

Original Research Article

## A STUDY ON TEENAGE PREGNANCY AND ITS MATERNAL AND FETAL OUTCOMES

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### ABSTRACT

**Background:** Teenage pregnancy remains a significant public health concern, particularly in low- and middle-income countries, where it is often associated with adverse maternal and neonatal outcomes. Despite declining adolescent fertility rates globally, the absolute number of teenage pregnancies remains high due to population growth and persistent socio-culture practices such as child marriage, poverty, and lack of sexual education. **Objective:** To study the maternal and fetal outcomes associated with teenage pregnancies in a tertiary centre GGH, Nandyal, Andhra Pradesh, India.

**Materials and Methods:** This is a prospective analysis of maternal and fetal outcomes in teenage pregnancy database (September 2023-August 2024)

**Results:** Majority of adolescent mothers were in the age group of 18-19 years and their mean age was found to be 19 years. Study showed the incidence of teenage pregnancy at term is 8.5%. Majority (74%) were booked cases.

**Conclusion:** Teenage pregnancy is significantly associated with higher maternal and fetal morbidity and mortality. The findings highlight the need for comprehensive adolescent reproductive health programs, improved access to antenatal care, and policy initiatives aimed at delaying early marriage and first pregnancies through education, empowerment, and contraception access.

**Keywords:** Teenage Pregnancy, Maternal Outcome, Fetal Outcome

## INTRODUCTION

Teenage pregnancy, defined by the World Health Organization (WHO) as pregnancy in girls aged 10–19 years, continues to pose a significant public health challenge globally. Despite recent decline in adolescent fertility rates, the absolute number of teenage pregnancies remains high, particularly in low- and middle-income countries. According to WHO estimates, approximately 21 million girls aged 15–19 become pregnant each year in developing regions, with about 12 million of these resulting in live births. In India, the National Family Health Survey (NFHS-5) reports that 6.8% of girls aged 15–19 have begun childbearing, with the burden unevenly distributed across states and socio-economic strata.

Adolescence marks a critical transitional period from childhood to adulthood. However, when interrupted by pregnancy, it can profoundly affect the health, education, and future opportunities of young girls. Teenage pregnancy is often associated with a range of adverse maternal and neonatal outcomes, including increased risks of anaemia, pregnancy-induced hypertension (PIH), preterm labour, systemic infections, obstructed labour, and neonatal complications such as low birth weight and respiratory distress.

Despite various national programs like the Rashtriya Kishor Swasthya Karyakram (RKSK), adolescent pregnancies remain prevalent, particularly in rural and semi-urban populations. Contributing factors include early marriage, poor access to contraception, lack of sexual education, poverty, social stigma, and gender inequality. Adolescent girls, especially those

who are married, often face limited autonomy, restricted access to healthcare services, and inadequate nutrition, which further elevate maternal and fetal risks.

Teen mothers are also more vulnerable to sexually transmitted infections (STIs) due to a combination of biological susceptibility and lack of awareness. The consequences of teenage pregnancy are not limited to immediate health risks but extend into long-term psychosocial and economic challenges. Many adolescent mothers drop out of school, struggle with mental health issues such as postpartum depression, and are at greater risk of experiencing poverty. Their children, in turn, are more likely to suffer from developmental delays, poor academic outcomes, and health problems.

### Aim & Objective

To study the maternal and fetal outcomes associated with teenage pregnancies in tertiary centre GGH, Nandyala, Andhra Pradesh, India.

## MATERIALS AND METHODS

### Study place

The study was conducted in the department of obstetrics and gynaecology, GMC Nandyala, Andhra Pradesh.

### Study design

The design of the study is prospective and observational.

**Sample size:** 292 teenage deliveries from September 2023-August 2024.

**Sample population:** Teenage pregnancies admitted to the Hospital in the age group of 18-19 years during the study period were included in the study.

**Duration of study:** It is a prospective observational study conducted between September 2023-August 2024.

### Methodology

AFTER taking informed consent & demographic data from the patient. Participants' age was verified from the data & relevant documents like Aadhar card. Relevant history, clinical examination, and indicated obstetric USG/Doppler were performed. Outcomes assessed included mode of delivery, maternal complications, and neonatal status, including NICU admission and mortality with cause.

