

# Obstetric outcome of teenage pregnancies at a tertiary hospital in Enugu, Nigeria

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## Abstract

**Context:** Maternal age, parity, and socioeconomic class are important determinants of obstetric outcome of pregnancy. Teenage pregnancy constitutes a high risk pregnancy with complications arising from a combination of physiological, anatomical, and socioeconomic factors. **Objective:** The objective was to determine the current incidence of all teenage pregnancies and their obstetric outcomes at UNTH, Enugu.

**Materials and Methods:** This was a retrospective review of all teenage pregnancies at University of Nigeria Teaching Hospital, Enugu over a 6-year period (2000--2005). A total of 74 teenage pregnancies were analyzed and compared with 105 controls (adult mothers). Results: Records of 74 teenage pregnancies were identified within the study period which constitutes 1.67% of 4422 deliveries within the period. Majority of the teenagers (78.3%) were nulliparous. There was statistically significant differences between the teenage mothers and older mothers in the rate of unemployment (75.7% vs. 24.8%,  $P = 0.000$ ), booking status (41.9% vs. 100%,  $P = 0.000$ ) anemia (32.4% vs. 24.8%,  $P = 0.001$ ), unsure of last menstrual period (32.4% vs. 15.2%,  $P = 0.007$ ), caesarean section (18.9% vs. 10.5%,  $P = 0.000$ ), cephalopelvic disproportion as an indication for caesarean section (9.4% vs. 3.8%,  $P = 0.001$ ), preterm delivery (18.9% vs. 11.4%,  $P = 0.001$ ), low birth weight (23.0% vs. 10.5%,  $P = 0.005$ ), episiotomy (61.7% vs. 28.7%,  $P = 0.001$ ), instrumental delivery (6.8% vs. 2.9%  $P = 0.001$ ), Apgar score at 1 minute (35.1% vs. 19.1%  $P = 0.005$ ), and perinatal mortality (16.2% vs. 12.4%). There were no maternal deaths.

**Conclusion:** Pregnant teenagers are at higher risk than their older counterparts. Female socioeducational development and proper use of contraceptive services will help reduce teenage pregnancy rate, while perinatal care will help to minimize its associated hazards.

**Key words:** Obstetric outcome, pregnancy, risks, teenage

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## Introduction

Pregnancy in a girl aged between 10 and 19 years is adolescent or teenage pregnancy.<sup>[1]</sup> There is a growing concern about the multiple consequences of teenage child bearing particularly in sub-Saharan Africa where teenage pregnancy rates are the highest in the world.<sup>[2,3]</sup> Worldwide, rates of teenage pregnancy range from 143 per 1000 in some sub-Saharan African countries to 2.9 per 1000 in South Korea.<sup>[2]</sup> In Nigeria, the incidence of teenage pregnancy ranges from 1.7% to 11.8%.<sup>[4-6]</sup>

In developing countries, the increase in teenage pregnancy rates has been attributed to early age of marriage, cultural permissiveness, low socioeconomic status of parents, lack of knowledge of sexuality education, peer group influence, lack of knowledge, and or ineffective use of contraceptives and family instability and disorganization which may be caused by poverty.<sup>[7]</sup> Most continental West European countries have very low teenage birth rates. This has been attributed to good sex education, high

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levels of contraceptive use, traditional values, and social stigmatization.<sup>[8]</sup>

The concern about teenage pregnancies stems from the fact that they exhibit well-known negative health and socioeconomic consequences. Several studies have reported an increase in pregnancy complications associated with teenage pregnancy and these include anemia, hypertensive disorders of pregnancy, preterm labor, a higher analgesia requirement, sudden infant death syndrome, low birth weight babies, and cephalopelvic disproportion<sup>[9,10]</sup> resulting in high incidence of operative deliveries.

