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Original Investigation

Adverse Maternal and Fetal Outcomes in Teenage Pregnancy

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ABSTRACT

INTRODUCTION:Teenage pregnancy is a major public health issue these days and is associated with adverse maternal and fetal outcomes. This study was conducted to determine the adverse maternal and fetal outcomes in teenage pregnancy. **MATERIALS AND METHODS**: This was a hospital based descriptive cross-sectional study. All the teenage pregnant women (15-19 years of age) with a singleton pregnancy coming to antenatal ward of Birat Medical College Teaching Hospital from 22nd December 2022 to 21th December 2023 were enrolled in the study, irrespective of their APGAR score at birth, NICU admission and early neonatal death and intrauterine fetal death were noted after delivery. **RESULTS:** The incidence of teenage pregnancy was 1.7%, and the mean age was 18.36±.83 years. Majority (53.3 %) of the women had normal vaginal delivery. The most common maternal complication was preterm labor (26.7%), while the most common fetal complication was low birth weight (38.7%). 29.3% were admitted to NICU, 25.3% had low APGAR score, 2.7% had stillbirth, 1.3% had early neonatal death. **CONCLUSION**: Teenage pregnancy was associated with a high rate of adverse maternal and fetal outcomes like premature delivery, anemia, pregnancy induced hypertension, instrumental deliveries, lower segment cesarean section (LSCS), low birth weight, low APGAR score at birth and NICU admission.

Keywords: Fetal outcome, maternal outcome, teenage pregnancy

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INTRODUCTION

Teenage pregnancy is also known as adolescent pregnancy. It is considered high risk because of associated adverse fetomaternal outcomes [1]. According to World Health Organization teenage pregnancies are between 10-19 years of age [1]. Teenage pregnancy gives birth to around 16 million babies each year, and around 11% of births worldwide. 95% of these births occur in low and middle-income countries, where complications from pregnancy and childbirth are a leading cause of death among teenage girls [2].

Teenage pregnancy has been associated with an increased risk of adverse pregnancy outcomes such as preterm delivery, low birth weight (LBW) and neonatal mortality [3].Anemia was found to be three times more common in teenage pregnancy [4]. Abortion, severe anemia, pre-eclampsia, operative vaginal deliveries, and cephalo-pelvic disproportion were also associated with teenage pregnancies [5,6].

There are several factors that contribute to teenage pregnancy, and they may differ depending on the population [7]. Teenage pregnancy outcomes are also linked by cultural, socioeconomic, social, and geographic factors [8]. Adverse outcomes of teenage pregnancy are caused by a variety of factors, including individual, socio-cultural, and familial factors, as well as inaccessibility to healthcare, contraceptives services. Pregnancy associated complications, which may lead to maternal death are more frequent among teenage pregnancy because they are physically immature enough to satisfy the requirements of pregnancy [9]. The adverse pregnancy outcomes in teenage women is due to their physiological and psychological immaturity and insufficient sexual and reproductive knowledge [10,11].

Teenage pregnancy are major public health problems with significant social impact [12,13]. Teenage pregnancy is a serious problem in the world, and pregnancy associated

complications are the major cause of maternal death in teenage pregnancy [14,15]. Although the rate of teenage pregnancy has declined, it is a global issue that affects countries of all income levels. The number of teenage pregnancies is large, especially in developing countries [16,17], owing to poverty, poor education, and inadequate job opportunities [18].

There are no studies in Eastern Nepal for assessing the adverse maternal and fetal outcomes of teenage pregnancy, so it is essential to observe whether there is an increased risk of adverse maternal and fetal outcomes among teenage pregnant women. There is no difference in the type of perinatal care given for teenage and to adult women as in our setting. The main objective of the study was to determine the incidence, obstetric complications and perinatal outcome associated with teenage pregnancy at Birat Medical College Teaching Hospital.

MATERIALS AND METHODS

Study design and setting

This descriptive cross-sectional study was conducted in the department of Obstetrics and Gynaecology, antenatal ward of Birat Medical College Teaching Hospital, Biratnagar, a tertiary care center located in Eastern part of Nepal from 22nd December 2022 to 21th December 2023.

Participants, sample size and sampling technique

All the teenage pregnant women (15-19 years of age) with a singleton pregnancy irrespective of their gestational age, who were admitted in antenatal ward of Birat Medical College Teaching Hospital during study period were enrolled in the study. Teenage pregnant women with diagnosed chronic hypertension, overt diabetes mellitus, systemic lupus erythematosus (SLE), congenital heart disease, thyroid disorder and multiple gestation were excluded from this study. Convenience sampling technique was used for selection of 75 teenage pregnancies.

