

## Original Article

# Complications during Pregnancy and Delivery of Primigravid Adolescent

DOI: dx.doi.org



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Received: 11 June 2023

Accepted: 25 June 2023

Published: 10 August 2023

Published by:

Sher-E-Bangla Medical College,  
Barishal, Bangladesh



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## ABSTRACT

**Introduction:** Adolescent girls face considerable health risks during pregnancy and childbirth, accounting for 15% of the global burden disease (GBD) for maternal situations and 13% of all maternal deaths. Complications of labour and delivery are highly dependent on the quality of prenatal care. Pre-eclampsia, hyperemesis gravidarum, eclampsia are more common in the first pregnancy, occurs more frequently among adolescent women. The purpose of the study was to find out the risk factors related to adolescent pregnancy. **Methods & Materials:** This descriptive cross-sectional study was conducted at the department of obstetrics and Gynaecology, Dhaka Medical College Hospital, Dhaka from April 2020 to September 2021. A total of 105 participants were included in the study. The sampling procedure was a purposive technique.

After taking written consent from the patient, thorough history taking, clinical examination & relevant investigations were done. Completed data forms were reviewed, edited, and processed for computer data entry. **Result:** Among the study population (N=53), in adolescent pregnancy, obstructed labour 17.6%, prolonged labour 17.6%, preeclampsia 11.8%, eclampsia 5.9%, CPD 11.8%, and foetal distress 11.8% were the main indication for caesarean section. Hyperemesis gravidarum 13.2%, preeclampsia 9.4%, prolonged labour 11.3%, and oligohydramnios 11.3% were the most common complications during delivery and after delivery was postpartum eclampsia 13.2%, followed by wound infection 9.4%, postpartum haemorrhage 7.5%. **Conclusion:** In this study, a significant percentage of the patients underwent caesarean section, initially due to complications during labor and at delivery. Hyperemesis gravidarum, prolonged labor, and oligohydramnios were the most

(The Planet 2022; 6(2): 234-242)

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*common complications observed during delivery.*

**Keywords:** *Adolescent, Complications, Pregnancy, Delivery*

## INTRODUCTION

Adolescence pregnancy is the most long-drawn-out indicator of Millennium Development Goals (MDGs) along with maternal mortality ratio, delivery by a skilled attendant, antenatal care coverage and contraceptive prevalence rate <sup>[1]</sup>. According to WHO, adolescent or teen is termed as when aged 15-19 years and pregnancy in a girl aged between 10 to 19 years is adolescent or teenage pregnancy <sup>[2]</sup>. WHO involvement in meeting the MDGs has provided importance to the management of pregnancy in adolescence period <sup>[3]</sup>. 15-19 years old approximately 14 million women give birth every year, about 11% of all births globally. The adolescent populace in Bangladesh (10-19 years) total 40.66 million in 2009, indicating a yearly growth of about 1.78% <sup>[4]</sup>. Above 27% of adolescent women in Bangladesh have given birth and another 7% are now pregnant with their first child in 2007 <sup>[5]</sup>. The legal age of marriage in Bangladesh is 18 years for a female and 21 years for a male under the Child Marriage Restraint Act (1929) <sup>[6]</sup>. Over 42% of 15-19 years old are married, whereas about 30% of adolescents are married by the age of 15 and about 60% are married by the age of 18, which is the legal age of marriage <sup>[7]</sup>. In spite of governments' efforts to raise the legal age of marriage from 16 to 18 years, most marriage in villages occurs soon after the menarche <sup>[8]</sup>. These early marriages result in a high proportion of first pregnancies before age 19 and consequently high rates of complications such as anaemia, abortion,