These complications may be due to physical immaturity of the teenage mothers, adverse social, and economic factors which accompany pregnancy at an early age, and inadequate or nonutilization of antenatal care. In contrast, good results have been reported in teenagers who had proper antenatal care, intensive nutritional counseling, and attention to social problem.<sup>[11]</sup> Other health risks include a high incidence of sexually transmitted disease (STD) including HIV/AIDS among unmarried pregnant teenagers.<sup>[8]</sup>

In addition to the health risks, teenage pregnancy results in termination of academic pursuits, low job opportunities, isolation, loss of self-esteem, and repeat pregnancy.<sup>[12]</sup>

The study was undertaken to determine the incidence and obstetric outcome of teenage pregnancies managed at UNTH, Enugu and suggest ways of reducing its rate and minimizing the complications.

## Materials and Methods

This was a retrospective study carried out on all teenage pregnant (cases) mothers aged 11--19 years who carried their pregnancy to 28 completed weeks and beyond and delivered at UNTH, Enugu, South-East, Nigeria between 1 January 2000 and 31 December 2005.

Enugu has a population of 717,291 according to 2006 National population census and is predominantly inhabited by the Ibos, one of the three predominant ethnic groups in Nigeria. They are mainly Christians and the main occupations are civil service and farming.

The controls were the next pregnant older women who delivered after a teenage mother who fulfilled the inclusion criteria. The lists of the cases and controls were obtained from the labor ward register. In all, a total of 74 cases and 105 controls were compiled.

In both groups, the exclusion criteria were as follows: previous caesarean section, pregnancy above 35 years of age, and grandmultiparity.

The case notes of the patients were retrieved and analyzed with respect to their age, educational status, occupation, marital status, booking status, pregnancy complications, labor, and mode of delivery. The data were extracted by the trained staff using pre-established and piloted data extraction forms.

Prior permission for utilizing hospital data to conduct this study was obtained from the hospital Ethical Committee.

Data analysis was performed using Statistical Package for Social Science (SPSS) computer software version 10.0. Differences between proportions were tested for statistical significance at 0.05 levels using the chi-square test.

## Results

During the period under review, a total of 4422 deliveries were conducted out of which 74 (1.67%) were from teenage pregnant mothers. Teenage pregnant women had mean age of  $16.5 \pm 1.7$  years (11-19) and nonteenage pregnant women  $27.4 \pm 4.9$  years (20-34). They were predominantly of the Ibo tribe 160 (89.5%).

Table 1 compares the educational, job, and marital status of the teenage mothers (cases) with that of the older mothers (controls). Majority of the teenagers 51 (68.9%) had only primary education. This was in contrast with the controls where only 15 (14.3%) had similar education. Majority of the teenage mothers 56 (75.7%) were unemployed and 45 (60.8%) were married. In the controls only 25 (23.8%) were unemployed and all 105 (100%) were married. The differences between the two groups were statistically significant ( $P = 0.000$ ).

Nineteen teenagers (25.7%) had preterm delivery as against 12 (11.4%) in the controls. The difference is statistically significant ( $P = 0.001$ ). Majority of the teenage mothers 58 (78.3%) were nullipara and unbooked 43 (58.1%) in contrast with the control where 37 (35.3%) were nullipara and 22 (21.0%) unbooked. The differences between the two groups were statistically significant ( $P = 0.000$ ). Twenty-four teenagers (32.4%) and 16 controls (15.2%) were unsure of their last menstrual periods ( $P = 0.007$ ).

Table 2 compares the complications during pregnancy of both the cases and control. Thirty-five teenagers (47.3%) and 24 controls (22.9%) had clinical malaria and the difference between them was statistically significant ( $P = 0.001$ ). Anemia (packed cell volume less than 30%) was noted in 32.4% and 24.8% of cases and controls respectively ( $P = 0.001$ ). There was no statistically significant differences in the incidences of preeclampsia ( $P = 0.934$ ), eclampsia ( $P = 0.369$ ), and antepartum ( $P = 0.502$ ) in the two groups.

