



Socioeconomic determinants and pregnancy outcomes among adolescent mothers: A cross-sectional study in a tertiary care hospital in Amalapuram.

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Abstract

Background:

Adolescent pregnancy remains a major public health concern, particularly in developing countries, due to its association with adverse maternal and fetal outcomes. Various socioeconomic and educational factors significantly influence its prevalence and complications.

Objectives:

To assess the socioeconomic status and pregnancy outcomes of adolescent mothers and to identify key factors influencing maternal and fetal health.

Methods:

A prospective cohort study was conducted at KIMS and RF, Amalapuram, from November 2023 to November 2024. Fifty adolescent pregnant women (≤ 19 years) attending the OPD and labour room were included. Data regarding sociodemographic variables and pregnancy outcomes were collected using a semi-structured proforma and analyzed using SPSS version 22.

Results:

Most adolescent mothers (60%) were aged 18–19 years, and 70% were primigravida. A majority belonged to the upper-lower (40%) and lower (30%) socioeconomic classes. Anemia (40%) and IUGR (36%) were the most common antenatal complications. Preterm birth (24%) and IUGR (20%) were the predominant fetal outcomes. Postpartum complications included PPH (12%) and puerperal sepsis (8%).

Conclusion:

Adolescent pregnancy is more prevalent among socioeconomically disadvantaged, less-educated, and married teenage girls, with notable maternal and fetal complications. Strengthening adolescent education and healthcare access is vital.

Recommendations:

Implement adolescent health education, enforce child marriage laws, and improve access to antenatal care in rural areas to reduce complications.

Keywords: Adolescent pregnancy, socioeconomic status, maternal complications, fetal outcomes, teenage mothers, anemia

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Introduction

Adolescence, defined by the World Health Organization as the age group between 10 and 19 years, represents a transitional phase marked by physical, psychological, and social development [1]. During this period, individuals are particularly vulnerable to various health risks, including early and unintended pregnancies. Adolescent pregnancy, which refers to conception occurring between 10 and 19 years of age, is a major public health concern globally and is associated with a significantly higher risk of adverse reproductive outcomes [2].

The causes of adolescent pregnancy are multifactorial, often rooted in poverty, limited access to education, lack of reproductive health awareness, early marriage, and insufficient parental or societal guidance [3]. These factors are more pronounced in low-resource settings, particularly in rural regions of developing countries. Adolescent mothers frequently face higher incidences of complications such as anemia, preeclampsia, preterm labor, and postpartum hemorrhage [4].

Moreover, fetal outcomes are often compromised, with increased rates of intrauterine growth restriction, low birth weight, and perinatal mortality. In many African and South Asian contexts, studies have shown that young maternal age is a stronger predictor of poor neonatal outcomes than other established risk factors [5,6].

In India, despite national policies and legal frameworks aimed at reducing adolescent pregnancies and child marriage, the prevalence remains high, especially among lower socioeconomic groups. It is imperative to assess the sociodemographic determinants and health consequences of adolescent pregnancy to inform public health interventions and policy planning.

This study was undertaken to evaluate the socioeconomic status and associated maternal and fetal outcomes among adolescent pregnant women attending a tertiary care hospital in Amalapuram, Andhra Pradesh.

Materials and Methods

Study Design and Setting:

This was a prospective cohort study conducted at the Department of Obstetrics and Gynecology, Konaseema Institute of Medical Sciences and Research Foundation (KIMS & RF), Amalapuram, Andhra Pradesh, India.

Study Duration:

The study was conducted over a period of 12 months, from November 2023 to November 2024.

Study Population:

The study included 50 adolescent pregnant women aged 19 years or younger who attended the outpatient department (OPD) and labour room of KIMS & RF during the study period.

Sample Size Determination:

The sample size of 50 adolescent pregnant women was determined based on feasibility during the one-year study period at the study center. All eligible adolescent mothers (≤ 19 years) who attended the outpatient department and labour ward during this period and consented to participate were included. Since the study aimed to assess descriptive outcomes rather than test a specific hypothesis, consecutive sampling of all available participants was adopted.

Inclusion Criteria:

Pregnant adolescents aged ≤ 19 years.
Willingness to participate and provide informed consent.

Exclusion Criteria:

Pregnant women above 19 years of age.
Participants were lost to follow-up.

