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Teenage pregnancy at a tertiary health institution in south-western Nigeria: Socio demographic correlates and obstetric outcome

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Abstract
Background: Teenage pregnancy is a public and reproductive health issue globally because of its peculiar high risk nature, its burden is however more in the developing countries. This study assessed the socio-demographic characteristics, obstetric and perinatal outcomes among teenage mothers at a tertiary institution in Ekiti State, Nigeria.
Materials and Methods: A retrospective cross sectional study was conducted over 5years on all parturients whose ages were less than 20years and whose pregnancies were 28weeks and above; and delivered at Ekiti State University Teaching Hospital, Ado-Ekiti, between 1st May, 2012 and 30th April, 2017. A comparison was made with pregnant women aged between 20years and 34years selected from the first woman in the birth registry who delivered after each study case and satisfied the inclusion criteria as control.
Results: Teenage mothers were mostly uneducated and unemployed compared to the control group (P<0.050). The pregnancies of teenage mothers were more associated with complications such as anaemia, 12 (12.6%) vs 1 (1.1%); obstructed labour, 10 (10.5%) vs 2 (2.1%); cephalo-pelvic disproportion, 9(9.4%) vs1 (1.1%); preterm delivery, 22 (23.1%) vs 9 (9.6%); and operative delivery (Caesarean section), 26 (27.4%) vs 13 (13.6%) respectively. Similarly teenage mothers perinatal outcomes were poorer compared with older mothers as they had more cases of neonatal complications (P<0.05).
Conclusion: Both the obstetric and perinatal outcomes of teenage mothers were poorer compared to the control group. There is need for concerted efforts by stakeholders to stem the tide of teenage pregnancy in our society.

Keywords: Teenage pregnancy, obstetric outcome, Nigeria

Introduction
Teenagers are young people within the age bracket of thirteen to nineteen (13-19) years who are undergoing physical, sexual, psychological and emotional developments as they transit from childhood to adulthood. According to World Health Organization, this age group constitutes about 1.5billlion persons out of a total human population of 6.8 billion; eighty-six percent of this sub-group live in the developing countries [1].
The highest rate of teenage pregnancy in the world is in Sub Saharan Africa where women tend to marry at an early age. In West Africa, about 55% of women are said to give birth by 20 years of age. This translates to about 143 births /1000 teenagers [2] as against the 6/1000 recorded in Sweeden [3] and 34/1000 teenagers in the USA [4]. In Nigeria, incidence rates of 9.9%, 6.2%, 1.67%, and 11.8 have been reported from Ilorin [5], Bayelsa [6], Enugu [7], and Sokoto [8] respectively.
Teen mothers tend to be from disadvantaged backgrounds and their problems have been associated with various predisposing factors such as low socio-economic status, poverty, poor school performance or dropping out of school, educational failure and low self-esteem [9]. All these contribute to the health and psychosocial problems of pregnant teenagers.
Although pregnant teenagers face many of the same obstetric issues as other women, some authors have attributed the poor outcomes of their pregnancies to complex interactions between psycho-social and biological factors [3, 6, 10].

While some authors believe that teenage pregnancy is a predictor of poor obstetric outcome [11], others believe that teenage pregnancy does not constitute high risk pregnancy if proper antenatal care is given [12, 13]. Given the divergent views on the outcome of teenage pregnancy from the literature [11-13], and the preponderance of teenage mothers in the third world countries, it is pertinent that more studies are conducted on the subject from countries like Nigeria in order to appreciate better the burden and outcome of teenage pregnancy. In this study, we determined the socio-demograghic characteristics, the obstetric and perinatal outcomes among teenage mothers in comparison with women aged between 20 and 34years at a tertiary health institution in Ekiti State, Nigeria. An audit like this study will add to the existing body of knowledge on teenage pregnancy and provide reliable information that can influence policy making on the preventive, curative and rehabilitative strategies for teenage pregnancy.

Materials and Methods

This was a cross-sectional retrospective study conducted on teenage mothers and other non-teenage mothers who delivered at Ekiti State University Teaching Hospital (EKSUTH), Ado Ekiti, Ekiti State, Southwestern Nigeria between 1st May 2012 and 30th April, 2017. EKSUTH is located in the capital of Ekiti State and serves as the main referral centre for other hospitals in Ekiti State and other neighbouring states.

