

Comparison of Pregnancy Outcome Between Teenage and Older Primigravidae in Jos University Teaching Hospital, Jos, North-Central Nigeria

J. T. Mutihir and W. E. Maduka

Department of Obstetrics and Gynaecology, Jos University Teaching Hospital, Jos, Nigeria

Reprint requests to: Dr. Josiah T. Mutihir, Department of Obstetrics and Gynaecology, Jos University Teaching Hospital, Jos, Plateau State, Nigeria. E-mail: jtmutihir01@yahoo.co.uk

Abstract

Background: Teenage pregnancy constitutes a major health and social problem the world over. The objectives of the study were to determine the incidence of teenage pregnancy and to compare the socio-demographic characteristics, booking/delivery ratio and pregnancy outcomes of teenagers and the control in Jos University Teaching Hospital.

Method: A prospective case-controlled study of the pregnancy outcome in 128 booked teenage primigravidae was compared with 633 older primigravidae aged 20-34 years (control group); who booked for antenatal care between January and December 2003 in Jos University Teaching Hospital (JUTH), Jos was conducted.

Result: The study showed teenage mothers to have significantly increased proportions of Hausa/Fulani ethnicity ($p=0.0000$), Muslim religion ($p=0.0000$), lower educational status ($p=0.0000$), lower income group ($p<0.05$), low birth weight babies ($p = 0.031$) and more likely to deliver outside of JUTH after booking ($p = 0.036$) compared to the control. There were no significant differences in the proportions of marital status ($p = 0.06$), first trimester booking ($p = 0.68$), preterm labour ($p = 0.55$), obstetric complications ($p>0.05$), obstetric interventions ($p = 0.78$), birth asphyxia ($p = 1.00$) and crude perinatal death rate ($p = 0.21$) compared to the control.

Conclusion: This study has demonstrated that teenage pregnancy even though it predisposes to complications of pregnancy and labour, but when teenagers receive good antenatal care, pregnancy and labour outcome is comparable to that of other age groups.

Key words: Teenage pregnancy, primigravidae, booked

Résumé

Introduction : La grossesse chez des jeunes constitue un risque grave pour la santé et un problème social dans le monde entier. Les objets de cette étude étaient de décider la fréquence de la grossesse des jeunes et de faire une comparaison des traits caractéristiques socio-démographique, proportion d'inscription/accouchement avec des résultats de la grossesse chez les jeunes et le contrôle au centre hospitalier universitaire de Jos.

Méthodes : Une étude en perspective d'un cas contrôlé du résultat de la grossesse chez 128 jeunes primigravidae inscrits a été comparé avec 633 primigravidae plus âgées, âgée de 20 – 34 (groupe témoin), qui se sont inscrits pour des soins anténatals entre janvier et décembre 2003 au centre hospitalier universitaire de Jos (CHUJ) était effectué.

Résultats : L'étude a montré des jeunes mères avec des proportions élevées d'ethnicité Haussa/Fulani ($P=0,0000$), statut d'enseignement inférieur ($P=0,0000$) tranche de salaire inférieure ($P=0,05$), bébé avec poids de naissance inférieure ($P=0,031$) et plus probablement d'accoucher à l'extérieur du CHUJ après l'inscription ($P=0,036$) par rapport au groupe témoin. Il n'y avait pas d'écart important dans la proportion de la situation de famille ($P=0,06$) inscription trimestre premier ($P=0,68$), accouchement avant terme ($P=0,55$) complications obstétriques ($P>0,05$) interventions obstétriques ($P=0,78$) asphyxie de natalité ($P=1,00$) et taux de mortalité grossière périnatale ($P=0,21$) par rapport au groupe témoin.

Conclusion : A travers cette étude on peut conclure que grossesse des jeunes bien qu'elle prédispose aux complications de la grossesse et d'accouchement, mais quand des jeunes reçoivent un très bon soins anténatals, le résultat de la grossesse et d'accouchement est semblable à ceux d'autre tranche d'âge.

