The Outcome of Teenage Pregnancies in A Tertiary Health Facility in Maiduguri Nigeria: A Retrospective Case-Control Study

Kwari SD[1], Chama CM[2], Mairiga AG[3]

ABSTRACT

Background: Teenage pregnancy is becoming one of the most important social and public health problems worldwide, with a varying prevalence rate. It is associated with adverse maternal and fetal outcomes. **Objective:** To determine the maternal and fetal outcomes of teenage pregnancy at a tertiary care hospital. **Method:** A retrospective case-control review of all teenage pregnancies seen at the University of Maiduguri Teaching Hospital over ten years was carried out. The outcome was analysed and compared with that of older mothers who served as controls. **Result**: Teenage pregnancies accounted for 7.3% (n =1558) of the 21,310 deliveries within the study period. The mean age was 18.1 years. The majority of the teenagers were nulliparous (80.3%) and had no formal education (54.8%). Pregnancy-induced hypertension (22.9 % vs. 7.5% P<0.0001), preeclampsia (5.0% vs. 1.8% P0.001), eclampsia (9.7% vs. 3.6%, P<0.0001), malaria (19.0% vs. 6.4% P<0.0001), anaemia (16.5% vs. 11.5% P<0.0001), blood transfusion (7.5% vs. 1.8% P0.001), urinary tract infection (11.8% vs. 1.1%, P<0.0001), and duration of hospital stay (3.52 vs. 2.42 P0.003) were significantly higher in teenage mothers. Similarly, preterm delivery (21.1% vs 6.4% P <0.0001), low birth weight (22.2% vs. 6.1% P<0.0001), birth asphyxia (6.1% vs. 3.6% P 0.0001), and stillbirth (6.8% vs. 3.6% P 0.001) rates were higher in the teenage group. Teenagers were also more likely to be delivered by caesarean section (18.3% vs. 10.7% P <0.0001) and to have instrumental deliveries (5.0% vs 1.4% P< 0.0001). **Conclusion:** pregnancy among teenagers is associated with poorer maternal and fetal outcomes compared with older mothers.

Keywords: teenage pregnancy, maternal outcome, fetal outcome, tertiary care setting

[1]Department of Obstetrics and Gynaecology Asokoro District Hospital Abuja, and Nile University of Nigeria Abuja, Nigeria. [2]Department of Obstetrics and Gynaecology, Abubakar Tafawa Balewa University Teaching Hospital Bauchi, Nigeria. [3]Department of Obstetrics and Gynaecology, University of Maiduguri Teaching Hospital Maiduguri, Borno State.

Corresponding Author:

Dr Kwari SD. Department of Obstetrics and Gynaecology, Asokoro District Hospital and Nile University of Nigeria, Abuja. Email: kwarydan@yahoo.com, phone Number: +2348023611010

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Introduction

Teenage pregnancy is a worldwide problem that affects all known societies, both ancient and modern. One in four females worldwide becomes a mother before the age of 19. Each year, more than 14 million teenage girls give birth to children; the majority of these girls live in poor countries.[1] In 2021, 14 percent of girls and young women globally were expected to give birth before the age of 18, according to the World Health Organization.[2] Teenage pregnancy is becoming one of the most important social and public health problems worldwide with a varying prevalence rate. The teenage birth rate of 15.4/1000 in the United States is the highest in the developed world despite a 75% decline since 1991.[2-4] This decline has been attributed to improvements in accessing reproductive health services by teenagers in the United States and Britain.[3-6] Sub-Saharan Africa has the highest teenage pregnancy rate of 143/1000 while countries like South Korea have a very low rate of 2.9/1000.[1,7] In Nigeria, the

