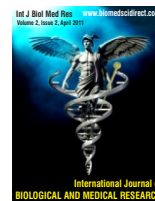


Contents lists available at BioMedSciDirect Publications

## International Journal of Biological & Medical Research

Journal homepage: [www.biomedscidirect.com](http://www.biomedscidirect.com)



### Original article

## Term birth weight and sex ratio of offspring of a nigerian obstetric population

Swende T. Z.

Consultant Obstetrician and Gynaecological surgeon, Department of Obstetrics and Gynaecology, Benue State University/Federal Medical Centre, Makurdi, Nigeria

#### ARTICLE INFO

##### Keywords:

Birth weight  
Macrosomia  
Sex ratio  
Nigeria

#### ABSTRACT

**Background:** Birth weight varies from one population to another and is an important variable influencing neonatal morbidity and mortality. This study was done to determine the mean birth weight, incidence of low birth weight and macrosomia, and sex ratio of live term deliveries at the Federal Medical Centre Makurdi, Nigeria. **Method:** This was a retrospective analysis of live term deliveries between January 2003 and December 2008 at the Federal Medical Centre, Makurdi, Nigeria. **Results:** There were 9381 deliveries during the study period. The mean birth weight was  $3.08 \pm 0.61$  Kg for all sexes. Low birth weight babies accounted for 11.16% of the study population while 6.05% of babies were macrosomic. Males weighed more than females though this was not statistically significant. The sex ratio for all deliveries was 108. **Conclusion:** The mean birth weight and incidence of low birth weight among newborns in Makurdi are similar to those reported elsewhere in Nigeria. The incidence of macrosomia at birth is however higher than earlier reports in Nigeria. The sex ratio is not only similar to those of other Nigerian studies but is comparable to findings in Caucasians.

© Copyright 2011 BioMedSciDirect Publications IJBMR -ISSN: 0976-6685. All rights reserved.

### 1. Introduction

Birth weight is one of several anthropometric measurements performed by the attending accoucheur or midwife on all new born infants in delivery rooms the world over [1]. It is generally recognized that children born in developing countries have lower birth weights and higher perinatal mortality rates than those born in developed countries [2]. Low birth weight babies, defined as those weighing less than 2.5 Kg [3], contribute greatly to perinatal death as is the case elsewhere [4]. Similarly, macrosomic babies defined as those weighing greater than 4 Kg at birth [5], are well recognized as high risk babies requiring neonatal intensive care [6].

Birth weights are judiciously taken and recorded in order to help identify low birth weight babies as well as macrosomic babies who are referred to paediatricians for further management [1,5]. Babies of normal birth weight with no obvious problems on gross examination are not referred but discharged home with the mother within 24 hours of birth [1].

The sex ratio is defined as the number of males per 100 females [7]. It has been generally asserted that Black populations have a lower sex ratio than Caucasian populations [8]. Midwives have performed the measurement of birth weight and documented the sex of newborns for years but data has not been documented in this environment. This informs the decision to examine the mean birth weight and sex ratio of newborn babies in Makurdi, Nigeria.

### 2. Methods

This was a retrospective observational study. All consecutive deliveries over an eight-year period between January 2003 and December 2008 at the Federal Medical Centre Makurdi, Nigeria were included in the study. The birth weights and sex of all newborns during the study period were extracted from the delivery registers and analysed using the Statistical Package for Social Sciences (SPSS) software version 16. All weights were measured using a Waymaster 13 Kg  $\times$  50 grams weighing scale. Babies weighing less than 2.5 Kg were designated low birth weight [3], while those weighing more than 4.0 Kg were considered macrosomic [5]. The sex ratio was defined as the number of males per 100 females [7].

\* Corresponding Author : Dr. Terrumun Z. Swende  
P.O.Box 973, Makurdi - 970001, Benue State - Nigeria  
Mobile: +234(0)8065720059  
E mail : [swendetz@yahoo.com](mailto:swendetz@yahoo.com)

### 3.Results

During the eight-year period of review between January 2000 and December 2007, there were 9381 deliveries. The birth weight of infants ranged from 0.6 – 5.8 Kg. The mean birth weight in the series was  $3.08 \pm 0.63$  Kg. The mean birth weight for male babies was  $3.12 \pm 0.64$  kg, while that of female babies was  $3.04 \pm 0.61$  kg. There was no statistical difference ( $p > 0.05$ ) in the mean birth weight of both sexes. One thousand and forty seven (11.16%) babies had low birth weight. Five hundred and sixty eight (6.05%) babies were macrosomic. Of the 9381 babies during the period of review, 4872 were male while 4509 were female. The sex ratio for the series was thus calculated to be 108.

### 4.Discussion

Fetal birth weight has been recognized as a sensitive index of the state of health in a population of newborns [2]. The mean birth weight of babies delivered during the the period of review was  $3.08 \pm 0.63$  Kg. Harrison et al working in Zaria northern Nigeria reported the mean birth weight in all singleton births to be 3.08 Kg [4]. The mean birth weight in this study was higher than 2.89 Kg reported at Nnewi, in Anambra state, Nigeria [9], and 2.8 Kg reported in an Indian study [10]. It was however lower than 3.1 Kg1 and 3.167 Kg [11] reported in Jos and Ilorin respectively, both in north central Nigeria. Furthermore it was much lower than the 3.2 Kg reported in Lagos [2].

