

Teenage Pregnancies a Lingering Obstetric Problem in Nigeria

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ABSTRACT

OBJECTIVE: To determine the teenage pregnancy rate, associated epidemiological factors, outcome and complications in a Nigerian tertiary hospital.

DESIGN: A 5 year retrospective study of women presenting with teenage pregnancies, between 1st of January, 2004 and 31st of December, 2008 was done.

METHODS: The obstetric variables from 72 cases of teenage pregnancies and 89 selected controls aged 20-24 years were compared. Chi-square was used to compare some of the variables. The level of statistical significance was set at $p < 0.05$.

RESULTS: The prevalence of teenage pregnancy was 2.7%. The age range was from 14-19 years with a mean age of 17.8 ± 1.2 years. 33 (45.8%) women among the study group were single while 39 (54.2%) were married. There was a statistically significant difference in the marital status between the study and control groups ($\chi^2 = 41.80$, $p = 0.001$). Interestingly, the teenage group were mainly primiparous women (63.9%) compared to the adults who were mostly nulliparous. Ante-partum complications such as anaemia, mal-presentations and ante-partum haemorrhage were commoner in the teenage pregnancy group. Prolonged labour, preterm labour, intra-uterine growth restriction, premature rupture of fetal membranes and caesarean deliveries were commoner in the teenage group, but not to a significant level.

CONCLUSION: Promoting education of the girl-child and economic empowerment of teenage girls will reduce the incidence of teenage pregnancy and the high complication rate associated with it.

INTRODUCTION

Worldwide, teenage pregnancy has remained a major public health problem^{1,2}. While there has been a decline in the prevalence of teenage pregnancy in Europe and Asia^{1,3} the prevalence is still rising in sub-Saharan Africa, a region that accounts for the highest rate of teenage pregnancy in the world³. In Sokoto, northern Nigeria, a teenage pregnancy prevalence rate of 11.8% of all deliveries was noted in the study by Emmanuel et al⁵.

The principal factors responsible for the high prevalence of teenage pregnancy in developing countries like Nigeria include the socio-cultural practice of early marriage,^{1,6,7,8} low or non-use of contraception,^{9,10,11} and

early onset of sexual activity among the teenage girls¹². It has been noted that these girls that commence sexual intercourse very early are ignorant of various forms of contraceptives. They have unprotected sexual intercourse and end up pregnant^{10,11}. Also, illiteracy and poverty further increase the risk,^{7,13}.

The obstetric outcome of pregnant teenage mothers can sometimes be poor⁶. This is usually due to the physical, psychological and social immaturity of the teenage pregnant mothers,^{11,12}. In developing countries, the outcome of teenage pregnancy is further worsened by poverty, illiteracy, low socio-economic status and poor pre-natal services. The poor attitude of parents, partners or spouses and the society at large to these teenage pregnant girls are also contributory factors. While many studies have identified significantly higher perinatal and maternal morbidity and mortality rates in teenage pregnant mothers compared to their adult counterparts, a few other studies have identified no increased risk in these women compared to their adult counterparts¹. Higher perinatal and maternal morbidity and mortality may occur in teenage mothers due to a higher rate of illegal termination of pregnancy, anaemia, preterm labour, preterm delivery, pre-eclampsia, eclampsia, cephalo-pelvic disproportion and increased caesarean section rates in these age group,^{1,5,6,7}.

Hence, the objective of the study was to determine the teenage pregnancy rate, the epidemiologic factors associated with teenage pregnancy, its outcome and complications as seen at the Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria. Various ways of minimizing the problems associated with teenage pregnancies will be discussed.

MATERIALS AND METHODS

This was a retrospective study of all cases of teenage pregnancy that presented to the Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, South-eastern, Nigeria, between January 2004 and December 2008 (a 5 year period).

The maternity ward registers were reviewed and the case notes of all the teenage pregnancies between January 1, 2004 and December 31, 2008 were retrieved. To be used as controls for the study, 89 case notes of mothers aged 20-24 years who were delivered of their babies during

the same 5 years study period were selected by simple random sampling. This was done by scrutinizing the maternity ward register and extracting the folder numbers of all the mothers who were between 20-24 years at the time of delivery. The numbers were then arranged according to the date of delivery, from January 2004 to December, 2008 in that order. Subsequently, every 5th folder was then selected for the study and these were used as controls for the study.

Ethical clearance was obtained from the ethical committee of the Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria prior to the collection of the case notes. These case-records were studied and variables such as age, parity, educational status, marital status and booking status were collected on a data extraction form and were subsequently analysed. Also, pregnancy complications and maternal and fetal outcomes in both groups were analysed and compared. Chi-square was used to compare some of the variables. The level of statistical significance was set at $p < 0.05$.

