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### Prevalence and Factors Influencing Low Birth Weight among Parturients Aged 18-30 Years at Jinja Regional Referral Hospital, Jinja District, Uganda

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#### ABSTRACT

The study was done to assess the factors contributing to low birth weights among neonates born at JRRH. A facility based retrospective descriptive cross-sectional study will be conducted at JRRH from October 2019 to January 2020 among women delivering neonates during the study period. The study was done in Jinja Regional Referral Hospital is located in the center of Jinja, not far from the Source of the Nile. The age distribution of mothers, residence, marital status and tribe. The mean age of mothers was 18 (Range 13-18) with majority of mothers aged 15-19 years. Majority (62.0%) of mothers were married. Most (66.5 mothers were Baganda and the least (4.5%) were Basoga. Majority (78.8%) were residing in urban areas while the least (21.2%) were residing in rural areas. A total of 46/179 babies weighed below 2.5 kg, giving a prevalence of 25.7%. 133/179(74.3%) of babies weighed between 2.5-5.0 kg (Table 2). The overall mean birth weightwas 2.9 (range 1.0-5.0 kg). Among low-birthweight babies (< 2.5 kg), the mean was 2.1 (Range 1-2.4 kg). Among babies with birth weight 2.5-5.0 kg, the mean birth weight was 3.1 (Range 2.5–5.0). There were slightly more female than male babies, (51.4%) and (48.6%) respectively as shown in the table 2 below; Majority (77.7%) of the babies born were the first born and most of the babies were delivered at term (83.8%). 5% of the babies had congenital anomalies. The prevalence of LBW among our study population was high, 25.5%. Pre-term delivery and multiple pregnancies were associated with LBW. Health workers should encourage teenage mothers to attend focused antenatal care as recommended by Ministry of Health, Uganda. A specialized maternal facility Centre that is friendly for adolescent/teenage mothers is advisable so as to improve on completion rates and handle high risk pregnancies. Keywords: prevalence, low birthweight, parturient

#### INTRODUCTION

To grow a healthy baby, mothers need good nutrition and rest, adequate antenatal careand a clean environment [1-3]. These ingredients for a healthy pregnancy can help prevent, identify and treat the conditions that cause low birth weight and keep babies alive and thriving. A newborn's weight at birth is an important marker of maternal and fetal health and nutrition [4-7]. Low birth weight newborns have a higher risk of dying in the first 28 days of life [8-9]. Those who survive are more likely to suffer from stunted growth and lower IQ. The consequences of low birth weight continue into adulthood, increasing the risk of adult-onset chronic conditions such as obesity and diabetes [10-13]. Despite ongoing efforts to strengthen national surveillance systems, the availability and quality of data on low birth weight vary widely among countries [14-16]. Reaching the low-birthweight target would save lives and fuel the achievement of other nutrition targets, such as those on reducing stunting, wasting and other forms of malnutrition. Yet today, the world is still far from achieving this objective. To accelerate progress, we need more and better-quality data. Most data on low birth weight come from the more developed countries – yet these countries account for just under 5 per cent of all low-birth-weight births in 2015 [17-24]. Among the more developed regions, an average of 14.2 data points per country were included in the dataset; in contrast, there were on average only three data points per country in Africa and only 0.4 per country in Oceania [25-35]. Furthermore, 54 countries – more than half from Africa andOceania – had no data meeting inclusion criteria. Low birth weight has multiple causes4and reducing it requires strategies to improve maternal nutritional status; guarantee adequate maternal services and care before, during and after birth; and strengthen socialsupport [36-44]. Improving the quality and frequency of birth weight reporting is also critical to reducing the prevalence of low birth weight worldwide. Birth weight data were not available for nearly one third, or 39.7 million newborns in 2015 globally, with Africa accounting for over half of these. Strengthening national surveillance systems improves data collection and reporting on low birth weight, giving governments the power

to settargets, develop effective programmes and monitor progress [17-29].

#### METHODOLOGY **Study Design**

A facility based retrospective descriptive cross-sectional study will be conducted at JRRH from October 2019 to January 2020 among women delivering neonates during the study period.

#### Study Area

The study was done in Jinja Regional Referral Hospital is located in the center of Jinja, not far from the Source of the Nile.

#### **Study Population**

The research study involved pregnant women presenting for labor and delivery at JRRHduring the study period. **Inclusion criteria** 

A mother 18-35 yrs. of age who had given birth to a singleton live neonate at the hospital and willing to consent during the study will be considered for the study.