**Table 1: Socio demographic characteristics of patients**

	Cases N = 74 no (%)	Controls N = 105 no (%)	$\chi^2$ values	P-values
Education				
Primary	51 (68.9)	15 (14.3)		
Secondary	23 (31.1)	66 (62.9)		
Tertiary	0 (0.0)	24 (22.9)	60.869	0.000
Total	74 (100)	105 (100)		
Occupation				
Employed	18 (24.3)	80 (76.2)		
Unemployed	56 (75.7)	25 (23.8)	47.134	0.000
Total	74 (100)	105 (100)		
Marital status				
Single	29 (39.2)	0 (0.0)		
Married	45 (60.8)	105 (100)	49.104	0.000
Total	74 (100)	105 (100)		

**Table 2: Complications during pregnancy**

Complications	Cases N = 74 no (%)	Controls N = 105 no (%)	$\chi^2$ values	P values
Malaria	35 (47.3)	24 (22.9)	6.888	0.001
Anemia (PCV <30%)	24 (32.4)	26 (24.8)	5.993	0.001
Pre-eclampsia	3 (4.1)	4 (3.8)	0.007	0.934
Eclampsia	2 (2.7)	1 (1.0)	0.807	0.369
Antepartum hemorrhage	1 (1.4)	3 (2.9)	0.451	0.502

Table 3 compares the modes of delivery for the two groups. There was no statistically significant differences in the incidences of spontaneous vertex delivery ( $P = 0.068$ ) and breech delivery ( $P = 0.775$ ) in the two groups. The teenagers who had assisted breech delivery were unbooked and presented late in labor. Vacuum extraction was used in 5 (6.8%) and 3 (2.9%) of cases and controls, respectively.

The caesarean section rate in the teenagers (18.9%) was significantly higher than the 10.5% observed in the controls ( $P = 0.000$ ). Within the teenage group, the caesarean section was emergency lower segment caesarean section and was done mainly for the unbooked cases. The main indication for the caesarean section was cephalopelvic disproportion.

Table 4 compares the fetal outcome for the two groups. The Apgar scores at 1 minute was less than 7 in 26 (35.1%) of babies of the teenagers compared with 20 (19.1%) of the controls ( $P = 0.005$ ). Seventeen teenagers (23.0%) delivered low birth weight babies compared with 11 (10.5%) of the controls ( $P = 0.005$ ).

The total number of perinatal deaths in the cases was 12 (16.2%) while that of the controls was 13 (12.4%). The perinatal mortality rates for the cases and controls were 162.2 per 1000 births and 123.8 per 1000 births respectively. There were no maternal deaths.

**Table 3: Mode of delivery**

Mode of delivery	Cases no (%)	Controls no (%)	$\chi^2$ values	P values
Spontaneous vertex delivery	52 (70.3)	85 (81.0)	3.327	0.068
Breech	3 (4.1)	6 (5.7)	0.082	0.775
Vacuum extraction	5 (6.8)	3 (2.9)	0.095	0.001
Caesarean section	14 (18.9)	11 (10.5)	3.633	0.000
Episiotomy	37 (61.7)	27 (28.7)	11.145	0.001

**Table 4: Fetal outcome**

	Cases N = 74	Controls N = 105	$\chi^2$ values	P values
Apgar score at 1 minute				
<7	26 (35.1)	20 (19.1)		
>7	40 (54.1)	77 (73.3)	7.727	0.005
Birth weight				
<2.5 kg	17 (23.0)	11 (10.5)		
2.5kg–3.99 kg	56 (75.7)	91 (86.7)		
$\geq 4.00$ kg	1 (1.4)	3 (2.9)	10.288	0.005

## Discussion

The hospital incidence of teenage pregnancy 1.67% obtained in this study is close to 1.93%<sup>[9]</sup> obtained in a similar study in Ilorin but much lower than 5%,<sup>[4]</sup> 11.8%,<sup>[6]</sup> and 17.2%<sup>[13]</sup> reported in Abakaliki, Sokoto, and Dublin, respectively. The low incidence, 1.67% may be attributed to a new trend in the area where the unmarried pregnant teenagers are encouraged by some nongovernmental organizations (NGOs) to deliver their babies often in private medical institutions and give them out for adoption as an alternative to abortion in unintended pregnancies. It is also not unexpected that a great majority with less social support and unable to cope with high hospital bills may opt for deliveries in obscure and poorly equipped places with their attendant risks.