Nnewi is the second largest city in Anambra State, south-eastern Nigeria. It comprises four autonomous villages Otolu, Uruagu, Umudim, Nnewichi. Together, Nnewi and its satellite towns have a population of about 2.1 million; with Nnewi itself having an estimated population of 204,252 (2007 estimate).

Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria (NAUTH) is a 202-bed tertiary referral hospital which is conveniently located near the major business areas of south-eastern Nigeria. It is a renowned teaching hospital in Nigeria with 23 clinical departments and services for both medical under-graduates and post-graduates and a referral centre serving Anambra State and its neighboring states, including Imo, Delta, Enugu, and Abia states in south-eastern Nigeria. Established in 1991 as one of Nigeria's teaching hospital, NAUTH still maintains its tradition of providing excellent comprehensive health-care.

RESULTS

During the period under review, there were 72 teenage deliveries out of a total of 2662 deliveries, giving a prevalence of 2.7%. The age range of the teenage women was 14-19 years with a mean age of 17.8 ± 1.2 years and that of the control group was 22.9 ± 2.3 year.

The marital and educational status of the study and control groups.

Thirty-three (45.8%) women in the study group were single while 39(54.2%) were married. However, 86(96.6%) in the control group were married. There was a significant difference in the marital status between the study and control groups ($x^2 = 41.80$, $p = 0.001$). While 35(39.3%) and 42(47.2%) among the women aged 20-24 years had tertiary and secondary education

respectively, only 3(4.2%) and 18(25%) among the teenage mothers had tertiary and secondary education respectively. By this, the adult women had better educational status compared to their teenage counterparts ($x^2 = 43.88$, $p = 0.001$).

Obstetric characteristics of the subjects

Majority (63.9%) of the teenagers were primiparous, compared to the adults who were mostly nulliparous 49(55.1%). A significant number 76(85.4%) of the control group were booked and 85(95.5%) of them had regular ante-natal care. Meanwhile, among the teenage group, only 43(59.7%) and 29(54.2%) were booked and had regular ante-natal care respectively (Table 1). This implies that a significant proportion of the teenagers were unbooked ($x^2 = 13.60$, $p = 0.001$), even as a greater number of them did not attend ante-natal clinics ($x^2 = 38.43$, $p = 0.001$). Also, they were more likely to be unsure of the date of their last menstrual period ($x^2 = 26.69$, $p = 0.001$).

Proportion of subjects with pregnancy complications

Thirty-six(56.7%) of the teenagers compared to 26(43.3%) of the matured controls had ante-partum complications to a significant level ($x^2 = 5.52$, p -value = 0.018).

Pattern of pregnancy complications among the study and control groups

The common complications as shown in table 2 were anaemia in 15(20.8%) women, mal-presentations in 8(11.1%), ante-partum haemorrhage in 6(8.3%), intra-uterine growth restriction in 3(4.2%) women, pre-eclampsia in 2(2.8%), eclampsia in 1(1.4%), preterm labour in 3(4.2%) and premature rupture of the membranes in 3(4.2%) of the women. Those of the control group are as shown in the table.

Mode of delivery

Most of the pregnant teenagers 57(79.3%) and the adult controls 84(94.4%) had spontaneous vaginal delivery. The teenagers however, had more induced labours 7(9.2%), prolonged labour -8(11.1%) and assisted vaginal delivery 4(5.6%) compared to their adult counterparts. Also, a greater proportion of them 11(5.3%) had caesarean section compared to 4(4.5%) of their adult counterparts. There was no statistically significant difference in the proportion of the teenagers that had caesarean section compared to those in the control group ($x^2 = 0.23$, $p = 0.063$).

Indications for caesarean section between pregnant teenagers and the adult control.

Cephalo-pelvic disproportion accounted for majority of the caesarean sections 7(63.6%) in the teenage pregnant group while cephalo-pelvic disproportion and fetal distress accounted equally for the 4 cases of caesarean

section in the control group. Among the teenage pregnant women, most of the caesarean sections were done in the unbooked women 8(72.3%) and in the unmarried women 7(63.8%).

Post-partum complications

Greater proportion of the teenagers -59(81.9%) had post-partum complications compared to the adult women 64(71.9%), but the difference was not statistically significant ($\chi^2 = 2.22$, $p = 1.36$). perineal laceration and post-partum haemorrhage occurred more in the teenagers than in the adults. Majority (66.7%) of those with perineal laceration and post-partum haemorrhage in the study group were unbooked.

