

**ORIGINAL RESEARCH**

**A PROSPECTIVE STUDY ON MATERNAL FETAL  
OUTCOME IN TEENAGE PREGNANCY**

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**ABSTRACT**

**Background:** To find out the strategies for prevention of problems associated with teenage pregnancy.

**Materials and Methods:** A Prospective study was conducted over a period of one year from January 2020 to December 2020 at Government General Hospital, Kurnool in the Department of Obstetrics and Gynecology which is being a tertiary care centre.

**Results:** The incidence of teenage pregnancy during the study period from January 1 2020 – December 31 2020 in Government Medical College, Kurnool was 9.86% 57.1% of the study population were 19 yrs, 38.5% were 18 yrs and the age of 3.9% & 0.5% of the teenage mothers was 17 years and 15 years respectively. Mean age was 18.52 years. 79.5% of the teenage mothers were primigravida. 1.5% of the teenage pregnancies were out of wedlock pregnancy, the rest 98.5% were married. 43.5% of the teenage mothers were married at the age of 18 years, 39.5% of them at 17 years of age, 10.5% at 16 years and 4% and 1% at 15 and 14 years of age respectively. 71% of the teenage pregnant were residing in rural areas and 29% in urban areas. 70% of the teenage pregnant were Hindus, 26.5% were Muslims and 3.5% were Christians. About 56% had primary education, 32.4% had secondary education and 11.6% were illiterate. 87.5 % of the study population belonged to lower class of socio-economic status. Cephalopelvic disproportion is the most common indication for LSCS. 2.8% of the teenage pregnant women had breech presentation as an indication for LSCS. 89.7% of the study population had an Apgar of 8-10 at 5min. 44.1% of the newborn required NICU admission and the reason for admission was low birth weight, preterm, IUGR, hyperbilirubinemia, birth asphyxia and meconium aspiration syndrome. 89.8% of the

**newborn had good neonatal outcome. 99.88% of the teenage pregnant women had good maternal outcome. Only one maternal death was seen during 1 year period in teenage pregnant women.**

**Conclusion: Good prenatal, intranatal, and postnatal services, as well as good neonatal, contraceptive, and abortion choices, all contribute to reduce the dangers associated with teenage pregnancies to a considerable extent. With all of these measures in place, we may expect a global drop in teen pregnancy rates and difficulties in the next years.**

**Keywords: Perinatal, Teenage pregnancy, APGAR, Abortion, Cephalopelvic disproportion.**

## **INTRODUCTION**

The word adolescence is derived from Latin word “Adolescere” which means to grow or grow to maturity. World health organization (WHO) defines this phase as any pregnancy from a girl who is 10-19 years of age, age being defined as her age at the time of delivery,<sup>[1]</sup> also synonymously called “Teenage Pregnancy”. Any form of stress during this phase of life such as pregnancy can hinder her successful transition to a healthy adult; also they are not physically and mentally mature enough to handle the demands of pregnancy. Teenage pregnancy rate is on rise and has become an important social and public health problem all over the world, more specifically in developing countries like India. Worldwide, according to the World Health Organization about 16 million women aged,<sup>[2]</sup> 15-19 years and 2.5 million girls < 16 years give birth in developing countries. The prevalence varies widely in different countries. In India, it was 83/1000 population in the years 2005-2010,<sup>[3]</sup> Despite the fact that teen births account for 11% of all births worldwide, Overall burden of disease due to pregnancy and childbirth account for 23%.<sup>[4]</sup> Perspective of teenage pregnancy as a social problem is markedly different among developed and developing countries. Most of the teenage mothers tend to be unmarried and teenage pregnancy is seen as a social problem because of inadequate sex education and contraception in developed countries, where as in developing countries because of long established customs and traditions supporting child marriages they are often married and their pregnancy is welcomed by the family and society.<sup>[5]</sup> Early child bearing is associated with adverse maternal outcomes like miscarriages, anemia and nutritional deficiencies, pregnancy induced hypertension, low pregnancy BMI and low maternal weight gain, IUGR, preterm labour, PROM, sexually transmitted diseases (STDs), increased risk of prolonged labour and increased rate of LSCS, postpartum hemorrhage (PPH), puerperal sepsis, psychological illness and failed lactation. Preterm births, low birth weight, IUGR, stillbirths, birth asphyxia, respiratory distress syndrome,<sup>[6]</sup> and delivery trauma or are other common perinatal consequences, which may be linked to poor prenatal care and the societal stigma associated with unmarried pregnancies. Incidence of STD is greater in adolescent age group as they are sexually more active, also they are associated with increased risk of developing carcinoma cervix later because of early age at first intercourse and long duration of sexual activity. Hence in this background, the present study is conducted in a tertiary care hospital at Kurnool, Andhra Pradesh, India with an aim to study the maternal and fetal outcomes associated with teenage pregnancy. Because

of age-old traditions and customs encouraging childhood marriages in girls in developing countries like India, where the majority of people live in rural and remote areas, leading to a cessation of education and a lack of knowledge about child bearing and delivery, resulting in detrimental effects to both mother and fetus. As a result, the government, non-governmental organizations, and volunteer organizations should work together to enhance women's empowerment and prevent child marriage.