prematurity, toxemia of pregnancy, eclampsia and obstructed labour with subsequent fistula formation and uterine prolapse <sup>[8]</sup>. Adolescent girls face considerable health risks during pregnancy and childbirth, accounting for 15% of the global burden disease (GBD) for maternal conditions and 13% of all maternal deaths <sup>[9]</sup>. The number of abortions worldwide among adolescents' ranges from 2.2 to 4 million annually. The aims of the MDGs were—the empowerment of women, the promotion of maternal health, and the reduction of child mortality—embody key WHO priorities and policies for poverty reduction <sup>[10]</sup>. Complications of labour and delivery are highly dependent on the quality of prenatal care. Pre-eclampsia, which is more common in the first pregnancy, occurs more frequently among adolescent women <sup>[11]</sup>. Predisposing factors such as low pre-pregnancy weight, poor weight gain, antagonistic socioeconomic conditions, smoking, anaemia, first pregnancy, and inadequate prenatal care, all of which occur more commonly in adolescents <sup>[12]</sup>. To reach successful safe motherhood adolescent pregnancy stands as a burning issue and proper attention and evaluation for the prevention of its devastating effect. The study aimed to find out complications during pregnancy and delivery of primigravid adolescent.

## OBJECTIVES

### General objective:

- To determine complications during pregnancy and delivery of

primigravid adolescent

### **Specific Objectives:**

- To evaluate the socio-demographic characteristics of primigravid adolescent.
- To observe the clinical characteristics of primigravid adolescent.
- To identify the complications raised during the pregnancy
- To observe the mode of delivery of primigravid adolescent
- To detect the complications of primigravid adolescent during delivery.

### **METHODS & MATERIALS**

This descriptive cross-sectional study was conducted at the department of obstetrics and Gynaecology, Dhaka Medical College Hospital, Dhaka from April 2020 to September 2021. A total of 105 participants were included in the study according to the following inclusion and exclusion criteria. The sampling procedure was a purposive technique. After taking written consent from the patient, thorough history taking, clinical examination & relevant investigations were done. Data were collected through direct interview from patients admitted at DMCH by structured questionnaire. After enrollment the patients were briefed regarding the purpose and importance of the study. After taking written consent from the patient, a thorough history taking, clinical examination & relevant investigations were done. The study coordinators performed random checks to verify data collection processes. Completed data forms were reviewed, edited, and processed for computer data entry. Frequencies, percentages, and cross-

tabulations were used for descriptive analysis. Data were analyzed using the statistical package for social science (SPSS) for windows version 16. Ethical clearance for the study was taken from the Ethical review committee of Dhaka Medical College. Permission for the study was taken from the concerned departments. All the study subjects were thoroughly appraised about the nature, purpose and implications of the study, as well as spectrum of benefits and risk of the study. All study subjects were assured of adequate treatment of any risk developed in relation to study purpose. Subjects were also be assured about their confidentiality and freedom to withdraw themselves from the study any time. Data were collected in approved data collection form. Finally, written consent of all study subjects was taken free of duress and without exploiting any weakness of subjects. The study subjects were informed verbally about the study design, the purpose of the study, and their right to withdraw them from the project at any time, for any reason, whatsoever. Subjects who were give informed consent to participate in the study were included as study sample.

### **Operational definition**

**Adolescent pregnancy:** Adolescent pregnancy is a pregnancy that occurs in a woman within 19 years.

**Primigravida:** Primigravida is one who has conceived for the first time.

### **Inclusion Criteria**

- All primi pregnant women admitted between the 13-and 19 years in labor irrespective of gestational age.

### **Exclusion Criteria**

- Age > 19 years
- Patients who were discharged before completion of the study.
- Patient with known medical diseases, DM, Heart disease, chronic disease, jaundice.

## RESULTS

Among the study population (N=53), the majority of adolescent mothers 86.8% were between 17 years to 19 years. Most of the adolescent mothers 86.8% were housewives, three were service holders 5.7%. Around three-fifths of adolescent mothers' 69.8% monthly income was less than 5000 tk. Twenty-one 39.6% were illiterate, about one-fifth 20.8% could sign only, and most of the patients 86.8% belonged to low socioeconomic status. Only three of the patients 5.7% used the contraceptive method regularly. Around three-fourths of pregnancy 77.4% was unplanned and only twelve 22.6% was planned. Most of the mothers 79.2% had an irregular antenatal checkup. Maximum mothers 81.1% had anaemia and only ten 18.9% had oedema (Table I).

