International Journal of Public Health Asia Pacific
Open Access: e-Journal
ISSN: xxxx-xxxx (Online)

A case- control study on maternal complications of teenage pregnancy in Nepal

Sweta Mahato[1*] ,Sanjeev Younjan[2]

[1]Department of Obstetrics and Gynecology, Dhulikhel Hospital , Nepal
[2]Department of Obstetrics and Gynecology, Scheer Memorial Adventist Hospital ,Nepal

*Corresponding author: Sweta Mahato, swetakusms@gmail.com

ABSTRACT

Background: WHO defines Teenage pregnancy as pregnancy in a female under the age of 20. Pregnant teenagers face many of the same pregnancy related issues as other women with additional concerns for as they are less likely to be physically developed to sustain a healthy pregnancy or to give birth. For girls aged 15–19, risks are associated with socioeconomic factors along with the biological effects of age. Risk of premature labor, anemia, and pre-eclampsia are observed more in teen births compared to women of optimum reproductive age group. This study is an attempt to know the prevalence of maternal complications of teenage mothers so as for appropriate management and early recognition can be done in future.

Objectives: To compare the maternal complications of teenage pregnancies with those of normal pregnancies.

Methods: A case control study was conducted in a tertiary hospital in Nepal. A total of 75 (case) i.e. teenage pregnancy and 75 (control) i.e. women with optimal age group were studied. This was a hospital-based study and the data were collected during 5th January 2018 to 5th January 2019. The preformed proforma was used for history taking and examination of all participants. Only those participants who gave written consent were included in the study. Odds Ratio and its 95% CI was calculated by using conditional logistic regression. P-value of<0.05 was considered as significant.

Results: Most of the teens were in their first pregnancy with mean age 17 years. This study concluded that maternal complications were higher in teenage pregnancy (40%Vs 15%). The maternal complications like Hypertensive Disorders (OR= 2.65, 95%CI :1.07-6.54, *P=0.031*), Anaemia (OR= 2.07, 95%CI:1.07-4.02, *P=0.031*), Preterm Labour (OR= 2.28, 95%CI:1.15-4.52, *P=0.017*) and PPH (OR =2.49, 95%CI:1.04-5.94, *P=0.04*) were associated with teenage pregnancy respectively.

Conclusion: Teenage pregnancies are at the increased risk of maternal complications like hypertensive disorders, anaemia, preterm labour, and PPH. The complications are even higher in developing countries like ours where there are limited health resources and restrictive marriage laws. Therefore, an adequate antenatal visit for early detection and timely management will reduce the maternal complications during teenage pregnancy. Similarly, proper marriage laws should be implicated to prevent teenage pregnancies.

Keywords: Maternal, Complications, Teenage pregnancy

1. Introduction: Teenage pregnancy adversely affects birth outcomes and can lead to extremes of poverty and ill-health. Teenage pregnancies are more likely to occur in developing communities which are more affected by social and economic disadvantage [1]. About 11% of newborns worldwide are delivered by adolescent women, the pregnancy complications of adolescent women account for 23% of women of all ages, and more than 90% of them occur in developing countries [2]. Compared with the pregnancy of adult women, the pregnancy of adolescent women usually increases the risk of adverse pregnancy outcomes, including fetal growth restriction, preterm delivery and neonatal death [3]. Primary and secondary care services need to be teenage friendly to optimize engagement of young women who choose to continue a pregnancy [4]. In Nepal, adolescents aged 10-19 years comprise of 6.38 million of the total population of 28.5 million [5]. From 1996 to 2011, the adolescent pregnancy rate decreased from 24% to 17%, but the median age at first pregnancy remained 16.2 years [6,7]. In Nepal, the legal minimum age of marriage for a woman is 20 [8]. However, child marriage is still prevalent, and 29% of women get married before they turn 20 [9]. Teenage pregnancy has an increased risk of maternal and neonatal morbidity and mortality [10].

2. Methods: A total of 75 (case) i.e. teenage pregnancy and 75 (control) i.e. women with optimal age group were studied. This hospital-based case control study was conducted in a tertiary hospital in Nepal and the data were collected between 5th January 2018 and 5th January 2019. The preformed proforma was used for history taking and examination of all participants. Only those participants who gave written consent were included in the study after excluding the exclusion criteria. All pregnant women below 20 years and fulfilling inclusion and exclusion criteria were enrolled in this study from the admission room. They were considered as the study group i.e. case. For each study group, there was a separate control group which was taken from the age group 20-34 years meeting the inclusion and exclusion criteria. For each case the control was taken after matching the parity.

