

Proportion and Maternal and Fetal Outcomes of Teenage Pregnancy in a Tertiary Care Centre of Rajasthan: A Cross-Sectional Observational Study

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Abstract: Background: Teenage pregnancy remains a major public health concern in developing countries because of its association with adverse maternal and neonatal outcomes. This study assesses the proportion of teenage pregnancies and evaluated their maternal and fetal outcomes in a tertiary care centre in Rajasthan. Objectives: To estimate the proportion of teenage pregnancies among total obstetric admissions and to evaluate their socio-demographic profile, maternal outcomes, and fetal outcomes. Methods: A cross-sectional observational study was conducted over one year among 110 pregnant adolescents aged 13–19 years admitted to the Department of Obstetrics and Gynaecology, Government Medical College, Kota. Demographic characteristics, antenatal care, maternal complications, mode of delivery, and neonatal outcomes were recorded and analysed using descriptive statistics. Results: Among 3,955 obstetric admissions, 150 were teenage pregnancies accounted for 3.79%. Most participants were aged 18–19 years (62.73%), from rural areas (61.82%), married (94.55%), and primigravida (72.72%). Normal vaginal delivery occurred in 58.82% and caesarean section in 39.22%. Severe anaemia was the leading indication for ICU/HDU admission. Maternal survival was 99.09%, while 90.91% resulted in live births. Birth asphyxia was the commonest indication for NICU admission, and stillbirth occurred in 1.96% of delivered cases. Conclusion: Teenage pregnancy is associated with significant maternal and neonatal morbidity. Strengthening adolescent reproductive health services, delaying early marriage, improving nutrition, and ensuring quality antenatal care are essential to improve pregnancy outcomes.

Keywords: Teenage pregnancy, maternal outcome, fetal outcome, low birth weight, rural population

1. Introduction

Teenage pregnancy, defined as pregnancy occurring between 13 and 19 years of age, remains an important public health concern worldwide. Although the incidence of adolescent pregnancy has declined in many regions, it continues to contribute significantly to maternal and neonatal morbidity in developing countries^{1–3}.

Pregnancy during adolescence is associated with increased risks of maternal anemia, hypertensive disorders, preterm labor, and obstructed labor owing to biological immaturity and socioeconomic disadvantages.^{4–7}

Neonates born to adolescent mothers are also more vulnerable to prematurity, low birth weight, birth asphyxia, and neonatal mortality.^{8–13}

India continues to contribute substantially to the global burden of adolescent pregnancy because of persistent early marriage practices and socioeconomic disparities. Rajasthan remains one of the states where adolescent childbearing continues to pose significant healthcare challenges, particularly in rural populations.

The present study was undertaken to estimate the burden of teenage pregnancy in a tertiary care centre and evaluate the associated maternal and fetal outcomes.

2. Materials and Methods

A cross-sectional observational study was conducted in the Department of Obstetrics and Gynaecology, J.K. Lone Hospital, Government Medical College, Kota, Rajasthan. The study was carried out over one year and included teenage mothers aged 13–19 years admitted for abortion, delivery, or cesarean section. The calculated sample size was 110 participants. Demographic characteristics, antenatal care status, maternal complications, delivery details, and neonatal outcomes were recorded and analyzed using descriptive statistics.

3. Study Design

Cross-sectional observational study

Study Setting Department of Obstetrics and Gynaecology, J.K. Lone Hospital, Government Medical College, Kota, Rajasthan.

Study Duration One year.

Study Population Pregnant adolescents aged 13–19 years admitted for abortion, MTP, vaginal delivery, or cesarean section.

Sample Size The calculated sample size was 110 based on NFHS-5 prevalence estimates.

Volume 15 Issue 8, August 2026

Fully Refereed | Open Access | Double Blind Peer Reviewed Journal

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Data Collection: Information regarding age, residence, marital status, socioeconomic status, antenatal care, parity, gestational age, maternal complications, mode of delivery, and neonatal outcomes was collected using a structured proforma.

Statistical Analysis: Data were entered and analyzed using SPSS version 24.0. Results were expressed as frequencies, percentages, means, and standard deviations.

4. Results

During the study period, there were 3955 obstetric admissions. Teenage pregnancies accounted for 150 admissions, resulting in a proportion of 3.79%.