Data Collection Tool:

A pre-designed, semi-structured proforma was used to collect data on sociodemographic details such as age, socioeconomic status (based on Modified Kuppuswamy Scale), educational status, occupation, marital status, age at marriage, parity, and antenatal, intrapartum, and postnatal outcomes. Participants were followed throughout their pregnancy until delivery and the immediate postpartum period.

Ethical Considerations:

Ethical approval for the study was obtained from the Institutional Ethics Committee of KIMS & RF, Amalapuram. Written informed consent was obtained from all participants before inclusion. Confidentiality of all personal and medical information was maintained.

Bias and Mitigation Measures:

To minimize selection bias, consecutive enrollment of all eligible adolescent mothers was undertaken without exclusion other than predefined criteria. Information bias was reduced by using a predesigned, semi-structured proforma, ensuring uniform data collection by the same team of investigators. Recall bias was minimized by

collecting information prospectively during antenatal visits, labour, and the immediate postpartum period. Observer bias was limited by cross-checking clinical details with case records and maintaining double verification during data entry.

Statistical Analysis:

The data were entered in Microsoft Excel and analyzed using SPSS version 22 (IBM Corp., Armonk, NY, USA). Descriptive statistics such as frequencies and percentages were used to summarize categorical variables.

RESULTS

Participant Flow:

During the study period, a total of 65 adolescent pregnant women (≤ 19 years) were screened. Of these, 5 were above 19 years of age and excluded, while 4 declined participation. Six women were lost to follow-up before delivery and hence excluded from the final analysis. Thus, 50 adolescent mothers who met the eligibility criteria and provided informed consent were included and analyzed.

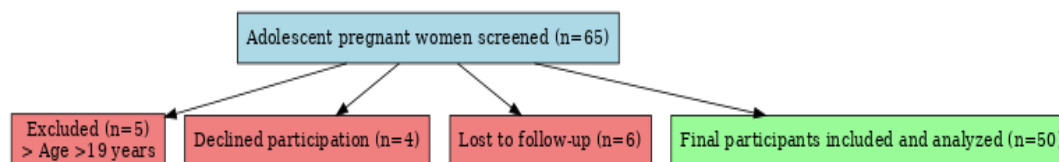


Figure 1. Participant Flow Diagram

A total of 50 adolescent pregnant mothers were included in the study. The analysis revealed that the majority (60%) were between 18 and 19 years of age. Socioeconomic profiling using the Modified Kuppaswamy Scale showed that 40% belonged to the upper-lower class and 30% to the

lower class. Half of the participants had only primary education, and 40% were employed as daily wage labourers. A significant majority (80%) of the adolescent mothers were married (Table 1).

Table 1: Demographic and Socioeconomic Characteristics of Adolescent Mothers (n=50)

Variable	Frequency (n)	Percentage (%)
Age 18–19 years	30	60%
Upper-lower socioeconomic status	20	40%
Lower socioeconomic status	15	30%
Primary education	25	50%
Occupation: Daily wage labourers	20	40%
Married adolescents	40	80%

Regarding reproductive history, 70% were primigravida, while 30% were multigravida. Unmarried pregnancies with family support were reported in 20% of cases (Table 2).

Table 2: Marital and Reproductive History

Variable	Frequency (n)	Percentage (%)
Married	40	80%
Unmarried with family support	10	20%
Primigravida	35	70%
Multigravida	15	30%

In terms of maternal complications, anemia was the most common antenatal complication observed in 40% of participants, followed by intrauterine growth restriction

(IUGR) in 36%, preterm labour in 24%, and premature rupture of membranes (PROM) in 20%. Postpartum



complications included postpartum hemorrhage (PPH) in 12% and puerperal sepsis in 8% of cases (Table 3).

Table 3: Maternal Complications During Pregnancy

Complication	Frequency (n)	Percentage (%)
Anemia	20	40%
Intrauterine Growth Restriction (IUGR)	18	36%
Preterm labour	12	24%
PROM (Premature Rupture of Membranes)	10	20%
Postpartum Hemorrhage (PPH)	6	12%
Puerperal Sepsis	4	8%

Fetal complications were also significant, with 24% of newborns being preterm and 20% diagnosed with IUGR. Additionally, 10% of infants were small for gestational age (SGA), and 4% resulted in stillbirth (Table 4).

