

Original Research Article

MATERNAL AND PERINATAL OUTCOME IN TEENAGE PRIMIGRAVIDAE AND PRIMIGRAVIDAE AGED 20-29 YEARS- COMPARATIVE STUDY

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ABSTRACT

Background: Teenage pregnancy is a serious issue in both developed and underdeveloped nations. Causative factors being early puberty, early marriage, sociocultural factors, illiteracy, early sexual activity, lack of knowledge and access to contraception, ignorance, and poverty. Teenage pregnancy has been associated with several adverse consequences, including anaemia, preeclampsia, premature delivery, infants being small for gestational age, low birth weight, and increased neonatal morbidity and mortality.

Materials and Methods: A comparative study regarding maternal and perinatal outcome was conducted between 100 cases of primigravidae aged 14- 19-year-old and 100 cases of primigravidae of 20-29-year-old attending Government Maternity Hospital, Tirupati and willing to give written informed consent. All high risk pregnancies were excluded from the study.

Results: The mean age in teen age primigravidae found to be 18.1yrs where as it is 24.6yrs in adult primigravidae. There is no significant difference in distribution of unbooked cases in teenage and adult pregnancies. 19% of teenage pregnant women were illiterate compared to only 4% in adult group. 69% of teenage group and 52% of adult group belongs to low socioeconomic status. Majority of study participants are of term gestational age. Teenage pregnancy is an important risk factor for development of anaemia and hypertension incidence being 68% & 27% compared to that of adult group where incidence being 32% & 8% respectively. Preterm and IUGR is a common neonatal outcome observed in teenage pregnancies compared to that of adult pregnancies. 2 IUDs observed in teenage group and no IUDs in adult group. Incidence of failed induction and cephalopelvic disproportion were significantly more associated with teenage primigravidae. Majority of the adult primigravidae adopted for one or other method of contraception.

Conclusion: Teenage mothers had numerous complications in pregnancy, anemia, pre-eclampsia, and preterm labor, oligo hydramnios, Thyroid disorders. Higher operational intervention and a higher LSCS rate are also contributing factors in the rise in maternal morbidity. Neonatal morbidity is also more in teenage mothers due to prematurity, low birth weight, and perinatal asphyxia. Stringent rules should be implemented to avoid early marriages and teenage pregnancies.

Keywords: Adult Primigravidae, Comparative study, Maternal outcome, Perinatal outcome, Teenage primigravidae.

INTRODUCTION

Teenage pregnancy is a serious issue in both developed and underdeveloped nations. Pregnancy in a woman less than or equal to 19 years is defined as "teenage pregnancy" (when the pregnancy ends). Menarche often occurs between 12 to 13 years of age, marking the point at which a female becomes potentially fertile.

Pregnancy at teenage has become a point of discussion and study, as these patients are incomplete in their growth and development, both mentally and physically. The burden of pregnancy takes its toll on teenagers as they are still incomplete in their growth, development, and mental maturity as they now have the additional responsibility of being a mother and woman and ultimately have to take care of their child and family. Adolescent pregnancy is caused by a number of factors, including early puberty, early marriage, sociocultural factors, illiteracy, early sexual activity, lack of knowledge and access to contraception, ignorance, and poverty. Teenage pregnancy has been associated with several adverse consequences, including anaemia, preeclampsia, premature delivery, infants being small for gestational age, low birth weight, and increased neonatal morbidity and mortality.

Globally, 15% of women are under the age of 18 gave birth between 2015 and 2020, with 90% or more of those births taking place in low- and middle-income nations.^[1,2] Globally, one in every five adolescent girls has given birth, and the risk increases to around one in every three adolescent girls in underdeveloped countries.^[3] Among Indian women aged 15-19, 7% have started childbearing, 5% women have given birth to a live child, and 3% are pregnant with their first child according to NFHS 5⁴. The incidence of teenage pregnancy decreased slightly between 2015-16 (8%) and 2019-21 (7%).

The lowest teenage pregnancy rates are seen in the Netherlands, whereas in Sweden, England and Wales combined, it's much higher. The highest pregnancy rate in developed countries is seen in the United States. In South Asia, the early marriage of adolescents is common, and 25-35% of adolescent girls in Pakistan, Bangladesh, Nepal, and India begin childbearing as early as 17 years.