Table 1: Demography

Age group (years)	<15	16–17	18–19	Total Cases
Frequency	05 (4.55%)	36 (32.73%)	69 (62.73%)	110
Educational Status	Illiterate	Primary	Secondary and above	
Frequency	38 (34.55%)	28 (25.45%)	44 (40.00%)	110
Socioeconomic Status	Upper	Middle	Lower	
Frequency	02 (1.81%)	42 (38.18%)	66 (54.54%)	110
Residence	Urban	Rural		
Frequency	42 (38.18%)	68 (61.82%)		110
Marital Status	Married	Unmarried		
Frequency	104 (94.55%)	06 (5.45%)		110
ANC Status	Booked	Unbooked		
Frequency	70 (63.64%)	40 (36.36%)		110
Gravidity	G1	G2		
Frequency	80 (72.72%)	30 (27.27%)		110

Most participants belonged to the **18–19 years** age group (62.73%). The **mean age** of the study population was **17.9 ± 1.20 years**. Most participants belonged to the **lower socioeconomic class (54.54%)**, were **married (94.55%)**, and resided in **rural areas (61.82%)**. A majority were **booked for antenatal care (63.64%)**, and **primigravida (G1)** constituted **72.72%** of the study population.

Table 2: Mode of Delivery among Delivered Teenage Mothers (N = 102)

Mode of Delivery	Number of Cases (n)	Percentage (%)
Normal Vaginal Delivery	60	58.82
Caesarean Section (LSCS)	40	39.22
Instrumental Delivery	2	1.96
Total	102	100

Among 102 delivered teenage mothers, normal vaginal delivery was the most common mode, observed in 60 cases (58.82%). Caesarean section was performed in 40 cases (39.22%), while instrumental delivery was infrequent, accounting for 2 cases (1.96%).

Table 3: Indications for Caesarean Section (LSCS) among Teenage Mothers (N = 40).

Indication	Number of Cases (n)	Percentage (%)
Breech	12	30
Transverse lie	2	5
Fetal distress	8	20

Failed induction	6	15
Cephalopelvic disproportion (CPD)	5	12.5
Non-progress of labour	4	10
Oligohydramnios	3	7.5
Total	40	100

Malpresentation was the leading indication for LSCS, observed in 14 cases (35.00%), predominantly due to breech presentation in 12 cases (30.00%) and transverse lie in 02 cases (5.00%). Fetal distress accounted for 08 cases (20.00%), followed by failed induction in 06 cases (15.00%). Cephalopelvic disproportion was noted in 05 cases (12.50%), while non-progress of labour contributed to 04 cases (10.00%). Oligohydramnios was the least common indication, seen in 03 cases (7.50%). Thus, malpresentation and fetal distress together constituted the major contributors to caesarean delivery in this cohort.

Table 4: Indications for ICU/HDU Admission among Teenage Study Participants (N = 15)

Indication	Number of Cases (n)	Percentage (%)
Severe anemia	6	40
Eclampsia / Severe hypertensive disease	3	20
Postpartum hemorrhage	4	26.67
Sepsis (<i>severe cases requiring ICU/HDU</i>)	2	13.33
Total	15	100

Among 15 teenage study participants requiring ICU/HDU admission, severe anemia was the most common indication, observed in 6 cases (40.00%). Postpartum hemorrhage accounted for 4 cases (26.67%). Eclampsia or severe hypertensive disease was noted in 3 cases (20.00%). Sepsis requiring intensive care was the least frequent indication, seen in 2 cases (13.33%).

Table 5: Distribution of Maternal and Perinatal Outcomes among Teenage Pregnancies (N = 110)

Outcome Category	Outcome Parameter	Number (n)	Percentage (%)
Maternal Outcome	Maternal survival	109	99.09
	Maternal death	1	0.91
Perinatal Outcome	Live birth	100	90.91
	Stillbirth	2	1.82
	Abortions + MTP	8	7.27
Total	—	110	100

Maternal survival was observed in 109 cases (99.09%), with one maternal death (0.91%). Perinatal outcomes showed that the majority resulted in live births, accounting for 100 cases (90.91%). Stillbirths were recorded in 2 cases (1.82%), while abortions and MTP constituted 8 cases (7.27%).

Table 6: Indications for NICU Admission among Neonates (N = 20)

Indication	Number (n)	Percentage (%)
Birth asphyxia	6	30
Low birth weight/ Prematurity (severe cases)	5	25
Neonatal jaundice	3	15
Meconium aspiration syndrome	2	10
Sepsis	2	10
Hyaline membrane disease	2	10
Total	20	100

Among 20 neonates admitted to NICU, birth asphyxia was the most common indication (6 cases, 30%). Low birth weight/prematurity accounted for 5 cases (25%). Neonatal jaundice was noted in 3 cases (15%), while meconium aspiration syndrome, sepsis, and hyaline membrane disease were each seen in 2 cases (10%) respectively.

