WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCE

DEPARTEMENT OF NURSING

MAGNITUDE AND ASSOCIATED FACTORS OF LOW BIRTH AMONG NEWBORNS IN SELECTED HOSPITALS OF GURAGE ZONE, SOUTHERN ETHIOPIA, 2023

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TITLE	MAGNITUDE AND ASSOCIATED FACTORS OF LOW BIRTH WEIGHT AMONG NEWBORNS IN SELECTED OF HOSPITALS GURAGE ZONE SOUTHERN ETHIOPIA 2023
DURATION OF THE STUDY	MAY 25 TO JUNE 25
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LIST OF ACRONYMS AND ABBREVIATION

ANC	Antenatal Care
BSC	Bachelor science
EDHS	Ethiopian Demographic and Health Survey
ELBW	Extremely Low Birth Weight
GA	Gestational Age
IUGR	Intra Uterine Growth Restriction
LBW	Low Birth Weight
MPH	Master of Public Health
MUAC	Mid upper arm circumference
UNICEF	United Nations International Children's Emergency Fund
WHO	World health organization
WKUTH	Wolkite University Teaching Hospital
VELBW	Very Extreme Low Birth Weigh
AOR	Adjusted odds ratio
CI	Confidence interval
COR	Crude odds ratio

ABSTRACT

Introduction: Low birth weight (LBW), defined by the World Health Organization (WHO) as a birth weight less than 2500g. more than 30 million infants were born with low birth weight in worldwide, it is also significant concern in Ethiopia. Studies have indicated a high prevalence of LBW among newborns in the country. LBW has far-reaching implications for infant morbidity, development, and future health.

Objective: To assess the magnitude and associated factors of Low Birth Weight in selected Hospitals of Gurage Zone, Southern Ethiopia,2023.

Method and material: An institutional-based cross sectional study design was conduct at selected Hospital in Gurage Zone from May 26 up to June 26, and a simple random sampling technique was use to select 176 participants. Mother with new born who attended delivery during study period was used to calculate sample size and a single proportional formula was used to determine the sample size. Data were entered and analyzed using SPSS statical package. A structure and present questionnaires were used to collect data.

Result: The study reveals that the prevalence of Low Birth Weight was 23.53% with 95% CI (17.33%-29.53%) and 96.6% response rate in selected hospital of Gurage Zone. In final mode maternal age >35 AOR 2.85 (1.19-6.76), gestational age of newborn <37-week AOR 3.06(1.32-7.07), not taking iron supplements during pregnancy (AOR 2.87, 95%CI: 1.19-6.79), were found to be statistically significant to low birth weight.

Conclusions and recommendation: According to this study the prevalence of low birth weight was high. Factors such as advanced maternal age, inadequate iron intake, multiparity, lack of antenatal care visits, anemia during pregnancy, and preterm birth were significant factors for low birth weight. To reduce low birth weight, interventions such as focus on improving maternal health, promoting ANC services, preventing anemia, and preterm births are crucial.

KEY WORDS: Low Birth weight, Newborn

1. INTRODUCTION

According to world health organization (WHO), low birth weight is defined as weight less than 2,500g, regardless of gestational age. this based on epidemiological findings that shows neonate under 2,500g have roughly 20-fold higher risk of passing away than babies who weight more. More than 30 million infants worldwide, or 23.5% of all births, are born underweight, with 95.6% of those births taking place in poor nations. The childes development, future health, and infant mortality and morbidity are all significantly influenced by birth weight. A key risk factor for poor health outcomes, such as numerous pediatric disorders, is low birth weight (LBW). LBW has been linked to a significantly increased risk of new born death as well as other physical and neurological problems [1].

Two key factors, including gestational age and intrauterine growth rate, influence birth weight. Thus, brief time or slowed intrauterine growth (or both) are the two main causes of low birth weight. A gestational age of under 37 weeks is typically consider to be premature. Although there isn't a universally recognized definition for intrauterine growth retardation (IUGR), often known as "small for date" or small for gestational age, "the following are frequently used terms: birth weight less than10th (or 5^{th}) percentile for gestational age; birth weight less 2500g and gestational age greater than or equal to 37 weeks; and birth weight less than 2 standard deviations below the mean value for gestational age are all qualified conditions [2].

The tenth revision of the international statistical classifications of disease and health-related problems divides disease and health related problems in to three categories.

The first one is Low Birth Weight which is define as birth weight less than 2500g (up to and including 2499g), secondly Very Low Birth weight which is birth weight less 1500g (up to and including 2499g), and the last extremely Low Birth Weight defined as birth weight less than 1000g (up to and including 999 g). Low, very low, extremely low birth weight birth weight are not mutually exclusive groups according to the definitions [1].

Focused prenatal care (ANC), dietary counseling during the pregnancy and perinatal period, and institutional deliveries are a few treatments to prevent LBW. As a result of ongoing worry and

uncertainty over future health outcomes, LBW newborns frequently require further hospital care [3]. Accurate monitoring is difficult because nearly half of the world's infants are not weighed at birth, which is especially high in sub-Saharan Africa and Ethiopia, where 54% and 86% of infants are not weighed after birth, respectively. This issue is likely to underestimate the true magnitude of the problem [4].

LBW leads to impaired growth in the infant, resulting in a higher mortality rate and increased morbidity. LBW is considered as a single most important predictor of infant mortality, especially of death within the first month of life [5]. It accounts for 60–80% of all neonatal deaths each year. It is also a significant determinant of infant and childhood morbidity particularly neurodevelopment impairment such as mental retardation and learning disabilities [6]. Low birth weight results in a shorter stature, and at the age of adulthood, those infants who are born with low birth weight are more likely to have brain development retardation, poor language development, and intellectual impairments [7].

1.2 Statement of Problem

Around 30 million LBW babies are born each year (or 23.5% of all births) throughout the world, where the prevalence of LBW is thought to be 15% in sub-Saharan Africa countries [8]. the frequency of LBW in Ethiopia is thought to be 13%, according to the EDHS 2016 [9]. LBW is a significant public health issue in under developed nations like Ethiopia [10].

Half of prenatal and one third of all infant death are directly or indirectly related to Birth Weight. mortality rate of LBW babies is 20 times more than normal weight babies and Infant born with Very Low Birth Weight are more than 100 times more likely to die in first year of life than infant of mortality, especially of death within the first month of life [11].it is also a significant determinant of infant and childhood morbidity, particularly of neuro development impairment such as mental retardation and learning disabilities. Newborns with low birth weight are more likely to have a health problem and slower development from immediately after birth to later life and suffer from an extremely high rate of mortality and morbidity infectious disease and underweight, stunting, or wasting beginning in the neonatal period through childhood [12] it also indicates and present health status of the mother [13].

However, there is a lack of comprehensive understanding of the magnitude and associated factors of LBW in healthcare settings, this knowledge gap hinders the ability to implement targeted interventions and provide appropriate care for LBW neonates in these settings. Additionally, the specific maternal risk factors associated with LBW in these healthcare settings remain unclear.

Therefore, the purpose of this study is to assess the magnitude of LBW and identify the specific maternal risk factors associated with LBW in Atat, Agena, Wolkite University Specialized Hospital. By addressing this knowledge gap, healthcare professionals can develop evidence-based interventions and strategies to prevent and manage LBW, ultimately improving the health outcomes of LBW newborns in these healthcare settings.

1.3 Significance of the Study

The study's findings provide valuable information that can significantly impact the care provided to low birth weight (LBW) neonates. By identifying the risk factors associated with LBW, healthcare facilities, such as, Agena, Attat and Wolkite University Specialized Hospital can better prepare and provide specialized care for these vulnerable infants. The study's findings also serve as a foundation for evidence-based practices in maternal and child health. By identifying the major risk factors for LBW, healthcare professionals can develop targeted interventions and strategies to prevent LBW and mitigate its consequences.