With a greater understanding of the causes of teenage pregnancy, especially in the context of developing countries like India, it may be possible to develop more effective interventions to tackle this problem. There is a lack of recent statistics on the maternal and perinatal outcomes of teenage pregnancy in India under the changing scenario of socioeconomic development and the availability of better healthcare facilities.

Hence this study was conducted in a tertiary care hospital to analyze the outcome of Teenage primigravidae compared to adult primigravidae aged 20-29 years.

Aim

To compare maternal and perinatal outcome in teenage primigravidae (14-19 years) and primigravidae of age 20-29 yrs.

Objectives

To compare maternal and perinatal outcome in teenage primigravidae with that of primigravidae of age 20-29 yrs, and to evaluate the socio-demographic factors leading to teenage pregnancies.

Study Subjects

100 Booked and unbooked cases of primigravidae aged 14- 19-year-old and 100 booked and unbooked caes of primigravidae of 20-29-year-old attending Government Maternity Hospital, Tirupati and willing to give written informed consent were included in the study. All high risk pregnancies were excluded from the study.

MATERIAL AND METHODS

Details of study protocol were explained to subjects. Participants were selected based on a simple randomized approach. Written Informed consent was obtained. The data was collected by interviewing the participant in person at the time of admission, and follow-up was done till 6 weeks from the date of delivery. Antenatal records were studied to obtain the required information. The socioeconomic status (income, occupation, education) race, age, religion and the number of antenatal visits were recorded. A thorough general and obstetrics examination was done. Investigations such as Haemoglobin estimation, urine analysis, HIV, HBsAg, Blood grouping and Rh typing, Random blood sugar, TSH, blood urea, and serum creatinine was done. Any medical or obstetrics problems in the antenatal, intranatal, and postnatal period were noted. Labour and its progress was closely monitored. Mode of delivery and perinatal outcome were noted in both the groups. Chi-square test was used to compare the two groups. The statistical significance was considered at a P value < 0.05.

DISCUSSION

This study was conducted to understand the factors contributing to pregnancy among teenage mothers and to find the complications during the antepartum, intrapartum, and postpartum period and to study the neonatal outcome of teenage pregnancy, comparing it to adult primigravidae pregnancy aged 20-29 years.

In present study most mothers belonged to 18-19 years (77%) among teenage primigravidae, and the mean age was 18.15 years which is similar to studies of Mukhopadhyay P,2010⁵ Sharma AK,2003⁶, Talawar SR⁷,

In adult primigravidae majority were between 20-24 years (51%), and the mean age was 24.6 years, was slightly higher than in other studies Nguyen PH⁸,

Paladugu RK⁹. This may be due to the higher age at marriage in adult primigravidae in the present study. Present study highlights the majority of patients were of low socio-economic status in both the study and control groups. In the present study most of the population, 69 % of teenage and 52 % of adults, belonged to the lower socio-economic class (upper lower and lower). 48 % of adult mothers belong to the middle (upper middle and lower middle) socio-economic class when compared to 31% of teenage mothers.

In the present study more teenage mothers (19 %) haven't had primary education itself compared to 4% of adult primigravidae. 19 % of the Teenage primigravida group were illiterate, whereas 4% of the adults group were illiterate with a P- value of 0.00088 (chi-square value:11.05), which is statistically significant. There was more number of graduates (15%) in adults compared to teenage.

Booked cases were more among the adult primigravidae compared to teenage primigravidae which is in comparison with the other studies, Dutta I 2013,^[10] Jain P,^[11] Talawar SR,^[7] Mukhopadhyay P.⁹ At the same time Unbooked cases are not significantly more in the teenage primigravida group (18%) with a P-value of 0.103 (chi-square value:n 2.6578) compared to adults(10%). ANC awareness was mostly due to the implementation of government programs. [Table 1]

There were more number of anemia cases in the teenage primigravidae group (68%) when compared to the adult primigravidae (32%) group with P-value. <0.00001(Chi-square value: 25.92), which was statistically significant. probably because of poor nutrition and non-compliance to iron prophylaxis in this group of women. The results of Anaemia in teenage and adult pregnant women in this study were almost similar to other studies, Jain P,^[11] Dutta I,^[10] Meherda K.^[12] To counter this problem, more focused national programs like the national nutritional anaemia control program and routine iron folic acid supplementation during pregnancy are necessary. [Table 2]