Comparison of fetal outcome of the teenagers and adults

The study group had more low birth babies 9(12.5%) than the control group 9(10.1%), but the difference was not statistically significant ($\chi^2 = 0.23$; $p = 0.632$). Also, the mean Apgar score of the infants delivered to women in the study group was 8.6 ± 1.4 , while the mean Apgar score of the infants delivered to women in the control group was 8.9 ± 1.9 ($\chi^2 = 1.11$, $p = 0.268$). There were 3(4.2%) peri-natal deaths with a peri-natal mortality rate of 42/1000. All the peri-natal deaths occurred in the

unbooked women in the study group. Two(66.7%) of the death were due to eclampsia while one was caused by severe maternal anaemia from untreated malaria. No maternal death occurred in both groups.

Complications versus marital status among the pregnant teenagers

Most of the complications occurred among the unmarried pregnant teenagers. Majority of the cases of anaemia 18(90%), ante-partum haemorrhage 5(83.3%), mal-presentations 6(75%) and low birth weight 6(66.7%) occurred in the unmarried pregnant teenagers.

Complications versus the booking status of the pregnant teenagers

Majority of the women in the study group that had anaemia in pregnancy 15(66.7%), mal-presentations 6(75%), episiotomies 26(71.8%), post-partum haemorrhage 6(75%) and low birth weight 8(88.9%) were unbooked for ante-natal care. All the women that had pre-eclampsia, eclampsia, ante-partum haemorrhage, intra-uterine growth restriction, preterm labour, premature rupture of the fetal membranes and peri-natal deaths were in the unbooked category.

Table 1: Obstetric characteristics of subjects

Obstetrics characteristics	Study N=72 (%)	Control N=89 (%)	X ²	P-value
Parity				
0	21 (29.2)	49 (55.1)	25.05	0.001*
1	46 (63.9)	20 (17.8)		
2	5 (6.9)	14 (15.7)		
Booking Status				
Booked	43 (59.7)	76 (85.4)	13.60	0.001*
Unbooked	29 (40.3)	13 (14.6)		
ANC attendance				
Yes	39 (54.2)	85 (95.5)	38.43	0.001*
No	33 (45.8)	4 (4.5)		
Booked(Knowledge of LMP)	N=43	N=76		
Sure	23 (53.5)	71 (93.4)	26.69	0.001*
Unsure	20 (46.5)	5 (6.6)		

*Statistically significant.

Table 2: Pattern of pregnancy complications among the study and control groups

Complications of pregnancy	Study Group		Control Group	
	N=72	(%)	N=89	(%)
Anaemia	15	(20.3)	6	(6.7)
Mal-presentation	8	(11.1)	4	(4.5)
APH	6	(8.3)	3	(3.4)
IUGR	3	(4.2)	3	(3.4)
Pre-eclampsia	2	(2.8)	1	(1.1)
Eclampsia	1	(1.4)	0	(0.0)
Preterm labour	3	(4.2)	2	(2.3)
Premature rupture of the membranes (PROM)	3	(4.2)	1	(1.1)
Nil	31	(43.1)	69	(77.5)

Table 3: Comparison of fetal outcome of the teenagers and adults

Fetal outcome	Study		Control	
	N=72	(%)	N=89	(%)
Low birth weight (<2.5kg)	9	(12.5)	9	(10.1)
Normal weight (2.5 - 4.0kg)	63	(87.5)	80	(89.9)
APGAR SCORE				
0-3	1	(50.0)	1	(1.1)
4-6	12	(75.0)	4	(4.5)
7-10	59	(41.8)	82	(94.4)
Peri-natal death				
Yes	3	(4.2)	0	(0.0)
No	69	(95.8)	89	(100.0)

Table 4: Complications versus booking status among pregnant teenagers

Complications	Booked		Unbooked		All Cases	
	N=43	(%)	N=29	(%)	N=72	(%)
Anaemia (PCV<30%)	5	(33.3)	10	(66.7)	15	(20.8)
APH	0	(0.0)	6	(100)	6	(8.3)
Pre-eclampsia	0	(0.0)	2	(100)	2	(2.7)
Eclampsia	0	(0.0)	1	(100)	1	(1.4)
IUGR	1	(33.3)	2	(66.7)	3	(4.2)
Mal-presentation	2	(25.0)	6	(75.0)	8	(11.1)
Preterm labour	0	(0.0)	3	(100)	3	(4.2)
Premature rupture of membrane	0	(0.0)	3	(100)	3	(4.2)
Episiotomy	11	(28.2)	26	(71.8)	37	(51.4)
Perineal laceration	4	(44.4)	5	(55.6)	9	(12.5)
Post-partum haemorrhage	2	(25.0)	6	(75.0)	8	(11.1)
Low birth weight	1	(11.1)	8	(88.9)	9	(12.5)
Peri-natal death	0	(0.0)	3	(100)	3	(4.2)

Table 5: Complications versus marital status among the pregnant teenagers (the study group).

