Age at First Birth and Pregnancy Outcomes in Makurdi, Nigeria

ABSTRACT

A retrospective study to determine the effect of age on women going through their first pregnancy and delivery at extremes of reproductive life over a five year period from September 2002 - August 2007 was carried out at the Federal Medical Centre, Makurdi, Nigeria.

Aims and objectives

The objective was to determine the problems associated with women undergoing their first pregnancy and delivery at extremes of reproductive life (less than 20 years and greater than 35 years). These were compared with those having their first pregnancy between 20 and 35 years of age.

Materials and method

Data was obtained from the Medical Records Department, Maternity Ward and Theatre registers.

Results

Nine thousand six hundred and forty one deliveries were conducted. Out of these, there were 2,331 primiparous births (24.2%). Out these primiparous births, there were 137 (5.8%) teenage mothers, 104 (4.5%) elderly primigravidae and 2090 (89.7%) ideal age primigravidae (who were also the control). The average maternal age at first birth was 25.6±3.1 years. Teenagers registered for their first antenatal visit later than the elderly parturients at 23 weeks versus 19 weeks respectively ($p<0.05$). The elderly primigravidae utilized antenatal services more than the teenagers and the ideal age primigravidae with booking status of 97.1% versus 62.8% and 75% respectively, while adequate antenatal attendance was 72.1% versus 21.2% and 47.0% respectively. Elderly primigravidae showed a higher incidence of preterm labour, low birth weight neonates and co-existing uterine fibroids compared to the other two subgroups, which was statistically significant. The frequency of pregnancy induced hypertension and eclampsia was not statistically different for the three subgroups.

Conclusion

The number of women having their first birth at the extremes of age is small in our environment. The obstetric outcome is good if utilization of antenatal care is adequate and labour properly conducted by skilled attendants.

Keywords: Age, first birth, pregnancy outcomes, Makurdi, Nigeria

1. INTRODUCTION

Age, as a factor, with other factors corrected for, can influence obstetric performance of women. [1], [2], [3] Women at extremes of reproductive life have increased feto-maternal risks; hence pregnancies in these women are considered high risk. [3], [4] In Sokoto, Nigeria an incidence of 12.4% teenage births was reported by Ekele and Audu. [5]

Teenage mothers have increased risk of developing complications, especially pre-eclampsia/eclampsia, malaria, anaemia and low-birth weight infants. [3], [4], [5] It is controversial whether biological or socio-economic inadequacies best explain these adverse pregnancy outcomes. [6], [7], [8], [9] It is a common belief that teenage mothers more frequently experience cephalo-pelvic disproportion as a result of incomplete development of the bony pelvis. In this regard they tend to have prolonged labour, with increased risk of caesarean and instrumental deliveries. [1], [2] Opinions are divided with respect to obstetric outcomes in these patients. [3] Three studies concluded that adolescents do not have increased risk for caesarean delivery when compared to older controls. [3], [4], [5]

In respect of obstetric performance, elderly primigravidae above 35 years, were more prone to numerous feto-maternal risks of chronic hypertension, fibroids, infertility, preterm delivery, caesarean section and a significantly increased rate of vaginal operative delivery complicating the pregnancy. [7], [8], [10] In addition, incidence of late fetal deaths, low birth weight, and infants with chromosomal abnormalities (especially small-arm chromosomes) increased with maternal age. Prysak and Larenz, [3], [11]

reported significant increase in medical and surgical complications of pregnancy. They found an increase in incidence of maternal bleeding from both placenta abruption and praevia; that is an incidence of 3.2% of placenta abruption in women aged 40 years or more compared with 0.4% for other women. [11] Mukasa [9] reported that the relative risk of delivery before 37 weeks in primigravidae over 35 years was increased fourfold compared with women aged 20 to 25 years (6.1% versus 1.5%). Infants weighing less than 2.5kg were born to 8.2% of older women compared with 3.6% of younger controls. Perinatal mortality in older women was increased substantially, and stillbirths principally accounted for the increase. There was increased infant mortality in older women. [9] Contributing factors responsible for the above maternal and fetal risks in elderly women included the natural process of ageing as well as dwindling chances of further pregnancies, which put more premium on their pregnancies. Their poor endurance and lower resistance to disease compared with those in their early twenties, mean this category of women require intervention much earlier. An antecedent history of infertility only serves to buttress this point. [7], [11], [12]

Most authors are of the view that pregnancies and deliveries at extremes of reproductive life if properly supervised, are safe with successful pregnancy outcomes and that the peri-natal morbidity and mortality rates are not higher than that in the control group. Births at these extremes of reproductive age have been well documented in developed countries. On the other hand, very few such studies have been reported in developing countries.

