Barind Medical College Journal
Abbreviated Key Title: BMCJ
ISSN: 2518-3249 (Print)
https://bmcj.org/index.php/bmcj
Volume-10 | Issue-1 | Jan-Jun, 2024 | DOI: https://doi.org/10.70818/bmcj.2024.v010i01.024

OPEN ACCESS

Original Research Article

Obstetric Risk Factors and Consequences of Adolescent Pregnancy

Silvia Rahman[a], Sadia Amin[b], Tasnova Zerin Iqbal[c], Sabreena Barkat[d]

[a] Assistant Professor, Department of Obstetrics and Gynaecology, Monno Medical College and Hospital, Manikganj, Bangladesh

[b] Junior Consultant (CC), Muladi Upazila Health Complex, Barishal, Bangladesh

[c] Senior Specialist, Department of Radiology and Imaging, Ever Care Hospital, Dhaka, Bangladesh

[d] Consultant, Department of Obstetrics and Gynaecology, M A Rashid Hospital, Jamalpur, Bangladesh

Correspondence to:

Dr. Silvia Rahman
Email: silviarahman1985@ gmail.com

Article History
Received: 17.03.2024
Accepted: 10.04.2024
Published: 30.06.2024

Abstract: ***Background*:** Adolescent pregnancy remains a significant public health issue in low- and middle-income countries, contributing to high maternal and neonatal morbidity and mortality. This study aimed to explore the obstetric risk factors and neonatal consequences of adolescent pregnancy in Bangladesh. ***Methods:*** A cross-sectional observational study was conducted at a tertiary care hospital in Bangladesh over six months. Fifty adolescent mothers (<19 years) were included through purposive sampling. Data were collected on sociodemographic factors, antenatal care utilization, maternal complications, mode of delivery, and neonatal outcomes. Descriptive statistics were used for analysis. ***Results:*** High rates of maternal anemia (50%), low antenatal care utilization (36% without checkups), and Caesarean deliveries (36%) were observed, with the primary indications being fetal distress (14%), eclampsia (8%), and obstructed labor (6%). Neonatal outcomes included low birth weight (<2.5 kg) in 58% of cases, birth asphyxia in 28%, and preterm births in 16%. While Apgar scores improved at 5 minutes (86% >7), 14% of neonates remained at risk, reflecting ongoing challenges in resuscitation and care. ***Conclusions:*** Adolescent pregnancy poses severe maternal and neonatal health risks, exacerbated by anemia, poor antenatal care, and obstetric complications. Interventions focusing on healthcare access, nutritional support, and delivery care are urgently needed to improve outcomes for adolescent mothers and their newborns in Bangladesh.

Keywords: Adolescent Pregnancy, Maternal Complications, Neonatal Outcomes, Anemia, Antenatal Care, Caesarean Section, Low Birth Weight.

Cite this as: Rahman S, Amin S, Iqbal TZ, Barkat S. Obstetric Risk Factors and Consequences of Adolescent Pregnancy. BMCJ. 2024;10(1):41-47.

Introduction

Adolescent pregnancy remains a significant public health challenge globally, particularly in low- and middle-income countries (LMICs), where it is disproportionately prevalent due to a confluence of sociocultural, economic, and educational factors. Approximately 11% of all births worldwide occur in adolescent girls under 19 years of age, with the majority of cases concentrated in Sub-Saharan Africa and South Asia.[1] Adolescent mothers face higher risks of obstetric complications such as pre-eclampsia, obstructed labor, and postpartum hemorrhage, alongside adverse neonatal outcomes, including low birth weight (LBW), preterm delivery, and increased neonatal mortality.[2, 3] The World Health Organization (WHO) identifies adolescent pregnancy as a key contributor to maternal mortality and morbidity, particularly in resource-limited settings where access to maternal healthcare remains inadequate.[4] These findings

