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Original Research Paper

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"BORN TOO SMALL" AND IT'S ASSOCIATED FACTORS IN A TERTIARY HEALTH FACILITY IN NIGERIA.

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ABSTRACT

Background: Low Birth Weight (LBW) is a major adverse outcome of pregnancy.

Methods: A prospective cohort study conducted at a tertiary health facility in Nigeria. Data was retrieved from the ante-natal and delivery card of women that delivered within the time of data collection. Data was analyzed using SPSS version 25 and variables were presented as frequencies, percentages, means, and standard deviation. Bivariate analysis was done using chi-square test with the level of significance set at $p \leq 0.05$. Binary logistic regression was used to determine factors that predicted low birth weight.

Results: The prevalence of LBW was 11.1%. About 48% of the mothers delivered through caesarean section while 53.9% booked within 14-28weeks gestation. On logistic regression agricultural workers had 4 times odds of having LBW babies when compared to the unemployed while the un-booked mothers had 11 times odds of having LBW babies when compared to those that booked at >28weeks gestational age.

Conclusion: The prevalence of LBW was high. Booking status of the mother and having complications during pregnancy were strongly associated with preterm delivery.

KEYWORDS : Nigeria, Low birth weight, Prevalence, Tertiary health facility

INTRODUCTION

Low birth weight (LBW) remains a global health challenge with both short and long term adverse consequences. [1] It is an important indicator of the health status of an infant and a principal factor that determines the infant survival, physical and mental development in the future. [2] Delivery of LBW neonates has been associated with pre-term deliveries, anemia, malnutrition and poor use of orthodox ante-natal services. [1] These are particularly prevalent in sub-Saharan Africa.

World Health Organization (WHO) defines LBW as birth weight less than 2500g. [3] LBW may result from preterm birth, intrauterine growth restriction (IUGR), or both. W.H.O has estimated that more than 20 million LBW infants are born annually. [3] These LBW infants have increased risk of several health problems such as growth retardation, infectious diseases, and developmental delay, which may occur during infancy, childhood, and ultimately, later stages of life Therefore, to protect infants and young children's health, WHO has set a target of a 30% reduction in LBW by 2025. [3]

A meta-analysis study identified several long-term negative outcomes are associated with LBW such as poor education and unemployment. [4] In Abu Dhabi, LBW babies were 30.83 times more likely to require intensive care treatment compared to normal weight babies. [5] The catastrophic effects of LBW include increased rate of caesarean sections (CS), stillbirth, neonatal asphyxia, and mortality. [4] LBW babies who survive usually experiences health problems and cognitive impairment. [6]

The objective of the study was to determine the socio-demographic and obstetric factors that affect LBW.

METHODOLOGY

A prospective cohort study conducted at the Obstetrics and Gynecology department of Enugu State University Teaching Hospital (ESUTH) Enugu, Nigeria for a period of 7 months (July 2020-January 2021). All the women that delivered at the department within the time of data collection were included for the study. The socio-demographic and obstetric characteristics including the babies' birth weight were retrieved from the ante natal and delivery cards and entered into a pro forma.

SPSS version 25 was used for analysis. Variables were summarized using frequencies and percentages. Chi-squared test was used to test for associations at p-value ≤ 0.05. Variables with $p<0.2$ on the bivariate analysis were imputed for multivariate logistic regression.

RESULTS

Table 1: Socio-demographic and obstetric characteristics of the mothers

Variable	Frequency	Percentage
Age(years)		
Mean ±SD	29.76±4.69	
Age groups(years)		
≤20	14	1.8
21-30	431	56.0
31-40	318	41.3
41-50	7	0.9
Marital status		
Married	746	96.9
Single	24	3.1
Ethnicity		
Igbo	763	99.1
Others	7	0.9
Religion		
Christianity	766	99.5
Islam	4	0.5
Occupation		
Civil servants	429	55.7
Agricultural workers	6	0.8
Crafts and related trade workers	83	10.8
Unskilled workers	11	1.4
Unemployed	241	31.3
Educational level		
Tertiary	484	62.9

Secondary	281	36.5
Primary	5	0.6
Parity		
1-2	531	69.0
3-4	196	25.6
≥5	43	5.4
Anaemia(booking)		
Yes	158	20.5
No	612	79.5
Anaemia (delivery)		
Yes	303	39.4
No	467	60.6
Complications		
Yes	368	47.8
No	402	52.2
Booking GA in group(weeks)	N=770	
Un-booked	146	19.0
≤13	61	7.9
14-28	415	53.9
≥28	148	19.2
Birth weight in group(kg)	N=721	
2.5-4.0	641	88.9
<2.5	80	11.1

GA Gestational age

Table 1 shows the socio-demographic and obstetric characteristic of the studied women.