2. MATERIAL AND METHODS

A retrospective study of women having their first childbirth over a five year period between 1st September, 2002 and 31st August, 2007 was conducted at the Federal Medical Centre, Makurdi, Nigeria. It is a tertiary institution located in Makurdi the Benue State capital. Apart from providing maternal care it is also a referral facility for the North Central zone of

Nigeria as well as the neighbouring states of Kogi and Enugu. The study was commenced after approval by the institution's ethics committee.

Using the available records, data related to age, educational level, marital status, occupation, gestational age at booking, number of clinic visits, antenatal events and complications, gestational age at onset of labour, fetal presentation, labour complications and mode of delivery were extracted. Fetal outcomes such as birth weight, Apgar score and admission into the Special Care Baby Unit (SCBU) were also extracted.

The study groups were teenage primigravidae having their first birth at the age of 19 years or less and the elderly primigravidae aged 35 years and above. The control or ideal age group was the young primigravidae aged 20 – 34 years. Educated mothers were those with at least a senior secondary school certificate or the equivalent. Those with a lower qualification than this were classified as uneducated. Utilization of maternity services was categorized by the number of antenatal clinic visits into inadequate, adequate and inappropriate as visits less than 3 between 3-9 and greater than 10 respectively.

Data obtained was analysed using SPSS version 16 statistical software. A p-value < 0.05 was considered statistically significant.

3. RESULTS

During the period under review, there were 9,641 deliveries at the labour ward. Out of these, 2,331 (24.2%) were primigravidae. Of these primigravidae, teenage primigravidae constituted 137 (5.8%), elderly primigravidae were 104 (4.5%) while the ideal age group primigravidae (the control) were 2,090 (89.7%).

Women at the extremes of reproductive life (≤19 and ≥35) years were very few in this centre at 5.8% and 4.5% respectively. Majority of the women (89.7%) having their first childbirth were in the age group 20-34 years. Table 2 showed some selected maternal characteristic. The average maternal age at first birth was 25.6 years and the average number of antenatal visits by the expectant mother was 8.2.

There were more educated employed mothers amongst the elderly primigravidae than the teenage or control group (78.9%, 4.4% and 48.9% respectively). There was a significant association with the age of first birth and education (P = .001). The control group was more likely to be married at the time of their first pregnancy than the elderly primigravidae and the teenage primigravidae (96.5%, 91.3% and 51.8% respectively). There was a significant association between registering for antenatal care and age (P =.001). Table 4 showed that teenagers registered for their first antenatal visit later than the elderly primigravidae at 23 weeks versus 19 weeks respectively (P = .05). The elderly primigravidae utilized antenatal service more frequently than the teenagers or control group with a booking status of 97.1% compared to 62.8% and 75.0% respectively and attended adequately at 72.1% compared to 21.2% and 47.0% respectively.

In terms of complications Table 5 showed that the frequency of malaria, preterm labour and fibroids was higher in the elderly primigravida than the other two subgroups. The difference was statistically significant (P = .001). The rate of occurrence of pregnancy induced hypertension (PIH) and pre-eclampsia were similar for the 3 groups (8.0%, 9.6% and 8.9% respectively). Multiple pregnancies (twins) were observed in all the groups (5.8%, 4.8% and 3.9% respectively). The rate of spontaneous labour was highest amongst the teenagers (88.3%) compared with the young primigravidae and elderly primigravidae (81.5% and 62.5%

respectively). Preterm delivery was more frequent amongst the elderly primigravidae (44.2%). The incidence of breech /abnormal presentation in labour and elective caesarean section rate were significantly higher in the elderly primigravidae group (32.7%). However, the overall caesarean section rate for the teenagers and elderly primigravidae groups were essentially the same (21.9% versus 20.2%).

The fetal outcome by age group are depicted in Table 7. The incidence of low birth weight infants was higher amongst the elderly primigravidae (15.4%, $P = .001$). There were more stillbirths amongst the unbooked teenage primigravidae than the other two groups (1.5%, 0 .0% and 0.4% respectively). The elderly primigravidae had more depressed babies at birth (1 min Apgar scores 32.7%, 5. 1 % and 7.4% respectively) and more neonatal admissions to the Special Care Baby Unit.