### Inclusion Criteria

1. Pregnant women aged 18–19 years at the time of delivery.
2. Willing to participate and provided informed consent.
3. Attending antenatal care and delivering at the study hospital during the study period.
4. Singleton pregnancy.

### Exclusion Criteria

5. Pregnant women aged <18 years or >19 years.
6. Multiple gestations (twins, triplets, etc.).
7. Patients with pre-existing chronic medical disorders unrelated to pregnancy (e.g., chronic renal failure, congenital heart disease, known hemoglobinopathies).
8. Women not willing to give informed consent
9. Unmarried females
10. Patients seeking abortion or had miscarriage.

### Data Analysis

Data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) version XX (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize the data. Categorical variables such as age, parity, mode of delivery, maternal complications, and neonatal outcomes were expressed as frequencies and percentages, while continuous variables such as maternal age, birth weight, and gestational age were presented as mean  $\pm$  standard deviation (SD) or median with interquartile range (IQR), depending on the data distribution.

## RESULTS

The majority of adolescent mothers were aged 18–19 years, with a mean age of 19 years. The overall incidence of teenage pregnancy is 8.5%. Among teenage pregnancies, 74% were booked cases.

**Table 1: Incidence of Teenage Pregnancy (n = 3429)**

Category	Number	Percentage
Teenage pregnancy	292	8.5%
Pregnancy >20 years age	3137	91.5%

The incidence of teenage pregnancy in the present study is **8.5%**, which is comparable to national averages reported in Indian studies (ranging from 7–12%). This indicates that teenage pregnancy still constitutes a significant public health issue.

**Table 2: Booking Status of Teenage Pregnancies (n = 292)**

Status	Number	Percentage
Booked cases	216	74%
Unbooked cases	76	26%

A majority (74%) of teenage pregnancies were booked cases. This highlights improving awareness and accessibility of antenatal care services. However, the 26% **unbooked cases** represent a vulnerable group at higher risk for maternal and perinatal complications.

**Table 3: Gravida Status (n = 292)**

Gravida Status	Number	Percentage
Primigravida	249	85.27%
Multigravida	43	14.73%

The majority of teenage pregnancies (85%) occurred in **primigravida**, showing that most adolescent pregnancies occur in first-time mothers, consistent with global findings.

**Table 4: Distribution of Teenage Pregnancies by Residence**

Residence	Number of Cases	Percentage (%)
Rural population	228	78%
Urban population	64	22%
<b>Total Teenage Pregnancies</b>	<b>292</b>	<b>100%</b>

A significant proportion (78%) of teenage pregnancies were from rural areas, reflecting poor literacy, early marriages, and limited access to contraception compared to urban regions.

**Table 5: Mode of Delivery (n = 292)**

Mode of Delivery	Number	Percentage
Caesarean section	156	53.42%
Normal delivery	124	42.65%
Instrumental	12	4.11%

More than half (53.42%) of teenage mothers underwent Caesarean section, much higher than WHO's recommended rate (10–15%). This is attributed to complications such as **CPD, oligohydramnios, and fetal distress**.

**Table 6: Maternal Complications**

Complication	Number	Percentage
Anemia	47	15.07%
Hypertensive disorders	48	16.44%
Gestational diabetes	24	8.22%
PROM	62	21.23%
Oligohydramnios	101	34.59%
Preterm delivery	42	14.38%

The most common complication observed was **oligohydramnios (34.6%)**, followed by **PROM (21.2%)** and **hypertensive disorders (16.4%)**. Teenage pregnancies thus carry significant maternal risks, often leading to higher intervention rates

**Table 7: Indications for LSCS**

Indication	Number	Percentage
Cephalopelvic disproportion	60	20.65%
Oligohydramnios	101	34.59%
Fetal distress	64	21.91%
Malpresentations	22	7.53%
Failed induction	45	15.41%

The leading indication for LSCS was **oligohydramnios (34.6%)**, followed by **fetal distress (21.9%)**. These findings suggest that both maternal and fetal complications in teenagers contribute significantly to operative deliveries.

**Table 8: Neonatal Outcomes**

Neonatal Outcome	Number	Percentage
Low birth weight	69	23.63%
Large babies	6	2.05%
Respiratory distress	63	21.92%
Prematurity	42	14.30%
IUGR	32	10.96%
IUD	3	1.03%
Neonatal sepsis	14	4.79%

The commonest neonatal problems were **low birth weight (23.6%)** and **respiratory distress (21.9%)**. Teenage pregnancies are thus associated with poor neonatal outcomes, necessitating NICU support.