Data collection procedure and study variables

The data were collected through a structured questionnaire regarding the age, address, religion, education level, working status, gestational age, and was determined by the first day of last menstruation period (LMP). If LMP is not known then period of gestation was calculated from first trimester ultrasound. Adverse maternal outcomes such as anemia, pregnancy-induced hypertension (PIH), preterm deliveries, operative vaginal deliveries lower segment cesarean section (LSCS) and fetal outcomes such as birth weight of the baby, Appearance, pulse, grimace, activity and respiration (APGAR) score at birth, and NICU admission were noted. Face to face interview and inpatients record file was used for data collection by the researcher after informed written consent in predesigned proforma.

Statistical analysis and data management:

The collected data was entered in Microsoft Excel and analyzed by using SPSS version 22. Descriptive statistics was used and the results were presented as frequencies, percentages, mean and standard deviations.

Ethical consideration:

Ethical approval for the study was taken from IRC of Birat Medical College Teaching Hospital before the commencement of the study (IRC-PA-227/2022). Participants' privacy and confidentiality were maintained throughout the study.

RESULTS

Totals of 4411 pregnant women were admitted in antenatal Ward of Birat Medical College Teaching Hospital during study period in which 75 were teenage pregnancy. The incidence of teenage pregnancy was 1.7%. The mean age was 18.36±0.83 years. (table 1).

Around half of teenage pregnant women delivered by Normal vaginal delivery, 40% delivered by LSCS and 6.7 % by Operative vaginal delivery (table 2).

The most common maternal complication was Preterm labour found in 26.7 % followed by anemia found in 21.3 % followed by PIH found in 5.3 % teenage pregnant women (table 3).

Table 1 | Sociodemographic characteristics of respondents (n = 75)

Sociodemographic profile		Number (%)
Area of resident	Rural	63(84)
	Urban	12(16)
Religion	Hindu	64(85.3)
	Muslim	11(14.7)
Family	Joint	14(18.7)
	Nuclear	61(81.3)
Education	Illiterate	11(14.7)
	Primary level	33(44)
	Secondary level	23(30.7)
	Higher secondary level	8(10.7)
Employment	Unemployed	72(96)
	Job	3(4)

Table 2	Mode of delivery (n = 75)	
Frequency	**Number (%)**	
Normal vaginal delivery	40 (53.3)	
Operative vaginal delivery	5 (6.7)	
LSCS	30(40)	

Table 3	Maternal complication (n = 75)	
Frequency	**Number (%)**	
Preterm labour	20 (26.7)	
Anemia	16(21.3)	
PIH	4(5.3)	

The most common fetal complications were Low birthweight found in 38.7 % of teenage pregnancy followed by NICU admission in 29.3 %, followed by Low APGAR score at birth in 25.3 % (table 4).

Table 4	Fetal complications (n = 75)	
Frequency	**Number (%)**	
NICU Admission	22 (29.3)	
Low birth weight	29 (38.7)	
Low APGAR score	19(25.3)	
IUFD	3(4)	
Early neonatal death	1(1.3)	

DISCUSSION

Teenage pregnancy exposes mothers and fetuses to many health-related complications. Adverse outcomes of teenage pregnancy are not only from physical and medical causes associated but also depend on individual, family, social, cultural, education and economic factors.

Teenage is a period of development in which many changes occur in the body and once the girl at this age becomes pregnant when she is still growing, would be a great risk for herself and for the fetus [19,20].

Teenage pregnancy remains major health issue in our country due to social, old traditions thought, poor access to health care facility and illiteracy leads to lack of knowledge about family planning and child marriage. Child marriage rate is high in Nepal [21]. Education plays a major role in decreasing the incidence of teenage pregnancy. In our study most of the patients were from rural areas (84%), 96 % were unemployed and only 10.7 % teenage pregnant women had higher education. Socio-economic variables were significantly associated with teenage pregnancy [22-24], so improving the socio-economic among teenage girls has a positive effect in reducing teenage pregnancy. In this study the mean age was 18.36±0.83 years, which is consistent with the study done by Poudel I, in a tertiary hospital in western region of Nepal, in which the mean age was 18.16±0.99 years [25]. In contrast to our study, the mean age was 17.8±1.5 years in the study done by Khatoon F et al. in Pakistan [26], which is suggestive of decreased child marriage in Nepal. The Government of Nepal has devised a 'National strategy to end child marriage' by 2030 [27]. In our study the incidence of teenage pregnancy was 1.7 % in contrast to this study, a study done by Gurung R et al. [28], showed the incidence of teenage pregnancy was 7.8 %. The low incidence in our study is because of decrease in child marriage [27]. Most of the teenage pregnant women (84%) were from rural areas, had low education level and were unemployed (96%), which is consistent with the study done by Gurung R et al. in multicentric public hospitals of Nepal [28]. In our study LSCS rate was 40% in teenage pregnancy, which is very high in comparison to national LSCS rate of 2016 where it was 26.3% [29]. However the findings are similar to the finding of Nepal S et al. in western region of Nepal where, LSCS rate was 49.27 % in teenage pregnancies [30]. This shows the teenage pregnancies are at increased risk of LSCS.