**Table I: Distribution of the study population based on Socio-demographic Characteristics (N=53)**

Characteristics	(N,%)
<b>Age in years</b>	
13-16 years	7,13.2%
>16-19 years	46,86.8%
<b>Occupation</b>	
House wife	46,86.8%
Service holder	3,5.7%
Others	4,7.5%
<b>Monthly family income</b>	
<5000 Tk.	37,69.8%

5001-10000 Tk.	9,17.0%
> 10000 Tk.	7,13.2%
<b>Educational status</b>	
Illiterate	21,39.6%
Can sign only	11,20.8%
Primary	15,28.3%
Secondary	6,11.3%
<b>Socioeconomic status</b>	
Low	46,86.8%
Medium	5,9.4%
High	2,3.8%
<b>Use of contraceptives</b>	
Didn't use	45,84.9%
Irregular	5,9.4%
Regular	3,5.7%
<b>Status of pregnancy</b>	
Planned	12,22.6%
Unplanned	41,77.4%
<b>Antenatal checkup</b>	
Regular	11,20.8%
Irregular	42,79.2%
<b>Clinical state</b>	
Anemia	43,81.1%
Edema	10,18.9%

Based on the mode of delivery, seventeen adolescent mothers 32.0% underwent caesarean section, nearly half of the adolescent mothers 52.8% underwent normal vaginal delivery and four 7.5% underwent assisted vaginal delivery (Table II).

**Table II: Distribution of the study population based on Mode of delivery (N=53)**

Mode of delivery	(N,%)
Normal vaginal delivery	28,52.8%
Assisted vaginal delivery	4,7.5%
Ventouse	4,7.5%
Cesarean section	17,32.0%

In adolescent pregnancy, obstructed labour 17.6%, prolonged labour 17.6%, preeclampsia 11.8%, eclampsia 5.9%, CPD 11.8%, and foetal distress 11.8% were the main indication for caesarean section (Table III).

**Table III: Distribution of the study population based on Indication of caesarean section (n=17)**

Indication of caesarean section	(N,%)
Obstructed labour	3,17.6%
Prolonged labour	3,17.6%
Preeclampsia	2,11.8%
Eclampsia	1,5.9%
Malpresntation	1,5.9%
CPD	2,11.8%
Foetal distress	2,11.8%
Failed trial	1,5.9%
Oligohydramnios	2,11.8%

During delivery the most common complications observed in the study were hyperemesis gravidarum 13.2%, followed by prolonged labor 11.3% and oligohydramnios 11.3%. Other complications were pre-eclampsia 9.4%, eclampsia 7.5%, intrauterine fetal death (IUD) 5.7%, preterm labor 7.5%,

malpresentation 5.7%, and obstructed labor 5.7%. The commonest complications after delivery was postpartum eclampsia 13.2%, followed by wound infection 9.4%, postpartum haemorrhage (PPH) 7.5% (Table IV).

**Table IV: Distribution of the study population based on complications during pregnancy and at delivery (N=53)**

Complications during pregnancy	(N,%)
Hypermesis gravidarum	7,13.2%
Pre-eclampsia	5,9.4%
Eclampsia	4,7.5%
IUD	3,5.7%
Preterm labor	4,7.5%
Malpresentation	3,5.7%
Prolonged labor	6,11.3%
Obstructed labor	3,5.7%
Oligohydramnios	6,11.3%
Polyhydramnios	4,7.5%
No complication	8,15.1%
Complications at delivery	
Postpartum eclampsia	7,13.2%
Puerperal sepsis	3,5.7%
Wound infection	5,9.4%
PPH	4,7.5%
Postpartum spinal headache	3,5.7%

## DISCUSSION

Adolescent pregnancy is a global problem and generates issues for all those concerned about young women and their children's health and well-being. Bangladesh is a developing country with approximately 140.3 million population [13]. 15.4% belonging to less than 20 years of age of about 50% of women. 30.57