#### **Exclusion Criteria**

A mother with multiple birth or still birth, maternal death following delivery, serious illness in which the mother was unable to consent.

#### **Sampling Size Determination**

Kish and Leslie Formular  $n=Z^2 P (1-P)/e^2$  $n = 1.96^{2*}0.135(1-0.135)/0.5^{2}$ 

3.8416 \* 0.11675

0.0025

n = 179

#### Sampling procedures

Our sampling technique will be convenient sampling; the mothers who will be on wardat that particular time are the mothers we will use during our research.

#### Data collection methods and management

During our research we are going to collect our data by Observation method, interviewmethod (non-directive depth interview).

#### Data analysis

Data is going to be analyzed by use of SPSS version 20.0.

#### **Ethical Considerations**

We will obtain an introductory letter from the Dean of Clinical Medicine and Dentistry Kampala International University. This letter will be introduced to Authorities of JinjaRegional Referral Hospital.Each respondent will be free to decide to or not to participate in the study. Personal identity of respondents will not be revealed

#### RESULTS

#### Socio-demographic characteristics of mothers

The age distribution of mothers, residence, marital status and tribe are shown in table 1. The mean age of mothers was 18 (Range 13-18) with majority of mothers aged 15-19 years. Majority (62.0%) of mothers were married. Most (66.5 mothers were Baganda and the least (4.5%) were Basoga. Majority (78.8%) were residing in urban areas while the least (21.2%) were residing in rural areas.

CHARACTERISTICS		FREQUENCY	PERCENTAGE (%)	
Age	15 - 18	106	59.2	
	18 and above	73	40.8	
Marital status	Married	111	62.0	
	Single	68	38.0	
Tribe	Muganda	119	66.5	
	Musoga	8	4.5	
	Others (Specify)	52	29.0	
Residence	Urban	141	78.8	
	Rural	38	21.2	

#### Table 1: shows socio-demographic characteristics of mothers



A total of 46/179 babies weighed below 2.5 kg, giving a prevalence of 25.7%. 133/179 (74.3%) of babies weighed between 2.5-5.0 kg (Table 2). The overall mean birth weight was 2.9 (range 1.0-5.0 kg). Among low-birth-weight babies (< 2.5 kg), the mean was 2.1 (Range 1-2.4 kg). Among babies with birth weight 2.5-5.0 kg, the mean birth weight was 3.1 (Range 2.5-5.0). There were slightly more female than male babies, (51.4%) and (48.6%) respectively as shown in the table 2 below; Majority (77.7%) of the babies born were the first born and most of the babies were delivered at term (83.8%). 5% of the babies had congenital anomalies as shown in table 2.

#### Table 2: shows characteristics of children

CHARACTERISTICS	VARIABLE	FREQUENCY	PERCENTAGE (%)
Weight	< 2.5	46	25.7
	2.5-5.0	133	74.3
Sex of the baby	Male	87	48.6
	Female	92	51.4
Birth order	First	139	77.7
	Second +	40	22.3
Completed weeks	< 37	29	16.2
	37-40	150	83.8
Congenital anomalies	Absent	170	95.0
	Present	9	5.0

Marital status was not associated with LBW, OR 0.673, P = 0.100. Age of the mother was not associated with LBW, OR 4.5, P = 0.102. ANC attendance was not associated with LBW, OR 2.966, P = 0.280. Majority of the mothers (99.25%) attended antenatal care. However, only (43.6%) completed the recommended 4 visits in focused antenatal. The number of times of ANC attendance was also not significantly associated with LBW, OR 1.296, P = 0.298. Malaria was the most frequent condition reported at 39.8%. All the teenage mothers reported that they did not smoke any cigarettes. 19% of the mothers reported consumingalcohol during pregnancy. Majority (67.0%) of mothers, reported to have eaten at least3 meals during the pregnancy and most reported they fed on a balanced diet. 5.05% were multiple pregnancies. Multiple pregnancy was significantly associated with LBWOR 0.165, P = 0.039. Malaria was not associated with birth weight. OR 0.900, P = 0.675. Cigarette smoking within households and alcohol consumption were not associated with LBW, OR 1.423, P = 0.296 and OR 0.899, P = 0.737 respectively. The number of meals was not associated with LBW OR 0.946, P = 0.831. The results are shown in table 3 below;

