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Causes of stillbirth in a community survey in Gombe State

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Abstract: *Background:* Perinatal mortality rate is very high in North Eastern Nigeria mainly due to a large number of still births. The causes and factors related need to be identified so as to proffer solutions with a view to improving obstetric practice and perinatal survival.

Objectives: To identify the causes and factors related to stillbirths in Dukku Local Government Area of Gombe state.

Methodology: A prospective study that was both hospital and community based, in which parturients were recruited in their last trimester and followed up till delivery. The fetal outcome was recorded and still birth rate calculated.

Results: Five hundred and two parturient mothers were recruited. They delivered a total of 520 babies, amongst whom were eighteen sets of twins; five hundred of these were live births. There were 20 still births, giving a stillbirth rate of 38.5/1000. Causes of stillbirth include unbooked and early pregnancies as well as deliveries unattended to by trained health personnel.

Conclusion: Lack of antenatal Care, home delivery and teenage pregnancy were important factors contributing to high still birth rate in Dukku LGA of Gombe State.

Key Words: Stillbirth, Perinatal, Mortality,

Introduction

Perinatal morbidity/mortality in the north-east region of Nigeria is high¹. This is due to ineffective health care services resulting in many stillbirths.² A stillbirth is a product of conception delivered after 28 weeks of gestation without any sign of life after separation from the mother.³ Among the many causes of stillbirths in developing countries are adverse environmental conditions, poorly treated maternal complications and harmful home practices.⁴⁻⁷ Most of the deliveries in developing countries still take place without skilled attendance.⁸ In fact, home deliveries attended to by traditional birth attendants (TBAs) account for up to 60-80% of all deliveries.⁹ In these nations, low socioeconomic background and lack of organized antenatal and perinatal healthcare systems contribute to the poor utilisation of health facilities.¹⁰ Women living in the rural areas in developing countries have less educational opportunities, uncontrolled fertility and too frequent pregnancies too early or too late in life, resulting in high perinatal mortality rate.¹¹ Mothers and infants in such countries are still caught in the cycle of illiteracy, poverty, malnutrition, infection and ill health, making them very vulnerable to morbidities and mortalities.¹² This means that maternal and child health strategies are either not accepted in affected countries or not yet available to those who need them most.^{13,14}

In North-eastern Nigeria, there are very fewer studies on perinatal mortality as compared to other parts of the country in particular^{15,16} and the rest of the world in general.^{17,18} Therefore this study was set out to identify the causes of stillbirths and also to determine the differences in the causes and rates of stillbirths at the community level and hospital based data in Dukku Local Government Area of Gombe state.

Subjects and Methods

Study Area: Dukku Local Government Area [LGA] is located in the Savannah belt of North-eastern Nigeria, between latitudes 10° 49'N and 10° 46'E, with a land area of 181,600 hectares.¹⁹ It has an estimated population of 207,658 as at March 2006, with 33% (68527) made of women of childbearing age (15–49years).²⁰ The LGA is divided into six health districts, namely: Dukku, Gombe-Abba, Hashidu, Jamari, Malala and Zange.²¹ Many of the communities have little or no access to maternal and child health care services because of poor road network.

The main occupations of the people are subsistence farming and trading; majority of the inhabitants are Muslims of Hausa/Fulani descent, while the minority are Bolewa, Tera and Kanuri. There is an uneven

distribution of the health facilities; each health district has only one maternity unit which is part of a Primary Health Centre (PHC) headed by a Nurse/Midwife, three to four Community Health Extension Workers (CHEWs) and five to six unskilled workers serving as support staff.

Study Procedure: This was a prospective study carried out between January and September 2005. It was both hospital- and community-based. Two of the six Health Districts in Dukku LGA, namely Dukku and Hashidu, were selected by random sampling. The nature of the study was explained in the local dialect weekly, to all pregnant women attending the antenatal clinics as well as those who went to Traditional Birth Attendants' homes. All the women needed to obtain permission from their spouses before giving their consent which was indicated by appending their signatures/thumbprints on the proforma. The General Hospital, the Primary Health Centre and the Town Maternity in Dukku district as well as the Comprehensive Health Centre in Hashidu and the traditional birthing places (run by TBAs who were registered with the PHC Department of the LGA) were used as recruitment and study centres.

All booked pregnant women who lived in the selected districts, who were in their last trimester and gave their consent, as well as those who were not booked but gave their consent within 24 hours of delivery were recruited for the study. The socio-economic status of the study participants was determined using the classification by Olusanya et al.²² Biodata were obtained and recorded, measurements were also taken of maternal height, weight, blood pressure and fundal height. Gestational age estimation was largely based on uterine size and lunar calendar at the first hospital visit. The mothers' blood was analyzed for haemoglobin concentration and urinalysis carried out using Multistiks[®]. Those women enrolled in their 3rd trimester of pregnancy were followed up fortnightly and similar procedures repeated until delivery. Those who booked elsewhere or who were not booked but delivered within the two health districts were also enrolled within 24 hours of delivery if they consented to participate in the study.

All stillbirths were examined within twenty four hours of delivery by the principal researcher. A note was made of whether the stillbirth was fresh or macerated; the presence or absence of dysmorphic features and gross malformations was also recorded on the proforma. However most stillbirths were buried almost immediately and relevant information could only be obtained from the nurse/midwife or the TBAs. This information was subsequently recorded on the proforma too.

Data entry and analysis

Data was recorded on SPSS Version[®] 15 spreadsheet and analysed using Epi-info 2002. Chi-square test was used and statistical significance was set at a p-value of <0.05. A multivariate analysis was carried out to eliminate confounding factors.