Mot clés: La grossesse des jeunes, primigravidae, inscrits

Introduction

The cries of children delivering children are not only confined to the walls of the labour ward of our teaching hospital, but are also heard all over the various maternity homes of Nigeria, including the rural areas. They extend to far away places like Nairobi, Tanzania, the Caribbean countries and even to the developed countries of the world.¹

Teenage pregnancy constitutes a major health and social problem the world over.¹⁻³ Teenage pregnancy is said to occur when a woman aged between eleven and nineteen years becomes pregnant.⁴ The term teenage is virtually synonymous with adolescence, the latter emphasizing the physiological maturation that occurs during the teenage period.⁴ One in four girls in the world becomes a mother before the age of 19 years, and every year an excess of 14 million teenage girls give birth to a child, most of these young mothers living in non-industrialized countries.² Its incidence is particularly high in Africa where majority of the world's young people live.⁵ The age at first marriage in Nigeria varies among the different ethnic groups. In southern Nigeria the mainly Christian Yoruba and Igbo girls tend to marry in the 3rd decade of life while in northern Nigeria with mainly Muslim Hausa/Fulani tribes, early marriage before the age of 16 years is common.⁶ In some of the communities the culture forbids a girl from having her first menstrual period in her parents' home, hence female marriage before or slightly after puberty is not uncommon.⁶ The prevalence of teenage pregnancy in Nigeria is put at about 22%, and 25% of Nigerian girls marry before the age of 15 years.⁷ This contributes substantially to the high maternal and perinatal mortality in this region of the world.^{8,9}

Teenage pregnancy may be due to early marriage, which is culturally and religiously acceptable in some areas like northern Nigeria.^{4, 6} Other factors that are associated with teenage pregnancy include increasing societal permissiveness (which favours early sexual debut), the declining age of menarche, low socio-economic status, low educational and career aspiration, residence in a single parent home, poor family relationships and non-availability/non-utilization of contraceptive services.¹⁰⁻¹²

Owing to the rapid growth and development of the body, the teen age is normally a period of high nutritional needs. Pregnancy imposes additional nutritional demands on the growing body and may rapidly deplete already limited reserves.^{2,13} Teenage pregnancy is, therefore, a major health hazard, both to the mother and the fetus.¹⁻⁴ Most of the teenagers who become pregnant in Nigeria end up with unsafe induced abortion with its numerous complications.^{7,8} Those who do not terminate the pregnancies are prone to adverse pregnancy outcomes, such as anaemia, pregnancy induced hypertension, pre-eclampsia, eclampsia, preterm labour, foetopelvic disproportion, obstetric interventions, stillbirth and perinatal deaths.^{1-4,13} But studies in Nigeria and developed countries demonstrate that when teenagers receive good

antenatal care, pregnancy outcome tends to be good.^{2,14}

The aim of the study was to determine the incidence of teenage pregnancy, compare the socio-demographic characteristics of the teenagers and the control, and to compare pregnancy outcomes of the teenagers and the control.

Patients and Methods

The study was across-sectional comparative study. The period of study was January - December 2003. In order to eliminate the influence of parity and multiple pregnancies on birth weight of newborn, only primigravidae with singleton pregnancies were included in the study as index cases. A teenage primigravida in this study is that woman, pregnant for the first time, and aged 11 - 19 years that booked for antenatal care in the clinic. All pregnant primigravidae that booked for antenatal care during the period were recruited into the study. Patients unsure of their last menstrual period had dates estimated with ultrasound scanning antenatally, or with Dubowitz gestational age assessment, at delivery.

One hundred and twenty eight teenage primigravidae booked for antenatal care within the study period and were all recruited while 633 control (primigravidae aged 20-34 years) were also recruited. The elderly primigravidae and those with multiple pregnancies were excluded from the study. The study patients were followed up to delivery. The delivery records of those that delivered at the Jos University Teaching Hospital (JUTH), Jos, Nigeria, were entered into the pre-structured data form. At the end of the study 58 teenagers and 351 of the control delivered in JUTH. The data were analysed using Epi-Info, version 6 statistical software package. The Student t-test and chi-square tests were used to test for the significance of associations where appropriate. A p-value of less than 0.05 was considered significant.