Table 1: Age distribution of patients

Age (Years)	No. Of patient	Percentage (%)
≤ 19	137	5.8
20-34	2,090	89.7
≥ 35	104	4.5
Total	**2,331**	**100%**

133 **Table 2: Selected maternal socio-biological characteristics**

Socio-biological variable	Mean (SD)	Range
Age (years)	25.6 (3.1)	16 – 40
Height (Metres)	1.63 (0.05)	1.48 – 1.86
Booking Gestation (Weeks)	23.1 (6.5)	7 – 41
Antenatal Visits (Numbers)	8.2 (3.1)	1 – 15
Birth Weight (Kilogrammes)	2.89 (0.39)	1.0 – 5.4

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136 **Table 3: Maternal socio-biological variables by age bracket**

Social Variable	Teenage Primigravidae	Elderly Primigravidae	Control n (%)
Educated	19 (13.9)	89 (85.6)	1573 (75.3)
Employed	6 (4.4)	82 (78.9)	1021 (48.9)
Unemployed	13 (9.5)	7 (6.7)	552 (26.4)
Uneducated	118 (86.1)	15 (14.4)	517 (24.7)
Employed	10 (7.3)	12 (11.5)	305 (14.6)
Unemployed	108 (78.8)	3 (2.9)	212 (10.1)
Marital status			
Married	71 (51.8)	95 (91.3)	2017 (96.5)
Single	66 (48.2)	9 (8.7)	73 (3.5)

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Table 4: Pattern of Antenatal care utilization by the three groups of primigravidae

Antenatal Attendance	Teenage Primigravidae n (%)	Elderly Primigravidae n (%)	Control n (%)
Unbooked	51(37.2)	3 (2.9)	523 (25.0)
Booked	86 (62.8)	101 (97.1)	1567 (75.0)
Inadequate	53 (38.7)	23 (22.1)	441(21.1)
Adequate	29 (21.2)	75 (72.1)	983 (47.0)
Inappropriate	4 (2.9)	3 (2.9)	123 (5.9)
Booking gestational Age (weeks)	23	19	22

147 **Table 5: Antenatal complications stratified by age bracket**

Complications	Teenage primigravidae n(%)	Elderly Primigravidae n(%)	Control n(%)
Nil complications	34 (24.8)	19 (18.3)	639 (30.5)
Anaemia	21 (15.3)	5 (4.8)	306 (14.6)
Malaria	19 (18.3)	39 (37.5)	501 (24.0)
Urinary tract infection (UTI)	5 (3.6)	2 (1.9)	115 (5.5)
P.I.H/Pre – Eclampsia	11 (8.0)	10 (9.6)	187 (8.9)
Preterm Labour	0 (0.0)	17 (16.3)	79 (3.8)
Fibroids	0(0.0)	19 (18.3)	53 (2.5)
Threatened Abortion	1 (0.7)	6 (5.8)	57 (2.7)
Antepartum haemorrhage	1(0.7)	3 (2.9)	73 (3.5)
Postpartum haemorrhage	3 (2.2)	3 (2.9)	61 (2.9)
Multiple Pregnancy	8 (5.8)	5 (4.8)	81(3.9)

148 *Some patients had more than one complication

149 **Table 6: Gestational age, fetal presentation at onset of labour and mode of delivery by age**

Labour variable	Teenage primigravidae n = 137 (%)	Elderly primigravidae n =104 (%)	Control n = 2090 (%)
Gestation < 37weeks	21 (15.3)	46 (44.2)	327 (15.6)
37-40 weeks	87 (63.5)	54 (51.9)	1241 (59.4)
>40 weeks	29 (21.2)	3 (2.9)	381 (18.2)
Cephalic	101 (73.7)	70 (67.3)	1558 (73.6)
Breech /Abnormal	36 (26.3)	34 (32.7)	131 (6.3)
Spontaneous Labour	121 (88.3)	65 (62.5)	1703 (81.5)
Induced labour	15 (10.9)	13 (12. 5)	349 (16.7)
Labour durations (hours)	7.8	7.7	7.4
Spontaneous vaginal delivery	107 (78.1)	73 (70.2)	1249 (59.8)
Elective caesarean section	1 (0.7)	6 (5.8)	36 (1.7)
Emergency caesarean section	29 ((21.2)	15 (14.4)	522 (25.0)
Instrumental delivery	3 (2.2)	2 (1.9)	66 (3.2)
Breech delivery	0 (0.0)	3 (2.9)	37 (1.8)

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151 **Table 7: Comparison of fetal outcome by age bracket**

Fetal outcome	Teenage Primgravidae n(%)	Elderly Primgravidae n(%)	Control n(%)
Mean birthweight (Kg)	2.77	2.81	3.12
Birth weight (SD)	0.29	0.51	0.45
Birth weight			
Below 2.5 kg	4 (2.9)	16 (15.4)	71 (3.4)
2.5 – 2.9 kg	39 (28.5)	19 (18.3)	333 (15.9)
3.0 – 3.4 kg	79 (57.7)	57 (54.8)	1253 (60.0)
3.5 – 3.9 kg	14 (10.2)	9 (8.7)	356 (17.0)
>4kg	1 (0.7)	3 (2.9)	77 (3.7)
Apgar score			
1minute (<7)	7.(5.1)	34 (32.7)	154 (7.4)
5 minute (<7)	4 (2.9)	13 (12.5)	39 (1.9)
S C B U Admission	11 (8.0)	47 (45.2)	193 (9.2)
Fetal Abnormality	0 (0.0)	0 (0.0)	2 (0.1)
Stillbirth rate			
Booked	2 (1.5)	1 (1.0)	4 (0.2)
Unbooked	2 (1.5)	1 (0.0)	9(0.4)