### **Aims and objectives**

#### **Aim of the Study**

1. To know the incidence of teenage pregnancy.
2. To study the factors contributing to teenage pregnancy.
3. To study the health problems associated with teenage mothers during antepartum, intrapartum and peripartum period.
4. To study the fetal consequences associated with the teenage pregnancy.

#### **Objectives**

1. To find out the strategies for prevention of problems associated with teenage pregnancy.

### **MATERIALS & METHODS**

**Study design:** Prospective study.

**Study period:** 1 year

**Study setting:** Government General Hospital, Kurnool in the Department of Obstetrics and Gynecology which is a tertiary care centre.

**Inclusion Criteria:** All pregnant women aged 13-19 years irrespective of the gravidity and pregnancy outcome were taken into study.

**Exclusion Criteria:** All pregnant women in the age group 20 and more were excluded from the study.

**Method of Study:** A Prospective study was conducted over a period of one year from January 2020 to December 2020 at Government General Hospital, Kurnool in the Department of Obstetrics and Gynecology which is being a tertiary care centre. All pregnant women aged 13-19 years who were registered in OPD and admitted in labour ward were studied. The cases were followed till 1 week or till they get discharged from the hospital. Data regarding name, age, age at marriage, marital status, education, occupation, BMI, socio-economic status, booking status, gestational age, complications during antepartum, Intrapartum and postpartum period, mode of delivery, interventions during labor, Apgar, weight, NICU stay and complications of the newborn were recorded.

### **RESULTS**

The present study comprised of 794 teenage pregnant women who were registered in OPD and admitted to labour ward at Government General Hospital, Kurnool in the Department of Obstetrics and Gynecology which is being a tertiary care hospital. Results studied were:

**Table 1: Distribution of study subjects by Gravida**

Gravida	Number	Percentage
Primigravida	631	79.5%
Multigravida	163	20.5%
Total	794	100%

In the present study, 79.5% of the subjects were primi gravida and 20.5% of the subjects were multi gravida.

**Table 2: Distribution of study subjects by BMI**

BMI (kg/m <sup>2</sup> )	Number	Percentage
<18.5	116	14.6%
18.5 – 25	650	81.9%
25.1 – 30	28	3.5%
Total	794	100%

In the present study, the BMI of majority i.e., 81.9% of the subjects was in the range of 18.5 to 25 which is normal and <18.5 (Underweight) in 14.6% of the subjects and between 25.1 to 30 (overweight) in 3.5% of the subjects.

**Table 3: Distribution of study subjects by Antenatal Complications**

Antenatal Complications	Number	Percentage
Abortion	42	5.3%
1st trimester abortion	12	1.5%
2nd trimester abortion	30	3.8%
Hyperemesis	88	11%
Ectopic Pregnancy	6	0.8%
Anemia	564	71%
Pregnancy Induced Hypertension	282	35.5%
1) Gestational Hypertension	53	18.79%
2) Preeclampsia	197	69.85%
3) Antepartum Eclampsia	32	11.34%
Antepartum Hemorrhage (APH)	11	1.4%
Preterm labour	206	25.9%
PROM	163	20.5%
IUGR	111	14%
Congenital anomalies	24	3%
Oligohydramnios	56	7.1%
Others	72	9%

In the present study Anemia was the most common complication seen in 71% of the subjects followed by PIH, pre-term labour and PROM in 35.5%, 25.9% and 20.5% of the subjects. IUGR, Hyperemesis, Abortion were seen in 14%, 11% and 5.3% of the subjects. 0.8% had ectopic pregnancy. Among PIH (35.5%), Preeclampsia constitutes 69.85%, gestational hypertension 18.79% and APE 11.34%.