Table 2: Bivariate analysis to determine factors that affected birth weight

Variable	Birth weight N= 763		X^2	P value
	Normal N(%)	Low N(%)		
Age groups(years)				
≤20	8(57.1)	6(42.9)	18.193	<0.001*
21-30	391(91.6)	36(8.4)		
31-40	278(88.3)	37(11.7)		
≥41	6(85.7)	1(14.3)		
Marital status				
Married	667(90.3)	72(9.7)	13.783	<0.001*
Single	16(66.7)	8(33.3)		
Ethnicity				
Igbo	677(89.6)	79(10.4)	0.718	0.869
Yoruba	1(100)	0(0.0)		
Hausa	4(80)	1(20)		
Others	1(100)	0(0.0)		
Religion				
Christianity	680(89.7)	79(10.3)	1.018	0.601
Islam	3(75.0)	1(25.0)		
Occupation				
Civil servants	375(87.4)	54(12.6)	13.019	0.011*
Agricultural workers	3(50.0)	3(50.0)		
Crafts and related trade workers	74(89.2)	9(10.8)		
Unskilled workers	9(81.8)	2(18.2)		
Unemployed	222(92.1)	19(7.9)		
Educational level				
Tertiary	445(92.1)	38(7.9)	9.743	0.008*
Secondary	234(85.1)	41(14.9)		
Primary	4(80.0)	1(20.0)		
Parity				
1-2	466(88.4)	61(11.6)	2.965	0.227
3-4	180(92.8)	14(7.2)		
>4	37(88.1)	5(11.9)		
Anaemia(booking)				
Yes	143(90.5)	15(9.5)	0.646	0.421
No	540(88.2)	72(11.8)		
Anaemia (delivery)				
Yes	265(87.5)	38(12.5)	0.770	0.380
No	418(89.5)	49(10.5)		
Caesarean Section				
Yes	312(84.8)	56(15.2)	10.800	0.001*
No	371(92.3)	31(7.7)		
Booking GA in group(weeks)				
Un-booked	96(65.8)	50(34.2)	95.523	<0.001*
≤13	58(95.1)	3(4.9)		
14-28	387(93.3)	28(6.7)		
≥28	142(95.9)	6(4.1)		

* Statistically significant

Table 2 shows the factors that affected LBW

Table 3: Binary logistic regression to determine the predictors of low birth weight

Variable	Odds ratio	P value	95% CI for odds ratio Lower	Upper
Age groups(years)				
≤20	1.328	0.832	0.097	18.134
21-30	0.381	0.401	0.040	3.619
31-40	0.514	0.563	0.054	4.914
≥41	1			
Marital status				
Married	0.886	0.843	0.269	2.922
Single	1			
Occupation				
Civil servants	2.357	0.015*	1.177	4.714
Agricultural workers	4.240	0.153	0.585	30.753
Crafts and related trade workers	1.083	0.872	0.412	2.843
Unskilled workers	1.220	0.825	0.208	7.158
Unemployed	1			
Educational level				
Tertiary	1.592	0.737	0.105	24.090
Secondary	2.312	0.537	0.162	33.088
Primary	1			
Caesarean Section				
Yes	0.562	0.026*	0.338	0.934
No	1			
Booking GA in group(weeks)				
Un-booked	11.120	<0.001*	4.386	28.190
≤13	1.392	0.651	0.332	5.836
14-28	1.682	0.264	0.675	4.188
≥28	1			

* Statistically significant

Table 3 shows predictors of LBW.

DISCUSSION

LBW is a major determinant of infant mortality and morbidity with varied geographical prevalence.

The present study's prevalence of LBW was 11.1% similar to studies in Pakistan 10.6% [7] and Indonesia 10.2% [8] but lower than the WHO report of 15.5% for developing countries [9] and that of a similar study in South-West Nigeria (16%). [10] These differences could be explained by the nature of the study, e.g. delivery at tertiary hospitals may have high preterm births and complicated pregnancies leading to LBW.

Preterm birth and LBW have been reported to be significantly related highlighting the importance of intervention programs aimed at reducing both outcomes. [11]

Maternal age significantly affected LBW with mothers who

delivered at ≤20 years having more LBW babies than those aged 21-30years. Other studies reported similar findings. [8,12] A similar study among adolescent mothers reported a 65.52% prevalence of LBW. [13] Most of these younger mothers have poor socio-economic status. Some are unemployed with poor financial power to afford the right foods during pregnancy leading to LBW babies. However, a matched case control study reported no association between maternal age and LBW. [14] Difference may be from population and area of study.

Being unmarried was significantly associated with the prevalence of LBW neonates in line with previous findings. [15] Married women are more likely to have financial and emotional support from their spouses for a healthier life during pregnancy, hence produce healthy babies. Lack of socio-economic support may be responsible for this observation.