incidence of teenage pregnancy declined from 122/1000 in 2013 to 106/1000 in 2017 but remains one of the highest globally.[8] This has been attributed to declining age at menarche, younger age at first sexual activity, multiple sexual partners, and relative lack of education on contraceptive methods including emergency contraception. A high fertility rate, social customs, poverty, and ignorance make early marriage common in developing countries. Early marriage is seen as a blessing and pregnancy is proof of the woman's fertility.[1,8,9] However, in developed countries teenage pregnancy is usually outside marriage and unplanned. In the US, 82% of teen pregnancies are unplanned and they account for 1 in 5 unintended pregnancies. Several polls have indicated that peer pressure, alcohol, and inhibition-reducing drugs encourage unintended sex.[5-7] Teenage girls in relationships with older boys and particularly adult men are more likely to become pregnant and carry it to term than when involved with someone of their age. Women exposed to abuse, domestic violence, family strife, and those whose mothers or sisters had teenage pregnancies are more likely than those without such experiences to have a teenage pregnancy.[10]

The teenage period itself constitutes a high-risk group requiring high-priority services, and so pregnant teenagers face greater risks than women in their adulthood. Teenage pregnancies have often been reported to be associated with adverse pregnancy outcomes, specifically low birth weight, small for gestational-age infants, prematurity, and higher rates of neonatal and post-neonatal morbidity and mortality.[10-12] There is much controversy over whether the risks associated with teenage motherhood are attributable to biological factors, lifestyles, or socioeconomic conditions. Biological immaturity in teenage mothers itself is an inherent risk factor for poor outcomes that even adequate prenatal care does not eliminate the risk in very young adolescents (< 16 years).[1,7,10] The effect of a girl becoming pregnant before her growth has ceased, thus competing with the developing fetus for nutrients adds to its detriment. Since many teenage pregnancies are unplanned, unwanted, or discovered late, a pregnant teenager may lack the emotional maturity to take responsibility for a pregnancy after she has decided to carry it to term. Many pregnant teenagers are subject to nutritional deficiencies due to poor eating habits common in adolescence. Inadequate nutrition is even more common in developing countries. Obstetric fistula is also a common complication in developing countries. Low prepregnancy BMI, inadequate weight gain during pregnancy, substance abuse and cigarette smoking are factors associated with poor outcomes of teenage pregnancies.[12-16] Maternal complications associated with teenage pregnancy include anaemia, hypertensive disorders, urinary tract infections, operative delivery, and short interpregnancy interval.[11,13] In countries where maternity care service is based on insurance and the availability of service is dependent on the economic circumstances of the mother, poor attendance by teenagers has been reported. In nations like Finland, where maternity care is free, the situation is the opposite.[1,2,3] Improved teenage pregnancy outcomes have been reported with good antenatal care in Pakistan.[17] The outcome of teenage pregnancy is influenced by numerous socio-medical factors and so reports on the obstetric outcome of teenage pregnancy are inconsistent. Nigeria is a diverse country with various social, religious, and educational statuses. As a result, it was necessary to assess the prevalence of teenage pregnancy and its fetomaternal outcome in our institution and to compare the results to those from other regions of Nigeria and other countries described in the literature.

Materials and Methods

This was a retrospective case-controlled study conducted at the University of Maiduguri Teaching Hospital (UMTH), over 10 years, from April 1st, 1998 to March 30th, 2008. UMTH is located in the northeastern sub-region of Nigeria. It serves as a referral centre for the sub-region, which includes Borno, Yobe, Adamawa, Taraba, Gombe, and Bauchi States, as well as countries like Cameroon, Niger, and Chad, which have geographical proximity to Borno State. The hospital's Department of Obstetrics and Gynaecology undertakes an average of 2,200 deliveries annually. Teenage pregnancy was defined as pregnancy occurring between the maternal ages of 13 and 19 completed years at the time of delivery. The Labour ward registers were

