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Original Research Article

## Maternal and neonatal outcome in teenage pregnancy

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### ABSTRACT

**Background:** Pregnancies that occur below the age of 19 years are called as teenage pregnancies. Teenage pregnancy is a common public health problem worldwide which is harmful to the health of mother and child and has long been considered a high-risk state. It is associated with high maternal, fetal and neonatal mortality and morbidity. The complications are anaemia, preterm delivery, hydramnios, malposition, preeclampsia, eclampsia.

**Methods:** A prospective study of teenage pregnancy was carried out at Government Dharmapuri Medical College, Dharmapuri for the period of 1 year. Pregnant women admitted in labour ward were taken for study. 500 cases of teenage women upto 19 years were included in above period. A structured proforma was used to collect information. Information regarding age, educational status, occupation, socioeconomic status, number of siblings in the family, marital status, age at marriage, health awareness, knowledge about pregnancy and delivery, antenatal visits were obtained from history. Complications during antenatal period, delivery and postpartum were observed. Details regarding mode of delivery and birth weight of the baby were noted. Baby details noted and babies admitted in neonatal ward were followed up till they were discharged.

**Results:** The incidence of teenage pregnancy was 6.74%. In our study 93% of pregnant teenagers were 17-19 years old. Around half had caesarean section. All complications such as anaemia, PIH, preterm, low birth weight and post op complications such as local sepsis, mastitis and UTI were increased in teenage group. Most of babies in the study group required NICU admission. Leading causes of admission in NICU were respiratory distress and preterm babies.

**Conclusions:** Teenage pregnancy is associated with significantly higher risk of anaemia, PIH, preterm deliveries, neonatal mortality and morbidity. A combined multidisciplinary approach involving educationists, health and social workers, obstetrician and gynaecologists is required to improve the adolescent's reproductive health.

**Keywords:** Teenage pregnancy, Complications, Neonatal, Outcome

### INTRODUCTION

Pregnancies that occur below the age of 19 years are called as teenage pregnancies. Teenage pregnancy is a common public health problem worldwide which is harmful to the health of mother and child and has long been considered a high-risk state. Teenage pregnancy endures to be a thought-provoking public health issue around the world, primarily in developing countries. Globally, according to the WHO about 16 million girls aged 15 to 19 and some 1 million girls under 15 give birth every year, mostly in low and middle-income countries.<sup>1</sup> In India, teenage pregnancy

constitutes 8-14% of total pregnancies. Complications of pregnancy and childbirth in women between 15-19 years of age are the leading cause of mortality among women in India. Hence teenage pregnancy is a serious problem today all over the world and more so in developing countries like India.<sup>2</sup> Teenage mothers aged 10-19 years have a Maternal mortality rate (MMR) which is about 5 times higher than the MMR for the mothers aged 20-24 years. Also, there are many adverse fetal outcomes. India is the second most populous country in the world with total population of 1.2 billion, adolescents (<19 years) constitute 22%. In India, National Health Family Survey estimates that the overall

teenage pregnancies in India is 8%. Teenage pregnancy is dangerous for the mother. Whereas in Tamil Nadu its around 5.9% as per recent statistics.<sup>2</sup> Studies show maternal and foetal mortality and morbidity is directly related to the age of the mother.<sup>3</sup> Teenage pregnancies have shown association with higher risks to baby and mother and also long-term risk. In South India particularly in Tamil Nadu the incidence of teenage pregnancy is less compared to other states, not much studies been done on effect of teenage pregnancy on maternal and fetal outcome in our geographical area and hence this study will give more light on the outcome related to Dharmapuri district and nearby area.

### **Aim and objectives**

The aim and objectives of this study were (a) to study the maternal complications specific to teenage mothers during antepartum, intrapartum and postpartum period; (b) to analyse the mode of delivery to know whether caesarean section rate is increased in teenage pregnancy; (c) to study the neonatal outcome in teenage pregnancy; and (d) to analyse the factors contributing to teenage pregnancy.

### **METHODS**

A hospital based prospective observational study of teenage pregnant females admitted at Government Dharmapuri medical college and Hospital, Dharmapuri. The study period was 1 year (December 2019 to December 2020). The sample size was 500.

#### **Inclusion criteria**

All teenage pregnant women aged 13-19 years admitted for delivery in our labour room and data collected from AN record. 300 cases of teenage women from 13-19 year. A structured proforma is used to collect information. Only primigravida is included. Primi>28 weeks till postpartum.

#### **Exclusion criteria**

Primigravida <28 weeks, primi>28 weeks not in Labour admitted for other causes. Multigravida, AN mother above 19 years of age; (b) prior permission from ethics committee was obtained; (C) an informed written consent from study participant and parents in the local language was taken; and (d) marital status of the subject will not be disclosed.

#### **Statistical analysis**

As this study is a descriptive type of study, results were analyzed as percentiles and discussed.

