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T. Olowonyo

S. Oshin

Iyabo Obasanjo

William & Mary, iobasanjo@wm.edu

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Some Factors Associated with Low Birthweight in Ogun State, Nigeria

T. Olowonyo¹, S. Oshin², and Iyabo Obasanjo-Bello³

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Summary

The data for this study was extracted from the Health Information reported by the health facilities in the state to the State Ministry of Health. The purpose of the study was to determine the incidence of low birth weight in the State and some factors associated with it. The study showed the incidence to be 11.4%. Low birth weight was also found to be commoner in females infants than males infants ($P<0.05$), commoner in teenagers ($P<0.05$), more frequent in the private health facilities compared with the public facilities ($P<0.05$) and lowest in births occurring at the primary health care facilities. Low birth weight in this report was associated with non attendance of Antenatal Care ($p<0.001$). No association was found in this study between low birth weight and parity. We concluded that there are low cost strategies that can be used to prevent occurrence of low birth weight newborns such as encouraging attendance of Antenatal Care and discouraging teenage pregnancy.

Introduction

Low birth weight (LBW), defined as birth weight less than 2.5kg (1) is known to contribute negatively to neonatal and infant survival (2,3,4). Recent report shows that more than 95% of low birth weight are recorded from developing countries with Asia, Sub-Sahara Africa and Latin America accounting for 70%, 14% and 9% respectively and rates varying from 16.5% in many developing countries to rates as low as 3% in the developed world (5) Previous studies in Ibadan, South-West Nigeria and Jos, North Central Nigeria gave incidence of 8.2% and 12.2% respectively (6,7). Efforts to reduce the very high infant mortality rate in Nigeria as part of the Millennium Development Goals cannot be complete without putting in place strategies to reduce the incidence of low birth weight. This study therefore aims at documenting the baseline incidence of LBW and some associated factors in Ogun State with a view to determining appropriate intervention programs.

Methods

This study is based on data submitted to the Ministry of Health from January to December 2004. Data was collected from the health facilities in the state - Primary, Secondary, Tertiary and Private. This was recorded in the "Ogun State Health Data Form" which was designed to collect basic health information for the state. Onsite data collection was regularly made to the reporting health facilities to ensure the reliability of the reported data for the purpose of this study. Information obtained from the form included for use in this report are :

1. total number of live births

2. total number of low birth weight babies.

These were further stratified into the levels of health care where the baby was delivered.

Other information obtained included maternal age and parity. The data obtained was analyzed using rates, ratios, percentages and chi-square test. P value of less than 0.05 ($p<0.05$) was regarded as statistically significant.

Limitations of the study: We feel the categorisation of low birth weight into prematurity and small for gestational age is not likely to be reliable in this study as some health workers at the primary and private health facilities may have some difficulties in the differentiation.

Results

Not all the Health facilities in the State reported their data to the Ministry of Health during the period under study. The overall reporting rate from all the facilities was 50.2% with the least (18.6%) reporting from the private health care centers and 100% from primary and tertiary health care facilities while the reporting rate from the secondary health institutions was 88%.

In this study, as shown in table I there were 20,652 live births from the reporting centers out of which 2,350 (11.4%) weighed less than 2.5kg. Forty six (46%) of total live births in the state occurred in the Primary health care facilities whilst 35%, 17% and 2% occurred in the Private, Secondary and Tertiary healthcare centers respectively. Low birth weight rate was lowest in the Primary healthcare facilities (5.6%) and highest in the Privately owned healthcare centers with a value 17.7%.

The male to female ratio for the babies weighing 2.5kg and above was 1.03 while that for the low birth weight babies was 0.90. This was found to be statistically significant ($P<0.005$) (table 2). Table 3 shows there is a significant difference between the incidence of LBW babies

¹Ogun State Hospitals Management Board
Oke-Lewo, Abeokuta
Ogun State, Nigeria.

²Pioneer Associates Lagos, Nigeria.

³Ministry of Health, Oke-Lewo,
Abeokuta Ogun State, Nigeria.

Table 1 Live births at facility levels

Facilities	Total Live Births (%)	M/F	L.B.W. (%)	M/F	L.B.W. Rate(%)
Primary Health care	9492 (46)	1.05	528 (22.5)	0.94	5.56
Secondary Healthcare	3529 (17)	1.07	497 (214)	0.84	14.08
Tertiary Healthcare	377 (2)	0.9	44 (1.9)	1.00	11.67
Private Healthcare	7254 (35)	0.95	128 (54.5)	0.91	17.66
Total	20,652 (100)	1.02	2,350 (100)	0.90	11.38

Table 2 Comparison of Weight and sex of newborn babies

Sex	LBW (Weight below 2.5kg)	Weight (2.5kg and above)	Total
Male	1114	9293	10407
Female	1236	9009	10245
Total	2350	18302	20652

$\chi^2 = 9.46$ $P < 0.005$

Table 3 Comparison of birth weights in Public and Private health facilities in Ogun State

Facility	LBW- (weight below 2.5kg)	Weight 2.5kg & above	Total	LBW incidence (%)
Public Health facilities	1069	12329	13398	8
Private Health facilities	1281	5973	7254	17.7
Total	2350	18302	20652	11.4

$\chi^2 = 437.4$ $P < 0.005$

in the public and private hospitals ($p < .005$)

In table 4, of the total births, 13,264(64%) had ANC been attended to at antenatal clinic and 7,388(36%) had none. Also of the 2,350 LBW newborn babies there was ANC attendance in only 997 (42.4%) of them. There is a significant difference between birth weight of mothers that attended ANC and those that did not attend ($P < .001$).