Hypertensive disorders of pregnancy were more common in teenage primigravidae (27%) with a p-value of 0.00040 (chi-square value:12.50). Eclampsia and preeclampsia were more common in teenage primigravidae. There were six cases of Eclampsia reported in teenage primigravidae, and no case was reported in adult primigravidae. The findings were similar to that of Jain P,^[11] Meherda K,^[12] Dutta I,^[10] and Verma P,^[13] studies, which also found higher rates of pre-eclampsia in teenage mothers when compared to adult primigravidae. Paladugu RK^[9] study showed that hypertensive disorders are more common in adult primigravidae, comparable to teenage primigravidae. [Table 3]

In the present study, premature births were 2 times more common in teenage primigravidas compared to adult primigravidae. Studies Dutta I,^[10] Jain P,^[11] Meherda K,^[12] Verma P,^[13] Mukhopadhyay P,^[5]

showed a high rate of preterm delivery in teenage primigravidas. [Table 4]

In the present study, Oligohydramnios were more common in teenage primigravidae compared to adult primigravidae but statistically not significant (chi-square value:0.2871, P-value:0.592). The findings were similar to that of Medhi R,^[14] Dutta I,^[10] and Verma P,^[13] studies, which also found higher rates of oligohydramnios in teenage mothers when compared to adult primigravidas. In Jain P,^[11] study there was a little higher incidence of oligohydramnios in teenage primigravidae. [Table 5]

Hypothyroidism was more commonly seen in adult primigravidae but was statistically not significant, with a P-value of 0.088 (chi-square value:2.90). Cases of hyperthyroidism were not reported in both groups. [Table 6]

Prematurity was common in the teenage primigravidae (16%) when compared to adult primigravidae (6%) which was statistically significant with P value 0.0238(chi-square value:5.107)

There was no significant statistical difference in intrauterine growth retardations. 2 cases of Intrauterine deaths were seen in teenage primigravidae and there were no cases of IUD in adult primigravidae. [Table 7]

Normal vaginal delivery was the common mode of delivery among all age groups. Lower segment caesarean sections were more common among teenagers (36%) than adults (22%), which is statistically significant with a P-value of 0.0095 (chi-square value:6.707). Assisted/instrumental vaginal deliveries were more common among teenage primigravidae (8%) than adult primigravidae (4%), which was not statistically significant, with a p-value of 0.233 (chi-square value 1.41814). The current study showed that, there was a lower rate of normal vaginal deliveries (52%) in teenage group when compared to adult group (70%). This was similar to Dutta I,^[10] Jain P,^[11] and Meherda K,^[12] studies. The rate of normal vaginal deliveries was almost equal in both groups in Mukhopadhyay,^[5] and Medhi R,^[14] studies. Paladugu RK,^[9] study showed a higher rate of normal vaginal deliveries (80%) in teenage primigravidae. There was still controversy regarding the impact of age on the Mode of delivery, so further research is needed for a conclusion. [Table 8]

Incidence of failed induction and cephalopelvic disproportion were significantly more associated with teenage primigravida. Jain P,^[11] and Rajoriya M,^[15] studies showed that the cephalopelvic disproportion was the most common reason for indication of LSCS in teenage primigravidae, followed by foetal distress as the second most common cause. Dutta I,^[10] Aggarwal,^[16] studies showed that the fetal distress was the most common cause for LSCS in teenage followed by cephalopelvic disproportion. [Table 9]

There was no significant difference in meconium aspiration (P value:0.70, chi square value:0.148) and atonic PPH (P value:0.621, chi-square value:0.244) between teenage primigravidae and adult primigravidae. There were no cases of traumatic PPH reported. [Table 10]

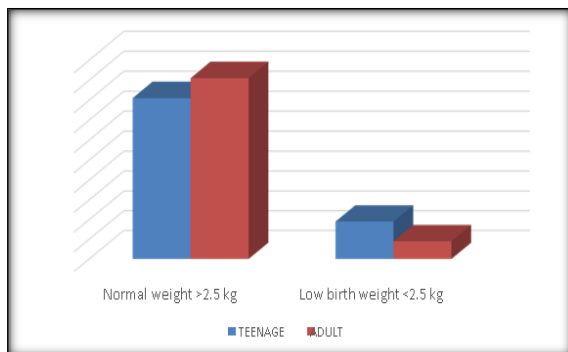


Figure 1: Birth weight of the neonates studied

Low birth weight babies were more common in teenage primigravidae (19%) than adult primigravidae. This was statistically significant with a p-value of 0.041(chi- square value: 4.152).