The highest level of education attained by the majority (68.9%) of the teenage mothers was primary school and many of them (60.8%) were married. This shows that early marriage is still a major contributor to the prevailing high incidence of teenage pregnancy in developing countries. In Nepal<sup>[14]</sup> the median age at first marriage was 16.6 years, which showed that majority of newly married couples were adolescents. In Northern part of Nigeria,<sup>[15]</sup> an early age at marriage quickly followed by conception is also an important determinant of adolescent pregnancies.

Due to poor education, a higher percentage (75.7%) of them was unemployed in contrast with their older counterparts where majority (76.2%) was employed. Higher education is associated with lower rates of adolescent childbearing probably as a result of its positive impact on contraceptive acceptance<sup>[16,17]</sup> and the attendant delay to complete the academic program.

The study also revealed that the majority of the teenage mothers (58.1%) were unbooked when compared with the older mothers where the majority of them (79.0%) were booked. The unbooked teenage pregnant women probably did not receive antenatal care and this may have contributed to the pregnancy complications. Other workers have made similar observation.<sup>[8,10]</sup> The reasons given for this apathy toward antenatal services include ignorance of the importance of antenatal care, lack of family, and social support, nonavailability of antenatal care services, poverty, unpleasant remarks by antenatal health workers toward unmarried teenagers who are pregnant, and attempts to evade public glare since most clinics lack privacy.<sup>[18]</sup>

The complications observed were more in the teenage pregnant mothers than their older counterparts. These were similar to observations made by previous authors.<sup>[11,13]</sup> The low birth weight may not be unconnected with the high incidence of anemia and preterm labor while the anemia has been attributed to inadequate nutrition and malarial hemolysis since most (78.3%) of the teenage pregnant mothers were primigravida and therefore had high susceptibility to malaria.<sup>[19]</sup>

A higher rate of operative intervention (caesarean section) 18.9% was noted among the teenagers. This may be attributed to the fact most of them were unbooked and arrived in circumstances where operative intervention was obligatory. The main indication for the caesarean section was cephalopelvic disproportion (CPD). This is similar to the finding in Sokoto.<sup>[6]</sup> This is expected because the pelvis of teenagers especially those in early teens are not fully developed and their pelvis assume more of adult proportion as they grow.

The incidence of low Apgar scores (less than 7) among babies of teenage mothers was 35.1% compared with 19.1% in older mothers. Most of the teenage mothers were unbooked and arrived late with their fetuses in asphyxic conditions after prolonged labors in substandard facilities.<sup>[20]</sup>

This may partly account for the higher perinatal mortality rate of 162.2 per 1000 births noted among the teenage mothers compared to that of older mothers 123.8 per 1000 births. The high incidence of anemia, 47.3% may have contributed to the higher perinatal deaths among the babies of teenage mothers. The association of anemia with perinatal deaths was evidenced in a study in Ibadan, Nigeria<sup>[21]</sup> where a perinatal mortality rate of 33/1000 births was reported in moderately anemic patients.

This study has shown that teenage pregnant mothers face higher risks than their adult counterparts during childbearing with poor obstetric outcome and increased perinatal deaths. It is important to create awareness

about teenage pregnancies and their associated problems. Utilization of family planning services and perinatal care will successively help to reduce the rate of teenage pregnancies and minimize their associated hazards.

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