The findings from this study can guide program planning and resource allocation in healthcare facilities. By understanding the magnitude and associated factors of LBW, healthcare administrators and policymakers can prioritize the allocation of resources. This includes ensuring the availability of specialized equipment, such as incubators and neonatal intensive care units (NICUs), as well as trained healthcare professionals who can provide specialized care to LBW infants. Additionally, the study's findings can inform the development of educational programs for healthcare professionals and the community, focusing on early detection, prevention, and management of LBW. By strategically allocating resources and implementing targeted programs, healthcare facilities can effectively address the specific needs of LBW neonates and their mothers. In addition, this study was also conducted for the partial fulfillment of bachelors of science in nursing.

One significant impact of this study is the increased awareness among health professionals about the major risk factors for LBW. By disseminating the study's findings and raising awareness, healthcare professionals can enhance their knowledge and understanding of LBW-related issues.

In summary, the significance of this study for health science lies in its potential to improve neonatal care, promote evidence-based practice, guide program planning and resource allocation, provide baseline data for further research, and enhance health professional awareness. By addressing the issue of LBW and its associated factors, this study contributes to the overall improvement of maternal and child health in Ethiopia, specifically in selected hospitals of Gurage Zone

2. LITERATURE REVIEW

2.1 Magnitude of LBW

Low Birth Weight (LBW) is still a significant global public issue. The prevalence of low birth weight is 15,5% worldwide, which indicates that out of 130 million newborns each year, 20 million have low birth weight [14].as a result it is projected that 2.9 million babies per year pass away in the first few months of life. More than 80% of neonatal mortality occurs among low birth weighted newborns in southern Asia and Sub-Saharan Africa [15,16]. Despite regional differences in the prevalence of low-birth-weight infants, poor and middle-income nations recorded a high rate, particularly in the most vulnerable groups [17]. Low birth weight is estimated to occur 13-15%in sub- Saharan African nations [18], and 11% in Kenya [17]. According to Studies, in Ethiopia, there is a difference in the prevalence of low birth weight between geographical areas with a range from 8.4% to 28.3% [18-21]. A study conducted on birth weight in Gondar town documented the prevalence of LBW to be 13.4% [22]. A survey conducted in Jima hospital showed that out of 1,441 live births, 147 (10.2%) neonates weigh less than 2,500 grams [23]. study conducted on birth weight in Addis Ababa shows the prevalence of LBW to be 12.6% [24] and study conduct in butajira town documents the prevalence of low birth weight to be 12.5% [25].

2.2 Associated Factors

Birth weight and its determinants have been the subject of numerous studies in to the cause of low birth weight (LBW) in recent years due to the widespread availability of infant weighting instruments that are quite accurate. As a result, it is now acknowledged that many factors can influence the length of gestation or the rate of intrauterine growth, i.e., that the causality of LBW is multi-factorial. Nonetheless, there is considerable confusion and controversy about the factors that have independent effects on LBW [26]. Some of the factors are discussed below**.**

2.2.1 Socio demographic Characteristics

Age of the mother

Teenagers and women over the age of 35 typically have less favorable pregnancy out comes, including birth weight and gestational age; however, there is considerable controversy as to whether age itself is an independent determinant of either intrauterine growth or gestational

duration. Age is closely associated with parity, which must therefore be controlled in attempts to isolate the independent impact of age [27].

However, recent studies have indicated a strong correlation between maternal age and LBW. According to a study conducted in Malawi, maternal age was significantly associated with LBW [28]. Similarly, according to Ethiopian DHS 2011, LBW was more common among children of the youngest mothers, age less than 20 (13 percent) and older mothers and age 35-49 (17 percent) [29].

Marital status of mother

Evidence from broad meta-analysis showed that marital status (or cohabitation) is an independent determinant of either intrauterine growth or gestational duration was inconclusive. None of the studies that had a bearing on this factor came from developing countries, however, and no firm conclusions can be drawn about its role there. However, recent studies have showed contrary results. A hospital-based study in northern Tanzania revealed that unmarried women were almost twice more likely to give birth to LBW neonates than the married ones (OR=1.65; (95% CI=1.25-2.17)) contributing to about 5% of all low birth weights [38].

2.2.2 Obstetric Characteristics of Mother

Parity of mother

There is a widespread consensus that the multiparous women have better pregnancy outcomes than primiparous women, although Garand multiparty is frequently viewed as posing a risk. The correlation between parity and gestational length or intrauterine growth may be complicated by a number of circumstances. Primiparous women are typically younger than multipara women [31]. Compared to moms of multiple children's primiparous women had a five -fold increase risk of having a low-birth-weight baby (AOR=5.798;95% (1.582-21.377) [32]. Primiparity which makes up a bigger percentage of maternal parity than multiparity, is found in the range of 1 to7.

In addition, as mothers of high parity are likely to have had shorter intervals since their previous pregnancy, birth (or pregnancy) interval should also be controlled. A short interval since the previous birth might lead to poor pregnancy outcome. Nutritional depletion would be the most obvious biological mechanism for such an effect, but inadequate physiological (e.g., hormonal)

recovery could arise for other reasons. In any case, identification of an independent effect of birth interval on intrauterine growth or gestational duration requires adequate control for numerous other factors. According to studies, mothers who gave birth for a birth interval less than 24 months between the last and current pregnancy were eleven times at an increased risk to give LBW when compared with having a birth interval greater than 24 months (AOR = 11:125, 95%CI = 2:008, 15:646).[33]

Antenatal care visit

Antenatal care could have a beneficial impact on intrauterine growth or gestational duration, either by diagnosis and timely treatment of pregnancy complications (such as toxemia, gestational hypertension or diabetes, antepartum hemorrhage, or cervical incompetence) or by eliminating or reducing modifiable risk factors. The results of the assessment indicate that those risk factors that seem most amenable to such an impact include caloric intake, cigarette smoking, alcohol consumption, and malaria prophylaxis or treatment. The stage in pregnancy at which a woman is first seen for antenatal care, the numbers of visit and the quality of the care might be of great importance, because the effects of many pregnancy complications and risk factors could then be substantially mitigated, if attended too early in gestation, adequate number of visits and quality care are fulfilled [34].Studies showed that the mothers who didn't attend antenatal care follow up during pregnancy were two times more likely to have low birth weighed babies as compared to mothers who have ANC follow up [AOR=2.3; 95%CI: 1.3-2.7] [33].

Nutritional factors

Maternal nutritional status both before and during pregnancy is a well-recognized determinant of birth outcomes. Only two indicators, namely maternal pre pregnancy body mass index and weight gain during pregnancy have shown consistent positive associations with infant birth weight. Reports from developed and developing countries show that maternal anthropometric measurements are associated with birth outcome [34].

Clinical factors (Anemia, Hypertension)

The studies have shown that maternal anemia and hypertension were significantly associated with LBW. Anemia could impair oxygen delivery to the fetus and thus interfere with normal intrauterine growth [37]. Maternal hypertension is thought to cause of LBW by affecting placental blood flow thus limiting nutrient supply [36]. The odd of having LBW baby was higher among women with history of chronic medical illness.

Hypertensive mothers were at high risk of getting a low-birth-weight baby. mothers who had a history of hypertension during current pregnancy were 6.9 times higher risk of getting low birth weight newborn compared to those mothers with no history of hypertension during the current pregnancy. [32]

Women with a history of chronic medical illness were three times more likely to have an LBW than women without a history of medical illness (AOR 5 3; 95% CI: (1.02, 9.17). Low birth weight was 77% more likely in women with hemoglobin levels less than 11 g/dl than in pregnant women with hemoglobin levels greater than 11 g/dl [37]

Furthermore, intake of traditional or herbal medication has a significant association with low birth weight. Mothers who took traditional medication during pregnancy were 3-5 times more likely to get low birth weight baby than mothers who did not take traditional medication [AOR=35.762; 95 % (4.571- 279.764)] [32].

