

**ORIGINAL RESEARCH ARTICLE****PERINATAL OUTCOMES IN ADOLESCENT PREGNANCY**Yam Prasad Dwa<sup>1</sup>, Sunita Bhandari<sup>1</sup>, Devendra Shrestha<sup>2</sup>, Ajaya Kumar Dhakal<sup>2</sup><sup>1</sup>Department of Obstetrics & Gynecology, KIST Medical College & Teaching Hospital, Lalitpur, Nepal.<sup>2</sup>Department of Pediatrics, KIST Medical College & Teaching Hospital, Lalitpur, Nepal.*\*Correspondence to: Yam Prasad Dwa, Department of Obstetrics & Gynecology, KIST Medical College & Teaching Hospital, Lalitpur, Nepal.**Email: y\_dwa@hotmail.com***ABSTRACT**

**Introduction:** Adolescent pregnancy is prevalent in Nepal and bears significant consequences to both mother and newborn. **Methods:** All pregnant women aged 19 years or less who were admitted for delivery at KIST Medical College during 14th April 2017 to 15th July 2018 were included in this study. Maternal and immediate neonatal outcomes were analyzed retrospectively from their medical records. **Results:** There were 135 pregnant adolescent women out of 1300 deliveries. Preeclampsia was observed in 2 pregnancies. Vaginal delivery (99; 73.3%) was the predominant mode of delivery. Emergency LSCS was performed in 35 (25.9%) deliveries and most frequent indications for LSCS were non-progress of labor (8/35), breech presentation (8/35) and fetal distress (6/35). 10 (7.4%) babies were born preterm. 23 (17%) babies were born low birth weight. 37 (27.4%) neonates were symptomatic and required neonatal admission. Respiratory distress was the most frequent neonatal problem (29; 21.5%), followed by neonatal sepsis (18; 13.3%) and perinatal asphyxia (9; 6.7%). There were 3 (2.2%) still birth and 2 (1.5%) early neonatal deaths. **Conclusion:** Adolescent pregnancy was common and associated with increased early neonatal problems.

**Key words:** Adolescent pregnancy, Teenage pregnancy, Nepal

**INTRODUCTION**

Adolescent pregnancy is maternal health problem in both developed and developing world but its prevalence is different in various parts of world.<sup>1</sup> The prevalence depends upon socioeconomic status, education level, literacy rate and overall functioning of health care system and management. Pregnancy in adolescence period is associated with adverse outcome during antepartum period, intrapartum period and postpartum period to mother as well as to newly born baby.<sup>2</sup> Therefore this pregnancy is considered as "high risk" and should be monitored more frequently as compared to no risk pregnancy to prevent complications. Adolescent pregnancy in Nepal is in declining trend and it constituted of 17% in a recent nation-wide survey.<sup>3</sup> This study was conducted to find perinatal outcomes of teenage pregnancy in a tertiary care center of Lalitpur, Nepal.

**METHODS**

This study was conducted among all pregnant

women aged 19 years or less admitted for delivery at KIST Medical College during 14th April 2017 to 15th July 2018. Deliveries before 28 weeks gestation and home deliveries were excluded. Ethical clearance was obtained from Institutional Review Board prior to the study. Medical records of all the patients and data were recorded as per proforma.

Maternal age was defined as age of pregnant women in completed years at the time of delivery. Gestational age was calculated from the day of last menstrual period in weeks. Postpartum hemorrhage was defined as blood loss 500ml or more within 24 hours of delivery. Preterm delivery was defined as birth of live newborn at less than 37 completed gestational age. Still birth was defined as birth of dead fetus after 28 weeks gestational age. Low birth weight (LBW), very low birth weight (VLBW) and extremely low birth weight (ELBW) were defined as birth weight <2500g, 1000-1499g and <1000g respectively.

Respiratory distress was defined as presence of any one: respiratory rate more than 60/min, chest retractions, grunting, and/or cyanosis. Neonatal sepsis was defined as presence of clinical features along with positive septic screen or positive blood culture. Respiratory distress syndrome was defined by presence of respiratory distress in preterm newborn along with ground glass appearance in chest x-ray. Meconium aspiration syndrome was defined as presence of respiratory distress in a neonate born with meconium stained amniotic fluid and radiological features on chest x-ray. Perinatal asphyxia was defined as Apgar score less than 7 at 5 minutes of birth.