Results

A total of 761 primigravidae were recruited into the study. This was made up of 128 (16.8%) teenagers and 633 (83.2%) controls. A total of 2,624 multiparous women of the teenagers, compared with 19.27% of the control. This was statistically significant ($X^2=35.6$; $p = 0.0000$). The Igbo and Yoruba ethnic groups had a statistically significant less teenagers (Table 1) compared with the control ($X^2=6.0$, $p = 0.014$; $X^2=6.9$, $p = 0.0085$, respectively.) For the other ethnic groups the difference between the teenagers compared to the control were not statistically significant ($P>0.05$).

Table 2 showed that 3.1% of teenage women attained tertiary education, compared with 34.1% of the control group. This is statistically significant ($X^2=49.7$; $p = 0.0000$). The women with only primary

education constitute, 32.8% of the teenage women compared with 13.0% of the control. This was statistically significant ($X^2=30.4$; $p = 0.0000$). There was no statistical difference between the two groups in women with no education and secondary education ($p>0.05$). Seventy-four (57.8%) of the teenagers were Muslims, which is higher than the 32.1% in the control. This was statistically significant ($X^2=30.4$; $p = 0.0000$). Fifty-four (42.2%) of teenagers were Christians, which is less than the 67.9% in the control. This was statistically significant ($X^2=30.4$; $p = 0.0000$).

Table 3 showed that whereas the teenagers had statistically significant ($X^2=25.6$, $p<0.05$) percentage of women as full-time housewives (64.8%), this was much lower than in the control (40.4%). The teenage women also had statistically significant fewer percentages of traders (4.7% versus 12.8%), ($X^2=6.9$, $p<0.05$) and civil servants (1.6% versus 15.5%), ($X^2=18.1$, $p<0.05$) than the control. There was no significant difference ($p>0.05$) between the teenagers and the control in terms of women who do handwork (10.9% versus 10.1%) students (18.0% versus 18.7%) and those who were applicants (0.0% versus 2.5%). There was no significant difference between the study group and the control group in terms of marital status. Married women constituted 96.1% of the teenagers and 98.6% of the control, ($p = 0.06$) while single women constituted 3.9% of the teenagers and 1.4% of the control, ($p = 0.06$).

Table 4 showed that 15.62% of teenagers as against 14.22% of the control booked in the first trimester. This was not statistically significant ($p = 0.68$). This was also the case in the 2nd trimester (59.38% versus 61.45%), ($p = 0.66$) and 3rd trimester (18.75% versus 21.01%), ($p = 0.57$). A total of 6.25% of teenagers were unsure of their last menstrual periods compared with 3.32% of the control. This was not statistically significant ($p = 0.11$).

Although there were differences in antenatal complications between teenagers and the control: anaemia ($p = 0.74$), eclampsia ($p = 1.00$), malaria ($p = 1.00$), pregnancy induced hypertension ($p = 0.86$), pre-eclampsia ($p = 0.53$), retroviral disease ($p = 1.00$), urinary tract infection ($p = 0.26$), others ($p = 0.21$),

none ($p = 0.15$); these were not statistically significant ($p>0.05$).

During the study period 3,552 deliveries were conducted in JUTH, and 409 were primigravidae with an incidence of 11.5%. Out of the 128 pregnant teenagers recruited only 58 delivered in JUTH. The teenage pregnancy incidence was 1.6% of total deliveries. Fifty-eight (45.3%) of the booked teenagers delivered in JUTH as against 55.4% of the booked Control group ($X^2=4.4$; $p = 0.036$). In addition, 54.7% of the booked teenagers delivered elsewhere (outside of JUTH) compared to 44.6% of the control ($X^2=0.036$; $p = 0.036$). The teenage pregnancy hospital delivery default rate was 54.7%. These variations were statistically significant.