Unintended Pregnancy

mothers who have had unintended pregnancy were two times more likely to have low birth weighted babies as compared to mother with planned pregnancy [AOR=2.0;95%CI:1.2-3.8]. This might be unintended pregnancy might distress health care seeking behaviors of mothers during pregnancy and exposed for related adverse birth outcome. If the pregnancy is unintended, mothers may have financial shortage which leads to not have adequate nutrition during pregnancy that is necessary for fetal development in the uterus and that might be end up with the adverse birth outcomes. [34]

2.2.3 Neonatal Factors

Gestational age

The mean birth weight and gestational age of infants were 2.74 kg and 39.65 week, infants were born with birth weight less than 2 kg, and 33 (1.26%) infants were born before 32 weeks of gestation [37]

2.3 Conceptual frame work

The following conceptual frame work shows the relation between Low Birth Weight and its associated factors**.**

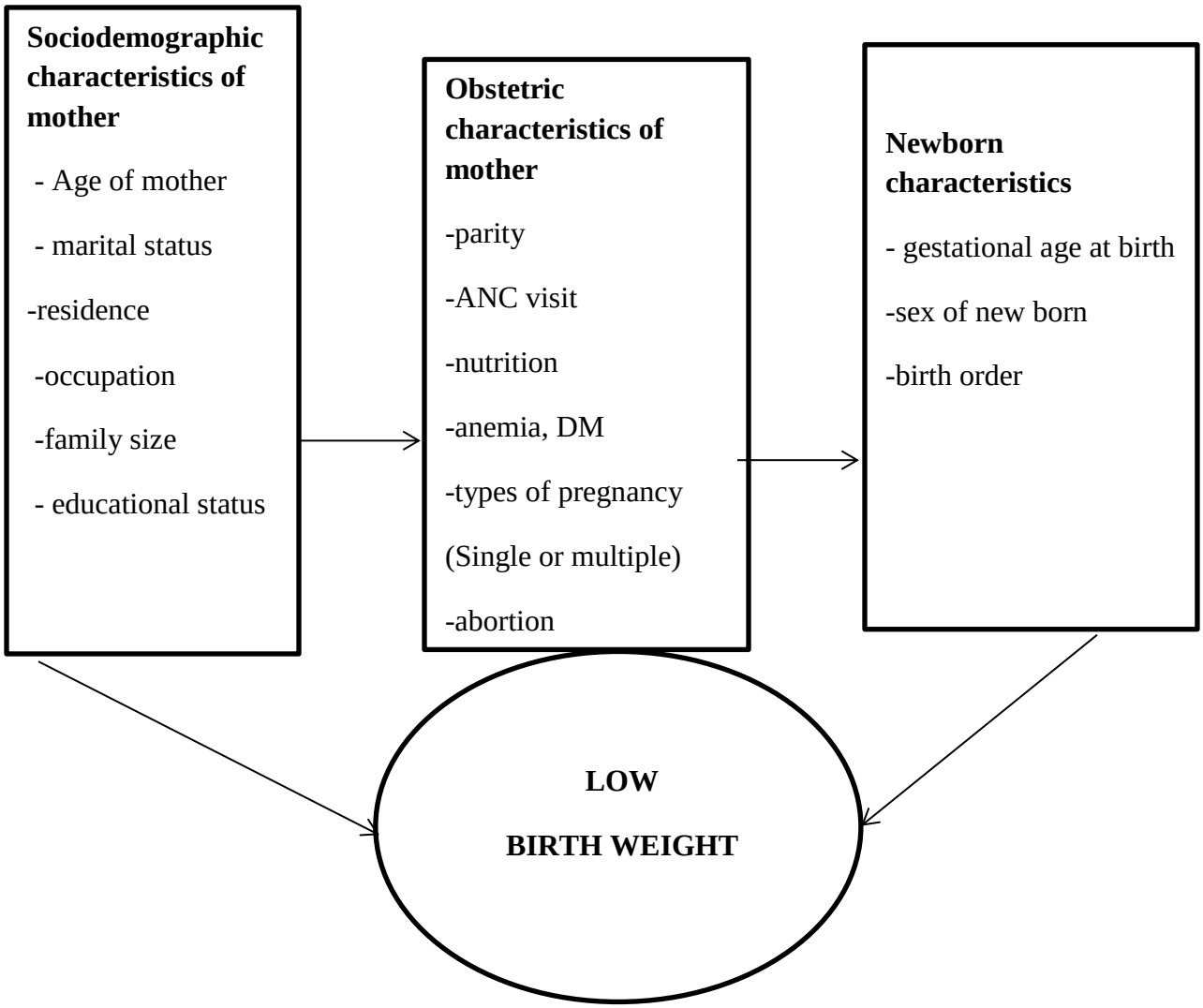

Figure 1: Conceptual frame work for magnitude and associated factor of low birth weight among newborns in selected hospitals of Gurage Zone, Sothern Ethiopia, 2023. (Developed by principal investigators after reviewing various literatures).

3. OBJECTIVE

3.1 **General Objective**

To assess magnitude and factor associated with low birth weight among newborns in selected hospitals of Gurage Zone, South Ethiopia, 2023

3.2. **Specific Objectives**

To determine the magnitude of Low Birth Weight among newborns in selected hospitals of Gurage Zone, South Ethiopia, 2023.

To identify factor associated with Low Birth Weight among newborns in selected hospitals of Gurage Zone, South Ethiopia, 2023.

METHOD AND MATERIAL

4.1 Study Area

This study was conducted in Gurage zone, Attat Hospital is about 187km south west of Addis Ababa along the Jima Road in the southern region of Ethiopia. The hospital has been operative since 1969.The hospital provides services to both inpatients and outpatients. It has 65 beds. In addition, there are 48 beds in the maternity waiting area, 13 beds in the nutrition rehabilitation unit,3 labor beds and 2 delivery beds that are often used as over flow beds

This study also conducted in Gubre WUSTH, southern region, south west, Ethiopia. which is found around 167km far from Addis Ababa (the capital city of Ethiopia). This hospital service the community as well as the university for the purpose of education for student of medicine and health science collage. This hospital has around 63 male and 61 female nurses, 9 male and 19 female midwife, 9 male and 3 female health officers, 17 male and 19 female laboratories, 13 male 14 female pharmacist, 5 male anesthesiologist, 2 male and 1 female radiologist, 2 male environmental scientist at this hospital.

This study was also conducted in Agena Town is Located in the Southern Nations, Nationalities and People's Region, Gurage Zone Ezha Woreda.192 kilometres far from Addis Ababa. There are four functional Health Centres, 28 functional l Health Posts, one Government hospital (Agena Primary Hospital) in the woreda. The town has 2 private clinics,4 drug stores and 1 primary hospital. In Agena Primary Hospital equipped with four departments; Internal Medicine, Surgery, Genecology and Obstetrics and Paediatrics. The Hospital has total of 80 Employees, 37 of whom are Health Professionals and 43 are supportive employees.

4.2 Study Period and Design

Institutional based cross-sectional study design was conducted in Attat, Agena and WUSTH from May 26 to June 26

4.3 Source Population

The source population was all women at any age who delivered in Attat, Agena and WUSTH from May to June.

4.4 Study Population

The study population was all mothers who gave Birth and who fulfills the inclusion criteria during the study period from May to June in selected hospital of Gurage zone.

4.6 Inclusion Criteria

All mothers who delivered live newborns during the study period were included in the study

- Multiple pregnancies

- Newborn with congenital abnormalities

4.8 SAMPLE SIZE DETERMINATION

The sample size was calculated by using the prevalence of low birth weight 12.5% [32] which used as population proportion (p) 0.125, confidence interval (CI) 95%, marginal errors (w) 0.05, with constant standard distribution (Z) value 1.96 calculated as following.

$n= (Z)^2(p(1-p))/w^2$ where n - is desired sample size

Z- Is standard normal distribution

P - Population proportion

W - Marginal errors

$n= (Z\alpha/_2)^2 p(1-p)/w^2$

$n = (1.96)^2 (0.125) (1-0.125)/ (0.05)^2$

n = 168.07

n= 168

Since the non-respondents of 5% were added to calculate sample size

n = 0.05×168.07=8.4

n = 168+8.4

n = 176

4.9 Sampling Procedure

All mothers delivered singleton baby during the study period was included in the study. Simple random sampling techniques was use with in all study until required sample size is obtained.