position adolescent pregnancy as a public health crisis that demands immediate attention and targeted intervention. Bangladesh ranks among the highest globally for adolescent pregnancy rates, despite gradual progress in reducing child marriage and adolescent fertility rates. According to the Bangladesh Demographic and Health Survey (BDHS 2017-18), approximately 27.6% of adolescent girls aged 15–19 years have already experienced pregnancy or childbirth.[5, 6] Early marriage, deeply ingrained in sociocultural norms and economic pressures, continues to be the primary driver of adolescent pregnancy, with more than 78.2% of women marrying before the age of 18.[7] This trend, particularly prominent in rural areas, underscores the cyclical relationship between poverty, gender inequality, and adolescent childbearing. Although recent national trends show a marginal decline, adolescent pregnancy rates in Bangladesh remain stagnant compared to the global average, reflecting systemic barriers to progress. The key determinants driving adolescent pregnancy in Bangladesh include early marriage, lack of education, gender inequality, and poverty. Early marriage, often justified by cultural beliefs and economic hardship, exposes adolescent girls to early sexual initiation, increasing their risk of pregnancy.[8, 9] Sociocultural gender norms further exacerbate adolescent vulnerability by restricting autonomy and perpetuating male dominance in decision-making, including access to contraception and family planning services.[10] In addition, poverty and rural-urban disparities limit access to quality education and healthcare, forcing young girls into early domestic roles. Studies demonstrate that adolescent pregnancy significantly correlates with school dropout, reinforcing the intergenerational transmission of poverty and gender inequities.[11]

Moreover, food insecurity and malnutrition, particularly among adolescent mothers, amplify maternal and neonatal health risks, perpetuating a cycle of poor health outcomes.[12] From an obstetric perspective, adolescent mothers are at a heightened risk of complications such as pre-eclampsia/eclampsia, obstructed labor due to cephalopelvic disproportion, postpartum hemorrhage (PPH), and maternal anemia.[13, 14] These complications are particularly severe in resource-limited settings like Bangladesh, where access to skilled birth attendants and emergency obstetric care remains inadequate. Correspondingly, neonatal outcomes are often compromised, with higher rates of low birth weight, preterm delivery, birth asphyxia, and neonatal mortality reported among adolescent mothers.[15] Limited access to antenatal, intrapartum, and postnatal care exacerbates these risks, as rural infrastructure deficiencies and cultural stigmas hinder health-seeking behavior among adolescent mothers. Beyond the immediate health consequences, adolescent pregnancy imposes long-term socioeconomic and psychological burdens. Adolescent mothers face reduced educational attainment, limited economic opportunities, and an increased risk of intimate partner violence and mental health issues such as depression and anxiety.[16, 17] These factors perpetuate a vicious cycle of poverty, gender-based inequality, and poor maternal and child health outcomes. The limited success of policies aimed at curbing child marriage and promoting reproductive health education highlights the need for context-specific, evidence-based interventions to address the root causes of adolescent pregnancy and mitigate its impacts. Given the persistent challenges and the urgent need for intervention, this study aims to comprehensively explore the obstetric risk factors and consequences of adolescent pregnancy in Bangladesh. By assessing the maternal and neonatal outcomes associated with adolescent childbearing and identifying the sociocultural and economic determinants, this research seeks to provide critical insights to inform policy and programmatic efforts aimed at improving maternal and child health outcomes. The findings will contribute to addressing existing health inequities and achieving sustainable development goals (SDGs) related to maternal health, gender equality, and poverty reduction.

Methods

This cross-sectional observational study was conducted at the Department of Obstetrics and Gynecology, Dhaka Medical College Hospital (DMCH) over six months from July 1, 2015, to December 31, 2015. A total of 50 adolescent pregnant mothers aged <19 years were purposively selected. Inclusion criteria included primigravida status and pregnancies of ≥28 weeks' gestation. Mothers with pre-existing medical conditions or unwillingness to participate were excluded. Data

were collected using a structured, pre-tested questionnaire covering sociodemographic information, obstetric history, maternal complications, and neonatal outcomes. Clinical assessments and investigations, including blood pressure and hemoglobin levels, were performed. Maternal complications such as pre-eclampsia, eclampsia, obstructed labor, postpartum hemorrhage (PPH), and anemia were documented. Neonatal outcomes, including birth weight, prematurity, birth asphyxia, low Apgar scores, and infections, were recorded. Data were analyzed using SPSS software, with results summarized as frequencies, percentages, and means. Ethical approval was obtained, and informed consent was secured from participants or guardians. This study highlights the obstetric risks and neonatal consequences of adolescent pregnancy in a tertiary care setting in Bangladesh.