Data was analyzed using Statistical Software for Social Studies (SPSS) 18.0 and frequencies and proportions were calculated.

## RESULTS

There were total of 1300 deliveries during the study period. There were total of 135 pregnant women during study period and most of them were of 19 years (Figure 1). 99 (73.3%) women had vaginal delivery, 35 (25.9%) women had delivered via emergency LSCS and one (0.7%) women delivered via forceps application.

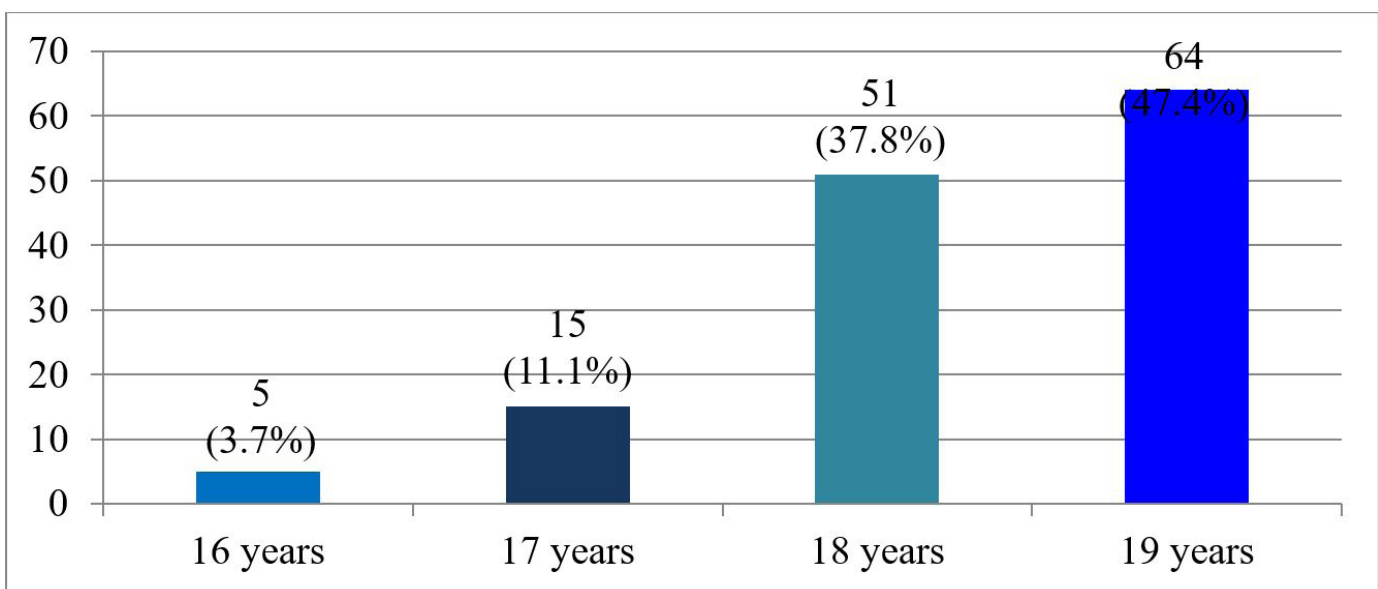


Fig 1: Number of adolescent pregnant women according to age

Two pregnant women had pregnancy induced hypertension. Meconium stained liquor was observed in 19 (14.1%) patients. The most common indications for Lower segment caesarean section (LSCS) were non-progress of labor (8), breech presentation (8) and fetal distress (6) (Table 1). One newborn was delivered via forceps application for prolonged second stage of labor. Postpartum hemorrhage was observed in one (0.7%) patient. Retained placenta and genital trauma was not observed in any patient.