2.1 Data collection: During the time of admission, the cases and controls were informed about the study. Consent was taken. Those refusing to give consent were excluded from the study. All the relevant history and examinations were done. These were filled in the proforma. Then the base line investigations were sent. Every case was followed thereafter.

The delivery was attended and those cases whose delivery could not be attended; the details were obtained from the records. Obstetric complications compared between the groups were hypertensive disorder of pregnancy, anemia, preterm labor, postpartum hemorrhage.

All the enrolled cases were followed up regularly throughout the hospital stay. These patients were discharged according to the hospital protocol. Every patient was instructed to report to the hospital at any time whenever they noted the parameters like fever, any abnormal foul-smelling P/V discharge or bleeding,

2.2 Data Entry and Analysis: Data were entered into a Microsoft Excel spreadsheet. Data analysis was made using SPSS-21 and was depicted in tables. Odds Ratio and its 95% CI was calculated by using conditional logistic regression. P-value of <0.05 was considered as significant. During the study period, 150 cases were enrolled which included 75 as case (<19 years) and 75 as controls (20-34 years). Parity was matched for each case.

3. Results: Table 1 shows age of teenage mothers ranged from 15 to 19 years with a mean age of 17.29 ± 1.19. The women in the control group had a mean age of 26 ± 4.76 years.

Table 1: Mean, maximum, minimum and median age of case and control groups

	Mean±SD	Max	Min	Median
Teenage Pregnant	17.29 ± 1.19	19	15	17
ORAG	26 ± 4.76	34	20	27

In this study, 25 teens (33%) were illiterate, 28 (37.3%) had completed the primary level of education while 22 (29.3%) had completed secondary level of education. In the control group, 40% had completed primary level of education while 29.3% were illiterate. Similarly, 50 teens were housewife (66.7%) while only 6 teens were student. In the control group, 54.7% were housewife while 5.3% were student. Thus, in both the case and control group majority was a housewife and the minorities were students and the results were not statistically significant

Table 2: Demographic and menstrual characteristics of the study population

Characteristics		Teenage Pregnancy n (%)	ORAG n (%)	P-value*
Age	< Median (17)	18 (24%)		
	≥ Median (17)	57 (76%)		
	< Median (27)		36 (48%)	
	≥ Median (27)		39 (52%)	<0.001*
Education Level	Illiterate	25 (33%)	22 (29.3%)	
	Primary Level	28(37.3%)	30 (40%)	
	Secondary level	22 (29.3%)	23 (30.7%)	0.915

Characteristics		Teenage Pregnancy n (%)	ORAG n (%)	P-value*
Occupation	House wife	50 (66.7%)	41 (54.7%)	
	Service	9 (12%)	11 (14.7%)	
	Student	6 (8%)	4 (5.3%)	
	No Job	10 (13.3%)	19 (.3%)	0.237
Menstrual cycle	Irregular	19 (25.3%)	18 (24%)	
	Regular	56 (74.7%)	57 (76%)	0.85

* P-value highly significant at the level < 0.001

This study identified that maternal complications were higher in teenage pregnancy (40%Vs 15%). The maternal complications like Hypertensive Disorders (OR= 2.65, 95%CI :1.07-6.54, *P=0.031*), Anaemia (OR= 2.07, 95%CI:1.07-4.02, *P=0.031*), Preterm Labour (OR= 2.28, 95%CI:1.15-4.52,*P=0.017*) and PPH(OR= 2.49, 95%CI:1.04-5.94, *P=0.04*) were associated with the teenage pregnancies respectively.

Table 3: Maternal Outcomes between Teen Pregnancy and ORAG Pregnancy.

Complications	Teenage pregnancy(n)	ORAG(n)	OR (95%CI)	P-value
Hypertensive Disorders	18 (24%)	8 (10%)	2.62 (1.07-6.53)	0.031*
Anemia	37 (49.3%)	24 (32%)	2.07 (1.07-4.02)	0.031*
Preterm Labour	34 (45.3%)	20 (26.70%)	2.28 (1.15-4.52)	0.003*
PPH	19(25.30%)	9(12%)	2.49(1.04-5.94)	0.036*

* P-value statistically was significant at the level < 0.05.

4. Discussion: Teenage pregnancy is an important global health issue, both in developing and developed countries. Teens, due to their physiological and anatomical immaturity, and various socioeconomic barriers are considered as a high-risk obstetric group. Although various studies have shown different results, the majority of them have demonstrated an increased frequency of adverse pregnancy complications in teenage pregnancy resulting in a less favorable maternal and fetal outcome. In this study, most of the teenage mothers i.e. 54% were primipara and 13% with previous one viable pregnancy, clearly, this is due to the young age of teenage mothers.

