto-Maternal Outcome in Teenage Pregnancy-A Comparative Case Control Study. *J Preg Child Health*. 2015; 2(136):2.
  15. Lama L, Shrestha S, Sharma A, Upadhyay S, Pathak MR. Immediate neonatal outcome of adolescent pregnant mother at Nepal Medical College Teaching Hospital. *Nepal Medical College journal: NMCJ*. 2013; 15(2):117-21.
  16. Doddihall C, Katti S, Mallapur M. A Profile of Teenage Pregnancies in a Rural Area of Belgaum, Karnataka. *Ntl J Community Med*. 2016; 7(12):940-942.
  17. Socolov DG, Iorga M, Carauleanu A, Ilea C, Blidaru I, Boiculescu L *et al*. Pregnancy during Adolescence and Associated Risks: An 8-Year Hospital-Based Cohort Study (2007–2014) in Romania, the Country with the Highest Rate of Teenage Pregnancy in Europe. *BioMed Research International* 2017.
  18. Sarwar A, Iftikhar T. Comparative Study of Obstetrical Outcomes of Teenager and Older Primigravida. *Ann. Pak. Inst. Med. Sci*. 2016; 12(2):82-85.
  19. Kachroo N, Prashar N, Gupta S, Sharma G, Zarfshan A. A study of various maternal outcomes with respect to teenage pregnancies. *International Journal of Recent Trends in Science and Technology*. 2016; 1(18):336-9.
  20. Soubhagya Talawar, Venkatesh G. Outcome of Teenage Pregnancy. 2013; 6(6):81-83.
  21. Naz S. Teenage pregnancy-are teenagers a high risk group. *Medical channel*. 2010; 16(1):82-85.
  22. Ganchimeg T, Ota E, Morisaki N, Laopaiboon M, Lumbiganon P, Zhang J *et al*. Pregnancy and childbirth outcomes among adolescent mothers: a World Health Organization multicountry study. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2014; 121(s1):40-8.
  23. Maryam K, Ali S. Pregnancy outcome in teenagers in East Sauterne of Iran. *JPMA. The Journal of the Pakistan Medical Association*. 2008; 58(10):541.