PREVALENCE OF LOW BIRTH WEIGHT AND ITS ASSOCIATED FACTORS AMONG NEONATES DELIVERED AT DUTSE GENERAL HOSPITAL, JIGAWA STATE.

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ABSTRACT

Birth weight is a significant factor which determines the vulnerability of the child towards developing risks of childhood illness and threat to childhood survival; deviations from normal child birth weight is a significant public health problem globally which is associated with a range of both short- and long-term consequences. The study aimed to assess the prevalence of low birth weight and associated factors among neonates delivered at Dutse General Hospital in Jigawa State. An institutional based retrospective cross sectional study design was used to conduct the study using checklist as the research instrument. A total of 1420 deliveries were recorded during the period of study. Data collected were organized and analysed with SPSS version 20 and results were presented using frequency distribution tables and percentages, mean and standard deviation. The result revealed the prevalence of 13.9% for low birth weight. Maternal age less than 20 years, maternal residence in the rural areas, premature birth, high parity and female infant were associated factors of low birth weight in the Dutse General Hospital. It is recommended that more emphasis should be on antenatal care services to ensure risk of low birth weight is detected early and treated appropriately to improve birth outcomes.

Keywords: Gestational age, Low birth weight, Maternal age, Maternal residence, Prevalence

INTRODUCTION

In developing countries, low birth weight (LBW) represents a condition that results in significant impact in healthcare systems. The problem still persists despite the fact that efforts has been made in reducing incidences of LBW, especially in sub-Saharan Africa [United State Agency for International Development (USAID), 2016]. Low birth weight continues to be a significant public health problem globally and is associated with a range of both short- and long-term consequences (Risnes *et al.,* 2011). Children born with low birth weight also risk a lower IQ and cognitive disabilities, affecting their performance in school and their job opportunities as adults [National Bureau of Statistics (NBS) and United Nations Children's Fund (UNICEF)., 2018]. Children born with low birth weight are more likely to die prematurely due to a greater vulnerability to infectious diseases (Abdo & Tesso, 2016; Tripathy, 2014).

Globally, LBW contributes to 60% to 80% of all neonatal deaths it is estimated that 15–20% of all births annually are low birth weight infants with over 95% of the world's LBW infants are born in low and middle income countries with considerable variations across regions and within countries (LMICs). It is estimated 6% of infants are born LBW in East Asia and the Pacific, 13% in Sub-Saharan Africa, and up to 28% in South Asia (Muglia & Katz, 2010, Kim & Saada, 2013, World Health Organization (WHO), 2014; WHO, 2018). In India, Aparajita (2013) reported the prevalence of 28.8% with the proportion being significantly more among females (61.6%) than the males (38.4%) whereas in Uganda

the prevalence of LBW was 25.5% (Louis *et al.,* 2016). In Nigeria, the prevalence of 14.8% was reported, with North Central accounted 16.6%, North East 15.7%, North West 14.6%, South East 14.7%, South South 12.6%, South East 13.1% (NBS and UNICEF, 2018). Dahlui *et al.* (2016) reported 12.1% in Jos, 11.4% in Ogun, and 16.9% in Maiduguri whereas, Hassan & Muhammad (2011) reported 11.3% in Kano.

Major risk factors for low birth weight are maternal age, height of the mother, Parity, previous histories of adverse birth outcomes, maternal morbidity, educational status, lack of antenatal care and very low socioeconomic status, sex of the baby (Amosu *et al.,* 2011). Hayat *et al.* (2013) also added that lower educational, maternal age and socioeconomic status, inter-pregnancy interval, anaemia and the number of antenatal visits were having statistically significant association with low birth weight. Meresa *et al.* (2015) and Seid *et al.* (2019) reported variously from Ethiopia that the prevalence of low birth weight was higher among the new-born delivered to rural mothers and maternal age and residence is found to be significantly associated with birth weight of the new-born. Bililign *et al.* (2018) reported that the Ethiopia Demographic Health Survey in 2011, found out that, low birth weight is more common among children of the youngest mothers (less than 20 years) and older mothers (35-49 years) residing in rural areas. LBW has bivariate associations with mother's educational status where as Yilgwan *et al.* (2014) found no association between LBW and mother's occupation and has association with use of antenatal