examined, and records of all teenage mothers who carried their pregnancies to 28 completed weeks and above and delivered between April 1st, 1998, and March 30th, 2008 were extracted. The next singleton delivery to a mother in the age group 20-34 years and parity of 4 and below was taken as control. In both groups, exclusion criteria were as follows: multiple pregnancies, previous uterine scars, grand multiparity, maternal age ≥ 35 years, retroviral disease patients, and those with major illnesses existing before pregnancy, e.g., sickle cell disease, renal disease, cardiac disease, chronic hypertension, and diabetes mellitus. This is because such pregnancies carry an unusual risk of adverse outcomes. Those with incomplete information were also excluded from the analysis. The patient's case notes were retrieved. Data related to age, parity, educational status, complications in pregnancy, labour, and delivery, and neonatal outcomes were extracted and recorded on a predesigned proforma. The following definitions were used to record pregnancy outcomes: Anaemia was defined as a packed cell volume of less than 30% at any stage of pregnancy. Hypertension is two blood pressure measurements of 140/90 mmHg or above at least 6 hours apart. Proteinuria was taken as 2+ on a dipstick urine test. Postpartum haemorrhage is a blood loss of ≥500 mL or 1000 mL following a vaginal delivery or caesarean section, respectively. The diagnosis of urinary tract infection was based on microbiology. Patients who were first seen in labour were regarded as unbooked. Preterm birth is delivery before 37 completed weeks of gestation from the first day of the last menstrual period. Low birth weight is defined as birth weight ≤ 2500g. Birth asphyxia as an Apgar score of < 7 at 5 minutes. Obstetric and neonatal complications were compared between the two groups.

Ethical Issues

All aspects of the study were reviewed by the Research and Ethics Committee, University of Maiduguri Teaching Hospital and approval was granted (ADM/TH/497/VOL001).

Data Analysis

Data were coded, entered, and analysed using the statistical package for social sciences, SPSS version 20. Statistical significance was calculated using the chi-square test, and a P value less than 0.05 was considered significant. Multivariate logistic regression analysis was used to control for confounding variables like parity, religion, educational status, and antenatal care. These confounding variables could intrinsically affect maternal and fetal outcomes.

Results

During the period under review, there were 21,310 deliveries, of which 1558 were by teenage mothers, giving a prevalence rate of 7.3%. After following the exclusion criteria, 1190 teenagers and 1190 older mothers as controls remained in the study. The age of the teenagers ranged from 15 to 19 years. The majority of the teenagers were 19 years of age (48.7%), and the mean+/-standard deviation was 18.1+/-1.07 years. The age of the older mothers ranged from 20 to 30 years, the majority were 24 years (29.2%) and the mean+/-standard deviation was 22.5+/-1.7 years This is shown in Figure I. Ninety-one percent of teenage mothers practice Islam, while 8% practice Christianity. Most (76%) of the teenagers were nulliparous compared with 47% of the controls. The majority (86%) of the older mothers had at least one antenatal care clinic visit, compared with 72% of teenage mothers. The number of teenagers who had no antenatal care (28%) was twice the number of older mothers who had no antenatal care (14%). The majority (56.6%) of the teenagers had no formal education compared with 13% of older mothers, and the majority (44%) of the older mothers had a tertiary level of education compared with none of the teenagers. This is illustrated on Table 1.

Table 2 compares the modes of delivery of teenagers and older mothers. The older mothers were more likely to have spontaneous vaginal delivery compared to the teenagers (93% vs 83%. P 0.001) and teenagers were more likely to be delivered by caesarean section than older mothers (11%) vs 7%. P <0.001). Teenagers were also more likely to have instrumental vaginal delivery (6% vs 0.7%. P<0.001) and episiotomy (55% vs 31%. P<0.001). There was no statistically significant difference in the incidence of destructive operations (1.5% vs 0.7%. P 0.037) and perineal tear (6.4% vs 7.6%. P<0.001) between the two groups.