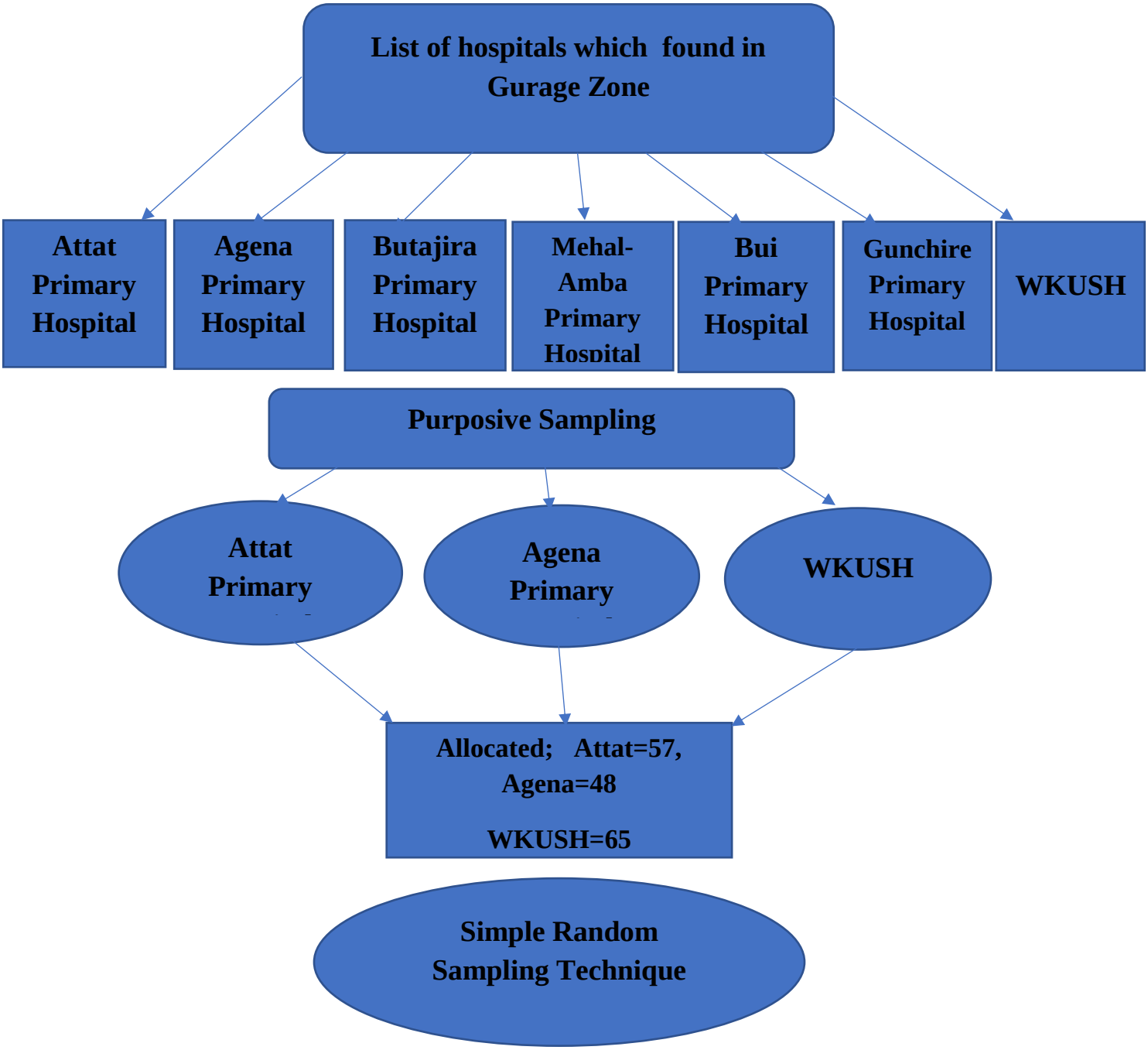

Figure 2; Diagrammatic presentation of sampling procedure and technique on magnitude and associated factors of LBW in Gurage Zone Selected Hospitals SNNPs, Ethiopia,2023.

4.10 Study Variables

4.10.1 Dependent Variables

- Low birth weight

4.10.2 Independent Variables

(I) Sociodemographic characteristics: maternal age, family size, marital status, residency, educational status.

(ii) Maternal medical and obstetric characteristics: gravidity, parity, history of abortion, desirability of pregnancy, history of previous preterm birth, birth interval between current and previous last pregnancy, ANC follow-up, number of ANC visits, and medical complication during pregnancy like gestational diabetes, gestational hypertension, and anemia status, additional diet during pregnancy, iron and folic acid supplementation during pregnancy, nutritional counseling.

(iii) Newborn characteristics: sex of the newborn, gestational age at birth.

(iv) General maternal behaviors: history of alcohol drinking, cigarette smoking, and chewing.

4.11 Operational Definition

Low birth weight is a weight of less than 2,500 g (up to and including 2,499 g) irrespective of the gestational age [39].

Gestational age is the duration of time measured from the first day of conception and expressed in completed weeks.

Preterm birth is the birth of newborn before 37 completed weeks of gestational age.

Gravidity is the number of pregnancies. Parity is the number of births or the number of children either alive or died.

Birth order is the sequence at which birth occurs.

Birth interval is a time period between the current and previous last pregnancy

4.12. Data Collection Instrument and Procedure

4.12.1. Data Collection Instrument

Data were collected through a face-to-face maternal interview using structured questionnaire, medical records review of the mother & her newborn. Birthweight of each child was measured in grams using pretested weight scale within one hour of delivery. Gestational age was calculated from ultrasound-reading record, if available, or from last menstrual period (LMP) of the mother; Maternal MUAC and height were also measured with tape measure. Interviews were made using structured questionnaire, prepared in English and translated in to Amharic after mother's condition was stabilized; which is her vital signs were checked before the interview.

4.12.2. Data Collection Technique

Data was collected by interviewing the study participant by trained data collectors using Amharic language (local language they know). The weight of newborn baby was obtained by direct observation. We had communicated with the head of the labor ward to facilitate data collection and assist in the process of patient identification that fulfills the inclusion criteria by requesting the health care providers (physicians, nurses or any case manager) working in the labor ward.

4.13 Data Quality Control

The quality of data was ensured during collection, coding, entry, tally making and analysis. The discussion was done among the data collector to prevent confusion and misunderstanding about study. Each mother was interviewed and the card was checked for consistency, provision of full information and appropriate documentation. The data collectors were instructed to write the code for the privacy of information on the checklist during data collection, so that any identify errors was trace back by using code. The filled checklist was checked for completeness by data collector and supervisor daily. Finally, any problem encounter was discussed among team and solve immediately.

4.14 Data Processing and Analysis

The collected data was cleared, checked, analyzed and processed by using SPSS version 27 statical package before reported finally the counted result of analyzed and processed data was presented by using tables, graphs, charts and texts. Consequently, data were checked for inconsistencies, missing values and outliers then analysis was performed using SPSS. The data were summarized

and descriptive statistics were computed for all variables according to their type. The categorical variables were assessed by computing frequencies and percentages. Significance was determined using crude and adjusted odds ratios with 95% confidence intervals.

To assess the association between the different independent variables with the dependent variable, first bivariable relationships between each independent and outcome variable was analyzed using a binary logistic regression model. Those independent variables found to be significant with p value less than 0.25 at the bivariable level were further analyzed using three separate regression models. At the end, those variables found to be significant ($p < 0.05\%$) in the three separate model were further analyzed in the final model.

4.15 Ethical considerations

Formal letter of ethical clearance for permission was obtained from the Wolkite University College of Medicine and Health Science department of nursing and Research committee to conduct study. Further permission was obtained from Attat, Agena and WUSTH. The confidentiality was kept during data collection by data collector. Any identification doesn't record; in place of name code was used to maintain confidentiality of clients.

4.16 Dissemination of result

The result of this study will be submitted to Wolkite university department of Nursing as well as Attat, Agena and WUSTH to be used as reference for the future researchers and accessible for utilization as hard copy. It provides the information related to health professional to overcome to LBW problem.

