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RESEARCH ARTICLE

Prevalence and associated factors of low birth weight (LBW) in Mirwais Regional Hospital (MRH) Kandahar

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ABSTRACT

Background: This study aims to describe the prevalence and associated factors of low birth weight (LBW) among neonates born in the maternity ward of Mirwais Regional Hospital in Kandahar, Afghanistan.

Methods: A hospital-based descriptive cross-sectional study was conducted from October 1st, 2023, to December 31st, 2023. A total of 423 mothers who recently gave birth were included using systematic random sampling. Data were collected through face-to-face maternal interviews and medical record reviews, focusing on socio-demographic, maternal, nutrition-related, and neonate-related factors. Descriptive statistics, chi-square tests, and multiple logistic regression analyses were performed using SPSS 16.0 to identify factors associated with LBW.

Results: The mean age of the participants was 32 years, with most falling in the 21-30 age group. A significant majority of participants were from rural areas (74.5%) and belonged to the Pashtun ethnicity (84.6%). The prevalence of LBW among the neonates was 17.3%. Key factors associated with LBW included low maternal educational status, inadequate prenatal care, and poor nutritional status.

Conclusion: The study identified a high prevalence of LBW in neonates born at Mirwais Regional Hospital. Maternal education, prenatal care, and nutritional status are significant predictors of LBW. Interventions focusing on improving maternal education, enhancing prenatal care, and ensuring adequate maternal nutrition are critical to reducing the incidence of LBW in this setting.

Introduction

Low birth weight is defined by the World Health Organization (WHO) as weight at birth of less than 2,500 grams. (1). Low birth weight (LBW) is a major challenging public health problem because it is a leading cause of neonatal death and a major risk factor for infant and under-five morbidity and mortality (2-4).The average prevalence rate of LBW is 15% worldwide (5). Which means that each year from 130

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million annual births, 20 million is low birth weight. Although there is variation in the number of low-birth-weight babies across regions, low- and middle-income countries took a high figure, particularly in the most vulnerable populations (7). DLHS-4 (2012-2013) in Haryana found that the prevalence of LBW was 12.7% (8). Globally, it is estimated that 15% to 20% of all births worldwide are low birth weight, representing more than 20 million births a year (9). Half of all low birth weight babies are born in South-central Asia, where 27 percent are below 2500 g at birth (10). Newborns with LBW are more likely to die prematurely compared to normal birthweight newborns. Some epidemiological observations revealed that infants born underweight are 20 times more likely to die compared with normal-weight babies (1-13). Low weight of infants at birth is either the result of preterm birth or of intrauterine growth retardation (SGA). However, LBW, SGA, or combinations of these outcomes have been reported to be related to neonatal and long-term morbidity (14). Four million newborns die within the first 4 weeks of life each year, and low birthweight is a significant indirect cause of these deaths (15). The baby's birth weight is a sensitive indicator of the overall health situation of the population. LBW babies are at risk of cognitive deficits, motor delays, cerebral palsy, and other behavior and psychological problems (16-17). It is a significant factor in prenatal survival, newborn morbidity and mortality, and the likelihood of diseases and developmental problems later in life. The neonatal mortality rate is twenty times greater for infants weighing 1500–2500 grams than for babies of a normal weight. According to WHO estimates, approximately 95% of low birth weight babies are born in poor nations, making roughly 25 million of them born each year. Over 20 million babies are born underweight globally, accounting for 15.5% of all births; 95.6% of these babies are born in developing nations. Low birth weight is twice as common in developing nations (16.5%) as it is in industrialized areas (7%) (18). In South-Central Asia, where 27% of babies are born weighing less than 2500 grams, half of all low birth weight babies are born, but in sub-Saharan Africa, the percentage is thought to be 15%. The WHO study states that an infant's birth weight is determined by the amount of growth that occurs throughout pregnancy as well as the gestational age. These parameters are also influenced by the mother's lifestyle, genetic composition, and general health. An infant's birth weight is a significant milestone that is acknowledged as a relevant factor in determining the likelihood of the infant surviving as well as a trustworthy indicator of intrauterine growth (19).