Of the 20,652 low births, 1239 of the mothers (6%) were teenagers. Also low birth weight occurred in 16% of the teenagers and in 11% of those who are 20 years and above. This was found to be statistically significant ($P < .001$) (Table 5).

In table 4 while LBW occur in 11.3% of mothers of parity 1 - 4, the corresponding value for mothers above parity 4 is just 11.4%. This was not statistically significant ($P > 0.05$).

Discussion

The weight of the newborn baby is a potent indicator of the well being of the mother and the overall health status

Table 4 Comparison of Birth weights with Antenatal Care (ANC) status

ANC Status	LBW	Weights 2.5kgs and above	Total
ANC	997	12,267	13,264
No ANC	1,353	6,035	7,388
Total	2,350	18,302	20,652

$\chi^2 = 548$ $P < 0.001$

Table 5 Comparison of mother's age with birth weight

Age in (yrs)	LBW	Weights 2.5kgs and above	Total
Below 20	197	1,042	1,239
20 and above	2,153	17,260	19,413
Total	2,350	18,302	20,652

$\chi^2 = 26.6$ $P < 0.001$

Table 6 Birth weight versus parity

Parity	LBW	Weights 2.5kgs and above	Total
1 - 4	1,278	9,981	11,259
>4	1,072	8,321	9,393
Total	2,350	18,302	20,652

$P < .05$

of the newborn. It is an indication of the immediate survival chances, long-term morbidity and psychosocial development of the baby. As simple as the weighing procedure is, about two third of newborn babies in Sub-Saharan Africa (5) are not weighed at birth as majority do not deliver in health facilities (8) This data is therefore only representative of births in health facilities and not the entire population. In this hospital-based study, the LBW rate is 11.4%.. This rate is not quite different from the 12.2% reported by Wright (7) from a teaching hospital setting in the Northern part of Nigeria” Our own value is only slightly higher than the 8.2% reported by Dawodu et al (6) in the study involving six major health centers in the city of Ibadan, South West Nigeria. It is generally known that LBW babies are prone to more diseases such as birth asphyxia, congenital anomalies, cerebral palsy, learning disabilities and attention disorders affecting their performance in schools. Recent epidemiological data (2) have linked low birth weight with the risk of the development of diseases such as high blood pressure, obesity and diabetes in adulthood among others. Although the present study did not address the causes of low birth weight in Ogun State, it is most likely the predisposing factors / causes reported by previous workers (6,7) in environments similar to ours. The predisposing factors/ causes reported in the developing countries include poor maternal nutritional status prior to conception, poor nutrition during pregnancy, short stature, multiple pregnancy, medical illness in pregnancy and primigravida. Other factors such

as illiteracy and low socio-economic status and poverty could be the causative factor for the poor nutrition with the attendant immediate causal relationships with LBW. The lifestyle of the pregnant woman such as smoking and use of drugs also play major roles in the size of a baby at birth (9). The rate of LBW is higher in mothers who did not attend Antenatal Care (ANC) before delivery ($p < 0.001$) in this report. The high degree of significance indicates that ANC attendance is a major intervention that reduces risk of LBW babies in Ogun State. This finding is in agreement with the reports of several workers (7-10-12) who observed that inadequate or lack of antenatal care showed significant association with low birth weight. This however is at variance with the reports of Madani (2) and Kalofono (13) whose studies showed that neither antenatal care nor the number of antenatal visits correlated with foetal weight at birth. In addition to providing medical care, ANC often include comprehensive education, social and nutritional services. Antenatal Clinic Attendance could therefore present an opportunity to detect high risk pregnancy and other deleterious factors earlier mentioned and necessary precautions could be instituted in a timely manner before birth.

Mothers attending ANC are taught what to eat and how to live to keep their babies healthy.

This report shows that low birth weight occurs more commonly in female newborns compared with male ($P < 0.05$). This is at variance with the findings of Wright (7) who did not report any significant difference. This finding may not be too surprising as female generally weigh less than male at birth.

Whilst teenage pregnancy occurred in 6% of this report, this study also showed that low birth weight is commoner in teenagers compared with women above 20 years. This is in keeping with earlier reports Feleke (14, 15). Simple measures in preventing teenage pregnancy will therefore go a long way in reducing the incidence of LBW in our environment.

Whilst Feleke (14) reported increase incidence of LBW in primips, high parity tended to predispose to low birth in the report of Joshi (15). However, in our study there appeared to be no association between parity and low birth weight.

The rate of LBW is lowest in the primary healthcare centre in this report. This may be due to the fact that more deliveries occur at the primary health care facilities and that high risk pregnancies more often give birth at higher level health facilities. This report also indicated that the rate of LBW is higher at private health facilities than the public health facilities ($P < 0.005$). The reason for this is not known but it could be related to our finding, which showed that in the private health facilities 47% of LBW newborns did not have the benefit of ANC while the corresponding value for the public health facility was 31%.

Conclusion

The incidence of LBW in Ogun State is still unacceptably high. This study showed that attendance of ANC by would-be mothers could reduce this incidence. Strategies aimed at encouraging ANC attendance such as public information dissemination on television and radio and use of instructive information, education and communication materials is essential. Other strategies include giving incentives such as free distribution of Insecticides Treated Nets to pregnant women attending antenatal clinic which will not only assist with malaria prevention during pregnancy but also act as incentives for antenatal visit and making ANC attendance free of charge. The results of this report was the basis of the recent institution of free ANC attendance for pregnant women attending 8 secondary health facilities in the state. Encouraging family planning and sex education will go a long way in reducing teenage pregnancy in the community. To encourage the use of public health facilities issues such as the attitudes of health workers to patients, dearth of health personnel, long waiting time in the health facilities, the state of the physical structure and environment of such facilities and the physical accessibility of the facilities among others need to be attended to.

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