This study showed a significantly higher incidence of hypertensive disease in teenage pregnancy (24%) and also showed that there was a significant association between teenage pregnancy and increasing severity of the disease (p-value=0.0031). Ibrahim Isa Ayuba and OwoeyeGani also demonstrated this association by showing the rate of preeclampsia among teenage and nonteenage women was 14.5% and 1.6% respectively [11].

Amber Tufail et al also found teenage mothers were more likely to develop preeclampsia than adult mothers [12]. Similarly, Salah Rasheed et al, Meehreen Mehdi Naqvi et al, and Ashok Kumar et al showed a significantly higher frequency of pregnancy-induced hypertension, preeclampsia, and eclampsia in teenage pregnancy [13]. Nulliparity, poor nutrition, and low attendance antenatal checkups of teenage pregnant women may be contributing factors for such associations.

This study showed a higher incidence of preterm labour in teenage mothers i.e. 34%vs 20%. This was statistically significant at a p-value of 0.031. Similar incidence was shown by several studies conducted by different authors. Khairani Omar et al found 22.5% incidence of preterm births in teens which were significant ($p<0.001$) as compared to only 2.9% in the adult group of 20-35 years [14]. Chaiwat Pattanapisalsak also found preterm birth as common antenatal complications in teenage pregnancies compared to 5.6% in reproductive age pregnancies [15]. Certain other studies have shown this significant association of preterm labour with the adolescent. This study has some limitations that it was a hospital-based study conducted in small sample size within a short duration of time. Larger sample size could have been ideal to generate a more accurate and statistically significant conclusion.

5. Conclusion:

The teens are at increased risk of having medical, obstetric complications during pregnancy as well as a higher rate of maternal complications. The maternal complications most commonly seen are Hypertensive disorders of pregnancy, Anemia, PPH, Preterm birth. Thus, this study concludes that pregnancy at teenage are at high risk and need adequate antenatal visits for timely detection of risk factors and management to optimize the pregnancy outcome in this group.

References:

[1] Blum RW, Gates WH. Girlhood, not motherhood: Preventing adolescent pregnancy. New York: UNFPA, 2015.

[2] Ganchimeg T, Ota E, Morisaki N, et al. Pregnancy and childbirth outcomes among adolescent mothers: a World Health Organization multicountry study. Bjog. 2014;121(Suppl 1):40–8.

[3] Fleming N, Ng N, Osborne C, Biederman S, et al. Adolescent pregnancy outcomes in the province of Ontario: a cohort study. J Obstet Gynaecol Can. 2013;35(3):234–45.

[4] Khatiwada N, Silwal PR, Bhadra R, Tamang TM. Sexual and Reproductive Health of Adolescents and Youth in Nepal: Trends and Determinants: Further analysis of the 2011 Nepal Demographic and Health

Survey. Maryland (USA): Nepal Ministry of Health and Population, New ERA, and ICF International; 2013. 59 p.

[5] Maharjan RK, Karki KB, Maiya T, Shakya TM, Aryal B. Child Marriage in Nepal- Research Report. Kathmandu, Nepal: Plan Nepal; 2012. 76 p.

[6] Nepal Law Commission . The Muluki Ain (General Code) (Nepal) Vol. 30. Kathmandu, Nepal: Nepal Law Commission; 1963. Vol. 1-409 p.

[7] Ministry of Health and Population (Nepal), New ERA, ICF International . Nepal Demographic and Health Survey. Kathmandu: Ministry of Health and Population, New ERA, and ICF International; 2011. 2012. 421p.

[8] Blum RW, Gates WH. Girlhood, not motherhood: Preventing Adolescent Pregnancy. New York: UNFPA; 2015. (Department of Population, Family and Reproductive Health, United Nations Population Fund). 62 p.

[9] Ibrahim Isa Ayuba, OwoeyeGani. Outcome of teenage pregnancy in the Niger Delta of Nigeria. Ethiop J Health Sci. 2012;22(1):45-50

[10] Tufail A, Hashmi HA. Maternal and perinatal outcome in teenage pregnancy in a community-based hospital. Pakistan Journal of surgery 2008;24(2):130-134

[11] Naqvi MM, Naseem A. Maternal and Fetal Risk Associated with Teenage and Adult Pregnancy. Journal of Rawalpindi Medical College (JRMC) 2010;14(1): 40-42

[12] Khairani O, Suriati H, Noor AM, Aida J, Syahnaz MH, Harlina HS; Adolescent pregnancy outcomes and risk factors in Malaysia; International Journal of Gynecology and Obstetrics 2010;111: 220-223

[13] Pattanapisalsak C. Obstetric Outcomes of Teenage PrimigravidainSu-ngaiKolok Hospital, Narathiwat, Thailand; J Med Assoc Thai. 2011; 94 (2): 139-145