Dutta I10, Meherda K12, Medhi R14 and Paladugu RK9 studies also showed a higher rate of low birth weight in teenage group.

10 % of neonates of teenage primigravidae and 2 % of neonates of adult primigravidae have APGAR <7. APGAR <7 was more common in teenage primigravidae, which is statistically significant with p value of 0.172(chi-square value:5.673). [Table 11] Perinatal asphyxia and respiratory distress were the most common conditions seen in both groups. Perinatal asphyxia was seen more in babies of teenage primigravidae (10%) than adult primigravidae (2%). There is a significant statistical difference between the two groups with a P - 0.017(chi-square value:5.673). Respiratory distress syndrome was more common in babies of teenage primigravidae (12%) compared to adult primigravidae (3%), with a significant statistical difference with a p-value <0.015 (chi-square value:5.837). There was no significant statistical difference in the incidence of neonatal hyperbilirubinemia (P value:0.26, chi-square value:1.22), neonatal sepsis, and meconium aspiration syndrome. Neonatal mortality was more common in babies of teenage primigravidae, but there was no significant statistical difference, with a P-value of 0.312 (Chi-square:1.024). Overall neonatal morbidity was more in teenage primigravidae (36%) and statistically significant. Neonatal morbidity results are similar with that of Dutta I,^[10] Medhi R,^[14] studiess.

The number of babies that required SNCU or NICU care in teenage primigravidae (36%) were more than in adult primigravidae (15%) and which was significant with a p-value <0.0026(chi-square value:9.016). [Table 12]

Knowledge about contraception was more in adult primigravidae (45%) than teenage primigravidae(30%) which was statistically significant with a P-value <0.00001(chi-square value:32). [Table 13]

Adoption of contraception in the present study was more in adult primigravidae than teenage primigravidae, which was statistically significant with a P-value of 0.120 (chi-square value:2.4073). In the present study, the knowledge about contraception among the teenage primigravidae was present in 30% compared to 45% of adults, which is statistically significant. Dutta I,^[10] and Medhi R,^[14] also found that knowledge about contraception was more in adult primigravidae compared to teenage primigravidae.

In the present study, contraception usage among the teenage population was present in 8% compared to 15% of adults, which is statistically significant. Medhi R,^[14] also showed that contraception usage was more in adult primigravidae compared to teenage primigravidae. The low level of contraceptive knowledge and its use is possibly because of the low level of education and low access to contraceptives in adolescent mothers in comparison to older mothers of 20–29 years of age. [Table 14]

26 % of the teenage mothers came for follow-up compared to 32 % of adults. Only one case episiotomy wound gaping was seen in teenage primigravidae, and no cases of wound gaping were reported in adult primigravidae. Puerperal sepsis was not seen in both groups. Breastfeeding was established in 95% of teenage primigravidae and 98% of adult primigravidae. All babies were immunized in both groups. Breastfeeding was established in 95% of teenage primigravidae and 98 % of adult primigravidae. Immunization was 100 % in babies of both teenage and adult primigravidae. [Table 15]

Recommendations

This research was carried out in a medical college as well as a hospital that provides tertiary care.

- Although the legal age for marriage in India was 18 years, teenage marriage is more prevalent in the rural areas. therefore strict monitoring is required.
- Counselling of adolescent girls play an important role. Obstetricians are the most qualified medical professionals to counsel teenage about the negative outcomes of pregnancy.
- The government organisations and non-governmental organizations (NGOs) can bring about change by creating public awareness through mass media like newspapers, Television, FM Radio, Internet, on age of marriage, contraception, Safe sex education, and Sexually transmitted diseases, reproductive tract infections.
- The significant problem of unplanned pregnancies can be mitigated through the

provision of emergency contraception, MTP (medical termination of pregnancy) services, and counselling about the dangers involved.

Limitations of the Study

- All study population were selected from a single tertiary-care hospital. Hence, the study population might not be representative of the

general population as a whole and must be carefully used for extrapolation.

- It was suggested that future larger, multi-institutional, and longitudinal studies would be helpful to adequately address these limitations and provide a better understanding of various factors related to teenage pregnancy.