Results

Table 1: Demographic Characteristics of Adolescent Mothers (N=50)

Variable	Frequency (n=50)	Percentage (%)
Age Group		
<17 years	6	12%
17–19 years	44	88%
Occupation		
Housewife	42	84%
Garments Worker	4	8%
Day Laborer	2	4%
Housemaid	1	2%
Student	1	2%
Education Status		
Illiterate	19	38%
Can Sign Only	11	22%
Primary Education	16	32%
Secondary Education	4	8%

The majority of adolescent mothers (88%) were aged 17–19 years, with only 12% below 17 years. Most were housewives (84%), while a small proportion worked as garment workers (8%) or day laborers (4%). Education levels were low, with 38% illiterate and only 8% completing secondary education, highlighting limited educational attainment among adolescent mothers.

Table 2: Antenatal Care and Contraceptive Use among Adolescent Mothers (N=50)

Variable	Frequency (n=50)	Percentage (%)
Antenatal Care		
Regular Checkup	5	10%
Irregular Checkup	27	54%
No Checkup	18	36%
Contraceptive Use		
Regular Use	4	8%
Irregular Use	13	26%
Non-Use	30	60%
Use by Husband	3	6%

A significant proportion of adolescent mothers did not receive proper antenatal care, with 36% reporting no checkups and 54% having irregular checkups. Contraceptive use was also poor; 60% did not use any contraceptive methods, and only 8% practiced regular use, reflecting low awareness or accessibility of family planning services.

Table 3: Maternal Complications during Pregnancy and Labor (N=50)

Complication	Frequency (n=50)	Percentage (%)
Anemia	25	50%
Prolonged Labor	5	10%
Preeclampsia	2	4%
Eclampsia	3	6%
Obstructed Labor	3	6%
Malpresentation	2	4%

Half of the adolescent mothers (50%) suffered from anemia, which is a major concern. Complications like prolonged labor (10%), eclampsia (6%), and obstructed labor (6%) were prevalent, along with preeclampsia (4%) and malpresentation (4%). These findings highlight the obstetric risks associated with adolescent pregnancies.

Table 4: Mode of Delivery and Indications for Caesarean Section

Delivery Type/Indication	Frequency (n=50)	Percentage (%)
Mode of Delivery		
Spontaneous Vaginal	17	34%
Induced Delivery	15	30%
Caesarean Section	18	36%
Indications for C-Section		
Fetal Distress	7	14%
Eclampsia	4	8%
Obstructed Labor	3	6%
Cephalopelvic Disproportion	3	6%

Only 34% of adolescent mothers had spontaneous vaginal deliveries, while 36% required Caesarean sections, indicating significant obstetric challenges. The leading indications for C-sections included fetal distress (14%), eclampsia (8%), obstructed labor (6%), and cephalopelvic disproportion (6%), emphasizing complications arising from underdeveloped maternal pelvises.

Table 5: Neonatal Outcomes of Adolescent Pregnancy

Neonatal Outcome	Frequency (n=50)	Percentage (%)
Low Birth Weight (<2.5kg)	29	58%
Very Low Birth Weight (<2kg)	14	28%
Normal Birth Weight (>2.5kg)	7	14%
Birth Asphyxia	14	28%
Prematurity	8	16%
Jaundice	2	4%
Stillbirth	1	2%
Neonatal Death	1	2%

Neonatal outcomes were concerning, with 58% of newborns having low birth weight (<2.5kg) and 28% classified as very low birth weight (<2kg). Birth asphyxia affected 28% of cases, while prematurity occurred in 16%. Additional issues included neonatal jaundice (4%), stillbirths (2%), and neonatal deaths (2%), reflecting poor perinatal outcomes.

Table 6: Apgar Scores at 1 and 5 Minutes

Apgar Score	Frequency (n=50)	Percentage (%)
At 1 Minute		
>7	27	54%
<7	23	46%
At 5 Minutes		
>7	43	86%
<7	7	14%

At 1 minute, 46% of newborns had Apgar scores below 7, indicating poor initial condition at birth. However, scores improved at 5 minutes, with 86% achieving scores >7, suggesting successful resuscitation efforts. Despite improvement, 14% of newborns still had low Apgar scores at 5 minutes, signaling ongoing risks for neonatal complications.