care facilities and gestational age. Louis *et al.* (2016) affirmed in their study from Uganda that, the gestational age (less than 37 weeks) had higher risk of delivering low birth weight [AOR 3.302; P = 0.00001] and young maternal age and less antenatal attendance were not associated with LBW. However, Aparajita (2013) reported in West Bengal that low birth weight was significantly more among females than the males' new born babies. Onesmus *et al.* (2015) in Kenya reaffirmed that female infants (AOR=3.37, 95%C.I. = 1.14-10.00) were independently associated with LBW. Similar study in Ibadan, Oyo state, shows the importance of infant gender as LBW incidence was found to be higher among females (10.3%) than in male babies (6.5%) (p < 0.005) (Amosu *et al.,* 2011).

The researchers observed that, many women delivered babies in Dutse General Hospital were transferred to other facilities for babies to have phototherapy and sometimes, were instructed never to bath the babies for certain period of time. Thus, the study aimed to investigate prevalence of and factors associated with, low birth weight among neonates delivered in Dutse General Hospital Jigawa State.

METHODS AND MATERIALS
Study Area

This study was conducted at Dutse General Hospital in Jigawa State. It is located at Dutse capital city of Jigawa State. It was established in 1972 as Dutse Comprehensive Health Centre (CHC) by old Kano State. The hospital was converted to Dutse General Hospital and commissioned by the then military Governor of Kano State, Air Commodore Hamza Abdulllahi on 8th August, 1985. It is currently a 200 beds capacity facility, serving as a referral centre for all PHCs in Dutse and Kiyawa Local Government Area. Human Resource for Health (HRH) of the general hospital is made up of 76 nurses, 5 Junior Community Health Extension Workers (JCHEW), 23 Community Health Extension Workers (CHEW), and 11 Clinical Assistants (CA), 5 Midwives, 5 Health Information Technicians, 4 health information officers, 10 Medical Doctors, 103 Health Attendants and 93 casual staff including National Youth Service Corps (NYSC) members. The facility offers the following services: General Out-patients care, Accident & Emergency, medical Laboratory, TB directly observe treatments service (DOTS), Ophthalmology, Antenatal care, Post-natal care, Physiotherapy, Routine Immunization, Ultra Sound Scanning, X-ray, Counselling and Testing of HIV/AIDS, Outreach, Family planning, retroviral disease (RVD) management and care, prevention of mother to child transmission (PMTCT) services, Surgery, Nutrition and Institutional feeding, Health Information and Record, Dental, Environmental sanitation, Social welfare, laundry, accounting, General administration registry.

Research Design

A retrospective study design was used to determine the prevalence and associated factors of low birth weight neonates delivered from January to December 2018 in Dutse General Hospital, Jigawa State.

Study population and Sampling

The study population consist of all the neonates delivered in Dutse General Hospital during the period of study. A non-probability purposive sampling technique was used to gather data from the hospital records in other to determine the prevalence and associated factors of LBW among neonates delivered in Dutse General Hospital for the period under review.

A total of 1420 Neonates were delivered out of which 196 were recorded to have low birth weight.

Research Instrument and Method of data collection

The Data were collected using hospital records (the delivery register and admission register). Relevant information was retrieved from medical record to meet the study objectives. Maternal age, maternal residential area, father's occupation, birth weight and factors associated with low birth weight were derieved from medical records.

The data was collected by the researcher and two research assistants. The birth weight and gender of any subjects with birth weight of greater than or equal to 2.5kg was entered directly into the Microsoft excel while those subjects with birth weight of less than 2.5kg were recorded in the checklist along with the following variables: age of the mother, maternal residence, antenatal services, parity, sex of the baby, gestational age and father's occupation that were extracted from the delivery register and admission register.

Data Analysis

The data collected was analysed using of statistical package for social science (SPSS) software version 20 and the data were summarized and presented using frequency distribution tables and percentages.

Ethical Considerations

Ethical approval was obtained from Jigawa State Ministry of Health, after which, the approval was given from the hospital ethical committee of Dutse General Hospital for the conduct of the study. The researcher makes sure that the name of the respondents is not included in the study and Information collected was handled with utmost confidentiality and strictly for the purpose of the proposed study.