Mean birth weight among live births was 2770.76g ( $\pm 467$ g). Mean birth weight did not vary significantly according to maternal age. Low birth weight (<2500g) was observed in 23 (17%). Out of which 2 newborns were very low birth weight and 3 were extremely

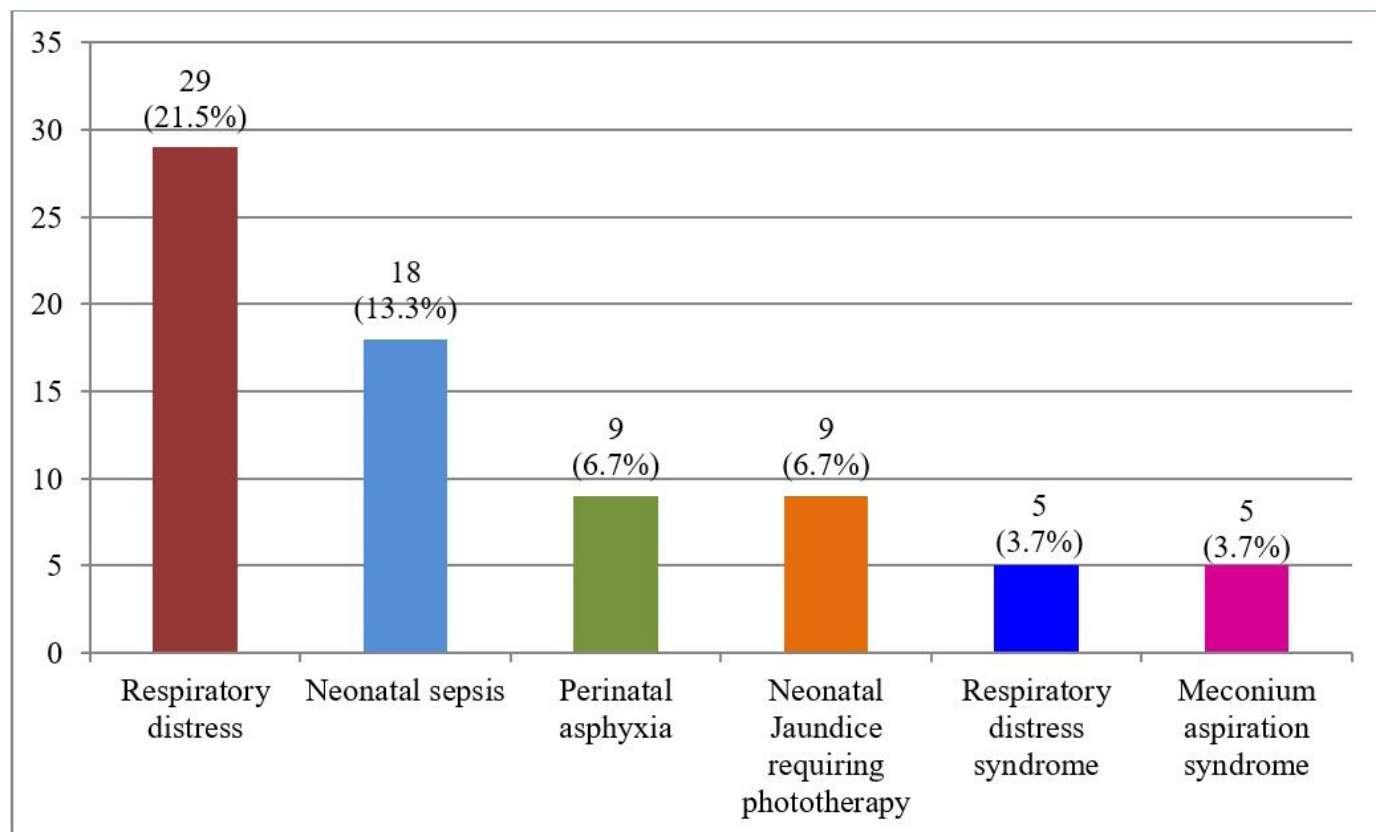
low birth weight. 119 (88.1%) babies were born at term, 10 (7.4%) babies were preterm and 6 (4.4%) were delivered at post-term.