Discussion

This study highlights the significant maternal complications and neonatal consequences associated with adolescent pregnancy in Bangladesh. The findings emphasize the dual burden of maternal health risks and adverse neonatal outcomes among this vulnerable population. The high prevalence of anemia (50%) among adolescent mothers in this study aligns with similar findings reported by Anwar *et al.*, where anemia was significantly associated with adverse perinatal outcomes, including low birth weight (36.2%), preterm delivery, and low Apgar scores.[18] Comparable results were observed by Uzunov *et al.*, where adolescent mothers with anemia exhibited a higher incidence of preterm births (35.9%) and low birth weights.[19]

These findings emphasize the role of maternal anemia in exacerbating obstetric risks and highlight the urgent need for nutritional interventions during antenatal care to improve pregnancy outcomes. Antenatal care (ANC) utilization in this study was particularly poor, with 36% of adolescent mothers receiving no checkups and 54% having irregular visits. Poor ANC utilization may have contributed to the significant rates of prolonged labor (10%) and hypertensive disorders such as eclampsia (6%) and preeclampsia (4%), as timely identification and management of these conditions are crucial for improving outcomes. The mode of delivery in this study revealed that 36% of adolescent mothers underwent Caesarean sections (C-sections),

primarily due to fetal distress (14%), eclampsia (8%), and obstructed labor/cephalopelvic disproportion (6%). These findings are consistent with Panna *et al*., who reported fetal distress and obstructed labor as leading indications for C-sections, particularly among young mothers.[20] Similarly, Bousleiman *et al*. found that fetal distress was associated with a higher risk of low Apgar scores, further highlighting the need for improved monitoring and management during labor to reduce emergency operative deliveries.[21] Neonatal outcomes were particularly concerning in this study. 58% of newborns had low birth weight (<2.5kg), with 28% classified as very low birth weight (<2kg). These findings align with studies by Maryum *et al*. and Charan *et al*., where maternal anemia and adolescent pregnancy were significantly linked to increased rates of low birth weight.[22, 23] Birth asphyxia was observed in 28% of neonates in this study, a finding comparable to Pathak *et al*., who demonstrated a significant association between low Apgar scores and neonatal hypoxia.[24]

Additionally, the persistence of 14% of newborns with low Apgar scores at 5 minutes in this study underscores ongoing neonatal risks, consistent with findings by Bousleiman *et al.* and Anwar *et al*., who reported elevated risks of neonatal morbidity and mortality among infants with prolonged low Apgar scores.[18, 21] The significant proportion of preterm deliveries (16%) observed in this study further highlights the adverse outcomes associated with adolescent pregnancy. Uzunov *et al.* identified anemia and young maternal age as independent risk factors for preterm delivery and neonatal complications, including NICU admissions.[19] This underscores the need for targeted interventions, including improved nutritional status, ANC access, and delivery care, to mitigate these risks. In summary, the findings from this study align with existing literature and highlight the critical role of adolescent pregnancy in increasing maternal complications and neonatal risks. Key challenges include anemia, poor ANC utilization, high rates of operative delivery, and adverse neonatal outcomes such as low birth weight, birth asphyxia, and low Apgar scores. Strengthening antenatal care, improving nutritional interventions, and addressing sociocultural determinants of adolescent pregnancy remain essential strategies to reduce maternal and neonatal morbidity and mortality in Bangladesh. The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

Conclusion

This study underscores the significant maternal and neonatal challenges associated with adolescent pregnancy in Bangladesh. High rates of maternal anemia, poor antenatal care utilization, and obstetric complications such as preeclampsia, obstructed labor, and fetal distress were observed, leading to an increased reliance on Caesarean deliveries. Neonatal outcomes were particularly alarming, with high rates of low birth weight, birth asphyxia, and persistent risks reflected in low Apgar scores at 5 minutes. These findings emphasize the need for targeted interventions, including improved access to antenatal and delivery care, nutritional support, and awareness programs, to mitigate the health risks faced by adolescent mothers and their newborns. Strengthening healthcare systems to address these challenges is critical to improving maternal and neonatal outcomes and reducing adolescent pregnancy's burden in resource-limited settings.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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