Results

Five hundred and two parturients were recruited; they delivered 520 babies, amongst whom were 18 sets of twins. One hundred and eighty five (37.0%) deliveries took place in health facilities and 317 (63%) took place either in family homes or Traditional Birth Attendants' place. Five hundred of these deliveries were live births; there were 20 still births, giving a stillbirth rate of 38.5/1000. There was no delivery in a Church, Mosque or *en route* the hospital. Table 1 shows the demographic profiles of the parturients.

Table 1: Socio-demographic profiles of the 502 parturients

Variable	Number of Parturients (%)
<i>Age group (years)</i>	
<20	68 (14.0)
20-35	400 (80.0)
>35	34 (6.0)
<i>Parity</i>	
Nulliparous	108 (22.0)
Para 1-4	241 (48.0)
Para 5 and above	153 (30.0)
<i>Socioeconomic Status</i>	
Upper	32 (6.0)
Middle	70 (14.0)
Lower	400 (80.0)
<i>Place of Delivery</i>	
Hospital	185 (37.0)
Home	200 (40.0)
TBA	117 (23.0)

Table 2 shows that the stillbirth rate among teenagers and those 35 years and above was significantly higher than for the age group of 20-35 years ($p = 0.0001$). Also, booked mothers were significantly less likely to have stillbirths than non-booked ones ($p = 0.007$), while those who had a history of previous stillbirths and those with prolonged labour were respectively more likely to have stillbirths than their counterparts ($p = 0.003$ in each case). Six hospital deliveries resulted in stillbirths compared to 14 deliveries which occurred outside orthodox facilities. This difference was not statistically significant (3.2% versus 4.4%, $\chi^2 = 0.042$, $p > 0.5$).

The relationship between maternal parity and stillbirth is represented graphically in Fig 1. It can be seen that there is an inverse relationship between parity and number of stillbirths; the lower the parity, the higher the still birth rate.

Fig 1: relationship between maternal parity and stillbirths

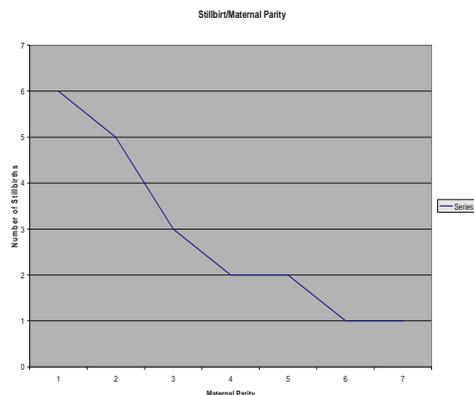


Table 2: Obstetric factors associated with stillbirths

Still Births	Live Births no (%)	Total no (%)	Factors no (%)
<i>Age (yrs)</i>			
<20 or >35	14 (14.0)	88 (86.0)	102 (100.0)
20 to 35	6 (1.5)	394 (98.5)	400 (100.0)
$\chi^2 = 31.69$, RR = 9.15, p-value = 0.0001			
<i>Booking Status</i>			
Unbooked	16 (6.0)	238 (94.0)	254 (100.0)
Booked	4 (1.6)	244 (98.4)	248 (100.0)
$\chi^2 = 7.20$, RR = 3.91, p-value = 0.007			
<i>History of past stillbirths</i>			
No	6 (12.0)	45 (88.0)	51 (100.0)
Yes	14 (3.0)	437 (97.0)	451 (100.0)
$\chi^2 = 8.98$, RR = 3.79, p-value = 0.003			
<i>Labour duration</i>			
Prolonged	10 (8.5)	107 (91.5)	117 (100.0)
Normal	10 (3.0)	375 (97.0)	385 (100.0)
$\chi^2 = 8.30$, RR = 3.79, p-value = 0.003			

Discussion

The stillbirth Rate in Dukku LGA was 38.5/1000 births; this is higher than other studies,^{4,17,18} which are strictly hospital based. The findings are however similar to hospital based reports from other parts of Nigeria^{6,7} as well as from outside Nigeria^{11,13}. These similarities may be attributed to similar socio-economic conditions and the fact that those studies outside Nigeria were community based. Maternal factors significantly associated with still birth in this study are teenage pregnancy, lack of ante-natal care, prolonged labour and history of previous stillbirths. Fetal factors associated with stillbirth included low birth weight and multiple fetuses. This also agrees with other reports in Nigeria,^{15,16} and Tanzania.¹⁴ However the Nigerian studies were all carried out in tertiary health centres in

urban settings with more health personnel available, who did not consider the other birthing places. The result of this study is also much higher than the WHO estimated average for Sub-Saharan Africa, which is 30/1000,¹ and about ten times higher than what is reported for the developed nations.^{17,18} This may be due to differences in settings and environments even in Africa with more awareness and available facilities in developed nations. Such facilities need to be developed and/or improved generally in the area of this study. The association between teenage pregnancy and high stillbirthrate as seen in this study may be due to too early marriages as well as unavailability of family planning facilities until when the parturients are physically matured for parturition. Lack of antenatal care may be an indication of lack of facilities and awareness of the importance of that. These may all result in high stillbirth rates with a negative impact on the affected women as well as their families and the community in general. There is therefore a need to improve both the availability and awareness of maternal and child health facilities in the communities so that members can avail themselves of these services.

Conclusion

Adolescent pregnancy and parturition was very common in the study area. This is associated with lack of antenatal care and prolonged labour which may explain the high stillbirth rate. Hospital based studies report a lower rate of perinatal mortality than community based studies of this type.

Conflict of interest: None
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