Altogether 37 neonates (27.4%) were symptomatic and required admission in Neonatal intensive care unit or Nursery unit (Figure 2). Respiratory distress was the most common morbidity observed in 29 (21.5%) neonates. 18 neonates had respiratory distress for transient period and had resolved within first 6 to 24 hours of birth and transferred to mother side. Among 9 neonates with perinatal asphyxia, 2 neonates had Hypoxic ischemic encephalopathy (HIE) stage 1, 2 neonates had HIE stage 2 and 1 neonate had HIE stage 3. Meconium aspiration was observed in 5 (3.7%) neonates. Congenital heart disease was observed in 3 (2.1%) neonates. One

newborn had congenital calcanovalgus deformity and one newborn had congenital retrognathia. Neonatal problems according to maternal age are being shown as in Table 2.

**Table 1: Indications for caesarean section**

Indications for emergency LSCS	Number
Non-progress of labor	8
Breech presentation	8
Fetal distress	6
Cephalopelvic disproportion	3
Severe preeclampsia	2
Meconium stained liquor	2
Oligohydramnios	2
Obstructed labor	2
Chorioamnionitis	1
Antepartum hemorrhage	1
Total	35



**Fig 2: Proportion of newborns with neonatal problems**

Macerated still birth was observed in 3 (2.2%). There were 2 (1.5%) neonatal deaths. Perinatal death rate was 6.5 per 1000 total births. 129 neonates were discharged and one neonate left against medical advice.

**Table 2: Indications for caesarean section**

Age (in years)	Number of births	Low birth weight	Prematurity	Respiratory distress	Neonatal sepsis	Neonatal jaundice (requiring phototherapy)	Meconium aspiration syndrome	Respiratory distress syndrome	Perinatal asphyxia
16	5	1	1	1	0	1	0	0	0
17	15	2	1	4	1	0	2	0	1
18	51	8	3	10	6	5	3	3	4
19	64	12	5	14	14	3	0	2	4

**DISCUSSION:**

Adolescent pregnancy is common and considered as a social problem which is a consequence of prevailing sociocultural practice of early marriage in Nepal. Proportion of adolescent pregnancy was 10.4% in this study which was lower than national data of 17% as observed in Nepal Demographic and Health Survey in 2016.<sup>3</sup> However the incidence of adolescent pregnancy is decreasing over years.<sup>3</sup> Adolescent period itself is a vulnerable period and pregnancy during this period will be an additional physical as well as mental stress to a woman.

Adolescent pregnancy has been associated with adverse maternal problems.<sup>2</sup> There was higher rates of pregnancy induced hypertension<sup>4</sup>, anemia<sup>5</sup>, oligohydramnios<sup>5</sup>, antepartum hemorrhage<sup>6</sup>, postpartum hemorrhage<sup>6</sup>, LSCS<sup>7</sup> in pregnant women aged ≤19 years as compared to women aged >19 years. Previous studies from Nepal showed pregnancy induced hypertension in 1.2%<sup>6</sup> and in 5% of adolescent pregnant women<sup>4</sup> as compared to 0.6% in this study. However the results are conflicting in other studies.<sup>5,7,8</sup>

There is also increased risk of adverse neonatal outcome in newborns born to adolescent mothers. Prematurity was significantly higher among babies born to adolescent mothers.<sup>5,9</sup> Preterm delivery was observed in 7% of adolescent pregnancies in this study whereas it was observed in 7.1 to 10.9% of adolescent pregnancies in previous Nepalese studies.<sup>6,7,9</sup> Similarly LBW rates were comparable to the LBW rates of 10.5% to 28% in other studies.<sup>4,6,7,9</sup> LBW rates were not found to be significantly higher in adolescent pregnant cohort in studies<sup>5,6,8</sup> in contrast to another study<sup>9</sup>, where it was found to be high.

Similarly perinatal asphyxia was found to be higher among adolescent pregnant women<sup>9</sup> however which was not shown in other studies.<sup>6,8</sup>

15.3 to 17.2% of neonates had developed complications requiring neonatal admissions<sup>4,6</sup> whereas 27.4 % of neonates required admission in this study.