Eclampsia and cephalopelvic disproportion were the leading indications for caesarean section in teenagers as seen in 32% and 25% of cases

respectively. The leading indications were caesarean section in older mothers were fetal distress and cephalopelvic disproportion seen in 14% and 13% of controls respectively as shown on Table 3

The common pregnancy complications are as shown on Table 4. Teenagers were more likely to have malaria (13% vs. 5%. P <0.001), urinary tract infection (9% vs. 5%. P <0.001), anaemia (10% vs. 6%. P <0.001) and hypertensive disorders in pregnancy (26% vs. 8%. P <0.001) compared to the older mothers and the differences were statistically significant. There was no statistical difference in the rates of premature rupture of membranes (3% vs. 4%. P0.249), antepartum haemorrhage (0.9% vs. 2%. P0.007) and postpartum haemorrhage (1.2% vs. 1.8%. P0.153) in the two groups. The mean duration of hospital stay was significantly lower in the older mothers compared with teenage mothers (2.42 days Vs. 3.52 days. P 0.003).

Fetal/neonatal complications are shown on Table 5. Birth asphyxia (4% vs 1%. P <0.001), low birth weight (18% vs 3%. P <0.001), stillbirth (7% vs 1.6%. P <0.001), Prematurity (3% vs 1%. P0.003), neonatal admission into the special care baby unit (2% vs 1%. P= 0.004) and neonatal death (5% vs 1%. P <0.001) rates were significantly higher in the teenage group. Table 6 shows a multivariate regression analysis to control for the effect of confounding variables such as the parity, educational status, religion, and utilization of antenatal care between the cases and controls. These sociodemographic variables did not affect pregnancy-induced hypertension, preeclampsia, and eclampsia. The confounders also had no effect on birth asphyxia, low birth weight, prematurity, and special baby care unit admission.

Figure I: Age distribution of the study population

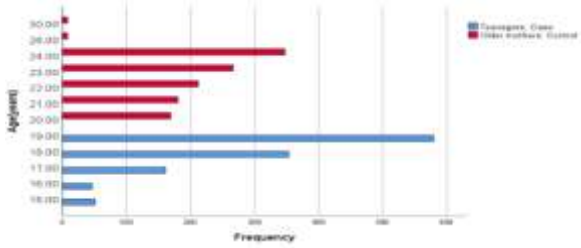

Table 1: Sociodemographic characteristics of study groups

Variable		Teenagers N (%)	Control N (%)	Chi-square	P-value
Parity					
	0	905(76.05)	559(46.97)		
	1	246(20.67)	363(30.5)		
	2	39(3.28)	163(13.66)	1.0243	<0.001
	3	0(0)	99(8.32)		
	4	0(0)	6(0.50)		
Total		1190(100)	1190(100)		
Educational status					
	Nil	673(56.55)	157(13.19)		
	Primary	180(15.13)	11(0.92)		
	Secondary	337(28.32)	496(41.68)	1.0243	<0.001
	Tertiary	0(0.00)	526(44.21)		
Total		1190(100)	1190(100)		
Religion					
	Islam	1090(91.59)	820(68.90)		
	Christianity	100(8.40)	370(31.09)	1.933	<0.001
Total		1190(100)	1190(100)		
Antenatal care					
	Yes	853(71.68)	1021(85.79)	70.839	<0.001
	No	337(28.32)	169(14.20)		
Total		1190(100)	1190(100)		

Table 2: Labour and delivery outcome.

Labour variable		Teenagers N (%)	Control N (%)	Chi-square	P-value
Spontaneous vaginal delivery					
	Yes	978(83.11)	1104(92.77)	0.383	<0.001
	No	212(16.89)	86(7.23)		
Total		1190(100)	1190(100)		
Caesarean section					
	Yes	126(10.59)	78(6.55)	1.688	<0.001
	No	1064(89.41)	1112(93.45)		
Total		1190(100)	1190(100)		
Perineal tear					
	Yes	76(6.39)	91(7.64)	0.824	0.131
	No	1114(93.61)	1099(92.35)		
Total		1190(100)	1190(100)		
Episiotomy					
	Yes	653(54.87)	368(30.92)	2.716	<0.001
	No	537(45.13)	822(69.08)		
Total		1190(100)	1190(100)		
Instrumental delivery					
	Yes	68(5.71)	8(0.67)	8.955	<0.001
	No	1122(94.29)	1182(99.33)		
Total		1190(100)	1190(100)		
Destructive vaginal operations					
	Yes	18(1.51)	8(0.67)	2.269	0.037
	No	1172(98.49)	1182(99.33)		
Total		1190(100)	1190(100)		
Follow up					
	Yes	66(5.55)	119(10)	0.528	<0.001
	No	1124(94.45)	1071(90)		
Total		1190(100)	1190(100)		