Associated Factors

Many factors have been found to be associated with low birth weight (LBW) in numerous studies. Some of these variables include young maternal age at conception, birth order, family income, undernutrition and underweight in mothers, pregnancy-related complications, preterm birth, chronic illness, multiple pregnancies, history of prior LBW, poor prenatal care, and maternal smoking (20). Low birth weight is mostly related to the mother's side of the family. Preterm birth is the leading cause of low birth weight (LBW) in industrialized nations, while intrauterine growth restriction (IUGR) is the leading cause of LBW in poor nations. Multiple gestation mothers were more likely to give birth to low birth weight kids. The newborn's birth weight and long-term health are also significantly influenced by the physical surroundings and both particular and general illnesses. Furthermore, it is commonly known that certain demographically associated factors, including prime gravidity, low maternal nutritional status prior to and during pregnancy, young mother age, and low maternal educational attainment, increase the likelihood of unfavorable delivery outcomes (21). Different countries have investigated different aspects in an attempt to determine the reason for low birth weight. These studies primarily focused on sociodemographic, cultural, and dietary aspects. However, other variables such as antenatal care (ANC) visits, iron and folic acid (IFA) supplementation, maternal awareness, and alcohol and/or tobacco use have not been extensively explored. Therefore, this study aims to enhance understanding of the factors associated with low birth weight neonates in our context (16).

In Afghanistan, understanding the factors associated with low birth weight (LBW) is crucial for improving maternal and child health. This study identified key determinants of LBW among hospital-born babies, including female gender, lower maternal education,

poor wealth index, urban residence, and specific regional factors. Female infants had higher odds of LBW, potentially due to biological differences. Lower maternal education and poor wealth index were linked to less access to healthcare and prenatal care, contributing to higher LBW rates (22).

Research indicates that LBW at term, a proxy for IUGR, is linked to maternal characteristics, newborn characteristics, prenatal treatment, and socioeconomic factors. Studies conducted in low- and middle-income nations suggest that socioeconomic variables, such as income, education, and living conditions, as well as access to prenatal care, are significant predictors of pregnancy outcomes and birth weight (23). Globally, LBW is associated with maternal factors like smoking, iron and folic acid intake, preterm birth, maternal weight gain during pregnancy, and inadequate prenatal care visits (16).

Materials and Methods

Study site and design

A hospital-based descriptive cross-sectional study was undertaken in Mirwias Regional Hospital from October 1st, 2023, to December 31st, 2023. Mirwais Regional Hospital is a government-operated health facility located in the 1st district of Kandahar City. It provides essential regional health services for Kandahar Province, serving a population of approximately four million. The facility is jointly managed by the Ministry of Public Health (MoPH) and the International Committee of the Red Cross (ICRC) and is monitored by the ICRC and supervisors from the Kandahar Provincial Public Health Directorate (PPHD).

Data collection

Face-to-face maternal interviews with structured questionnaires and medical record reviews of mothers and newborns were conducted by trained research participants. Data collection involved a structured approach conducted among mothers who recently gave birth. Utilizing a systematic available-random sampling method, participants were recruited from the maternity ward of Mirwais regional hospital. A structured questionnaire was administered to gather information on maternal demographics, medical history, and lifestyle factors. Additionally, birth weight records and gestational age were extracted from hospital records. The data collection process adhered to ethical standards and received approval from relevant institutional review boards.

Study Measures:

In this study, maternal mid-upper arm circumference (MUAC), infant head circumference, length tape, and baby scale were measured using standardized equipment. The MUAC tape was employed to assess maternal nutritional status and identify potential associations with low birth weight. Infant head circumference measurements were taken to assess neonatal development and potential associations with birth weight and gestational age. The length tape, also known as an infantometer, was utilized to measure the length of newborns accurately, providing crucial indicators of neonatal growth and development, which are often affected in LBW infants. Simultaneously, the baby scale, specifically calibrated for infant weight measurements, ensured precise documentation of newborn weight, a key parameter for assessing LBW, nutritional status, and overall health during the early stages of life.

Sample Size & Sampling procedures

To estimate the required sample, the sample size is calculated as: Sample size = z2 (p*q)/d2 The sample size for this study was recalculated to accommodate 423 mothers who gave birth with a 10% non-response rate. Utilizing a 95% confidence interval, the revised formula [$n = z^2 * p * q / d^2$] was employed, where z = 2.05, p = 0.5 (representing maximum variability), q = 0.5, and d = 0.05 (indicating a 5% margin of error). The sample was selected through a systematic random sampling technique from the maternity ward of Mirwais Regional Hospital.

Data analysis

Data was analyzed through SPSS 16.0. Descriptive statistics, such as percentages and proportions, were used to describe the socio-demographic and other variables of the study participants. The chi square test (using a crude odd ratio) was used to study the association of different factors with low birth weight. All variables that showed statistically significant association were put in multiple logistic regression (using adjusted odd ratio) to determine the factors affecting low birth weight.