**Table 4: Distribution of study subjects by Intra-partum Complications**

Intra-partum Complications	Number	Percentage
IPE (Intrapartum Eclampsia)	12	1.5%
PPH (Postpartum Hemorrhage)	11	1.5 %
Prolonged labour	4	0.5%
None	767	96.5%
Total	794	100%

In the present study, 3.5% of the study subjects had intra-partum complications. 1.5% of the subjects had Intra Partum Eclampsia (IPE), 1.5% of the subjects had PPH and 0.5% of the subjects had prolonged labour during intra- partum period.

**Table 5: Distribution of study subjects by postpartum Complications**

Postpartum Complications	Number	Percentage
Acute Kidney Injury	4	0.5%
Postpartum Eclampsia	15	1.9%
Postpartum Hemorrhage	8	1%
Psychosis	4	0.5%
None	763	96.1%
Total	794	100%

In the present study, postpartum complications were seen in 3.9% the study subjects. 1.9%, 1%, 0.5% and 0.5% of the subjects had Postpartum Eclampsia, Postpartum Hemorrhage, Acute Kidney injury and psychosis respectively.

**Table 6: Distribution of study subjects by Mode of delivery**

Mode of delivery	Number	Percentage
NVD	456	61.1%
LSCS	278	37.3%
Instrumental	12	1.6%
Total	746	100%

In the present study, Normal vaginal delivery was the most common mode of delivery in 61.1% of the study subjects followed by LSCS in 37.3% of the subjects. Mode of delivery in 1.6% of the subjects was instrumental delivery.

**Table 7: Distribution of study subjects by Indication for LSCS**

Indication	Number	Percentage (%)
CPD	115	41.3
Prior Caesarean section	40	14.3
Oligohydramnios	55	19.78
Failed progression	8	2.87
Breech presentation	8	2.87
Fetal distress	32	11.51
PROM >24 Hours	8	2.87
Placenta Previa	3	1.07
Failed induction	4	1.43
Cord presentation	1	0.35
Antepartum Eclampsia	4	1.43
Total	278	100

In the present study, among the cases who underwent LSCS delivery, Cephalopelvic disproportion was the most common indication in 41.3% of the cases followed by Oligohydramnios in 19.78%, Prior caesarean section in 14.3% of the cases, fetal distress in 11.51% of the cases, placenta previa in 1.07% of the cases, failed progression in 2.87%, breech presentation in 2.87% and PROM more than 24 hours in 2.87% of cases

**Table 8: Distribution of study subjects by APGAR at 5 minute**

APGAR at 5 minute	Number	Percentage
8 – 10	669	89.7%
6 – 8	8	1.1%
4 – 6	25	3.4%
2 – 4	20	2.7%
0	23	3.08%
Total	746	100%

In the present study, Apgar score at 1 minute was 8 – 10 in 89.7% of the cases, 6 – 8 in 1.1% of the cases, 4 – 6 in 3.4% of the cases, 2 – 4 in 2.7% of the cases and 0 in 3.08% of the cases.

**Table 9: Distribution of study subjects by NICU Admission**

NICU Admission	Number	Percentage
Yes	329	44.1%
No	417	55.9%
Total	746	100%

In the present study, out of 746 deliveries, 44.1% of the subjects required NICU admissions.

**Table 10: Distribution of study subjects by Complications in new born**

Complications in new born	Number	Percentage
Preterm	206	27.6%
Low birth weight (LBW)	208	28%
Very low birth weight (VLBW)	18	2.4%
Extremely low birth weight (ELBW)	20	2.7%
Birth asphyxia	13	1.8%
Meconium Aspiration Syndrome	13	1.8%
Hyperbilirubinemia	46	6.2%
Still birth/ IUD	23	3.08%

In the present study, preterm delivery and low birth weight (LBW) were the most common complications seen in 27.6% and 28% of the subjects followed by IUGR, VLBW, ELBW, Birth asphyxia, MAS, Hyperbilirubinemia and Stillbirth/IUD in 8%, 2.4%, 2.7%, 1.8%, 1.8%, 6.2% and 3.08% of the subjects respectively

**Table 11: Distribution of study subjects by perinatal outcome**

Perinatal outcome	Number	Percentage
Good Outcome	683	91.6%
Death	63	8.4%
Total	746	100%

In the present study, perinatal outcome was good in 91.6% of cases, bad in 8.4% of cases.

**Table 12: Distribution of study subjects by maternal outcome**

Maternal outcome	Number	Percentage
Good Outcome	793	99.88%
Death	1	0.12%
Total	794	100%

In the present study, maternal outcome in 99.88% of cases was good and death occurred in one of the cases.