The participants were parturients who delivered at EKSUTH. Teenage pregnancy was defined as pregnancy in a woman whose age was less than 20years at the time of her last birthday and whose pregnancy was 28weeks and above, and delivered at EKSUTH. The next woman aged between 20 and 34 years who delivered after 28 completed weeks of gestation within the study period served as the control. Women with multiple pregnancies, age > 34 years, chronic medical conditions such as cardiac disease, pre-gestational diabetes, haemoglobinopathies, chronic kidney disease, and hypertension were excluded. In addition, those without maternal age, information about antenatal attendance and record of gestational age were excluded.

Case notes of parturients who met the inclusion criteria were retrieved manually from the Health Information Management Unit of the Obstetrics, Gynaecology and Perinatology Department and relevant data were extracted. Patients who had antenatal care at our facility were described as booked, while those who had no antenatal care at the facility were described as unbooked. Information on biodata, history of antenatal care, mode of delivery, history of antenatal, intrapartum or postpartum complications were extracted.

Perinatal outcomes consisted of birth weight, presence or absence of birth asphyxia, congenital abnormality and neonatal complications. Birth weight less than 2.5kg was defined as low birth weight, APGAR scores less than ≤ 7 at 5minutes was reported as asphyxia.

Gestational ages were determined by calculation from the first day of the last menstrual period and verified with the report of early ultrasound scan and for those that were not sure of their last menstrual period, their early ultrasound scan result was used. Hypertension in pregnancy was defined as blood pressure of greater than or equal to 140/90mmHg measured on at least 2 occasions at least 4 hours apart. Preterem delivery was defined as delivery before 37 weeks gestation. Anaemia was defined as packed cell volume of less than 30%.

Ethical approval for the study was obtained from the Ethics and Research Committee of the institution. All information including history, physical findings and results obtained from patients' case notes were kept strictly confidential.

Data analysis was done using SPSS version 20 frequency distributions and percentages were generated. The socio-demographic characteristics, obstetric and perinatal outcomes of teenage mothers (Cases) were compared with older women (Control) using comparative statistics. Statistical significance was set at $P<0.05$ for all statistical tests.

Results

During the period under review, a total of 95 teenage mothers were delivered at our facility out of a total of 8,414 deliveries conducted. Hence, delivery by teenagers accounted for 1.1% of all deliveries. There was a significant difference in the mean age of the teenage group (17.8 ±1.3years) compared to the controls (30.4 ± 3.4years), ($P< 0.001$). Four (4.2%) teenagers belonged to younger teenage group of 16 years or less.

Table 1 shows the socio-demographic characteristics of the population. Most of the teenagers, (79.0% VS 21.0%) were unmarried while most of the older women (98.9% VS 1.1%) were married. Teenage age was significantly associated with unmarried status ($P< 0.001$). Also, the teenage age was significantly associated with unbooked status ($P< 0.001$). Similarly, the teenagers' educational attainment was significantly lower compared to the older women ($P< 0.001$).

Furthermore, majority of the teenage mothers (67.4%) were unemployed or were still schooling without any source of income when compared to the controls who were mainly civil servants and artisans 74(78%), ($P< 0.0001$).

Table 2 shows pregnancy complications in the study groups. Pregnancy related complications such as anaemia, obstructed labour, cephalo-pelvic disproportion and preterm labour were significantly higher among teenagers compared to the older women, ($P< 0.05$). There was a significant association between unbooked status and occurrence of complication among the teenage mothers (P value<0.001).

Table 3 shows the intrapartum and postpartum events in both groups. There were more unsure-of-date among the teenagers when compared with the older women, 34(36%) VS 7 (7.4%); $P<0.0001$. Also, there were more preterm deliveries among the teenagers, 22 (23.1%) VS 9 (9.6%); P=0.017.

The teenagers had less spontaneous vaginal delivery as there was a total of 26 (27.4%) cases of Caesarean deliveries among them compared to 13(13.6%) among the older women. The difference in the Caesarean section rate was statistically significant (P =0.03). The indications for Caesarean section were similar in both groups. The commonest indications were cephalopelvic disproportion/ obstructed labour and severe preeclampsia/ eclampsia.

Five (5.3%) of the teenagers had post-partum morbidities and post-partum hemorrhage, (3.2%) was the commonest. There was no statistical difference in the occurrence of morbidity in both groups. ($p> 0.05$). There was also no maternal mortality among the studied population.