The mean birth weight of male babies was higher compared to female babies in keeping with earlier reports [1,2,11,12-14]. Low birth weight infants accounted for 11.16% of deliveries in this study. This was lower than 12.2% [15] and 13.2% [1] reported in Jos north central Nigeria. It was however higher than 10.0% reported in southern Nigeria [16,17]. The study also revealed that 6.05% of babies were macrosomic. This was much higher than 2.9% and 1.3% reported in Ilorin [5] and Benin – City [18] respectively. The higher cut off point of 4.2 Kg for fetal macrosomia in the later study may have contributed to the lower incidence. The sex ratio from this series was found to be 108. This finding was in agreement with the sex ratio of 109 reported in Ibadan [8] but much less than 113 reported in Jos [1]. The observed variation in sex ratio in different parts of Nigeria is not surprising as sex ratio is documented to vary dramatically in different parts of the same country [19]. This review like several earlier studies [1,8,20,21], faults the previously held view that the sex ratio of Black American and Black Africans was lower (104) than that of Caucasians reported to be 107 [8]. The reason why the sex ratio appears to favour the male infant at birth worldwide is however unclear [1]. Even though this study did not consider the effect of multiple pregnancy on sex ratio, other researchers have documented evidence of higher gonadotrophin levels in mothers of multiple births than their single birth counterparts [22]. James suggested that a high gonadotrophin level at conception is associated with birth of females [23]. It follows that a lower sex ratio would be expected among multiple births than singletons [8].

In conclusion, the mean birth weight and incidence of low birth weight among newborns in Makurdi, north central Nigeria was similar to previous reports in Nigeria. The incidence of macrosomia at birth was however higher than earlier reports in Nigeria. The sex ratio of babies was found to be consistent with earlier studies in Nigeria and comparable with findings in Caucasians.

### 5.References

- [1] Mutihir JT, Pam SD. Anthropometric and other assessment indices of the newborn in Jos, Nigeria. *Ann African Med.* 2006; 5(4): 192 – 196.
- [2] Nnatu S. Epidemiology of fetal birth weight in Nigeria. *Trop J Obstet Gynaecol.* 1990; 8: 31 – 34.
- [3] Chiswick ML. Commentary on current World Health Organization definitions used in perinatal statistics. *Arch Dis Child.* 1986; 61: 708 – 710.
- [4] Harrison KA, Lister UG, Rossiter CE, Chong H. Perinatal mortality. *BJOG.* 1985; Suppl 5: 86 – 99
- [5] Adetoro OO, Adedoyin MA. Maternal mortality and perinatal outcome for big babies. *Trop J Obstet Gynaecol.* 1991; 9: 41 – 43
- [6] Effiong EI. Pregnancy in the overweight Nigerian. *BJOG.* 1975; 82: 903
- [7] Hytten FE. Commentary – Boys and girls. *BJOG.* 1982; 89: 97 – 99
- [8] Marinho AO, Odukoya OA, Ilesanmi AO. Sex ratio in offspring of a Nigerian population. *Trop J Obstet Gynaecol.* 1990; 8: 17 – 18
- [9] Azubike JC. Incidence of low birth weight among eastern Nigerians. *J Trop Paediatr.* 1982; 28: 270 – 272
- [10] Athavale VB. Examination of the newborn infant: external features. In: Gupta S (Ed) *A Textbook of Pediatrics.* Vileas Publishing House, New Delhi, 1989; 111 – 117
- [11] Lawoyin TO. Maternal weight and weight gain in Africans: its relationship to birth weight. *J Trop Paediatr.* 1991; 37: 166 – 171
- [12] Osuhor PC. Birth weights in Malumfashi, north central Nigeria. *Nigerian Medical Journal.* 1976; 6: 327 – 331
- [13] Osuhor PC. Birth weights in southern Zaria, northern Nigeria. *J Trop Paediatr.* 1982; 28: 196 – 198
- [14] Osuhor PC. Birth weights in Katsina, northern Nigeria. *J Trop Paediatr.* 1986; 32: 200 – 202
- [15] Wright EA. Low birth weight in the plateau region of Nigeria. *East Afr Med J.* 1990; 67: 894 – 899
- [16] Eregie CO. Arm and head measurements in the newborn. *East Afr Med J.* 1993; 70: 46 – 47
- [17] Osibogun OA. Average birth weight and delivery patterns of a Nigerian rural health centre. *J Comm Hlth Prim Hlth Care.* 1989; 2: 45 – 50
- [18] Okpere EE, Ezimokhai M, Agbakponwu I. Maternal and fetal risk factors associated with macrosomic babies in Benin – City, Nigeria. *Trop J Obstet Gynaecol.* 1991; 9: 16 – 20
- [19] Lloyd OL, Lloyd MM, Holland Y, Lyster WR. An unusual sex ratio of births in an industrial town with mortality problems. *BJOG.* 1984; 91: 901 – 907
- [20] Ayeni O. Sex ratio of live births in south – western Nigeria. *Ann Hum Bio.* 1975; 2: 137 – 141
- [21] Rehan NE. Sex ratio of live born Hausa infants. *BJOG.* 1982; 89: 136 – 141
- [22] Nylander PPS. The twinning incidence in Nigeria. *Acta Genet Med Gemellol.* 1979; 28: 261 – 263
- [23] James WH. Gonadotrophins and sex ratio. *Lancet.* 1980; 1980; 430