Table 1: Antenatal care distribution of patients studied

Antenatal care	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Booked	82	82	90	90
Unbooked	18	18	10	10
Total	100	100	100	100

Table 2: Anemia (Hb) distribution of patients studied

Anaemia (Hemoglobin g/dl)	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Mild (10-10.9)	10	10	6	6
Moderate (7-9.9)	46	46	21	21
Severe (<7)	12	12	5	5
Total	68	68	32	32

Table 3: Hypertensive disorders of pregnancy studied

Category	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Gestational hypertension	3	3	2	2
Preeclampsia	18	18	6	6
Eclampsia	6	6	0	0

Table 4: Gestational age distribution of patients studied

Gestational age	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Extremely preterm <28 weeks	0	0	0	0
Very preterm >28-32 weeks	2	2	3	3
Moderate preterm >32-34 weeks	7	7	1	1
Late preterm >34-37 weeks	7	7	2	2
Term (>37 weeks)	84	84	95	95

Table 5: Amniotic fluid index distribution of patients studied

Amniotic fluid status	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Oligohydramnios	10	10	7	7

Table 6: Thyroid disorders distribution of patients studied

Thyroid disorders	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Hypothyroidism	2	2	7	7
Hyperthyroidism	0	0	0	0

Table 7: Foetal outcome studied

Fetal outcome	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Preterm	16	16	6	6
IUGR	3	3	3	3
IUD	2	2	0	0

Table 8: Mode of delivery distribution of patients studied

MODE OF DELIVERY	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Normal vaginal delivery	56	56	74	74

Assisted vaginal delivery	8	8	4	4
LSCS	36	36	22	22

Table 9: Indications of LSCS

Indication	Teenage primigravidae (n=36)		Adult primigravidae (n=22)	
	Number	%	Number	%
Cephalo pelvic Disproportion (CPD)	15	41.66%	7	31.81%
Fetal distress(FD)	9	25%	10	45.45%
Malpresentation (MP)	2	11.11%	1	4.55%
Failed induction(FI)	9	25%	3	13.63%
Antepartum Hemorrhage (APH)	1	2.77%	1	4.55%

Table 10: Complication During Labour

Complication	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Meconium aspirationsyndrome	4	4	3	3
Traumatic PPH	0	0	0	0
Atonic PPH	10	10	8	8

Table 11: Baby APGAR score at 1-minute distribution of patients studied

APGAR AT 1 MINUTE	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
0-3	4	4	1	1
4-6	6	6	1	1
7-10	90	90	98	98

Table 12: Neonatal morbidity/mortality

Neonatal morbidity/mortality	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
SNCU/NICU admissions	36	36	15	15
Perinatal asphyxia	10	10	2	2
Respiratory distress syndrome(RDS)	12	12	3	3
Meconium aspiration syndrome(MAS)	4	4	3	3
Neonatal hyperbilirubinemia (NNH)	9	9	5	5
Neonatal sepsis	1	1	1	1
Congenital anomalies	0	0	0	0
Neonatal mortality	3	3	1	1

Table 13: Knowledge about contraception among the patients studied

Knowledge about Contraception	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Present	30	30	45	45
Absent	70	70	55	55

Table 14: contraception adopted by the patients in this study

Contraception adopted	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Adopted	8	8	15	15
Not adopted	92	92	85	85

Table 15: Postnatal follow-up distribution of patients studied

	Teenage primigravidae		Adult primigravidae	
	Number	%	Number	%
Regular follow up	26	26	32	32
Episiotomy wound gaping	1	1	0	0
Puerperal sepsis	0	0	0	0
Contraception adopted	8	8	15	15
Breastfeeding	95	95	98	98
Immunization of the baby	100	100	100	100

CONCLUSION

- From the present comparative study, it was concluded that teenage mothers had numerous

complications in pregnancy, including anemia, pre-eclampsia, and preterm labor, compared to adult primigravidae aged 20-29 years.

- Higher operational intervention and a higher LSCS rate are also contributing factors in the rise in maternal morbidity. Neonatal morbidity is also more in teenage mothers due to prematurity, low birth weight, and perinatal asphyxia.
- Teenage pregnancy has many causes and consequences, thus finding a solution must take into account these various factors. Teenage pregnancy has more effects on both the mother and her family. Here it was seen that adolescent pregnancy was more common in poor socio-economic status due to a low level of education and awareness of the complications of adolescent pregnancy. This suggests that increasing public knowledge about adolescent pregnancies, providing sex education, and providing easy access to reliable forms of contraception are crucial to prevent adolescent pregnancy.

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