**Table 13: Distribution of study subjects by Perinatal Outcome and Booking status**

Booking status	Perinatal Outcome						
	Total	Good Outcome	%	Dead Number	%	Abortion Number	
Booked case	337(100%)	316	93.8%	9	2.6%	12	3.6%
Unbooked	451(100%)	367	80.3%	54	11.8%	30	6.7%

case							
Total	788(100%)	680	86.1%	63	7.9%	42	6%
Chi-square = 30.512, p = 0.000, S							

In the present study, 93.8% of the booked cases and 80.3% of the un-booked cases had good perinatal outcome. 2.6% of the booked cases and 11.8% of the un-booked cases had death in the perinatal period. 3.6% of the booked cases and 6.7% of the un-booked cases had abortions and the difference was found to be statistically significant.

## DISCUSSION

The present study was carried out at OBG Department in Government General Hospital, Kurnool, and Andhra Pradesh between 1<sup>st</sup> December 2020 to 31 January 2020. This study was undertaken to evaluate the maternal outcome during antepartum, intrapartum and postpartum and perinatal outcome.

### Incidence

A total of 8,860 pregnant women were admitted during my study period, out of which 794 were teenage pregnant women owing to an incidence of 9.86%. In the Rita D et al,<sup>[6]</sup> and DR Rupakala B M et al,<sup>[7]</sup> research, the incidence was comparable to the current study.

### Distribution of Study Population by Gravida

In this present study most of the mothers were primigravida (79.5%).<sup>[11,12,13]</sup>

### Antenatal Care

Proper antenatal care includes early booking and regular visits during pregnancy which will reduce the incidence of complications in both mother and fetus. Most of the teenage group book late and have reduced number of antenatal visits. Teenage pregnancy is a high-risk pregnancy that is identified by health workers and booked at a nearby PHC, allowing teenage mothers to receive proper antenatal care during their pregnancy, resulting in a healthy maternal and neonatal outcome. Unbooked teenage mothers outnumber booked teenage mothers in this study because most of them are from rural regions and have little awareness about prenatal care and consequences. Health-care workers must take a step forward and initiate an effort to educate women about the importance of adequate prenatal care.

### Body Mass Index

In our study, 81.9 percent of teenage mothers had a BMI between 18.5 and 25, which is considered K.G. normal, 14.6 percent were underweight, and 3.5 percent were overweight.<sup>[18]</sup> Weight was used instead of BMI in research by Anandalakshmi and Mapanga,<sup>[19]</sup> which revealed that 18% and 16% of the population were undernourished (<45kg) correspondingly. The teen's nutritional state improved as a result of increased nutrition and attention provided by her family when she was pregnant, as pregnancy is welcomed by Indian families.

### Antenatal Complications

Because of physical immaturity and overlapping maternal growth, nutritional status, and socio-economic conditions, adolescent pregnancy is regarded a high-risk pregnancy, posing a massive burden as compared to adult pregnancy. Appropriate prenatal care aids in the identification of risk factors that may contribute to a negative mother and newborn outcome. If effective prenatal care is not delivered, perinatal mortality and morbidity increase.



In our study, 71% of 794 teenage mothers had anemia, 35.5 percent had PIH, 25.9% had preterm labour, 20.5 percent had PROM, 14 percent had IUGR, 7.1 percent had oligohydramnios, and 5.3 percent had abortions.

### **Abortions**

The overall abortion rate in this study was 5.3 percent. Second trimester abortion contributes more than first trimester abortion (3.8 percent). This could be attributed to a slightly increased risk of congenital abnormalities due to nutritional deprivation throughout the organogenesis phase. Ectopic Pregnancy contributes to 0.8% of the total study population.

In most developed countries, such as the United States, 30-60% of adolescent pregnancies end in abortion. In developing nations such as India, the abortion rate among teenage mothers was found to be between 8 and 10% which is in contrast to our study.

### **Anemia**

Hemoglobin levels > 11 gm% are considered normal during the first and third trimesters, according to the ICMR classification. The current study found that 71% of mothers had anemia, which contributed to a major problem during the antenatal period, predisposing to other complications such as PIH, IUGR, infections, and preterm labour, which is consistent with other studies such as DR J. Bindal et al.<sup>[20]</sup>

### **Pregnancy Induced Hypertension**

A systolic blood pressure reading of greater than or equal to 140mmHg or a diastolic blood pressure measurement of more than or equal to 90mmHg recorded on two occasions, at least 4 hours apart but within one week, is considered hypertension in pregnancy. The study group had a 35.5 percent incidence of PIH, which is the second most common consequence. Rita D. et al.<sup>[6]</sup> reported a 37 percent incidence of PIH, which is comparable to my findings.