Table 3: Indications for caesarean section

Indication	Teenagers N (%)	Control N (%)
Abruptio placenta	0	3(3.9)
Cord presentation	0	3(3.9)
Cord prolapse	0	4(5.1)
Cephalopelvic disproportion	32(25.4)	10(12.8)
Eclampsia	40(31.8)	8(10.3)
Failed induction of labour	0	7(9.0)
Fetal distress	10(7.9)	11(14.1)
Malpresentation	5(3.9)	8(10.3)
Obstructed labour	23(18.3)	5(6.4)
Placenta praevia	0	4(5.1)
Previous caesarean section	0	9(11.5)
Prolonged labour	16(12.7)	6(7.7)
Total	126(100)	78(100)

Table 4: Maternal outcome

Variable		Teenagers N (%)	Control N (%)	Chi-square	P-value
Malaria					
	Yes	155(13.03)	60(5.04)		
	No	1035(86.97)	1130(94.96)	2.820	<0.001
Total		1190(100)	1190(100)		
Urinary tract infection					
	Yes	108(9.07)	57(4.78)		
	No	1082(90.922)	1133(95.21)	1.984	<0.001
Total		1190(100)	1190(100)		
Anaemia					
	Yes	120(10.08)	67(5.63)		
	No	1070(89.92)	1123(94.37)	1.880	<0.001
Total		1190(100)	1190(100)		
Antepartum haemorrhage					
	Yes	11(0.92)	27(2.27)		
	No	1179(99.07)	1163(97.73)	0.402	0.007
Total		1190(100)	1190(100)		
Premature rupture of membranes					
	Yes	37(3.11)	44(3.69)		
	No	1153(96.89)	1146(96.30)	0.836	0.249
Total		1190(100)	1190(100)		
Pregnancy-induced hypertension					
	Yes	122(10.25)	69(5.79)		
	No	1068(89.74)	1121(94.20)	1.856	<0.001
Total		1190(100)	1190(100)		
Preeclampsia					
	Yes	53(4.45)	11(0.92)		
	No	1137(95.54)	1179(99.07)	4.996	<0.001
Total		1190(100)	1190(100)		
Eclampsia					
	Yes	134(11.26)	13(1.09)		
	No	1056(88.74)	1177(98.9)	11.489	
Total		1190(100)	1190(100)		<0.001
Postpartum haemorrhage					
	Yes	14(1.18)	21(1.76)		
	No	1176(98.82)	1169(98.24)	0.663	0.153
Total		1190(100)	1190(100)		
Blood transfusion					
	Yes	89(7.48)	21(1.8)		
	No	1101(92.52)	1169(98.23)	11.935	0.001
Total		1190(100)	1190(100)		
Mean duration of hospital stay		3.52	2.42		0.003

Table 5: Fetal outcome

Variable		Teenagers N (%)	Control N (%)	Chi-square	P-value
Birth asphyxia					
	Yes	50(4.20)	13(1.09)	3.971	<0.0001
	No	1140(95.79)	1177(98.91)		
Total		1190(100)	1190(100)		
Low birth weight					
	Yes	219(18.40)	34(2.86)	7.668	<0.0001
	No	971(81.59)	1156(97.14)		
Total		1190(100)	1190(100)		
Stillbirth					
	Yes	84(7.06)	19(1.59)	4.681	<0.0001
	No	1106(92.94)	1171(98.4)		
Total		1190(100)	1190(100)		
Prematurity					
	Yes	31(2.61)	12(1.01)	2.626	0.03
	No	1159(97.39)	1178(98.99)		
Total		1190(100)	1190(100)		
Special care baby unit admission					
	Yes	28(2.35)	16(1.34)	1.768	0.047
	No	1162(97.65)	1174(98.66)		
Total		1190(100)	1190(100)		
Neonatal death					
	Yes	66(5.54)	13(1.09)	5.316	<0.0001
	No	1124(94.45)	1177(98.91)		
Total		1190(100)	1190(100)		

Table 6: multivariate regression analysis for cofounders (socio-demographic characteristics) of fetomaternal outcome.