### **RESULTS**

In our study group most of the mothers were 18-19 years age group (88%) only 10 were less than 16 in our study group.

#### **Socio-economic status**

Most of the mothers in our study group was of lower middle class in socioeconomic status (88%). All mothers in our study population was married at the time of our study period.

#### **Education status**

Most in our study group had some level of school education while most of our mothers had minimum of secondary school education at least.

#### **Anaemia and hypertension**

Anaemia is an important complication in the present study where 265 (53 percent) mothers expressed some level of anaemia.

Incidence of pregnancy induced hypertension is high in teenage pregnancy because of improper care, in our study 90 (18%) had some sort of hypertension.

#### **Antenatal complication**

In our study all mothers were booked and immunized. Among our study group 27% mothers had their first antenatal visit in 1st trimester, most of the mothers, around 65 percent had first visit in 2nd trimester. While 24 mothers had their first visit in only 3rd trimester. In our study some sort of antenatal complication was seen in 202 patients which is around 40%.

**Table 1: Age distribution.**

Age (years)	N	%
<15	15	3
16-17	45	9
18-19	440	88

**Table 2: Socio-economic status.**

Socio-economic status	N	%
Lower middle	440	88
Upper middle	60	12

**Table 3: Educational status.**

Educational status	N	%
Illiterate	5	1
1 <sup>st</sup> -5 <sup>th</sup>	15	3
6 <sup>th</sup> -10 <sup>th</sup>	235	47
11 <sup>th</sup> -12 <sup>th</sup>	205	41
Graduate	40	8

#### **Mode of delivery**

Some type induction needed in around half of mothers 240 (48 percent) in our study population. Most common

method followed for induction is Foley with artificial rupture of membranes, PGE2 gel was used in 31 mothers in our study group. In the present study, there was lower number of normal vaginal deliveries 210 (42 %) in teenage when compared to caesarean deliveries. In our study 28 had instrumental delivery among which outlet forceps was used in 16 mothers and vacuum was used in 12 mothers. The most common indication for LSCS in our study was foetal distress followed by CPD. In our study 76 mothers had complications during labour.

**Table 4: Anaemia.**

Anaemia	N	%
Not anemic	235	47
Mild	235	47
Moderate	20	4
Severe	10	2

**Table 5: Hypertension.**

Hypertension	N	%
Gestational hypertension	60	12
Severe pre-eclampsia	15	3
Imminent eclampsia	10	2
Antepartum eclampsia	5	1
Normal	410	82

**Table 6: Antenatal complications.**

Antenatal complications	N	%
Prolonged pregnancy	40	8
Heart disease	5	1
IUGR	55	11
Preterm	55	11
GDM	15	3

**Table 7: Mode of delivery.**

Mode of delivery	N	%
LN	210	42
LSCS	240	48
Instrumental	45	9
Assisted breech	5	1

#### **Post-partum complications**

Post-partum complications were seen in 63 mothers, post op fever was seen in 14 mothers, local sepsis was seen in 13 teenage mothers UTI in 15 and mastitis in 18 mothers, while septicemia was seen in 3 mothers.

#### **Neonatal complication**

Neonatal complications were seen in our study, low birth weight being the commonest, followed by respiratory distress and prematurity. Among our study group 252 (51%) babies born to teenage mothers require NICU

admission.

**Table 8: Post-partum complications.**

Post-partum complications	N	%
Post-OP fever	110	22
Local sepsis	105	21
Septicemia	25	5
UTI	120	24
Mastitis	140	28

**Table 9: Post-partum complications.**

Neonatal complications	N	%
Low birth weight	175	35
Prematurity	55	11
Respiratory distress	130	26
Sepsis	8	1.6
Milk aspiration	15	3
Neonatal jaundice	6.5	1.3
LGA	6.5	1.3
Congenital anomaly	10	2

#### **DISCUSSION**

This study was undertaken to understand the factors contributing for pregnancy among teenage mothers and to find the complications during antepartum, intrapartum and postpartum period and to study the neonatal outcome of the teenage pregnancy. The incidence of teenage pregnancy in our study population is 6.74 %, it is bit higher than Tamil Nadu incidence which is around 5.9% but less than Indian incidence which is 7.9% as per National Health survey 2018.<sup>4</sup>

In this present study most of the mothers belonged to 18-19 years (88%) while less than 15 years were only 10 mothers in our study group. 93% were between 17 and 19 years and 7% were in the age group 15-17 years and similar to the study conducted by Bhalerao AR.<sup>11</sup> Present study highlights, majority of patients were of low socio-economic status. This is mostly due to poor educational status in the teenage mothers. Half of teenage mothers (51%) haven't crossed more than secondary education itself.