### **Preterm Labour**

Preterm is defined as babies born alive before 37 weeks of pregnancy are completed. Incidence of preterm labour is 25.9% in this study which is in comparable with DR Rashmi L et al.<sup>[21]</sup>

### **Mode of Delivery**

746 of the 794 research participants were delivered, with 456 (61.1%) having a vaginal delivery, 278 (37.3%) having LSCS, and 12 (1.6%) having an instrumental delivery.<sup>[7]</sup> Other research, such as DR Rupakala B M et al, have found similar results.

### **Intrapartum Complications**

Only 3.5 percent of 794 teenage pregnant women in this study suffered intrapartum problems such as eclampsia, postpartum hemorrhage, and prolonged labour. Good antenatal care, early treatment services, active management of the third stage of labour, and proper labour monitoring can all help to prevent this.

### **Postpartum Complications**

Postpartum problems, such as eclampsia, postpartum hemorrhage, acute kidney injury, and psychosis, were found in just 3.9 percent of the 794 women in the research. Eclampsia is becoming increasingly common due to a lack of antenatal care by teenage mothers, nutritional imbalances, and late presentation to the hospital with severe preeclampsia.

### **Neonatal Outcome**

In this present study, out of 746 study population who were delivered 329 (44.1%) required NICU admissions and 417 (55.9%) does not required. NICU admissions were required to the newborn that had complications like low birth weight (28%), preterm (27.8%), IUGR (8%), hyperbilirubinemia, birth asphyxia, meconium aspiration syndrome and others. Prematurity is the second most prevalent newborn problem in this study; the cause of prematurity could be due to maternal issues such as preeclampsia, oligohydramnios, and PPROM, which necessitate early pregnancy termination and result in preterm and premature neonates.

### **Apgar at 5 Min**

In this study, the majority of newborns (89.7%) had an Apgar score of 8-10 at 5 minutes, while 3.2 percent of the babies were stillborn. The majority of the stillborn were fresh, with only about 5 being macerated. Preterm termination of pregnancy can result in low birth weight, VLBW, ELBW, prematurity, IUGR, and fetal distress, which can lead to stillbirth.

### **Relation of booking status with perinatal outcome**

In this study, 93.8 percent of booked patients and 80.3% of unbooked cases had a positive outcome. The majority of newborn deaths occurred in unbooked cases, implying that good antenatal care throughout the antenatal period is critical for a better perinatal outcome. Even the number of abortions was higher in unbooked instances, implying that early pregnancy registration at a nearby PHC by ASHA worker will help to prevent miscarriages.

### **Maternal Outcome**

During my study, only one maternal loss occurred among 794 teenage pregnant women. Severe preeclampsia with Grade 3 Abruptio with IUD caused death, which was compounded by severe anemia and Acute Kidney Injury necessitating hemodialysis. The patient died as a result of problems related to hemodialysis. Maternal death rates are greater among adolescent mothers, according to studies by Kwast et al,<sup>[22]</sup> the majority of them are due to unsafe abortions.

## **CONCLUSION**

The purpose of this study was to assess the socio-demographic profile, maternal outcomes during antepartum, intrapartum and postpartum period, and neonatal outcomes. The study showed that the majority of young pregnant women came from low socioeconomic backgrounds, lived in rural regions, lacked education, were unaware of pregnancy, and lacked sex education, all of which contributed to poor maternal and perinatal outcomes. Anemia, PIH, premature labour, PROM, low birth weight, preterm and IUGR neonates were all common complications in teenage pregnant women. This could be because of poor antenatal care, dietary deficits, and a lack of pregnancy awareness, rendering teenage pregnant women more vulnerable to complications. Teenage pregnancy is the world's most serious social and public health issue, and it's especially a problem in developing countries like India, where age-old traditions and practices in rural areas encourage early marriages and school dropouts. The health care provider must treat teenage pregnancy as a high-risk group and properly educate them about the importance of early pregnancy registration at a nearby PHC and adequate number of antenatal visits. Also early identification of risk factors through clinical examination, various screening and diagnostic tests can help to prevent and manage the

complications during pregnancy by means of early interventions which will help in improving maternal and neonatal wellbeing. Good prenatal, intranatal, and postnatal services, as well as good neonatal, contraceptive, and abortion choices, all contribute to reduce the dangers associated with teenage pregnancies to a considerable extent. With all of these measures in place, we may expect a global drop in teen pregnancy rates and difficulties in the next years.

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