In our study the teenage pregnancies were at increased risk of preterm labour, anemia, PIH, which was also found in various studies [31-34]. In our study the most common fetal complications was low birth weight (38.7%), followed by low APGAR score at birth (33.3 %), NICU admission (29.3%), IUFD (4%) and early neonatal death (1.3%) of teenage pregnancy. This was consistent with the study done by Eliner Y et al. [35].

CONCLUSION

Teenage pregnancy was associated with a high rate of adverse maternal and fetal outcomes like premature delivery, anemia, PIH, operative vaginal deliveries, LSCS, Low Birth weight, Low APGAR score at birth and NICU admission.

ADDITIONAL INFORMATION AND DECLARATIONS

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Author Contributions: Concept design and reviewed literatures; AD and RDM; data collection AD, JD and SKY, data entry; JD, SKY; data analysis AD and RDM; manuscript draft; AD and RDM; All the authors contributed to analysis, reviewed and write up of final manuscript interpretation of results, and revision of the manuscripts. All the authors have read and agreed with the contents of the final manuscript.

Data Availability: Data will be available upon request to corresponding authors after valid reason.

REFERENCES

1. World Health Organization (WHO). Adolescent pregnancy. 2020. Available from URL: https://www.who.int/news-room/fact-sheets/ detail/adolescent-pregnancy
2. World Health Organization. World Health Statistics 2013.
3. Diabelková J, Rimárová K, Dorko E, Urdzík P, Houžvičková A, Argalášová Ľ. Adolescent Pregnancy Outcomes and Risk Factors. *Int J Environ Res Public Health.* 2023 Feb 25;20(5):4113.
4. Been K, Baig M. Adolescent pregnancies: the case of Pakistan. *Journal of Asian Midwives (JAM).* 2016;3(2):69-78.
5. Kingston D, Heaman M, Fell D, Chalmers B. Comparison of Adolescent, Young Adult and Adult Women's Maternity Experiences and Practices. *Paediatrics J.* 2012;129:1228-37.
6. Aruda MM, Waddicor K, Frese L, Cole JC, Burke P. Early pregnancy in adolescents: diagnosis, assessment, options counseling, and referral. *J Pediatr Health Care.* 2010;24:4-13.
7. Papri FS, Khanam Z, Ara S, Panna MB. Adolescent pregnancy: risk factors, outcome and prevention. *Chattagram Maa-O-Shishu Hospital Medical College Journal.* 2016;15(1):53-6.
8. Aluga D, Okolie EA. Socioeconomic determinants of teenage pregnancy and early motherhood in the United Kingdom: A perspective. *Health Promot Perspect.* 2021;11(4):426-429.
9. Paladugu RK, Donipudi PC, Chimata D, Jasti M. Adolescent pregnancy and its outcomes: a cross-sectional study. *Int J Community Med Public Health.* 2018;5(10):4408-14.
10. Amjad S, MacDonald I, Chambers T, et al. Social determinants of health and adverse maternal and birth outcomes in adolescent pregnancies: a systematic review and meta-analysis. *Paediatr Perinat Epidemiol.* 2019;33(1):88-99.
11. Westenberg L, van der Klis KA, Chan A, et al. Aboriginal teenage pregnancies compared with non-aboriginal in South Australia 1995-1999. *Aust NZJ Obstet Gynaecol.* 2002;42(2):187-92.
12. Kassa GM, Arowojolu AO, Odukogbe AA, et al. Prevalence and determinants of adolescent pregnancy in Africa: a systematic review and meta-analysis. *Reprod Health.* 2018;15(1):195-211.
13. Montgomery TM, Folken L, Seitz MA. Addressing adolescent pregnancy with legislation. *Nurs Womens Health.* 2014;18(4):277-83.
14. Ganchimeg T, Ota E, Morisaki N, et al. Pregnancy and childbirth outcomes among adolescent mothers: a World Health Organization multicountry study. *Bjog.* 2014;121(1):40-8.
15. Patton GC, Coffey C, Sawyer SM, et al. Global patterns of mortality in young people: a systematic analysis of population health data. *Lancet.* 2009;374(9693):881-92.
16. Steenkamp M, Boyle J, Kildea S, et al. Perinatal outcomes among young indigenous Australian mothers: a cross-sectional study and comparison with adult indigenous mothers. *Birth.* 2017;44(3):262-71.
17. Cappa C, Wardlaw T, Langevin-Falcon C, et al. Progress for children: a report card on adolescents. *Lancet.* 2012;379(9834):2323-5.
18. Franjić S. Adolescent Pregnancy

is a Serious Social Problem. *J. Gynecol. Res. Obstet.* 2018;4:006-8.