A study by Guttmacher et al institute found that in India, by seven years of education, pregnancy rates had come down by 34% in urban area and 54% in rural area in the 15 to 19 years age group.<sup>12</sup> Improved female literacy and educational prospects have led to an increase in the age at first birth in areas such as Iran, Indonesia and the Indian state of Kerala.

Anemia is an important complication in the present study where 53 percent of mothers expressed some level of anemia. This was similar to prevalence of anemia in non-teenage mother too, or in reproductive age group, which is around 54.8% in Tamil Nadu and 53 percent in India s per

NFHS-4.<sup>4</sup>

Study by Verma et al and Shravage et al also showed high rates of teenage mothers with anemia compared to adult mothers as depicted in our study probably because of poor nutrition in this group of women.<sup>7,8</sup> To counter this problem more focused national programmes like FOGSI-12 by 12 where aim is to achieve to achieve 12 g of Hb% by the age of 12 are necessary.

Incidence of gestational hypertension is high in teenage pregnancy because of improper care, in our study 18% had some sort of hypertension. This is similar to studies done by Patted et al where hypertension was seen in around 20% of study population.<sup>13</sup>

Teenage pregnancy is a known risk factor for developing pre-eclampsia and in the present study, the chances of developing pre-eclampsia was 3 times more common in teenage mothers than adult mothers. The findings are comparable with that of Verma et al, Shravage et al and Bhaduria et al studies, which also showed higher rates of pre-eclampsia in teenage mothers.<sup>7,8,10</sup>

In our study, 11% mothers had preterm delivery, while rest had term delivery. This is in accordance with the studies by various authors like Patted et al (12.83%), Bhalerao et al (16%) and Swaroop et al (32%).<sup>11,13</sup> Bhaduria et al, Bhattacharya et al and Shravage et al studies showed high incidence of preterm delivery in teenage primigravida's.<sup>5,8,10</sup> This could be explained due to high incidence of pre-eclampsia and anemia in the teenager group. In our study some sort of antenatal complication was seen in 40% which is around 20-30% in normal age group mothers in India apart from low birth weight and preterm, IUGR was the most common followed by prolonged pregnancy medical conditions like hypothyroid, asthma, seizure was seen in few mothers in our study. Gestational diabetes was seen in 12 mothers.

Coming to progress of labour, in our study in 155 mothers it was spontaneous and in 145 it was induced, foleys with gel was used in 12 teenage mothers PGE2 gel alone used in 31 mothers while most of them (N=102) required artificial rupture of membranes. In the present study, there was lower number of normal vaginal deliveries (42%) in teenage when compared to cesarean deliveries (48%). This is consistent with other studies and the probable reason for this is due to immaturity and under developed bony pelvis in teenagers. This is bit higher than some of previous studies done by Shravage et al, Patted et al and Chahande et al have reported increased caesarean section rate of 31% and 27.3% respectively.<sup>8,13,14</sup>

In general population the rate is around 34 percent in Tamil Nadu in past 5 years as per NFHS-4, which is bit higher in group of teenage pregnancy. The most common indication for LSCS in our study was fetal distress followed by CPD. In other studies, like Shravage et al the most common indication was cephalopelvic disproportion followed by

fetal distress.<sup>8</sup> Higher incidence of operative deliveries in teenage group was also found in other studies like in Pal et al and Shravage et al.<sup>8,9</sup>

Neonatal complications were seen in our study group babies among which low birth weight was most common followed by respiratory distress and prematurity. In some babies' milk aspiration syndrome, jaundice, congenital anomaly was seen. In Ashok's et al study, neonatal morbidities like perinatal asphyxia (11.7%), jaundice (5.77%), respiratory distress syndrome (1.9%) were increased. Most of the other studies present the same results.<sup>6</sup>

There was no maternal mortality in our study. Though increased maternal mortality has been documented in some studies. We had many near miss cases which presented with abruptio placenta with DIC, atonic PPH with hypovolemic shock and AP eclampsia. All three cases were treated effectively and promptly and was discharged.

The main cause of premature and LBW babies may be poor nutritional status, pre-eclampsia and anemia may be additional reason for premature and low birth weight babies.

## CONCLUSION

From the present study it is concluded that teenage mothers in rural population had significant number of complications in pregnancy including anemia, pre-eclampsia and preterm labour compared to primigravidae more than 19 years. Maternal morbidity also more due to Increased operative interference, higher rate of LSCS, higher number of NICU admissions. Since teenage pregnancy is a multifaceted problem, it demands multidimensional solutions. Pregnancy itself has a tremendous effect on teenage and her family. The present approach is to provide general health education about the risks of teenage pregnancy, strictly enforce the minimum age at marriage law, screen all pregnant mothers for risk factors and provide at risk mothers with education about childbearing and rearing and referral to a tertiary hospital for safe delivery. A multidisciplinary approach involving educationists, health workers, social workers and obstetrician and gynecologist is required to improve the adolescent's reproductive health.

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