Outcome	Odd ratio	95% confidence interval	P value
Maternal outcome			
Malaria	0.157	0.093-0.265	<0.001
Urinary tract infection	0.191	0.105-0.347	<0.001
Anaemia	0.536	0.319-0.900	0.018
Antepartum haemorrhage	1.528	0.592-3.949	0.381
Premature rupture of membrane	0.502	0.240-1.049	0.067
Pregnancy-induced hypertension	0.607	0.429-0.858	0.064
Preeclampsia	0.777	0.382-1.581	0.487
Eclampsia	0.762	0.360-1.612	0.477
Blood transfusion	0.178	0.120-0.264	<0.001
Postpartum haemorrhage	3.592	1.533-8.417	0.003
Hospital stay	0.850	0.818-0.884	<0.001
Fetal outcome			
Birth Asphyxia	0.003	0.000-0.348	0.348
Low birth weight	0.214	0.121-1.378	0.543
Stillbirth	0.270	0.118-0.617	0.002
Prematurity	0.204	0.363- 2.477	0.914
Special care baby unit admission	1.579	0.741 -3.362	0.236
Neonatal death	0.065	0.011-0.373	0.002

Discussion

We conducted a retrospective case-control study of teenage pregnancy and the results showed that teenagers were more likely to be delivered by caesarean section and to have instrumental vaginal deliveries. Teenage pregnancy is also associated with poor maternal and fetal outcomes such as Pregnancy-induced hypertension, preeclampsia, eclampsia, birth asphyxia, low birth weight, prematurity, and special baby care unit admission.

In this study, the prevalence of teenage pregnancy was 7.3%. This is greater than the 5% and 1.93% reported by Mutihir et al.[18], and Jimoh et al.[19] respectively but less than the 46.9% and 11.8% reported by Alyamani et al.[20] and Nwobodo et al.[21] Nonetheless, it is comparable to the 7.5% noted by Amadi et al.[22] In a community-based investigation, Amobi et al. found that the prevalence rate in Abia, southeast Nigeria, was 45.4%.[23] The study's mean age of 18.1 years is greater than the 17.8 years reported by Nwobodo et al.[21], but it is the same as that noted by Mutihir et al.[18] and Jimoh et al.[19] Similar to what was documented by Anayochukwu and Jimoh et al.[13, 19] the majority of teenagers in this study were primigravidas (76%). About 21% of the teenagers were already carrying their second pregnancy. This finding suggests that teenagers are exposed to repeated pregnancies over short intervals with all its inherent dangers. This may be due to early marriage, which is a common practice in our environment. Knowledge of and access to contraception may also be limited by the low literacy level as 53% of the teenage mothers had no formal education, and lower level of antenatal attendance (72%) compared with 86% of the older mothers. This is in keeping with reports by Potokoue et al., Anayochukwu, Jimoh et al., and Nwobodo et al.[12,13,19,21] However, Nadagajah et al. reported higher antenatal attendance by teenagers compared with older mothers.[24] Teenagers had a greater rate of Caesarean section (10% vs. 6%) than controls. This is consistent with the report by Nwobodo et al.[21] While Zahiruddin et al.[12] and Potokoue et al.[17] reported lower rates of caesarean sections among teenage mothers, and Jimoh et al. observed no statistically significant difference in caesarean section rates across both groups.[19] In contrast to the cephalopelvic disproportion observed by Potokoue et al., Jimoh et al., and Nwobodo et al.[12,19,21], the main indication for caesarean delivery among teenagers in our study was eclampsia. In this study, about 26% of the teenage mothers had a hypertensive disorder in pregnancy and 10% had anaemia which are medical conditions that may require shortening of the second stage of labour and may be responsible for the high rate of instrumental deliveries (forceps and vacuums) observed in the teenagers compared with older mothers (5.7% compared with 0.7%). A similar finding was reported by Alyamani et al.[19] and Jimoh et al.[20] Pregnancy-induced hypertension, preeclampsia, and eclampsia occurred more commonly in teenagers compared to controls (26% vs. 7.8%). Similar findings were reported by several other studies.[19, 21,25, 26,27] Teenage mothers also had higher rates of urinary tract infections (9% compared with 5%), as also reported by Sarwar et al., Juanita et al., and Utoo et al.[11,27,28] The higher rate of anaemia (10% vs. 6%) observed among the teenagers may be due to the higher prevalence of malaria and urinary tract infections observed in them in this study. Furthermore, studies have demonstrated poor nutritional status in young mothers, especially in developing countries increasing the risk for anaemia in pregnancy.[15,16] Jimoh et al., Nwobodo et al., Adeniyi et al., Juanita et al., and Chandra et al. all reported a higher prevalence of anaemia in teenagers compared with controls.[19,21,25,26,28] In this study, about 7.5% of the teenage mothers had blood transfusions which may be explained by the higher rates of malaria, urinary tract infection, anaemia, and caesarean section in them. The mean duration of hospital stay was higher in teenagers compared with controls (3.5 days compared with 2.4 days). This may be due to the higher rate of caesarean delivery among teenage mothers.