While 87.9% of teenagers achieved spontaneous vaginal delivery, 12.1% required obstetrics interventions compared with 89.2% of spontaneous vaginal deliveries and 10.9% obstetrics interventions in the control ($p = 0.78$ and $p = 0.78$, respectively). Instrumental delivery was used in 5.2% of teenagers as compared with 2.6% in the control ($p = 0.28$). Four (6.9%) teenagers had caesarean section as compared with 29 (8.3%) in the control, ($p = 1.00$). The differences in modes of delivery were not statistically significant.

Birth asphyxia (Apgar score ≤ 7) amongst the babies born to teenagers was 3.45% compared with 3.13% in the control. The difference was not statistically significant ($p = 1.00$). Crude perinatal death rate of 35 per 1,000 was recorded in the study group compared with 20 per 1000 in the control. This was not statistically significant ($p = 0.21$). There was no maternal death amongst the two groups of women.

The teenagers had 17.2% of low birth weight babies (birth weight < 2.5 kg) compared with 8.3% in the control ($X^2=4.6$, $p = 0.031$). However, 82.8% of the babies of teenagers and 91.7% of the control, ($X^2=4.6$, $p = 0.031$), weighed 2.5 kg or more. These differences in weight were statistically significant. The mean birth-weight for teenagers was 2.9 kg, and 3.0 kg for the control.

The prematurity rate (gestational age of less than 37 completed weeks) was 13.8% in teenagers compared with 11.1% in the control. This was not statistically significant ($p = 0.55$).

Table 1: Distribution of the primigravida by ethnic group and educational level

Ethnic group	Teenagers (%) n = 128	Control (%) n = 633
Hausa/Fulani	56 (43.7)	122 (19.3) ¹
Igbo	8 (6.3)	90 (14.2)
Yoruba	6 (4.7)	81 (12.8) ²
Berom	17 (13.3)	82 (12.9)
Idoma	3 (2.3)	17 (2.7)
Others	38 (29.7)	241 (38.1)
Educational level		
Non- literate	5 (3.9)	10 (1.6)
Completed primar	42 (32.8)	82 (13.0) ³
Completed secondary	77 (60.2)	325 (53.3)
Tertiary	4 (3.1)	216 (34.1)

¹: $X^2=35.6$, $p = 0.0000$; $X^2 = 6.0$, $p = 0.014$, ² $X^2 = 6.9$, $p = 0.0085$, ³ $X^2 = 30.7$, $p = 0.0000$; $X^2 = 49.7$, $p = 0.0000$

Table 2: Age and occupation of the primigravida

Age	Trading ¹	Civil servants ²	Hand workers	Housewives ³	Students	Applicants
Teenagers	6 (4.7)	2 (1.6)	14 (10.9)	83 (64.8)	23 (18.0)	0 (0.0)
Control	81 (12.8)	98 (15.5)	64 (10.1)	256 (40.4)	118 (18.7)	16 (2.5)

¹: $\chi^2 = 6.9$, $p = 0.0086$; ²: $\chi^2 = 18$, $p = 0.00002$; ³: $\chi^2 = 25.6$, $p = 0.000004$

Table 3: Gestational age at booking, antenatal complications and mode of delivery

	Teenagers (%) n = 128	Control (%) n = 633
Gestational age at booking		
First trimester	20 (15.6)	90 (14.2)*
Second trimester	76 (59.4)	389 (61.5)*
Third trimester	24 (18.7)	133 (21.0)*
Unsure of dates	8 (6.3)	21 (3.3)*
Antenatal complications		
No complications	93 (72.66)	441 (69.67)*
Anaemia	8 (6.25)	35 (5.5)*
Eclampsia	0 (0.00)	1 (0.16)*
Malaria	0 (0.00)	2 (0.3)*
Pregnancy induced hypertension	8 (6.25)	37 (5.85)*
Pre-eclampsia	2 (1.56)	6 (0.95)*
Retroviral disease	1 (0.78)	9 (1.4)*
Urinary tract infection	3 (2.3)	7 (1.1)*
Others	13 (10.16)	95 (15.0)*
Mode of delivery	51 (87.9)	313 (89.2)*
Spontaneous vaginal delivery	4 (6.9)	29 (8.3)*
Instrumental vaginal delivery	3 (5.2)	9 (2.6)*