Results

In this cross-sectional study, a total of 423 recently labored mothers were studied. The mean age of the study participants was 32 years (± 17), with a range of 15–49 years. Most of the participants (48.7%) were in the 21–30 age group. Regarding reproductive life, the majority were childbearing-age (CBA) women. The majority earned less than 10,000 Afghanis (59.1%, n = 250), followed by 27.7% (n = 117) in the 10,000-20,000 AFG range, 9.9% (n = 42) in the 20,000-30,000 AFG range, and 3.3% (n = 14) earning more than 30,000 Afghanis (Table 1).

Table 1. Socio-Demographic characteristics of the mother

Variable	Frequency (%)
Age (Years)	
1. <18	35 (8.3%)
2. 18 – 20	78 (18.4%)
3. 21 – 30	206 (48.7%)
4. 31 – 40	92 (21.8%)
5. 40>	12 (2.8%)
Total family Income	
1. <10000Afn	250 (59.1%)
2. 10000-20000Afn	117 (27.7%)
3. 20000-30000Afn	42 (9.9%)
4. >30000Afn	14 (3.3%)
Family size	
1. <4	6 (1.4%)
2. 4-7	106 (25.1%)
3. >7	311 (73.5%)

Family size varied, with 1.4% (n = 6) having less than four members, 25.1% (n = 106) having 4–7 members, and the majority (73.5%, n = 311) having more than seven members (Table 1).

Antenatal care (ANC) visits were reported by 35.5% (n = 150) of participants, with the majority having 0 visits (64.8%, n = 274), followed by 1-3 visits (23.4%, n = 99), 4-7 visits (11.1%, n = 47), and >7 visits (0.9%, n = 4). Parity distribution revealed 22.5% (n = 95) primiparous, 57.2% (n = 242) multiparous, and 20.3% (n = 86) grand multiparous participants. Gravida distribution showed 22.5% (n = 95) primagravida and 77.5% (n = 328) multigravida. (Table 2).

Table 2. Gynecological History of participants

Variable	Frequency (%)
ANC Visits	
1. Yes	150 (35.5%)
2. No	273 (64.5%)
Numbers of visits	
1. 1-3	99 (23.4%)
2. 4-7	47 (11.1%)
3. >7	4 (0.9%)
Parity	
1. Primiparous	95 (22.5%)
2. Multiparous	242 (57.2%)
3. Grand Multiparous	86 (20.3%)
Gravida	
1. Primigravida	95 (22.5%)
2. Multigravida	328 (77.5%)
Iron folic acid intake	
1. Yes	195 (46.1%)
2. No	228 (53.9%)
Contraceptives	
1. Yes	150 (35.5%)
2. No	273 (64.5%)
Type of contraceptive	
1. Tablet	97 (22.9%)
2. Injectable	26 (6.1%)
3. Implants	4 (0.9%)
4. IUD	12 (2.8%)
5. Others	11 (2.6%)

Among contraceptive users, 64.5% (n = 273) reported no specific type, while others used tablets (22.9%, n = 97), injectables (6.1%, n = 26), implants (0.9%, n = 4), IUDs (2.8%, n = 12), and condoms (0.9%, n = 4) (Table 2).

The last birth interval showed 22.5% (n = 95) zero interval, 44.2% (n = 187) less than two years, and 33.3% (n = 141) more than two years. Anemia was prevalent in 44.0% (n = 186) of participants, while 56.0% (n = 237) reported no anemia. Current pregnancy outcomes were mostly single births (93.1%, n = 394), with 6.4% (n = 27) twins and 0.5% (n = 2) more than twins. A history of low birth weight (LBW) was reported by 12.3% (n = 52), with 87.7% (n = 371) having no LBW history. The numbers of LBWs varied, with 87.7% (n = 371) having 0 LBWs, 9.5% (n = 40) having 1 LBW, 1.9% (n = 8) having 2 LBWs, and 0.9% (n = 4) having 3 LBWs (Table 3).