Complications	Married		Unmarried		All cases	
	N=39	(%)	N=33	(%)	N=72	(%)
Anaemia	2	(13.3)	13	(86.7)	15	(20.8)
APH	1	(16.7)	5	(83.3)	6	(8.3)
Mal-presentation	2	(25.0)	6	(75.0)	8	(11.1)
Pre-eclampsia	0	(0.0)	2	(100.0)	2	(2.7)
Eclampsia	0	(0.0)	1	(100.0)	1	(1.4)
IUGR	0	(0.0)	3	(100.0)	3	(4.2)
Preterm labour	0	(0.0)	3	(100.0)	3	(4.2)
PROM	0	(0.0)	3	(100.0)	3	(4.2)
Post-partum haemorrhage	3	(37.5)	5	(62.5)	8	(11.1)
LBW	3	(33.0)	6	(66.7)	9	(12.5)
Peri-natal death	0	(0.0)	3	(100.0)	3	(4.2)

DISCUSSION

There is an increasing prevalence of teenage pregnancies in Nigeria. This is suggested by the prevalence rate of 2.7% found in this study, compared to a prevalence rate of 2.18% recorded previously in this centre¹⁴. This rate is higher than the 1.7% reported in Benin-City, south-west Nigeria¹⁵. However, higher teenage pregnancy rates of 11.8% and 9.8% have been reported in Sokoto⁵, Northern Nigeria and Uyo¹⁶, South-south Nigeria respectively. The relatively low rate reported from this study, compared to the other regions in Northern and Southern Nigeria may be due to the fact that the young girls in this environment show a high level of awareness of the problem of teenage pregnancy¹⁷. Another reason for this may be because majority of the deliveries in this environment took place in private hospitals, traditional birth homes and in maternities located in rural settings and so were not captured in this study. This is one of the drawbacks of this study, since most of these teenage women deliver in peripheral hospitals and maternity homes and present to referral facility only when they develop pregnancy or labour complications.

It has been noted that during the adolescent period, the risk of teenage pregnancy is high because of the inherent physiologic drive to increase sexuality and because of peer pressure influence^{11,12}. In sub-Saharan Africa, at least 50% of adolescents would have had sexual intercourse by the age of 18 years^{18,19}. Also, in developing countries, teenage pregnancy rate is quite high because of the socio-cultural practice of early marriage^{17,8} studies in Nigeria, Uganda, Zimbabwe, Kenya and Liberia have shown that the mean age of marriage is 18 years²⁰. The other factors known to increase the risk of teenage pregnancies include ignorance about contraceptive methods, low use and non-use of contraception^{9,10,1,18,19}. Additional factors include low socio-economic status of the teenagers and the fact that some parents drive some of the teenagers into early sexual activities for economic

gain⁷, absence of parental guidance^{7,18} and lack of access to reproductive health education are other factors that increase the risk of teenage pregnancy in sub-Saharan Africa¹⁹.

At this young age, one major challenge to delivery is their physical immaturity. This predisposes the teenagers to the risks of contracted pelvis, prolonged labour, obstructed labour and vesico-vaginal fistula⁷ these adversely affect their obstetric outcome as was seen in this study. Also, there is a marked association between young maternal age and low birth weight²⁶.

The fact that a significant proportion of the teenage pregnant mothers studied were unmarried, unbooked, lacked adequate education and received inadequate pre-natal care must have also contributed to the adverse obstetric outcome among them. Several reports have similarly shown that inadequate education,^{18,19,22,23} unbooked status,^{7,15,24} being unmarried¹⁶ and lack of pre-natal care^{23,25,26} adversely influence the obstetric outcome of teenage pregnancies. Absence of adequate education translates to a poor knowledge of their sexual and reproductive health rights, inability to attain economic independence and poor knowledge of contraception. All these have a direct bearing on the poor obstetric outcome in teenagers that are pregnant. Those that are unbooked for ante-natal care do not avail themselves of the benefit of ante-natal care and often present with nutritional anaemia²⁷.