The perinatal outcomes of deliveries of both group are shown in Table 4. The perinatal mortalities among the two groups were the same 6(6.3%); P=1.000. However, there were more morbidities (Birth asphyxia, low birth weight and congenital malformation) in the teenagers' babies. Teenage mothers significantly had more low birth weight babies compared to the older women 18 (18.9%) VS 7 (7.4%); P=0.03. Although teenage mothers had more babies with birth asphyxia, this did not attain statistical significance, 11(11.6% VS 4 (4.2%); P=0.103. Overall, abnormal perinatal outcome was found more among the teenagers compared to the older women (P=0.003).

Table 1: Comparison of teenage and older mothers according to different socio-demographic characteristics

	Teenager N= 95 n(%)	Control N=95 n(%)	P Value
Marital Status			
Unmarried	75(79.0)	1(1.1)	< 0.0001†
Married	20(21.0)	94(98.9)	
Unbooked	66.0(69.4)	25(26.4)	< 0.0001†
Booked	29.0(30.6)	70(73.6)	
Educational Status			
No formal education	3.0(3.2)	0(0.0)	< 0.0001* (X^2= 90.9, df= 5)
Primary education	3.0(3.2)	2(2.2)	
Uncompleted secondary school education	32(33.7)	0(0)	
Completed secondary school education	35(36.8)	14(14.8)	
Tertiary education	7(7.4)	65(68.4)	
No information	15(15.8)	14(14.8)	
Occupation			
Unemployed	9(9.4)	6(6.4)	< 0.0001* (X^2= 73.4, df= 4)
Artisan	28(29.4)	40(42.2)	
Civil servant	0(0)	34(35.8)	
Student	55(57.8)	8(8.4)	
Others	3(3.2)	7(7.4)	

NB: Significant P values are in bold fonts. †= Fisher`s Exact test, *=Chi – square test.

Table 2: Pregnancy complication in both groups

	Teenager N = 95 n(%)	Control N = 95 n(%)	P value
Complication			
Malaria	0(0)	1(2)	1.000
Anaemia	12(12.6)	1(1.1)	0.008
Antepartum hemorrhage	1(1)	4(5.2)	0.368
Breech presentation	7(7.4)	1(1.1)	0.064
Obstructed labour	10(10.5)	2(2.1)	0.032
Prelabour Term ROM	3(3.2)	2(2.2)	1.000
Prelabour Preterm ROM	2(2.2)	2(2.2)	1,000
Pre-eclampsia/Eclampsia	5(5.2)	0(0)	0.059
Cephalopelvic disproportion	9(9.4)	1(1.1)	0.018
Cord Prolapse	0(0)	2(2.2)	0.497
Uterine rupture	0(0)	1(1.1)	1.000
PIH	8(8.4)	2(2.2)	0.100
Preterm Labour	12(12.6)	2(2.2)	0.010

NB: Test statistics= Fisher`s Exact and significant P values are in bold fonts,
PROM: premature rupture of membranes.
PIH; Pregnancy induced hypertension

Table 3: Intrapartum and the post-partum events in both groups

	Teenager N= 95 n(%)	Control N= 95 n(%)	P value
Period of gestation at delivery			
Preterm	22(23.1)	9(9.6)	0.017
Term	36(37.8)	77(81.4)	< 0.0001
Prolonged	3(3.2)	1(1)	0.62
Unsure	34(36)	7(7.4)	< 0.0001
Mode of delivery			
Vaginal	69(72.6)	82(86.4)	0.030
LSCS	26(27.4)	13(13.6)	0.030
Post-Partum Morbidities/Mortality			
Post-partum hemorrhage	3(3.2)	1(1.1)	0.620
cervical laceration	1(1.1)	1(1.1)	1.000
Retained placenta	1(1.1)	1(1.1)	1.000
Post-partum mortality	0 (0.0%)	0 (0.0%)	1.000

NB: Test statistics= Fisher`s Exact and significant P values are in bold fonts.
LSCS=lower segment caesarean section

Table 4: The perinatal outcome of both groups

	Teenager N = 95 n(%)	Control N= 95 n(%)	P Value
Normal outcome	59(62.1)	78(82.2)	0.003
Birth Aphyxia	11(11.6)	4(4.2)	0.103
Low birth-weight	18(18.9)	7(7.4)	0.03
Perinatal mortality	6(6.4)	6(6.4)	1.000
Congenital abnormality	1(1.1)	0(0)	1.000

NB: Test statistics= Fisher`s Exact and significant P values are in bold fonts.