19. World Health organization. Adolescent pregnancy: issues in adolescent health and development. Geneva: World Health Organization; 2004. p.5.

20. GodboleT.G.,BhatiaV.Adolescent health and development In: th Paul V.K, Bagga A. Ghai Essential Pediatrics. 8 ed. India: CBS publication; 2009. p. 63-9.QW

21. Seta R. Child marriage and its impact on health: a study of perceptions and attitudes in Nepal. *J Glob Health Reports*. 2023;7:1-10.

22. Senkyire EK, Boateng D, Boakye FO, Logo DD, Ohaja M. Socio-economic factors associated with adolescent pregnancy and motherhood: Analysis of the 2017 Ghana maternal health survey. *PLoS One.* 2022;17(12):e0272131.

23. Penman-Aguilar A, Carter M, Christine Snead M, Kourtis AP. Socioeconomic disadvantage as a social determinant of teen childbearing in the U.S. *Public Health Rep.* 2013;128(1):5-22.

24. Ahmad N, Bano R, Khan A. Socio-economic factors affecting teenage pregnancy in northern Indian population: A cross sectional study. *J Community Heal Manag*. 2016;3(4):154-7.

25. Poudel I. Teenage pregnancies in Nepal - the problem status and socio-legal concerns - Letter to the editor. *J Nepal Med Assoc.* 2019;57(218):285.

26. Khatoon F, Saba I, Ghafoor M, Rajpar AP, Mahmood A, Ali M. Adverse Maternal and Fetal Outcomes of Adolescent Pregnancy. *J Soc Obstet Gynaecol Pakistan.* 2021;11(1):41-4.

27. Child marriage atlas - girls not brides. Accessed August 2023. https://www.girlsnotbrides.org/learning-resources/child-marriage-atlas/atlas/nepal/

28. Gurung R, Målqvist M, Hong Z, Poudel PG, Sunny AK, Sharma S, et al. The burden of adolescent motherhood and health consequences in Nepal. *BMC Pregnancy Childbirth.* 2020;20(1):1-7.

29. Bhandari, A.K.C., Dhungel, B. & Rahman, M. Trends and correlates of cesarean section rates over two decades in Nepal. *BMC Pregnancy Childbirth.* 2020;20:763.

30. Nepal S, Atreya A, Kanchhan T. Teenage Pregnancies in Nepal - The Problem Status and Socio-Legal Concerns. *J Nepal Med Assoc.* 2018;56(211):678-682.

31. C.-C. Lo, J.-J. Hsu, C.-C. Hsieh, T. T. Hsieh, and T.-H. Hung, "Risk factors for spontaneous preterm delivery before 34 weeks of gestation among Taiwanese women," Taiwanese. *Journal of Obstetrics and Gynecology.* 2007;46(4):389-394.

32. Althabe F, Moore JL, Gibbons L, Berrueta M, Goudar SS, Chomba E, Derman RJ, Patel A, Saleem S, Pasha O, Esamai F, Garces A, Liechty EA, Hambidge K, Krebs NF, Hibberd PL, Goldenberg RL, Koso-Thomas M, Carlo WA, Cafferata ML, Buekens P, McClure EM. Adverse maternal and perinatal outcomes in adolescent pregnancies: The Global Network's Maternal Newborn Health Registry study. *Reprod Health.* 2015;12 Suppl 2(Suppl 2):S8.

33. Maheshwari MV, Khalid N, Patel PD, Alghareeb R, Hussain A. Maternal and Neonatal Outcomes of Adolescent Pregnancy: A Narrative Review. *Cureus.* 2022;14(6):e25921.

34. Naik RR, Cacodkar J, Pednekar GN. Effects of Teenage Pregnancy on Obstetric and Perinatal Outcomes at a Tertiary Health Institution in Goa. *J South Asian Feder Obst Gynae.* 2021;13(6):363-368.

35. Eliner Y, Gulersen M, Kasar A, Lenchner E, Grünebaum A, Chervenak FA, Bornstein E. Maternal and Neonatal Complications in Teen Pregnancies: A Comprehensive Study of 661,062 Patients. J Adolesc Health. 2022;70(6):922-927.