Table 3. Obstetrical History of participants

Last birth Interval	
1. Less than two years	187 (44.2%)
2. More than two years	141 (33.3%)
Anemia	
1. Yes	186 (44.0%)
2. No	237 (56.0%)
Current pregnancy outcome	
1. Single	394 (93.1%)
2. Twins	27 (6.4%)
3. More than twins	2 (0.5%)
History of LBW	
1. Yes	52 (12.3%)
2. No	371 (87.7%)
Numbers of LBWs	
1. 1	40 (9.5%)
2. 2	8 (1.9%)
3. 3	4 (0.9%)
Current delivery mode	
1. Vaginal	403 (95.3%)
2. Caesarean Section	20 (4.7%)
Current mother MUAC	
1. <18.5	8 (1.9%)
2. 18.5-23	102 (24.1%)
3. >23	313 (74.0%)
Baby birth weight	
1. <1000gr	0 (0.0%)
2. 1000-1500gr	8 (1.9%)
3. 1500-2500gr	65 (15.4%)
4. >2500gr	350 (82.7%)
Gestation duration	
1. <37week	68 (16.1%)
2. >37weeks	355 (83.9%)

Current delivery modes included 95.3% (n = 403) vaginal deliveries and 4.7% (n = 20) cesarean sections. Current mother mid-upper arm circumference (MUAC) measurements included 1.9% (n = 8) below 18.5, 24.1% (n = 102) between 18.5 and 23, and 74.0% (n = 313) above 23. The analysis of neonatal characteristics revealed diverse patterns in baby birth weight, with no instances below 1000 g, 1.9% (n = 8) falling in the 1000–1500 g range, 15.4% (n = 65) in the 1500–2500 g range, and the majority, at 82.7% (n = 350), weighing over 2500 g. Gestation durations were categorized as <37 weeks for 16.1% (n = 68) and >37 weeks for 83.9% (n = 355) of participants. Neonate states were predominantly normal (82.7%, n = 350), while 17.3% (n = 73) were classified as low birth weight (LBW) (Table 3).

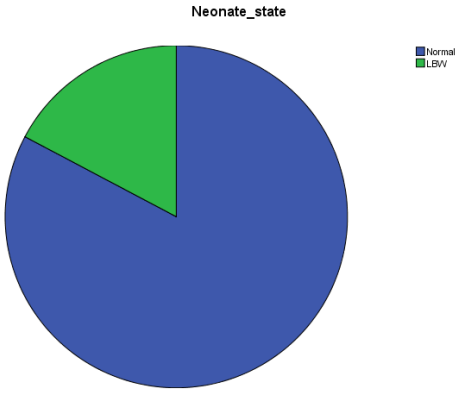

Figure 1. Neonatal status of the study population

Factors associated with Low birth weight

Table 4. Chi Square and Multiple logistic regression analysis for factors associated with low birth weight

Variable		COR (95% CI)	*P*-value	AOR (95% CI)	*P*-value
Occupational Status	Housewife	1.06 (1.09-1.03)	0.021	0.95 (1.25-0.65)	0.04
	Other	1		1	
Family Income	<10000	2.43 (4.31-1.37)	0.001	2.43 (4.31-1.73)	0.002
	>10000	1		1	
ANC Visits	No	2.76 (4.00-1.18)	0.007	2.16 (4.01-1.18)	0.011
	Yes	1		1	
Dairy Per Week	≤Thrice	3.82 (8.24-1.77)	<0.001	0.62 (1.54-0.25)	<0.001
	>Thrice	1		1	
Gravida	Multigravida	0.41 (0.71-0.24)	0.001	0.62 (1.28-0.30)	0.001
	primigravida	1		1	
IFA Intake	No	1.95 (3.32-1.15)	0.009	3.40 (7.31-1.58)	0.002
	Yes	1		1	

Table 4 *(continued)*

	Variable	COR (95% CI)	*P*-value	AOR (95% CI)	*P*-value
Anemia	Yes	4.32 (7.55-2.48)	<0.001	0.38 (0.74-0.19)	<0.001
	No	1		1	
Last Birth Interval	<2	1.87 (3.33-1.06)	0.020	0.62 (1.04-0.37)	0.069
	≥2	1		1	
Current Mother MUAC	≤23	4.85 (8.24-2.85)	<0.001	0.24 (0.50-0.12)	<0.001
	>23	1		1	
Newborn Gender	Boys	0.63 (1.05-0.38)	0.048	2.32 (4.64-1.15)	0.73
	Girls	1		1	

Discussion

This cross-sectional study primarily aimed to identify factors associated with low birth weight among Afghan pregnant women. The secondary objectives included assessing compliance with prenatal care using a relevant scale and exploring the association of maternal depression with the incidence of low birth weight.