5.RESULT

5.1 Socio-demographic characteristics of respondents

In this study 176 participants were involved with the response rate of 96.6%. As a result, a total of 170 mothers gave full response for the questionnaires. Majority of respondents 111 (65.3%) were in the age group of 35 years and above followed by the age group 20-34 ,52 (30.6%), Regarding educational level of the all mothers, the majority 44 (25.9%) had primary school, followed by able to read and write and college and above respondents 35 (20.6). Majority 66(38.8%) of the overall respondents were Muslims, followed by an orthodox Christian follower 41 (24.1 %). Regarding marital status, 96 (56.5%) were married or in union and 30 (17.6%) were divorced. With respect to respondents (mothers) occupation majority of respondents 84 (49.4%) were house wives followed by employees (Private or governmental) constituting 29 (17.1%). Regarding to place of residency the majority of respondents 113 (66.5%) were came from rural area and the remaining 57 (33.5%) were came from urban areas. Regarding to family size the majority of respondents 124 (72.9%) have family size less than 5 and the remaining46 (27.1%) have family size greater than 5 (see table 1).

Table 1: Socio demographic characteristics of mother in selected Hospitals of Gurage Zone, southern Ethiopia,2023 (n=170)

Variable	Category	Frequency	Percentage (%)
Age	<19	7	4.1
	20-34	52	30.6
	>35	111	65.3
Marital status	Single	28	16.5
	Married	96	56.5
	Divorced	30	17.6
	Windowed	16	9.4
Place of residence	Urban	57	33.5
	Rural	113	66.5

Religion	Orthodox	41	24.1
	Muslim	66	38.8
	Protestant	39	22.9
	Others	24	14.1
Educational level	Unable to read and write	30	17.6
	Able to read and write	35	20.6
	Primary school (1-8)	44	25.9
	Secondary school (9-12)	26	15.3
	College and above	35	20.6
Occupation	Employed	29	17.1
	House wife	84	49.4
	Farmer	14	8.2
	Merchant	26	15.3
	Others	17	10.0
Family size	<5	124	72.9
	>5	46	27.1

Others; include daily laborer, farmer, unemployed and student.

5.2 Obstetric characteristics of mother

The data shows that 22.4% of mothers had a parity of 1, 26.5% had a parity of 2-3, and the majority, 51.2%, had a parity of more than 3. The majority of pregnancies were single (79.4%), while multiple pregnancies accounted for 20.0% of the cases. 63.5% of mothers reported having ANC visits, However, 36.5% did not have any ANC visits.23.5% of mothers started their ANC visits before the 16th week of pregnancy, while 34.7% started after the 16th week. The data reveals that 14.1% of mothers had ANC visits only once, 30.0% had 2-3 visits.52.4% of mothers reported taking iron tablets during pregnancy, while 7.1% did not. Among those who took iron tablets, 39.4% reported taking them for less than 3 months, 1.8% took them for 3 months or more, and 17.1% did not remember the duration. 53.5% of mothers reported receiving counseling on nutrition during ANC, while 7.1% did not. 44.7% of mothers reported having an additional diet during pregnancy, while 55.3% did not. 17.1% of mothers were diagnosed with anemia, while 7.6% had diabetes mellitus. Among the mothers surveyed, 10.0% were diagnosed with gestational diabetes mellitus (GDM), while the majority, 90.0%, did not have GDM. The data shows that 32.4% of mothers had a pregnancy interval of less than 2 years, while 45.3% had a pregnancy interval of 2 years or more. (Table 2)

Table 2: Obstetric Characteristics of Mothers in selected Hospital of Gurage Zone, Southern Ethiopia,2023 (n=170)

Variables	Category	Frequency	Percent
Parity	1	38	22.4
	2-3	45	26.5
	>3	87	51.2
Type of pregnancy	Single	135	79.4
	Multiple	34	20.0
ANC visit	Yes	108	63.5
	No	62	36.5
Timet to start ANC visit	<16	40	23.5

	≥16	59	34.7
Frequency of ANC visit	Once	24	14.1
	2-3	51	30.0
	≥4	26	15.3
taken iron tablets	Yes	89	52.4
	No	12	7.1
Frequency of take iron tablets	<3 months	67	39.4
	≥3 months	3	1.8
	Do not remember	29	17.1
Counseling on nutrition on ANC	Yes	91	53.5
	No	12	7.1
additional diet	Yes	76	44.7
	No	94	55.3
Anemia	Yes	29	17.1
	No	141	82.9
Diabetes Mellitus	Yes	13	7.6
	No	157	92.4
Gestational age at birth	Yes	17	10.0
	No	153	90.0
Pregnancy interval	<2 Years	55	32.4
	≥ 2 Years	77	45.3

5.3. characteristics related to newborn and delivery among mother

Approximately half (50.6%) of the babies were born before 37 weeks of gestation, while the remaining 49.4% were born at or after 37 weeks. Among the newborns, 45.3% were male, while 54.7% were female. The majority (72.9%) of babies had a cephalic (head-first) presentation, while 27.1% had a breech (bottom-first) presentation. Spontaneous vaginal delivery (SVD) was the most common mode of delivery, accounting for 76.5% of the cases. Instrument-assisted delivery was required in 15.3% of the cases. A total of 10.6% of deliveries experienced complications, while the remaining 89.4% did not (see table 3).

Table 3: Characteristics related to newborn and delivery among mothers in Gurage Zone Selected Hospitals, Southern Ethiopia,2023 (n=170)

Variables	Category	Frequency	Percent
Gestational age	<37wks	86	50.6
	>=37wks	84	49.4
Sex of new born	Male	77	45.3
	Female	93	54.7
Fetal presentation	Cephalic	124	72.9
	Breach	46	27.1
Mode of delivery	SVD	130	76.5
	Instrument	26	15.3
	C/S	14	8.2
Complication during delivery	Yes	18	10.6
	No	152	89.4

5.4 Anthropometric, and behavioral characteristics of mothers

Out of the total sample, 42 (24.7%) reported a history of consuming alcohol, among those who reported alcohol consumption, 8.2% consumed alcohol once per week, and 15.9% consumed alcohol once a month. A small proportion (1.8%) of the sample reported chewing khat, while the majority (98.2%) reported no history of khat chewing. During pregnancy, 41.2% of participants consumed animal products, while 58.8% consumed vegetables. Participants, 13.5% reported having a diet twice per day, while the majority (86.5%) reported having a diet three or more times per day. A majority (74.1%) of the sample had a mother's weight below 60kg, while 25.9% had a weight equal to or above 60kg (see table 4).

Table 4: Anthropometric, and behavioral characteristics of mothers in selected Hospitals of Gurage Zone Southern Etiopia,2023, (n=170)

Variables	Category	Frequency	Percent
History alcohol drinks	Yes	42	24.7
	No	128	75.3
Alcohol drinks	once per week	14	8.2
	once a month	27	15.9
Chew khat	Yes	3	1.8
	No	167	98.2
Freq Chew khat/day	Daily	4	2.4
	3 times per week	1	.6
Smoking history	Yes	1	.6
	No	169	99.4
Hand wash pre food preparation	Yes	170	100.0
Food type at pregnancy	Animal products	70	41.2
	Vegetables	100	58.8
Frequency of diet/day	Two times	23	13.5
	≥times	147	86.5

Mother weight	<60Kg	126	74.1
	≥60Kg	44	25.9

5.5 Past obstetrics characteristics of mother

The majority of respondents had been pregnant three or more times (55.9%). About 21.8% of respondents had experienced pregnancy only once. Similar to the number of pregnancies, a significant proportion of respondents had three or more children (55.9%). The percentage of respondents with two children was 22.9%. Approximately 21.2% of respondents had only one child. A small percentage of respondents reported a history of abortion (14.1%). The majority of respondents (85.9%) did not have a history of abortion (see table 5).

Table 5: Past obstetric characteristics of mothers in selected Hospitals of Gurage Zone, Southern Ethiopia,2023. (n=170)

Variables	Category	Frequency	Percent
Number of pregnancies	One	37	21.8
	Two	38	22.4
	Three and more times	95	55.9
Number of children	One	36	21.2
	Two	39	22.9
	Three and more	95	55.9
History of Abortion	Yes	24	14.1
	No	146	85.9
Frequency of Abortion	One	22	12.9
History of LBW	Yes	40	23.5
	No	130	76.5

Magnitude of low birth weight

As shown in the figure below the prevalence of low birth weight was 23.53.