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4. DISCUSSION

This study shows that the percentage of women having their first birth at the extremes of reproductive age is small. The average age at first birth was 25.6 ±3.1 years. This value was similar to the average age of first birth in the United Kingdom of 27.2 years in 1964. It was however smaller than the average age of 29.1 years in 2000. [3] The incidence of women who are less than 20 years (5.8 %) in Makurdi is low when compared with 12.4% of teenage primigravidae reported by Ekele and Audu in Sokoto, Northern Nigeria. [4] It was also lower than 10.26% of all deliveries occurring in women under the age of 20 years reported in India by Rita et al. [13] The low incidence of women aged 35 years or more is similar to the value of 0.42%, reported by Anate and Akeredolu. [7] It is however lower than those reported from other centers. [1], [3], [12]

The teenage primigravidae were socially and economically more disadvantaged as shown from the study results. They were less educated and unemployed. In this study too, the elderly primigravidae showed a higher incidence of malaria, preterm labour, and uterine fibroids compared to the other two groups, and this was statistically significant. A similar finding was reported by Susan and Turnbull [11] who found a value of 4.4% in elderly primigravidae compared with 0.0% among those aged 20-25 years. Another finding was that 18.3% of elderly primigravidae had uterine fibroids complicating their pregnancies compared to only 2.5% among the control group aged 20-34 years. This is similar to the finding observed by Anate and Akeredolu at Ilorin. [7] This may be due to the fact that delayed childbearing in the elderly primigravid group from any reason is itself a risk factor for developing uterine fibroids. The frequency of pregnancy-induced hypertension and eclampsia were not statistically different for the 3 groups and again this was in agreement with the finding of Anate and Akeredolu at Ilorin.

[7] Other significant labour and delivery variables found in the study were the high incidence of breech presentation in labour, and preterm delivery amongst the elderly primigravidae. Other workers have documented similar findings. [9], [12]

The high incidence of induction of labour among the elderly primigravidae compared with the other two groups may probably be due to the anxiety associated with their pregnancies stemming from the Obstetricians on the one hand and the couples on the other. The overall caesarean section rates for the teenage and elderly primigravidae was high (21.9% versus 20.2%) but essentially the same, though the component of elective caesarean section was significantly higher amongst the elderly primigravidae. The latter were readily offered a caesarean section. The early resort to caesarean section may be due to the fact that pregnancy is considered be high risk in this age group especially if there had been a preceding history of infertility. [8], [9], [14] Then again another reason may be that the chances of future childbirth may be dwindling. The above reasons also explain the high incidence of instrumental deliveries observed in this study and is similar to findings by other workers. [3], [8], [14]

The difference in stillbirth rates amongst the three groups became insignificant when adjustment was made for booking status. Growing older (age) has low correlation with education and does improve and adolescent's ability to participate in decision-making about her health. [15] With modern perinatal management, normal fetal outcomes are expected if patients present early to the labour ward. The perinatal mortality and stillbirths were very low amongst the elderly primigravidae in this study. This was contrary to the finding of high maternal and fetal risks in elderly primigravidae by some workers. [16], [17], [18]

The study showed that pregnancies and deliveries at the extreme ages of reproductive life, if properly conducted, are safe and that there is no significant added perinatal morbidity and mortality in teenage and elderly primigravidae compared with the younger ideal age group.

The mean age at first childbirth in this study of 26 years was high and together with other maternal characteristics such as height, was similar to findings in the developed world. The modern age at first birth in Japan in 1994 was estimated at 26.6 years. [17] The implication of this for reproductive performance is positive but it may slow down the dynamics of population growth.

The limitation of this study was that since it was a hospital based, the findings may not be representative of the general population and so further studies may need to be done. In addition, since the study was retrospective, some data may have been missed during the course of retrieval.

5. CONCLUSION

The number of women having their birth at the extremes of reproductive age was small in our environment. This study also found that, though preterm delivery continues to be a problem in these groups of patients, many of the hazards of pregnancies were no greater than those in the general population. The obstetric outcome was good if utilization of antenatal care was adequate and the labour properly supervised. This conclusion should aid the clinician in counseling and managing women at extremes of reproductive life.

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