Mothers that are agricultural workers have about 4 times odds of having LBW babies than the unemployed. Agricultural work is associated with many awkward positions, lifting of heavy objects and long standing hours. These factors lead to LBW babies. [16]

This study also found that maternal educational level significantly affected baby's weight. Well educated mothers seem to have adequate information about nutrition and more empowered economically to take good care of their health during pregnancy. Other studies reported similar findings. [8,17]

The results of our study also showed that mothers with complications during pregnancy were more likely to give birth to LBW babies than those who did not. Complicated pregnancies are likely to be delivered preterm with LBW. Other studies also reported similar findings. [8, 9] Our study showed that un-booked mothers had about 11 times odds of having LBW babies compared to the booked. Early booking identifies and addresses factors that may lead to complications. Adverse pregnancy outcome like LBW has been linked to unbooking. [18]

CONCLUSIONS

Prevalence of LBW remains high in Enugu State. This study demonstrated that young maternal age, agricultural work, low educational level, pregnancy complications and booking status significantly affected LBW. Most of these risk factors are modifiable, thus efforts should target the need for early and focused ante natal care.

REFERENCES

1. Ramakrishnan U. Nutrition and low birth weight: from research to practice. Am J Clin Nutr. 2004; 79(1):17-21.
2. Roudbari M, Yaghmaei M, Soheili M. Prevalence and risk factors of low-birth-weight infants in Zahedan, Islamic Republic of Iran. Eastern Mediter Health J. 2007; 13(4):838-845.
3. World Health Organization (WHO). Global Nutrition Targets 2025: Low Birth Weight Policy Brief; WHO: Geneva, Switzerland, 2014.
4. Bilgin A, Mendonca M, Wolke D. Preterm Birth/Low Birth Weight and Markers Reflective of Wealth in Adulthood: A Meta-analysis. Pediatrics. 2018: 142.
5. Gardner H, Green K, Gardner A.S, Geddes D. Observations on the health of infants at a time of rapid societal change: A longitudinal study from birth to fifteen months in Abu Dhabi. BMC Pediatrics. 2018; 18: 32.
6. Chan BC, Lao TT. Maternal height and length of gestation: Does this impact on preterm labour in Asian women?. Aust N Z J Obstet Gynaecol. 2009; 49(4): 388-92.
7. Khan A, Nasrullah FD, Jaleel R. Frequency and risk factors of low birth weight in term pregnancy. Pak J Med Sci. 2016; 32(1): 138-42.
8. Siramaneerat I, Agushybana F, Meebunmak Y. Maternal Risk Factors Associated with Low Birth Weight in Indonesia. The Open Public Health Journal. 2018; 11: 376-383.
9. Yilgwan C, Abok I, Yinnang W, Vajime B. Prevalence and risk factors of low birth weight in Jos. Jos J Med. 2009; 4(1): 13-5.
10. Zini ME, Omo-Aghoja LO. Clinical and socio-demographic correlates of preterm deliveries in two tertiary hospitals in southern Nigeria. Ghana Med. J. 2019; 53: 20–28.
11. Islam M, Rahman S, Kamruzzama MI, Samad A. Effect of maternal status and breastfeeding practices on infant nutritional status—A cross sectional study in the south-west region of Bangladesh. Pan Afr. Med. J. 2013; 16: 139.
12. Viengsakhone L, Yoshida Y, Harun-Or-Rashid M, Sakamoto J. Factors affecting low birth weight at four central hospitals in vientiane, Lao PDR. Nagoya J Med Sci. 2010; 72(1-2): 51-8
13. Banerjee B, Pandey G, Dutt D, Sengupta B, Mondal M, Deb S. Teenage pregnancy: A socially inflicted health hazard. Indian J Community Med. 2009; 34(3): 227-31.
14. Mumbare SS, Maindarkar G, Darade R, Yenge S, Tolani MK, Patole K. Maternal risk factors associated with term low birth weight neonates: A matched-pair case control study. Indian Pediatr. 2012; 49(1): 25-8
15. Oladeinde HB, Oladeinde OB, Omoregie R, Onifade AA. Prevalence and determinants of low birth weight: the situation in a traditional birth home in Benin City, Nigeria. Afri Health Sci. 2015; 15(4):1123-9.
16. Figa`-Talamanca I. Occupational risk factors and reproductive health of women. Occup Med (Lond). 2006; 56:521–531.
17. Tellapragada C, Eshwara VK, Bhat P. Risk factors for preterm birth and low birth weight among pregnant Indian women: A hospital based prospective study. J Prev Med Public Health. 2016; 49(3): 165-75.
18. Mokuolu AO, Abdul IF, Adesiyun O. Maternal factors associated with early spontaneous singleton preterm delivery in Nigeria. Trop J Obstet Gynaecol. 2002; 19:32-35.