Table 4: Fetal Outcomes

Outcome	Frequency (n)	Percentage (%)
Preterm birth	12	24%
Intrauterine Growth Restriction (IUGR)	10	20%
Stillbirth	2	4%
Small for Gestational Age (SGA)	5	10%

Discussion

This study highlights the strong influence of socioeconomic and educational status on the outcomes of adolescent pregnancies. A considerable proportion of participants belonged to disadvantaged economic groups, and many had discontinued education at the primary level. Such findings echo previous literature demonstrating that low socioeconomic standing and poor educational attainment are closely linked to early conception and higher rates of pregnancy-related complications [9,10].

Most adolescent pregnancies occurred among married girls, reflecting the persistence of child marriage despite existing legal prohibitions. In many rural communities, entrenched cultural practices continue to favor early marriage, often resulting in unplanned or poorly supported pregnancies. Consequently, antenatal care remains inadequate, increasing maternal and neonatal risks [12].

Among maternal complications, anemia (40%) and intrauterine growth restriction (36%) were particularly prominent. These outcomes are consistent with earlier studies that reported higher nutritional deficiencies and substandard prenatal care among adolescents, predisposing them to adverse maternal and fetal health consequences

[6,8]. Intrapartum complications such as preterm labor and premature rupture of membranes, as well as postpartum issues including postpartum hemorrhage and puerperal sepsis, were also frequent. These reflect both physiological immaturity and insufficient obstetric surveillance. Previous evidence has similarly documented increased risks of pregnancy-induced hypertension and hemorrhagic complications among adolescent primigravidas [8,11].

Fetal outcomes in this study also raise concern, with significant proportions of preterm births, IUGR, small-for-gestational-age infants, and stillbirths. Such findings are in agreement with reports that children of adolescent mothers face greater risks of being underweight, premature, or growth-restricted [7,10,11].

Overall, the results underscore the necessity for multidimensional interventions extending beyond health service delivery. Strengthening educational opportunities, expanding reproductive health counseling, and enforcing laws against early marriage are pivotal to improving both maternal and neonatal outcomes [9,12].



Generalizability:

As this study was conducted in a single tertiary care center with a small sample size, the findings may not be broadly applicable to all adolescent populations, especially in diverse geographical, cultural, or urban healthcare settings.

Conclusion:

This study highlights that adolescent pregnancy is predominantly seen among girls aged 18–19 years, particularly those from lower socioeconomic backgrounds with limited education. Most were married and primigravida, indicating a strong influence of early marriage and lack of reproductive awareness. The findings reveal a high prevalence of maternal complications such as anemia and IUGR, and adverse fetal outcomes, including preterm birth and low birth weight. These complications reflect both biological immaturity and inadequate antenatal care. To address this issue, there is a pressing need for comprehensive adolescent health education, strict enforcement of child marriage laws, and improved access to maternal healthcare services, especially in underserved rural communities.

Limitations:

The study was limited by its small sample size, single-center setting, and absence of a control group, which affected the generalizability of the findings to broader populations.

Recommendations:

To reduce adolescent pregnancies and improve outcomes, comprehensive sexuality education must be integrated into school curricula, emphasizing reproductive health, contraception, and the consequences of early pregnancy. Community-based awareness programs should target parents, adolescents, and local leaders to discourage child marriage and promote gender equality. Strengthening enforcement of the Child Marriage Act and improving access to adolescent-friendly health services are essential. Regular antenatal checkups, nutritional support, and mental health counseling should be provided to pregnant adolescents. Additionally, empowering girls through continued education and vocational training can delay early marriage and pregnancy, fostering better maternal and child health outcomes in the long term.

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Abbreviations:

WHO – World Health Organization

SES – Socioeconomic Status

IUGR – Intrauterine Growth Restriction

PPH – Postpartum Hemorrhage

PROM – Premature Rupture of Membranes

SGA – Small for Gestational Age

OPD – Outpatient Department

IEC – Institutional Ethics Committee

SPSS – Statistical Package for the Social Sciences

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Conflict of interest:

The authors declare no conflict of interest.

Author contributions:

CC-Concept and design of the study, results interpretation, review of literature, and preparation of the first draft of the manuscript. Statistical analysis and interpretation, revision of manuscript. VH-Concept and design of the study, results interpretation, review of literature, and preparing the first draft of the manuscript, revision of the manuscript. CV-Concept and design of the study, results interpretation, review of literature, and preparing the first draft of the manuscript. Statistical analysis and interpretation, revision of manuscript.

Data availability:

Data is available on request

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