Still birth was observed in 2.2% in this study which was comparable with 2.4%<sup>7</sup> however higher than 0.6 to 1.3% in other studies.<sup>4,5</sup> There was higher rate of early neonatal deaths as compared to 0.33% in Oman<sup>5</sup> and 0.75% in Nepal.<sup>7</sup>

Though it has been widely studied, consensus opinion is still lacking on perinatal outcomes and optimal perinatal care to adolescent pregnant women; it is evident that particularly the younger adolescent (age <16 years) are at higher risk of adverse outcomes.<sup>10,11</sup> Inherent biological immaturity<sup>12</sup> or poor socioeconomic factors<sup>11</sup> have been implicated for the higher rates of perinatal complications in adolescent pregnancies.

Retrospective nature of study and hospital based study are the major limitations of this study. Inclusion of larger number of women, prospective study and comparison of outcomes with older age groups would be beneficial in future studies.

In conclusion, adolescent pregnancy is not uncommon problem in Nepal. Low birth weight rates and prematurity were not high however many newborns delivered to adolescent women had early neonatal problems.

## REFERENCES

1. Althabe F, Moore JL, Gibbons L, Berrueta M, Goudar SS, Chomba E, et al. Adverse maternal and perinatal outcomes in adolescent pregnancies: The Global Network's Maternal Newborn Health Registry study. *Reproductive Health*. 2015;12(Suppl 2):S8. doi:10.1186/1742-4755-12-S2-S8.
2. Kawakita T, Wilson K, Grantz KL, Landy HJ, Huang CC, Gomez-Lobo V. Adverse maternal and neonatal outcomes in adolescent pregnancy. *J Pediatr Adolesc Gynecol*. 2016;29(2):130-6. doi: 10.1016/j.jpag.2015.08.006.
3. Ministry of Health, Nepal; New ERA; ICF. 2017. Nepal Demographic and Health Survey 2016. Kathmandu, Nepal: Ministry of Health, Nepal.
4. Suwal A. Obstetric and perinatal outcome of teenage pregnancy. *J Nepal Health Res Council*. 2012 Jan;10(20):52-6
5. Al-Haddabi R, Al-Bash M, Al-Mabaihsi N, Al-Maqbali N, Al-Dhughhaishi T, Abu-Heija A. Obstetric and perinatal outcomes of teenage pregnant women attending a tertiary teaching hospital in Oman. *Oman Med J*. 2014;29(6):399-403. doi: 10.5001/omj.2014.108.
6. Pun KD, Chauhan M. Outcomes of adolescent pregnancy at Kathmandu University Hospital, Dhulikhel Hospital. *Kathmandu Univ Med J*. 2011;33(1)50-3.
7. Yadav S, Choudhary D, Narayan KC, Mandal RK, Sharma A, Chauhan SS, et al. Adverse reproductive outcomes associated with teenage pregnancy. *Mcgill J Med*. 2008;11(2):141-4.
8. Abu-Heija A, Al Haddabi R, Al Bash M, Al Mabaihsi N, Al-Maqbali NS. Early teenage pregnancy: Is it safe? *J Obstet Gynaecol India*. 2016;66(2):88-92. doi: 10.1007/s13224-014-0649-6.
9. Lama L, Shrestha S, Sharma A, Upadhyay S, Pathak MR. Immediate neonatal outcome of adolescent pregnant mother at Nepal Medical College Teaching Hospital. *Nepal Med Coll J*. 2012; 15(1): 117-121.
10. Leppälahti S, Gissler M, Mentula M, Heikinheimo O. Is teenage pregnancy an obstetric risk in a welfare society? A population-based study in Finland, from 2006 to 2011. *BMJ Open*. 2013;3(8): e003225. doi:10.1136/bmjopen-2013-003225.
11. Neal S, Channon AA, Chintsanya J. The impact of young maternal age at birth on neonatal mortality: Evidence from 45 low and middle income countries. *PLoS One*. 2018;13(5):e0195731. doi: 10.1371/journal.pone.0195731.
12. Sharma V, Katz J, Mullany LC, Khatri SK, LeClerq SC, Shrestha SR, et al. Young maternal age and the risk of neonatal mortality in rural Nepal. *Arch Pediatr Adolesc Med*. 2008 Sep;162(9):828-35. doi: 10.1001/archpedi.162.9.828.