Table 7: Stillbirth Rate among Delivered Cases (N = 102)

Outcome	Number (n)	Percentage (%)
Stillbirth	2	1.96
Live birth	100	98.04
Total	102	100

Among 102 delivered cases, live births constituted the majority (100 cases, 98.04%), while stillbirths were observed in 2 cases (1.96%). Out of 100 live births, 4 babies expired in the observed early neonatal period 3 days.

5. Discussion

The proportion of teenage pregnancy in the present study was 3.79%, which is comparable to findings reported by Yasmin et al.⁴ but lower than rates reported in some earlier Indian studies.⁷

Most teenage mothers in the present study belonged to rural areas and lower socioeconomic strata. Similar observations have been reported by Shruthi et al.⁵ and Rani et al.⁶, suggesting that social determinants play a major role in adolescent childbearing.

Anemia was the most common maternal complication observed in the present study. Similar findings have been reported by Mahavarkar et al.⁸ and Kumar et al.¹⁰, who documented a higher prevalence of anemia among adolescent mothers compared with adult pregnant women.

The cesarean section rate observed in the present study is consistent with previous studies that reported increased obstetric interventions among teenage pregnancies because of fetal distress, cephalopelvic disproportion, and hypertensive disorders.^{6, 8}

More than half of the neonates in our study had low birth weight. Comparable findings have been reported by Chen et al.¹¹ and Ganchimeg et al.¹³, who demonstrated an increased risk of adverse neonatal outcomes among adolescent mothers. The observed rates of NICU admission, stillbirth, and neonatal mortality further emphasize the high-risk nature of teenage pregnancy and highlight the need for targeted antenatal and nutritional interventions.^{12, 14, 15}

6. Conclusion

Teenage pregnancy remains an important public health problem and is associated with significant maternal and fetal morbidity. The condition is more common among rural, socioeconomically disadvantaged, and less educated populations. Maternal complications such as anemia, hypertensive disorders, PROM, and preterm delivery are frequent, while adverse neonatal outcomes include low birth weight, NICU admission, and stillbirth. Strengthening adolescent reproductive health education, delaying age at

marriage, improving nutritional status, and ensuring quality antenatal care can substantially improve pregnancy outcomes among adolescent mother

Socio-Demographic Characteristics

- Rural residence: 61.82%
- Married participants: 94.55%
- Booked antenatal cases: 63.64%
- Primigravida: 72.72%
- Majority belonged to upper-lower socioeconomic class (40.00%)

Maternal Outcomes

Anemia was the most common maternal complication and was present in 52 participants (47.27%). Hypertensive disorders occurred in 14 cases (12.73%), while proteinuria was noted in 14.55% of participants.

Among delivered mothers:

- Normal vaginal delivery: 58.82%
- Cesarean section: 39.22%
- Instrumental delivery: 1.96%

Fetal and Neonatal Outcomes

Low birth weight was observed in 5 cases of neonates. NICU admission was required in 19.61% of newborns. Birth asphyxia was the leading indication for NICU admission. Stillbirth occurred in 1.96% of cases, and neonatal death in 3.92%.

7. Future Scope

The present study provides important baseline data on the proportion and maternal and fetal outcomes of teenage pregnancy in a tertiary care centre in Rajasthan. However, the study was conducted at a single centre with a relatively small sample size and a cross-sectional design, limiting the generalizability of the findings and preventing assessment of long-term maternal and neonatal outcomes. Future research should include multicentric studies with larger sample sizes, prospective cohort designs, and extended follow-up to evaluate long-term health, developmental, and psychosocial outcomes in both mothers and children. Comparative studies between teenage and adult pregnancies and evaluation of interventions such as adolescent reproductive health education, nutritional supplementation, delayed age at marriage, and improved antenatal care would further strengthen the evidence.

Compared with historical research, this study provides contemporary regional data from Rajasthan and demonstrates that teenage pregnancy continues to be associated with increased maternal and neonatal morbidity despite improvements in obstetric care. The findings reinforce previous evidence while highlighting the continued need for targeted public health strategies, making this study a useful reference for future research and policy planning.

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