#### Table 3: Maternal factors associated with LBW

Characteristics	LBW N (%)	Normal N (%)	COR (95% CI)	P-Value
Marital status	N=46	N=133		
Married	25 (54.3)	86(64.7)	0.673 (0.41, 1.08)	0.100
Not married	21 (45.7)	47 (35.3)		
Age of the mother				
< 15 years	2 (4.3)	1 (0.75)	4.5 (0.740, 27.37)	0.102
15-19 years	44 (95.7)	132 (99.25)		
ANC attendance				
Not attended	1 (2.2)	1 (0.75)	2.966 (0.411, 21.36)	0.280
Attended	45 (97.8)	132 (99.25)		
Freq. ANC				
< 4	29 (63.0)	75 (56.4)	1.296 (0.795, 2.114)	0.298
4 Plus	17 (37.0)	58 (43.6)		
Condition suffered				
Malaria	17 (37)	53 (39.8)	0.900 (0.551, 1.470)	0.675
Others (Specify)	29 (63.0)	80 (60.2)		
Smokers (Household)				
No smokers	39 (84.7)	108 (81.2)	1.423 (0.734, 2.759)	0.296
Smokers	7(15.3)	25 (18.8)		
Alcohol use				
Alcohol	08 (17.4)	26 (19.5)	0.899 (0.484, 1.671)	0.737
None	75 (82.6)	107 (80.5)		
Pregnancy				
Singleton	44 (95.7)	132 (99.25)	0.165 (0.030, 0.915)	0.039
Multiple	2 (4.3)	1 (0.75)		
No. of meals				
:3	15 (32.6)	44 (33.1)	0.946 (0.568, 1.575)	0.831
or more	31 (67.4)	89 (66.9)		

The gestational age assessed as completed weeks of pregnancy was significantly associated with LBW [OR 3.302; P < 0.0001]. The sex of the baby [OR 0.979; P = 0.932], birth order [OR 1.322; P = 0.360] and congenital anomalies [OR 0.813; P = 0.704] were not associated with LBW.

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Table 4: shows baby factors associated with LBW						
Characteristics	LBW N (%)	Normal N (%)	COR (95% CI)	P-Value		
Sex of the baby	N=46	N=133				
Male	22 (47.8)	65(48.9)	0.979(0.608, 1.577)	0.932		
Female	24(52.2)	68 (51.1)				
Birth order						
First	37(80.4)	102(76.7)	1.322(0.727, 2.408)	0.360		
Second +	09 (19.6)	31 (13.3)				
Gestational age						
< 37 weeks	13(28.3)	16 (12.0)	3.032(1.682, 5.466)	< 0.001		
Term	33 (71.7)	117 (88.0)				
Congenital anomaly						
Absent	43 (93.5)	127(95.5)	0.813 (0.278, 2.373)	0.704		
Present	3(6.5)	06(4.5)				

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#### DISCUSSION

This study set out to establish the prevalence and risk factors for LBW among parturientwho delivered Jinja regional Referral Hospital. The study found a LBW prevalence rate of 25.6%, which is much higher than the prevalence rate of 13.5% reported in the recentUganda Demographic and Health Survey [30]. Compared to this study that abstractedbirth weight from written records, the birth weight reported by the 2011 UDHS was obtained from multiple sources including written records, and subjective mother's estimate of birth weight for babies who were delivered outside the health unit. The LBW prevalence rate in our study is also much higher-than-average estimate of 16.5% rate for many sub-Saharan countries and the region [31]. Our study has limitations. The prevalence rate of LBW we found in this study may be an overestimate given that the study was conducted in a tertiary referral health institution. The cross-sectional study design does not show seasonal variations of LBW. This study does not also consider potential risk factors including HIV infection, placental factors and intra-uterine infections. Nevertheless, our study highlights some of the important maternal factors of LBW.

#### CONCLUSION

The prevalence of LBW among our study population was high, 25.5%. Pre-term delivery and multiple pregnancies were associated with LBW. Health workers should encourage teenage mothers to attend focused antenatal care as recommended by Ministry of Health, Uganda. A specialized maternal facility Centre that is friendly for adolescent/teenage mothers is advisable so as to improve on completion rates and handle high risk pregnancies. More research is needed in this area to assess the likely association of potential risk factors such as HIV infection, placental factors and other intra-uterine factors plus seasonal variations.

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