RESULT
Distribution of Birth Weight

Table 1 indicates that, more than half 772 (54.4%) of the neonates were males, the prevalence of low birth weight is 197 (13.9%). Only one-tenth 21 (10.7%) of low birth weight infants have very low birth weight.

Table 1: Distribution of Birth Weight (N=1420)

Variables	Frequency	Percentage (%)
Total live birth		
Male	772	54.4
Female	648	45.6
Birth weight >= 2.5kg	1223	86.1
Male	676	47.6
Female	547	38.5
Birth weight < 2.5kg	197	13.9
Female	123	8.7
Male	74	5.2
Categories of low birth weight(n=197)		
Low birth weight	176	89.3
Very low birth weight <1.5kg	21	10.7
Extremely low birth weight < 1kg	0	0.0

Mean birth weight = 3.1 while the standard deviation = 0.6

Prevalence of Low Birth Weight

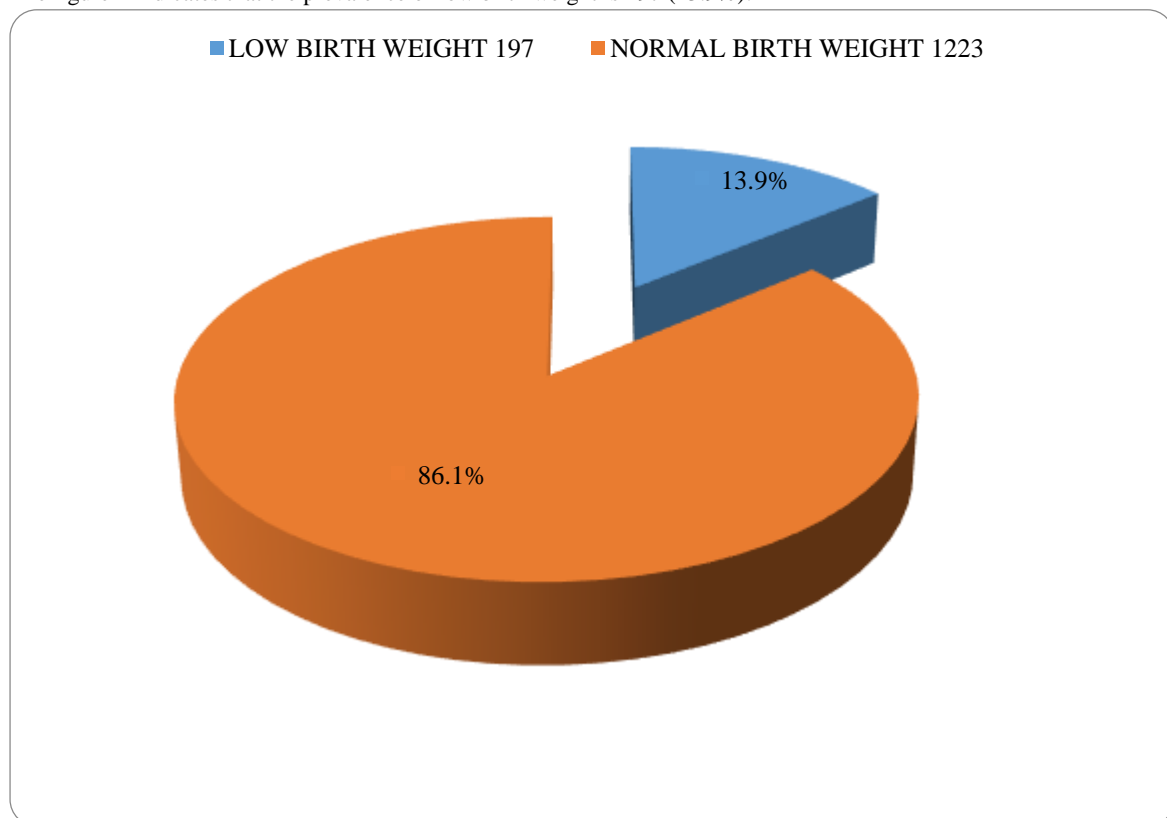The figure 1 indicates that the prevalence of low birth weight is 197 (13.9%).