The higher prevalence of preterm delivery, low birth weight, birth asphyxia, stillbirths, and neonatal death observed among teenage mothers in this study was also reported by Jimoh et al., Adeniyi et al., Utoo et al., and Chandra et al.[19,25,27,28] The high prevalence of medical disorders like pregnancy-induced hypertension, preeclampsia, Eclampsia, urinary tract infections, and anaemia observed in teenage mothers may be responsible for the poor neonatal outcome observed.

Educational status, religion, antenatal care, and parity did not affect the occurrence of Pregnancy-induced hypertension, preeclampsia, and eclampsia in teenage mothers. These confounders also did not affect the fetal outcomes like birth asphyxia, low birth weight, prematurity, and special baby care unit admission. Therefore, these adverse fetomaternal outcomes can be attributed to the mothers being teenagers as shown by previous studies.[19,21,25,26,27,28] Whereas malaria, urinary tract infection, anaemia, postpartum haemorrhage, and blood transfusion were affected by educational status and access to antenatal care as was observed in Pakistan.[17] This is not surprising as haematinics and intermittent prophylactic treatment against malaria received during antenatal reduces the risk for anaemia in pregnancy, associated adverse fetomaternal outcomes, and the need for blood transfusion.

In addition, to being a hospital-based study, UMTH is a referral centre, and mothers with complications in pregnancy are referred from within and outside Borno State, leading to a pooling of cases with complications.

Therefore, the prevalence of teenage pregnancy, complications of pregnancy and labour, and neonatal outcomes observed in this study may not be a true reflection of the prevalence in the community. There was a significant difference in the sociodemographic variables of cases and controls, but this was adjusted using multilevel regression analysis.

Conclusion

This study shows that teenage mothers appear to be at increased risk during pregnancy, labour, and delivery, with poor maternal and fetal outcomes. This may be due to the low literacy level and poor utilisation of antenatal care services observed in the study. Therefore, teenage pregnancy is a matter of both medical and public health concern. There is therefore a need to raise community awareness on girl child education, teenage pregnancy and its complications, and the importance of antenatal care. Policies on compulsory girl child education and the use of contraception may help in delaying conception until they are adults with better chances of favourable obstetric outcomes.

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Conflict of interest: None

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