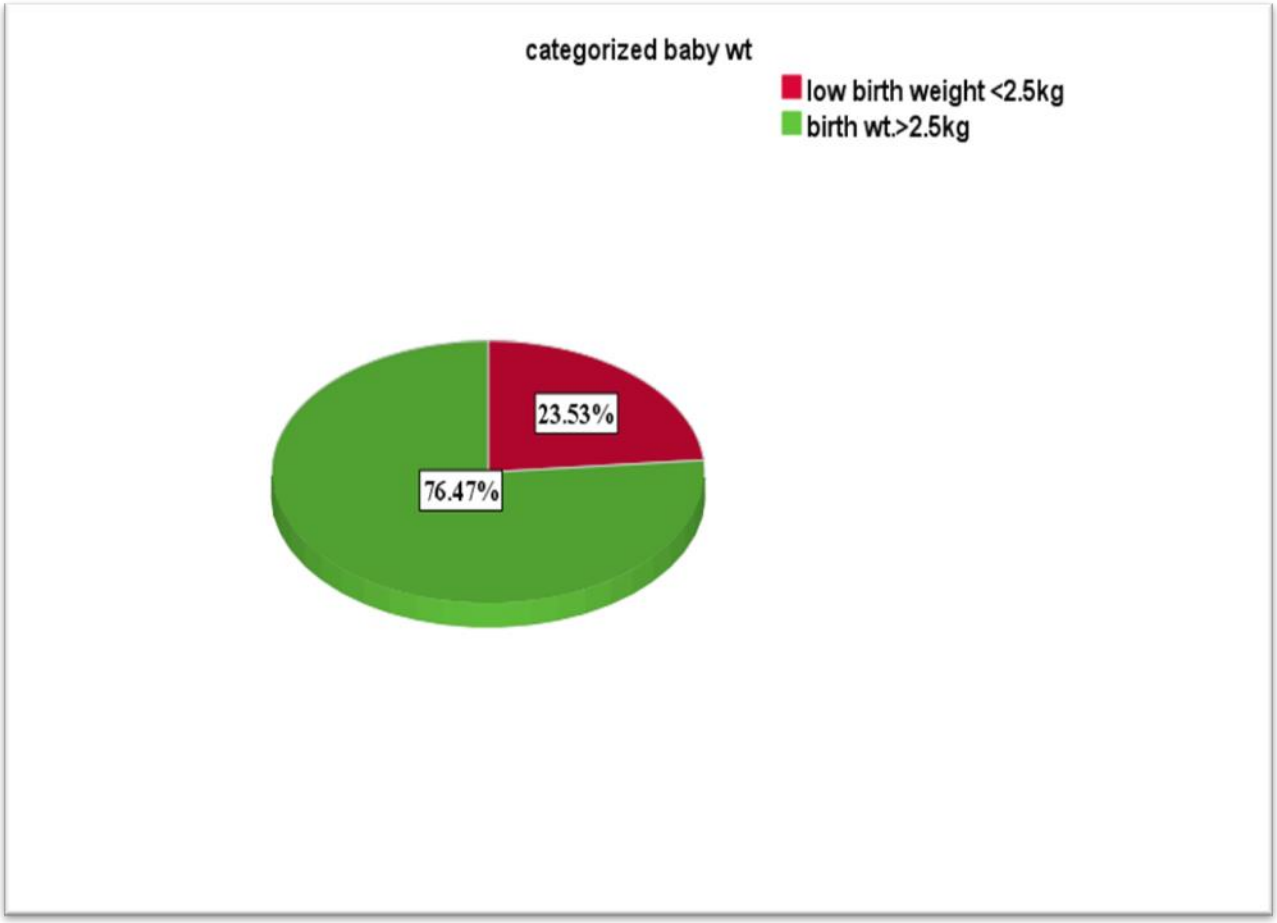

Figure 3: Magnitude of low birth weight in selected Hospital of Gurage Zone, Southern Ethiopia, 2023.

5.7 Factor associated with Low Birth Weight

Mothers aged 35 and above have a higher risk of low birth weight compared to mothers aged below 35 (AOR = 2.85, p-value = 0.018). Not taking iron during pregnancy significantly increases the risk of low birth weight (AOR = 2.87, p-value = 0.013). Mothers Having 2-3 previous births significantly increases the risk of low birth weight (AOR = 3.8, p-value = 0.02), while having more than 3 previous births does not have a significant association. Not having antenatal care visits significantly increases the risk of low birth weight (AOR = 2.64, p-value = 0.01). Not taking additional diet during pregnancy significantly increases the risk of low birth weight (AOR = 3.46, p-value = 0.004). Delivering before 37 weeks of gestation significantly increases the risk of low birth weight (AOR = 3.06, p-value = 0.009) (see table 6).

Table 6: bivariable and Multivariable logistic regression analysis showing factor associated with low birth weight in selected Hospitals of Gurage Zone, Southern Ethiopia 2023, (n=170)

Variables	Category	magnitude of low Birth weight		COR (95%CI)	AOR (95%CI)	P-value
		Low	Good birth weight			
Age of mother	Age ≥35	21	97	0.37(0.18-0.78)	2.85(1.19-6.79)	0.018**
	Age<35	19	33	1	1	1
Marital Status	Married	23	73	1.05(0.5-2.1)		0.8
	Unmarried	17	57	1		1
Educational level	Illiterate	9	21	1.5(0.6-3.6)		0.35
	Literate	31	109	1		1
Iron intake pregnancy	No	25	44	3.26(1.56-6.8)	2.87(1.24-6.6)	0.013**
	Yes	15	86	1	1	1
Place of residence	Urban	9	48	0.49(0.21-1.13)		0.095

	Rural	31	82	1	1	1
Parity of the mother	1	4	34	1	1	1
	2-3	9	36	2.125(1.2-11.8)		0.02*
	>3	27	60	3.825(0.76-4.2)		0.18
ANC visit	No	23	44	4.44(1.28-5.45)		0.01*
	Yes	17	86	1		1
additional diet	No	24	34	4.23(2-8.9)	3.46(1.49-8)	0.004*
	Yes	16	96	1	1	1
Anemia during pregnancy	No	16	84	0.36(0.176-0.76)	0.36(1.57-0.84)	0.019**
	Yes	24	46	1	1	1
Gestational age at delivery	Gestational Age<37	25	40	3.75(1.7-7.8)	3.06(1.32-7.07)	0.009**
	Gestational age ≥37	15	90	1	1	1
Family Size	<5	27	97	0.71(0.33-1.5)		0.37
	≥5	13	33	1		1
Alcohol use during current pregnancy	No	32	96	1.41(0.59-3.37)		0.43
	Yes	8	34	1		1

6. Discussion

Birth weight is an important indicator of the health status of newborn, it also indicates the past and present health status of the mother [13] and the study mentioned highlights the prevalence of low birth weight (LBW) and its association with various factors. The study found that 23.53% of newborns in the study population were measured as LBW with confidence interval of 96.6%, which is higher than the rates reported in other studies conducted in Butajira town (12.5%) [27], Addis Ababa (12.6%) [26], Jimma hospital (10.2%) [25], and Gondar town (13.4%) [24]. According to the Ethiopian Demographic and Health Survey (EDHS 2011), 11% of newborns in Ethiopia weighed less than 2,500grams [41]. The WHO country cooperation strategy 2008–2011 showed that the prevalence of low birth weight in Ethiopia was 14% [40]. WHO and UNICEF estimated the prevalence of LBW about 15.5% worldwide, 15% in sub-Saharan Africa, and 11% in Kenya [19]. From this we observed a higher proportion of LBW in the current study as compared to the above studies.