Fig. 1: Prevalence of Low Birth Weight (N=1420)

Factors Associated with Low Birth Weight

Table 2 shows that more than one-third 78 (39.6%) of low birth weight babies were born by multiparous mothers. More than half of the mothers 102 (51.8%) didn't attend antenatal care services. Majority 105 (53.3%) of the low birth weight babies were born prematurely. Almost two-third 123 (62.4%) of the respondents were female.

Table 2: Factors Associated with Low Birth Weight (N=197)

Variables	Frequency	Percentage (%)
Parity		
Primipara	56	28.4
Multipara	78	39.6
Grand multipara	63	32.0
Antenatal care services		
No	102	51.8
Yes	95	48.2
Gestational age		
Preterm	105	53.3
Term	92	46.7
Gender of the neonates		
Female	123	62.4
Male	74	37.6

Distributions of Socio-Demographic Characteristics

Table 3 above shows that majority of the respondents 77 (39.1%) are below 20 years of age. More than two-third 132 (67%) of the respondents reside in the rural areas. And more than one-third 75 (38.1%) of the respondents indicates farming as the fathers' occupations.

Table 3: Distributions of Socio-Demographic Characteristics (N=197)

Variables	Frequency	Percentage %
Maternal ages (years)		
<20	77	39.1
20-24	64	32.5
25-29	38	19.3
30-34	11	5.6
>=35	7	3.6
Total	197	100.0
Maternal residence		
Rural	132	67.0
Urban	65	33.0
Total	197	100.0
Fathers' occupation		
Civil servant	43	21.8
Business	38	19.3
Famer	75	38.1
Others	41	20.8
Total	197	100.0

DISCUSSION

The prevalence of 13.9%. low birth weight was recorded for the period under review. The finding is not in line with the study of Aparajita (2013) in India and Louis, *et al*. (2016) in Uganda who variously reported a prevalence of 28.8% and 25.5% respectively. This can be explained by the fact that, the study covered a short period of time where as 13.9% is for the period of one year. However, the result is somewhat similar to that of Hassan & Muhammad, (2011) in Kano, 11.3%, Yilgwan *et al*. (2014) in Jos, 12.1% and Dahlui *et al*. (2016) in Ogun, 11.4%. This can be explained by the fact that these studies from Kano, Jos and Ogun, were conducted in the tertiary health institutions which is usually patronized by urban dwellers and economically stable individuals.

In this study several factors were found to be associated with low birth weight, more than one-third 39.6% of LBW babies were born by multiparous mothers. This may be associated with short birth interval and low patronage of child spacing services, besides, most of these women could be in economically disadvantage group as they reside in rural areas.

Most of the mothers (51.8%) did not attend antenatal care services. This is contrary to the study conducted Yilgwan *et al.* (2014) in Jos who reported no association between LBW and antenatal care services. This may be associated with the fact that most of the women in the rural areas don't value antenatal care services especially when the pregnancy is not associated with symptomatic complications. Majority (53.3%) of LBW babies were born prematurely. This is in accordance with the study of Louis *et al.* (2016) in Uganda which shows that the gestational age less than 37 weeks had higher risk of delivering low birth weight. Most (62.4%) of the LBW infants were female.

The study revealed that majority (39.1%) of the women who delivered low birth weight babies during the study period were aged less than 20 years. This finding was consistent with the study findings of Hayat *et al.* (2013) who reported that the prevalence of low birth weight decreases with increase maternal age. This is may be associated with early marriage and early child bearing; most of the women in the rural areas were married between the ages of 15-18 years. Most (67%) of the respondents reside in the rural areas. This validate the study of Meresa *et al.* (2015) from northern Ethiopia who reported that mothers residing in the rural areas were more than 4 times more likely to have LBW babies when compared with mothers who live in the urban areas. This was expected because the hospital serves as a referral centres for many rural health care facilities within and around the state. Majority (38.1%) of the respondents indicated farming as the baby fathers' occupation. This was expected because most of the rural dwellers in this part of the country rely on farming as their source of income.

CONCLUSION

The prevalence of LBW in the study area may be related to factors like multiparous mothers, inability to attend antenatal care services and gestational age. This is huge task on the health workers to educate women on the importance of family planning services, antenatal care visit, ensure risk of low birth weight is detected early and treated appropriately to improve birth outcomes. Their inability to attend antenatal care and giving birth to more children might be connected with poor educational background and their settlement (rural dwellers).

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