* $p > 0.05$

Table 4: Perinatal outcome of the infants

Outcome measures	Teenagers (%) n = 128	Control (%) n = 633
Birth asphyxia (Apgar score ≤ 7)	3.5	3.1
Low Birth weight ($< 2500g$)	17.2	8.3
Preterm deliveries (Gestational Age ≤ 37 weeks)	13.8	11.1
Admission into SCBU	15.6	12.1
Still birth rate	3.1	2.1

SCBU: special care baby unit

Discussion

Teenage mothers accounted for 1.6% of all deliveries, which is lower than that reported in Zaria,¹⁷ Sokoto,¹⁶ Lagos,¹ and in Port Harcourt.⁴ They reported higher incidences of 6%, 5%, 2.4% and 10%, respectively. The incidence was however slightly higher than the 1.3% reported in India.¹⁸ The lower incidence in this study compared to other Nigerian studies may be due to the fact that only teenagers who booked their pregnancies were studied. Additionally, unintended adolescent pregnancies are terminated clandestinely or are delivered at home or in private nursing homes under strict secrecy,^{1, 4, 7, 18} and finally, this may be because their study was much earlier than ours, and this might have decreased by now. All these factors

may have influenced the incidence of teenage pregnancy in this study.

The socio-demographic characteristics found to be statistically significant in the teenagers compared to the control from this study were women of the Hausa/Fulani ethnic group, Muslims, women of lower educational status and also women of lower income group. There was no significant difference between the marital status of the teenagers and the older primigravidae. These findings agree with previously published works.^{4, 6, 18} Majority (96.1%) of teenagers in this study was married and had legitimate pregnancies. This is not surprising in a setting, which allows early marriage before the age of 16 years.^{6, 19}

Though overall antenatal supervision was similar in both groups, early booking in first trimester was not

statistically significant between the teenagers and the control. This is in contrast to previous studies which showed that teenagers book later in pregnancy.^{1, 17, 18}

In the present report there was statistical difference between the teenagers and the older mothers in terms of delivery in the hospital. The ratio of those delivering in JUTH after booking in this facility was still statistically higher amongst the control compared to the teenagers. This was not a surprise as the older mothers (control) were found to be of both higher educational and income group compared to the teenagers in this study. This because studies have shown that the use of prenatal care services and of health care facilities for delivery increased significantly with increased education and socioeconomic status.²⁰ Also the lowest rates of prenatal clinic attendance and the highest rates of home delivery were found among women from the lowest educational and socioeconomic status groups.^{20,21}

The teenagers had more low-birth-weight babies, and was statistically significant. There were however, no significant differences in preterm delivery, mode of delivery, antenatal complications, birth asphyxia and still birth rate between teenage mothers and the older primigravida. While these were in accordance with some earlier reports^{14, 22-24} they were not completely in accordance with other reports^{1, 4,7,18} which looked at both booked and un-booked teenagers as against this study which looked strictly at booked teenagers and the control.

This study has shown that Hausa/Fulani ethnic group, Islamic religion, lower educational status, lower income groups and early marriage were associated with teenage pregnancy. Teenage pregnancy even though predisposes to complications of pregnancy and labour, when teenagers receive good antenatal care, pregnancy and labour outcome is comparable to other age groups.

It is recommended that girl-child education be encouraged. This has several advantages including increased use of antenatal care services and health care facilities for delivery and postnatal care, as well as delaying the age at marriage. Encouraging teenage women to embrace antenatal care in tertiary care delivery unit may hold the key to changing the prevailing outlook of pregnancy outcome in teenage pregnancies. Antenatal care needs to be widespread, easily accessible, better and adequately staffed with the right personnel. The services offered should be cheap and cost effective.

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