Mothers aged 35 and above were found to be almost three times more at risk of having a low-birth-weight baby (AOR 2.85, 95%CI: 1.19-6.79) compared to mothers below the age of 35. This finding is in line with a similar study conducted in Malawi, suggesting that advanced maternal age may contribute to the occurrence of LBW [29]. The intake of iron during pregnancy was also significantly associated with LBW. The study found that not taking iron supplements during pregnancy increased the risk of having a low-birth-weight baby (AOR 2.87, 95%CI: 1.19-6.79). This finding is consistent with a study conducted in Addis Ababa, which also showed an association between inadequate iron intake and low birth weight [42]. This underscores the importance of ensuring adequate iron intake during pregnancy to promote healthy fetal development and prevent LBW. Lack of compressive awareness about iron intake and gastric complain after taking iron supplementation are the possible reasons.

The other finding from this study shows that the parity of the mother, or the number of previous births, was found to have a significant association with low birth weight. The study done in Malawi which revealed that mothers who had ever given birth to 1 child were fivefold increase risk of having children who had LBW compared to mothers who had ever given birth to 5 or more children [33], in contrast this study suggests, Women who had 2-3 previous births were at a higher risk of

delivering a low-birth-weight baby. This finding implies that multiparity may be a risk factor for low birth weight.

Antenatal care could have a beneficial impact on intrauterine growth, either by diagnosis and timely treatment of pregnancy complications or by eliminating or reducing modifiable risk factors [39]. The number and duration of ANC visits are the factors the really matter even among the attendants. There is a large gap between a single antenatal visit and optimum ANC, which would require follow up visits and several preventive interventions. In this study only the frequency of ANC visits has shown statistically significance. Not attending ANC visits during pregnancy was found to significantly increase the risk of LBW. This finding aligns with a previous study, which also reported that mothers who didn't attend ANC follow-up were twice as likely to have low birth weight babies [33].

Furthermore, the presence of anemia during pregnancy was also significantly associated with LBW. Women who had anemia during pregnancy were at a higher risk of delivering a low-birth-weight baby AOR 0.36 (0.84-1.57). This finding is consistent with a study conducted in Pakistan, which revealed that the risk of LBW among anemic women was 1.9 times higher compared to non-anemic women. It emphasizes the importance of addressing and treating anemia in pregnant women to reduce the risk of low birth weight [38].

Lastly, this study reveals that delivering small gestational age was found to significantly increase the risk of low birth weight. infants delivered before 37 weeks of gestation are 3 times most likely to have LBW than infants >37 week of gestation, this study agrees with the finding conducted in preambular, Tamilnaduin showing that 34.15% mothers had low birth weight in gestational age less than 37 weeks of gestation and study conducted in India show the gestational age was affect birth weight of newborn [37]

7. Limitation of the Study

Since this study used a cross-section study design which could not show a cause-effect relation between variables, measuring newborn weight may induce bias of accuracy. The study used a small sample size of participants.

8. Conclusion and Recommendation

8.1 CONCLUSION

This study reveals a higher prevalence of low birth weight (LBW) compared to most studies done before. Factors such as advanced maternal age, inadequate iron intake, multiparity, lack of antenatal care visits, and preterm birth contribute to this issue.

8.2 Recommendation

Demand creation activities need to be done among mothers to Increase the utilization ANC, follow up and number of visits during pregnancy to reduce low birth weight and Supplementation of micronutrient. Foster collaboration between healthcare providers, policymakers, and communities to implement comprehensive intervention.

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List of Annex

WOLKITE UIVERSITY

COLLEGE OF MEDCINE AND HEALTH SCINCE

DEPARTMENT OF NURSING

Consent form

My name is……. I came from wolkite university and I am 4th year nursing student. I want to study magnitude and associated factors of LBW among newborns. I can only start asking you the set of specific questions after I have confirmed your willingness. As I have told you before your participation is fully voluntary. If you think that you have got enough information, and you don't have any ambiguity and hesitation about the study you will be welcomed to be part of the study participants as respondent. I would like to remind you again that you have the right to withdraw from the study at any place and point of time. Not participating or withdrawing will not have any effect on the services that you are expected to get. Having saying these I kindly ask you to take active part and contribute to the study.

Are you willing to participate in the study? (Interviewer: Please mark with "□" in the box provided to confirm respondent's permission.)

Agree_____ Not agree_____

Sign_____

Part I: Socio-demographic characteristics of mothers'			
101	Age in year?	_____	
102	What is your marital status?	1. Single 2. Married 3. Divorced 4. Widowed	
103	Residence?	1. Urban 2. Rural	
104	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Others----------	
105	Educational status	1. Unable to read & write 2. Able to read and write 3. Primary school (1-8) 4. Secondary school (9-12) 5. College and above	
106	What is your occupation?	1. Employed 2. House wife 3. Farmer 4. Merchant 5. Other specify	
107	Family size	_____ in number	
Part two: Current Obstetric Characteristics of Mothers			
201	What is your parity?	1. 1	

		2. 2-3 3. >3	
202	Type of pregnancy	1. Single 2. Multiple	
203	Have you had ANC visit?	Yes No	
204	If yes for Q203, Time of starting ANC visit	-_____ in month	
205	If yes for Q203, how many times did you receive antenatal care?	1. Once 2. 2-3 times 3. >=4 times	
206	Have you ever taken Iron tablets?	1.Yes 2. No	
207	If yes for Q206, for how many times did you take iron tablets?	1. <3 months 2. >=3 3. Do not remember	
208	Counseling on nutrition at ANC	1.Yes 2. No	
209	Have you taken an additional diet?	1.Yes 2. No	
210	During your current pregnancy, have you been told that you have anemia?	1. Yes 2. No 3. Do not remember	
211	Have you ever been told that you have Diabetes Mellitus?	1. Yes 2. No 3. Do not remember	
212	During your current pregnancy, have you been told that you have	1. Yes 2. No 3. Do not remember	

	developed gestational diabetes mellitus?		
213	Inter Pregnancy interval in years	1. <2 Years 2. >=2 Years	
Part three: Characteristics related to newborn and delivery among mothers			
301	Birth weight of your baby in grams?	1. > = 2500gms 2. <2500gms	
302	What was the gestational age at delivery, in weeks?	1. <37wks 2. >=37wks	
303	APGAR score within one minute	---------- /10	
304	Sex of newborn	1.Male 2.Female	
305	Fetal presentation during delivery	1.Cephalic 2.Breach 3.Other specify ----------	
306	Mode of delivery	1. SVD 2. Instrument 3. C/S	
307	Complication during delivery	1.Yes 2.No	
Part four: Anthropometric and behavioral characteristics of mothers			
401	During your pregnancy, did you drink alcohol?	1. Yes 2. No 3. Do not remember	
402	If yes for Q401, how often were you taking alcohol drinks?	1. Daily 2. Once per week 3. 3 times per week	

		4. Once a month	
403	During your current pregnancy, did you ever chew Khat?	1. Yes 2. No 3. Do not remember	
404	If yes for Q403, how often were you chewing khat?	1. Daily 2. Once per week 3. 3 times per week 4. Once a month	
405	During your current pregnancy, did you ever smoke?	1. Yes 2. No 3. Do not remember	
406	If yes for Q405, how often were you smoking?	1. Daily 2. Once per week 3. 3 times per week 4. Once a month	
407	Did you wash your hand before and after preparation of food?	1. Yes 2. No	
408	Did you wash your hand before and after visiting toilet?	1. Yes 2. No	
409	During your current pregnancy, what type food you used to it?	1. Animal product 2. Vegetables 3. Others ----------	
410	How many times you ate per day?	1. One time 2. Two times 3. ≥ 3 times	
411	Hight of mothers	---------- in Meter	
412	Weight of mothers	---------- in Kg	

413	MUAC of mothers	---------- in cm	
Part five (5): Past obstetric characteristics of mothers			
501	How many times you become pregnant?	1.One 2.Two 3.Three and more times	
502	How many children's you have?	1.One 2.Two 3.Three and more times	
503	Did you have a history of abortion?	1.Yes 2.No	
504	If yes for question No 503, how many times?	1.One 2.Two 3.Three and more times	
505	Have you ever had given a live singleton baby with birth weight less than 2500g.	1.Yes 2.No 3.Do not remember	
506	What is the inter-pregnancy interval of the last pregnancy with the current pregnancy?	Inter-pregnancy interval in month ……. months	