**Table 9: NICU Admissions and Causes in Teenage Pregnancies**

Cause of NICU Admission	Number	Percentage (%)
Respiratory distress	63	21.92%
Prematurity	42	14.30%
Low birth weight (LBW)	69	23.63%
Intrauterine growth restriction (IUGR)	32	10.96%
Neonatal sepsis	14	4.79%
Others (Birth asphyxia, jaundice, etc.)	10*	3.42%
<b>Total NICU Admissions</b>	<b>230</b>	<b>78.9% (of 292 neonates)</b>

A striking **78.9%** of neonates required NICU admission, mainly due to **LBW, respiratory distress, and prematurity**. This emphasizes the **high neonatal morbidity** associated with adolescent pregnancies

**Table 10: Postpartum Complications**

Complication	Number	Percentage
Postpartum hemorrhage	14	4.79%
Puerperal pyrexia	11	3.77%
Postpartum eclampsia	4	1.37%

Postpartum complications were relatively low, with **PPH (4.8%)** being the most frequent. This lower prevalence could be due to increased availability of obstetric care and early intervention in complications.

## DISCUSSION

In the present study, the incidence of teenage pregnancies constituted 8.5% of all deliveries, with most adolescent mothers aged 18–19 years and a mean age of 19 years. This prevalence is comparable to that reported by Bhakat & Kumar (2025), who highlighted a higher likelihood of teenage pregnancy in rural India, often linked to early marriage, low educational status, and limited access to reproductive health services.

A majority of teenage mothers in our study were booked cases (74%), suggesting that antenatal care coverage is improving compared to earlier reports. However, the predominance of primigravida (85.27%) aligns with the understanding that teenage pregnancies usually occur during the first conception due to early marriage and lack of contraception awareness (Mathur et al., 2023).

### Maternal outcomes

The high rate of Caesarean sections (53.42%) in our cohort was primarily driven by oligohydramnios, fetal distress, and cephalopelvic disproportion. Oligohydramnios (34.59%) was the most frequent

maternal complication, consistent with the findings of Okram et al. (2019), who reported similar associations between teenage pregnancy and amniotic fluid abnormalities. PROM (21.23%), hypertensive disorders (16.44%), and anemia (15.07%) were also common, mirroring patterns seen in Mathur et al. (2023), which identified hypertensive disorders and anemia as significant contributors to morbidity in adolescent mothers.

The elevated rates of hypertensive disorders in our study may be explained by the increased incidence of anaemia and associated hypoxia which results in placental insufficiency. The anemia burden reflects both pre-existing nutritional deficits and the increased iron demands of pregnancy.

### Neonatal outcomes

Low birth weight (23.63%), respiratory distress (21.92%), and prematurity (14.3%) were notable adverse neonatal outcomes. These rates correspond closely with those reported by Okram et al. (2019), who observed increased NICU admissions in neonates born to teenage mothers, often due to prematurity and intrauterine growth restriction (IUGR). The higher prevalence of IUGR (10.96%) in our study reinforces the link between maternal nutritional status and fetal growth potential.

While stillbirths (1.03%) and neonatal sepsis (4.79%) were less frequent, these complications underscore the importance of perinatal monitoring and timely obstetric interventions in this vulnerable population.

**Table 11: Comparative Discussion of Present Study with Previous Literature**

Parameter	Present Study	Comparable Studies (with %)	Remarks
<b>Incidence of Teenage Pregnancy</b>	<b>8.5%</b>	NFHS-5 (2019–21): 7%; IRJEdT (2024): 7.9%; Bhakat & Kumar (2025): rural areas >10%	Present study lies within national range (6–12%).
<b>Age Distribution</b>	Majority 17–19 yrs, mean 19 yrs	Bhakat & Kumar (2025): 17–19 yrs; Kumari <i>et al.</i> : 15–19 yrs	Matches national patterns of late-adolescent pregnancy.
<b>Booked Cases</b>	<b>74%</b>	Mathur <i>et al.</i> (2023): ~60% booked	Suggests improving ANC coverage compared to earlier studies.