It has been shown in many studies that good ante-natal care improves pregnancy outcomes^{8,10}. This finding makes it imperative that efforts should be directed at providing ante-natal care to this vulnerable group in an effort to minimize maternal and perinatal morbidity and mortality associated with teenage pregnancy. The single pregnant teenagers are more at risk of societal rejection and socio-economic deprivation¹⁸. Often times, they are forced into marriage. They can also resort to illegal

termination of these pregnancies. Interestingly, majority (63.9%) of the teenage pregnancies were primiparous compared with the matured mothers who were predominantly nulliparous (55.1%). This suggested that the teenagers must have commenced childbearing following early marriage (for those that were married). In the unmarried teenager group, they must have had a previous unwanted pregnancies following lack of parental care, societal rejection and limited access to contraception.

The findings from this study that teenage pregnancy is associated with a higher risk of anaemia, mal-presentations, ante-partum haemorrhage, intra-uterine growth restriction, pre-eclampsia and eclampsia, preterm labour and premature rupture of fetal membranes and low birth weight compared to older mothers, especially in the unbooked teenager, is consistent with other previous reports^{10,24,25,28}. Besides, the study have shown that teenage pregnancies were more likely to be complicated by induction and augmentation of labour, prolonged labour, Caesarean sections, assisted vaginal deliveries and peri-natal death compared to their adult counterparts. Although, more Caesarean sections were done in the study group compared to the control group, the difference in the two groups was not statistically significant ($\chi^2 = 23$; $p = 0.063$). This contrasted with the report from other studies that showed a statistically significant rate of caesarean sections among the teenage pregnancies compared to older women^{15,16}.

While cephalo-pelvic disproportion accounted for majority 7(63.6%) of the Caesarean sections in the teenage pregnancy group, cephalo-pelvic disproportion and fetal distress accounted equally for the four cases of Caesarean section in the control group. Among the teenage pregnant women, most of the Caesarean sections were done in the unbooked 8(72.3%) and in the unmarried women -7(63.8%).

The finding that cephalo-pelvic disproportion contributed greatly to the Caesarean sections among the women with teenage pregnancies is most likely due to the immaturity of their pelvic architecture¹. The study group had more low birth weight babies (12.5%) compared to the control group (10.1%), but the difference was not statistically significant ($\chi^2 = 0.23$; $p = 0.632$). Although, majority of the babies of teenage pregnant women and the control group had normal Apgar scores, more babies in the teenage group were asphyxiated. Thirteen (18.1%) babies in the study group and 5(5.6%) babies in the control group had need for resuscitation. The peri-natal mortality rate was 42/1000, this was not statistically significant ($\chi^2 = 3.78$, $p = 0.051$, $f = 0.087$) and all the peri-natal deaths occurred in the unbooked women in the study group. Two (66.7%) of the deaths were due to eclampsia while one was caused by

severe maternal anaemia from untreated malaria.

The peri-natal outcome was better in the booked teenage mothers compared to the unbooked teenage mothers. This outcome still emphasizes the tremendous benefit of ante-natal care to the peri-natal outcome in teenage pregnancies. No maternal death occurred in both groups.

There is no doubt that the reduction of teenage pregnancy and its attendant risks is feasible when we appreciate that the factors that adversely affect it such as unbooked status, low educational status, low socio-economic status and low contraception use in the teenage group can be improved upon. Legislations and strong advocacy against teenage marriages should be vigorously pursued. Provision of adequate parental and family support as well as pre-natal care while they are pregnant will help minimize the numerous complications commonly associated with teenage pregnancies. Our goal of preventing teenage pregnancy should be directed towards better education and more so in providing sex education to teenagers of both sexes. Increasing awareness to contraception, sexually transmitted diseases, as well as implications of pregnancy on the teenager are also important. The awareness program should be directed towards the entire nation, so as to prevent the rejection of a pregnant teenager. Providing timely help and guidance in seeking safe abortion by trained authorized medical practitioners is quite controversial because of ethical, religious and legal issues involved.

In conclusion, this study shows that the prevalence of teenage pregnancy is still increasing. There is a need to reverse this trend considering the higher incidence of anaemia, mal-presentations, ante-partum haemorrhage, low birth weight, eclampsia and Caesarean section rates among them. This can be achieved through improving the education of the girl-child, improving contraceptive use and sex education among teenagers, socio-economic empowerment, parental and social support and the provision of good ante-natal care to this highly vulnerable group.

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CONFLICT/DISCLOSURE OF INTEREST

We declare that we have no conflict of interest.

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