AMHARIC VERSION QUESTIONARIES

ፍቃድ የመጠየቂያ ቅፅ

አንደምን አደርሽ/ዋልሽ እናት

ጤናይስጥልኝ!እኔ ተማሪ _____ እባላለሁ የመጣሁት ከወልቂጤ ዩኒቨርስቲ ሕክምናና ጤናሳይንስኮለጅ ት/ክፍል ስሆን በአሁኑ ሰዓት ለመመረቂያ ጸሁፍ የሚሆን ምርምር አየሰራን በመሆኑ ለምርምሩ የሚሆን መረጃ እያሰበሰብኩ ነው። የምርምሩ ዋና አላማ በአጣጥ ሆፒታል በሚወለዱ ጨቅላ ህጻናት ላይ የክብደትመጠነመቀነስ ሆኖ የመወለድ ችግር ግዝፋት እና ከችግሩ ጋር ተያዥነት ያለቸው ጉዳዮች ማጥናት ነው።በጥናቱ ለመሳተፍ ፍቃደኛ ከሆኑ ስም በዚህ ቅፅ የማይሞላ ሲሆን ከጥናቱ ግኝት ጋር በተያያዘ በማንኛውም መልኩ አይጠቀስም።በምጣየቁ ጊዜ ለመመለስ የማይፈልጉትን ጥያቄ ያለመመለስ መብትዎም የተጠበቀ ሲሆን መጠይቁንም በፈለጉት ጊዜ ማቋረጥ ይችላሉ።

በጥናቱ ላይ ለመሳተፍ ፍቃደኛነኝ_____ ፍቃደኛ አይደለሁም_____

ፍርማ (በአሻራ)_____

ክፍል አንድ፡ የማህበራዊእና ድሞግራፒክ ሁኔታ

1. የእናት እድሜ _____

2. የትዳር ሁኔታ ሀ. ያላገባች. ለ.ያገባች ሐ.የፈታች መ. የሞተባት

3. የትምህርት ደረጃ ሀ. ያልተማረች ለ.ማንበብእና መጻፍ የሚትችል ሐ. 1ኛ ደረጃ መ. 2ኛ ደረጃ ሠ. ከዚያበላይ

4. የእናትየዉ የስረ መደብ ሀ. ነጋዴ ለ. የቤት-እማቤት ሐ. አርሶ-አደር መ. ሌላ

5. ሐይማኖት ሀ .ሙስልም ለ. ኦርቶዶክስ ሐ. ፕሮተስታንት መ. ካቶሊክ ሠ. ሌላ

6. ብሄር ሀ.ጉራጌ ለ.ኦሮሞ ሐ. አማራ መ. ትግሬ ሠ. ሌላ

7. የቤተሰብ ወራሃዊ የገብ መጠን……..

8. የገብዉ መገኛ ምንጭ ምንድ ነዉ? ……

9. ሌላ ተጨማር ገብ አለ? ……

ክፍል ሁለት በልጁ ክብደት መጠነ-መቀነስ ላይ ከእነተየዉ ጋር ያለዉ ተጎደኛ ችግሮች

1. እርግዝነሽ በፍላጎትና በእቅድ ነበር ሀ. አዎ ለ. አይደለም

2. በዝህ እርግዝነሽ ወቅት የመጫረሻ ወር አበበ ያያሽበትን ቀን ታዉቅያለሽ ሀ. አዎ ለ. አይደለም

3. በእርግዝናሽ ጊዜ ካበድ ስረ ሰርታሽ ታዉቅያለሽ ሀ. አዎ ለ. አይደለም

4. አዎ ካልሽ ምን አይነት ስረ? …….

5. ምግብን በቃን ስንቴ ትመጋብያለሽ ሀ. አንዴ ለ. ሁለቴ ሐ.ሶስትና ካዝያም በላይ

6. በቀን ከሶስት ጊዜ ያነሳ የምትመገብ ከሆነች ለምን? ሀ.የምግብ ፍላጎት በመቀነስ ለ. በቤት ዉስጥ በቂ ምግብ በመጠት ሐ. በቂ ጊዜ በመጠት

7. በእግዝነሽ ጊዜ የጎሮ አታክልቶችን ትመጋብዉ ነበር? ሀ. አዎ ለ. አይደለም

8. አይደለም ካልሽ ለምንድነዉ የጎሮአታክልቶችን የመትመጋብዉ ሀ. ገንዛብ በመጠት ለ. ፍለጎት በመቀነስ ሐ. ግንዛቤን በመጠት

9. አዎ ከልሽ የተኛዉን የጎሮአታክልት……..

10. ቅድመ-ወልድ ክትትል አለሽ? ሀ. አዎ ለ. አይደለም

11. ላምን ያህል ጊዜ ታካታተልሽ ሀ. አዎ ለ. አይደለም ሐ. ከሶስት ጊዜ በላይ

12. በእርግዝነሽ ጊዜ ትንንሽ ንጥረ-ምግቦች ተሳጥቶሽ ነበር ሀ. አዎ ለ. አይደለም

13. አዎ ከልሽ እነሱም እነማን ነቸዉ ሀ. ብረት ለ. ፎልክ አስድ ሙ. ሌላ

14. በእርግዝነሽ ጊዜ ችግር ነበር ሀ. አዎ ለ. አይደላም

15. አዎ ከልሽ ምን አይነት ችግር ነበር?

16. ለነበረዉ ችግር ምን የመፈቴ አቅጣጫ ተወሰደ

17. በዚህ እርግዝነሽ መደታንት ወስደሽ ነበር ሀ. አዎ ለ. አይደለም

18. የወሰድሽዉ መድታንት የምንድ ነዉ

ክፍል ሶስት አድስ በተወለዱ የክብደት መጠነ መቀነስ ባለባቸዉ ጫቅላ ህጻናት እና በእናትዮዉ የመዉለድዋ ጣበይ ጋር ያለቸዉ ተጎደኝ ችግሮች

1. ለስንተኛ ጊዜ ነዉ ያረገዝሽዉ ሀ. አንደኛ ለ. ሁለተኛ ሐ. ሶስትናከዚያምበላይ

2. ስንት ልጆች አሉሽ ሀ.አንድ ለ. ሁለት ሐ. ሶስተና ከዚያምበላይ

3. ይህ የተወለደዉ ልጅሽ ቅድመ ተከተሉ ሀ. አንደኛ ለ. ሁለተኛ ሐ. ሶስተኛ

4. የዉልድ ጋፕ (ርቀት) ሀ. ከአንድ አመት ያንሳል ለ.ከሁለት አመት ይበልጣል

5. የእርግዝና ዉርጃ አለብሽ ሀ.አዎ ለ. አይደለም

6. አዎ ከልሽ ለምን ያህል ጊዜ ሀ. አንድ ጊዜ ለ. ሁለትጊዜ ሐ. ሶስትና ከዚያ በለይ

ክፍል አረት አድስ የተወለዱ የጫቅለ ህጻን ጣበይ

1. ጾታዉ ሀ. ወንድ ለ. ሴት

2. የህጻኑ የእርግዝና ጊዜ ሀ. ከ 37 ሳምንትያነሳ ለ.ከ 37 ሳምንትየምበልጥ

3. የህጻኑ የጤና ሁኔታ ሀ. ጤነኛ ነዉ ለ. ጤነኛ አይደለም

4. የህጻኑ ክብዳት በግራም ሀ.4000-3000ግራም ለ. 2000-3000ግራም ሐ. 1000-2000ግራም ሙ.

ክፍል አምስት ከልጁ የክብደት መጣነ መቀነስ ጋር ያለዉ የእናትየዉ የባህርይ ችግር

1.ስጋራ ተጨሽያለሽ ሀ. አዎ ለ. አይደለም

2. አዎ ካልሽ በቀን ስንት ጊዜ ሀ. አንዴ ለ. ሁለቴ ሐ. ሶስትናከዚያምበለይ

3. በእግዝናሽ ጊዜ አልኮል ጠጥተሽ ታዉቅያለሽ ሀ. አዎ ለ. አይደለም

4. በእርግዝናሽ ወቅት የማይበሉ ነገሮች (አፋር፣ቾክ) በልታሽ ነበር ሀ. አዎ ለ. አይደለም