million women are between the age of 15-49 years <sup>[14]</sup>. In this study, the majority of adolescent mothers 86.8% were between 17 years to 19 years. A relatable Turkish study found that only 23.2% women were of less than 17 years old <sup>[15]</sup>. A meta-analysis found that most of the adolescent mothers were 10 to 19 years old <sup>[16]</sup>. Another similar study suggested that babies born to the mothers were under 20 years old <sup>[17]</sup>. Most of the adolescent mothers 86.8% were housewives, in our study. A study conducted in Iran found that the majority of the mothers were also housewives <sup>[18]</sup>. Around three-fifths of adolescent mothers' 69.8% monthly income was less than 5000 tk found in this study. A study carried out in the USA found that most adolescent mothers' monthly income was less than 1500 dollar <sup>[19]</sup>. A related journal depicted that around 97.4% of adolescent mothers were housewives <sup>[20]</sup>. In this current content, seventeen adolescent mothers 32.0% underwent caesarean section, and nearly half of the adolescent mothers 52.8% underwent normal vaginal delivery. Another study suggested that most adolescent mothers underwent cesarean section <sup>[21]</sup>. A study in North India found similar outcomes <sup>[22]</sup>. A contrast study depicted that most of the older adolescents underwent vaginal delivery <sup>[23]</sup>. Obstructed labour 17.6%, prolonged labour 17.6%, preeclampsia 11.8%, eclampsia 5.9%, CPD 11.8%, and foetal distress 11.8% were the main indication for caesarean section in this article. A related study suggested that older adolescents were less likely to have a cesarean delivery for failure to progress or cephalopelvic disproportion <sup>[23]</sup>.

Hypermesis gravidarum 13.2%, preeclampsia 9.4%, prolonged labour 11.3%, and oligohydramnios 11.3% were the most common complications during delivery and the commonest complications after delivery was postpartum eclampsia 13.2%, followed by wound infection 9.4%, postpartum haemorrhage (PPH) 7.5% found in this present study. A similar article found that the risk of preterm delivery and preeclampsia was significantly greater among adolescent mothers <sup>[24]</sup>. Another related journal found that younger adolescents had an increased risk of maternal anaemia, preterm delivery, PPH, preeclampsia or hemolysis, increased liver enzyme levels, and low platelet syndrome <sup>[23]</sup>.

From a cohort study, the author showed that maternal-obstetrical complication represented that premature rupture of membranes was the most common risk factor, but there was no evidence of preeclampsia <sup>[25]</sup>. Another related study revealed that a low Apgar score was the most usual complication <sup>[26]</sup>. A study carried out in Upper Egypt revealed that adolescent pregnancy increased the risk of ectopic pregnancies, preeclampsia, eclampsia, premature rupture of membrane, preterm labour and caesarean among mothers up to 16 years of age <sup>[27]</sup>. Adolescent or teen pregnancies are a nationwide problem and WHO stated that adolescent pregnancies usually occur in poor societies, lack education & empowerment, especially for women, with limited knowledge of using contraception, incapable of getting contraceptive pills at the right time and sexual ferocity <sup>[28]</sup>.

## CONCLUSION

The findings of this study indicate that adolescent pregnancies in this population are associated with several risk factors, including low socioeconomic status, inadequate contraceptive use, unplanned pregnancies, and irregular antenatal checkups. These risk factors, coupled with a lack of education and limited income, likely contribute to the high prevalence of complications observed in this study, such as obstructed labor, prolonged labor, preeclampsia, eclampsia, and fetal distress. A significant proportion of the patients in this study underwent cesarean section, primarily due to complications during labor and delivery. Hyperemesis gravidarum, prolonged labor, and oligohydramnios were the most common complications observed during delivery, while postpartum eclampsia, wound infection, and postpartum hemorrhage were the most common complications observed after delivery. This study underlined the need to address the unique challenges associated with adolescent pregnancy in low-resource settings. By enlightening access to healthcare, education, and contraception, and addressing the underlying complications for adolescent pregnancies, it may be possible to reduce the incidence of adverse outcomes and improve maternal and fetal health in this vulnerable population.

## RECOMENDATION

Public health efforts in Bangladesh should be aware that adolescent pregnancies are high-risk pregnancies which possess enormous complications and inform pregnant adolescents about the essentialities of initial antenatal booking and regular antenatal visits. Formulating

specific guidelines is essential. Furthermore, a comprehensive sexual health education program should be developed with the participation of healthcare providers, schools, parents, numerous government agencies and the community.

**Funding:** No funding sources

**Conflict of interest:** None declared

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

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