Discussion

The prevalence of teenage pregnancy in this study was 1.1% which is similar to a prevalence of 1.1% found in the University of Malaya [14] and 1.67% in Enugu [7]. However, this is lower than the 9.9% and 11.1% reported in Ilorin [5] and Sokoto [8] respectively. The higher prevalences recorded in Ilorin and Sokoto could be as a result of their socio-cultural and religious practices that favour and support child's marriage; which is not a popular practice in the area of study as it is regarded as a form of child abuse [15].

In this study, majority of the teenagers were unmarried, had less than secondary school education, and were unemployed which is similar to the findings from Enugu and Niger-Delta in Nigeria [6, 7]. These findings further confirmed that girls involved in teenage pregnancy are often from the disadvantaged group.

Poor socio-economic status does not only contribute to poor obstetric and perinatal outcomes in teenage mothers but also to poor educational attainment [16]. Teenage pregnancy is associated with negative consequences for both adolescents and their children which has a greater detrimental effect on educational attainment [5, 8, 16]. A study have found that giving birth while in one's teens leads to a 50% reduction in the likelihood of high school completion compared with not giving birth during the period [17].

In this study, 69.4% of the teenage mothers did not have adequate antenatal care which is similar to the findings in many other studies [5, 6, 10]. The poor antenatal care (high unbooked rate) among the teenage mothers reported in this study is similar to the findings by Yildirim *et al*. [18] where it was reported that 77% of teenage mothers had not been followed up by an obstetrician. This observation might be due to initial pregnancy denial, avoidance of stigmatization, low socio-economic status of the parent or patient and lack of psychological and financial supports.

The high prevalence of pregnancy related complications such as hypertensive disorders of pregnancy, cephalo-pelvic disproportion /obstructed labour and preterm labour observed among teenage mothers in this study have been previously reported in various studies [5-8, 19].

The higher incidence of anaemia in the teenage mothers could be probably due to their higher physiologic needs peculiar to the teenage and adolescence which was probably worsened by their pregnancy status. Similarly, the higher incidence of Caesarean deliveries among the teenage group compared to the older mothers in this study could be due to the fact that most of the teenagers in this study were unbooked and presented with complications necessitating operative delivery. On the contrary it could also be due to their biology which could have resulted in relative unpreparedness of their body physiology to carry pregnancy at such tender ages. In addition, as previously reported [20], teenage mothers in this study had a significantly higher number of preterm labour and deliveries compared to adult mothers. This could be due to their largely unbooked status with resultant poor antenatal care as well as their low socio-economic status. These findings further confirmed the assertions by Loto *et al*. [12] and Mahfouz *et al*. [21] that the extent of antenatal care rather than the age of the pregnant mother is the major determinant of teenage pregnancy outcome.

Nevertheless, the higher post-partum morbidities among the teenagers compared to older women could partly be due to their inexperience thus making them to neglect symptoms suggestive of complications during pregnancy which could predispose them to post-partum adverse events.

The higher prevalence of low birth weight babies in the teenage group is in keeping with the findings of Prianka *et al*. in a study done in India [20]. Despite the observation that the teenage group in this study had significantly higher preterm deliveries that could be contributory to their high rate of low birth weight which is a major cause of perinatal mortality in our environment, it is surprising to note that the perinatal mortality 6(6.4%) was similar in both groups of patients in this study. Prianka *et al*. [20] observed significantly higher prevalence of perinatal death among infants of teenage mothers in India.

In an environment like ours, quite a number of teenage pregnancies do not deliver in the tertiary health facilities due to financial constraint, stigmatization and long waiting time. Therefore, this emphasizes the need to conduct a larger study that will include other lower levels of health care, mission homes and traditional birth attendant places where pregnant teens may have preference for. Furthermore, the retrospective nature of this study might resulted in some loss of data on the subject.

This study showed that the risks of obstetric complications and perinatal morbidities were higher in teenage mothers than in adult women. Teenage pregnancy can be significantly reduced through the provision of health education on the dangers of teenage marriages, sex education in schools and the encouragement of the use of family planning/emergency contraception. In situations where pregnancies have been established, provision of comprehensive social, educational and health services could be implemented separately for this group in other to prevent social embarrassment. This will further help to prevent and or give room for early detection of pregnancy-related complications thereby, ensuring safe motherhood. Stakeholders in adolescent health namely parents, teachers, religious groups and healthcare providers should recognize these problems and advocate for the provision of appropriate care and where necessary, make deterrent against sexual exploitation of the girl child through relevant laws.

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