<b>Primigravida</b>	<b>85.27%</b>	Mathur <i>et al.</i> (2023): ~80%; Kumari <i>et al.</i> : 82%	Consistently high → early marriage + lack of contraception.
<b>Caesarean Section Rate</b>	<b>53.42%</b>	Okram <i>et al.</i> (2019): 51%; Mathur <i>et al.</i> (2023): 55%	Comparable high rates, mainly for oligohydramnios, CPD, distress.
<b>Oligohydramnios</b>	<b>34.59%</b>	Okram <i>et al.</i> (2019): 32%; Kumari <i>et al.</i> : 30%	Leading maternal complication in all studies.
<b>Hypertensive Disorders</b>	<b>16.44%</b>	Mathur <i>et al.</i> (2023): 17%; Bilano <i>et al.</i> (2014, LMICs): 15–20%	Consistent with global adolescent risk.
<b>Anemia</b>	<b>15.07%</b>	Kumari <i>et al.</i> : 52.4%; Study on teenage vs adults: 68.4%	Much lower than older rural reports, likely due to better ANC/iron supplementation.
<b>Preterm Delivery</b>	<b>14.38%</b>	Mathur <i>et al.</i> (2023): 16%; Scholl <i>et al.</i> (1989): 18–20%	In line with adolescent risk of preterm births.
<b>Low Birth Weight (LBW)</b>	<b>23.63%</b>	Kumari <i>et al.</i> : 34.1%; Okram <i>et al.</i> (2019): 30–35%	Slightly lower but still significant contributor to neonatal morbidity.
<b>Respiratory Distress</b>	<b>21.92%</b>	Okram <i>et al.</i> (2019): ~20–22% NICU admissions for RDS	Matches other Indian findings.
<b>Prematurity</b>	<b>14.3%</b>	WHO (2018): ~15% in adolescent mothers globally	Nearly identical to WHO estimate.
<b>IUGR</b>	<b>10.96%</b>	Okram <i>et al.</i> (2019): 12%; Mathur <i>et al.</i> (2023): 11–13%	Consistent with literature linking maternal malnutrition & IUGR.
<b>Postpartum Hemorrhage (PPH)</b>	<b>4.79%</b>	Leppalahti <i>et al.</i> (2013, Finland): 5–6% in adolescents	Rates align closely.
<b>Puerperal Pyrexia</b>	<b>3.77%</b>	Older Indian rural studies: 4–6%	Comparable outcomes.
<b>Postpartum Eclampsia</b>	<b>1.37%</b>	Bilano <i>et al.</i> (2014, LMICs): 1–2%	Matches international adolescent data.

### Public health implications

Given the reproductive and social immaturity of adolescent mothers, these outcomes emphasize the need for targeted health education, community engagement, and strengthened adolescent reproductive health services. Preventive measures should focus on delaying the age at marriage, improving access to contraception, and ensuring early and adequate antenatal care.

Overall, our findings support previous literature that teenage pregnancy remains a significant public health challenge due to its association with higher maternal and perinatal complications. While the relatively high rate of booked cases is encouraging, the persistently high caesarean rate and complication rates underline the importance of targeted antenatal and intrapartum interventions.

### Summary

Teenage pregnancy in our study accounted for 8.5% of all deliveries, predominantly affecting mothers aged 18–19 years and mostly primigravida. Despite a high proportion of booked cases, adverse maternal and neonatal outcomes were common. Oligohydramnios, PROM, hypertensive disorders, and anemia were the leading maternal complications, while low birth weight, respiratory distress, and prematurity were frequent neonatal concerns. Caesarean section rates were high, largely driven by fetal distress, cephalopelvic disproportion, and oligohydramnios.

## CONCLUSION

### The present study emphasizes the need for:

1. Enhanced reproductive health education to delay age at first pregnancy.
2. Improved nutritional and antenatal care to address anemia, hypertensive disorders, and growth restriction.

3. Targeted intrapartum monitoring to reduce unnecessary surgical deliveries.
4. Strengthened postnatal care to detect and manage complications early.

Strengthening community-based awareness programs, improving access to adolescent reproductive health services, and ensuring multidisciplinary collaboration are critical steps to reduce the prevalence and adverse outcomes of teenage pregnancies. Our findings contribute valuable evidence for policymakers and healthcare providers to guide prevention and intervention strategies.

Addressing teenage pregnancy requires a multi-pronged approach involving education, early registration, adequate antenatal surveillance, and robust maternal and neonatal healthcare services.

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