Globally, more than 20 million infants are born with low birth weight yearly. Low birth weight contributes to more than 80 percent of all the neonatal mortality. Global nutrition targets set at the World Health Assembly in 2012 include an ambitious 30% reduction in LBW prevalence between 2012 and 2025. Low birth weight continues to be a significant public health problem and is associated with a range of both short- and long-term consequences (31).

In Afghanistan, studies have shown that there is a high prevalence (15.5%, n = 431) of low birth weight among newborns. Thus, this study was aimed at determining the prevalence and associated factors with low birth weight among newborns delivered at term in the central region of Afghanistan (22).

The prevalence of low birth weight (LBW) in our study was observed to be 17.3%. This significant proportion demands careful consideration in the context of various factors explored, including maternal mid-upper arm circumference (MUAC), anemia status, intake of iron and folic acid (IFA) supplements, birth interval, antenatal care (ANC) visits, and family income. Each of these factors has been identified as potentially influential in determining birth weight outcomes and thus warrants thorough investigation. Understanding the interplay between these variables and LBW prevalence is essential for developing targeted interventions and strategies aimed at reducing the incidence of LBW and improving maternal and child health outcomes.

The significant p-value of less than 0.001 attributed to “Current Mother MUAC” underscores its critical importance as a determinant of the outcome variable, specifically low birth weight (LBW). This suggests a considerable portion of the population may be at risk of poor maternal health outcomes associated with lower MUAC measurements. In a cross-sectional study conducted in South Ethiopia in 2019, it was revealed that mothers with a MUAC measurement of 23 centimeters and above were at a lower risk of giving birth to low birth weight (LBW) newborns compared to those with a MUAC below 23 centimeters. This finding aligns with similar studies conducted in Addis Ababa, emphasizing the importance of MUAC as an indicator of maternal and neonatal health outcomes (20). To address maternal health effectively, it is advisable to prioritize nutrition education and support programs, especially for individuals with MUAC values below the recommended threshold. Implementing regular monitoring and targeted interventions aimed at improving maternal nutrition can significantly contribute to better health outcomes for both mothers and newborns.

In our study, anemia emerged with notable significance, particularly in its association with low birth weight (LBW). The statistically significant p-value

of 0.005 underscores the importance of exploring the relationship between anemia and LBW. This finding aligns with existing literature highlighting the adverse effects of maternal anemia on fetal growth and development. The risk of anemia in Pakistan ranges from 8–33%, with anemic mothers being more likely to deliver small babies, as evidenced by a higher incidence of low birth weight (LBW) babies among anemic compared to non-anemic mothers (24). Similarly, a study in North India highlighted the association between maternal anemia severity and LBW prevalence, with severely anemic mothers having a higher proportion of LBW babies compared to those with mild to moderate anemia or normal hemoglobin levels (8). To address this prevalence, it is recommended to implement targeted health interventions, including nutritional education and supplementation programs, to combat anemia effectively. Regular monitoring and assessment of anemia prevalence within the population was crucial for evaluating the impact of these interventions over time. In our investigation, we physically checked for anemia using methods such as examining conjunctivae for pallor and assessing for pale skin, which are all significant clinical signs of anemia. Additionally, we evaluated hand creases for pallor, as this is another important physical sign. However, it is crucial to emphasize that the definitive diagnosis of anemia should be made using laboratory investigations.

IFA Intake emerged with notable significance, particularly in its association with low birth weight (LBW), as indicated by the statistically significant p-value of 0.002. This finding aligns with a study conducted in West Bengal, India, which found that women who did not consume iron folic acid tablets during pregnancy were about four times more prone to deliver low birth weight (LBW) babies compared to those who did. Additionally, the study in West Bengal highlighted that women who took iron folic acid tablets partially (less than 100 tablets) were more likely to give birth to LBW babies compared to those who completed a full course of supplementation (8). In Kashmir, Pakistan, the prevalence of LBW babies in anemic mothers was notably high at 78.8%. Iron deficiency is identified as the common cause of anemia during pregnancy in Pakistan, and iron supplementation is expected to decrease the risk of anemia and protect babies against LBW, as supported by research (25). To promote overall health, it is advisable to implement targeted health awareness initiatives and educational campaigns emphasizing the significance of consistent iron and folic acid intake during pregnancy. Provision of accessible support services and resources, such as free or subsidized supplements and counseling services, can further enhance adherence to recommended nutritional practices. Regular assessments and surveys tracking IFA intake patterns are essential for evaluating the effectiveness of interventions over time and ensuring that pregnant women receive adequate support and guidance to optimize maternal and child health outcomes. By prioritizing comprehensive maternal nutrition programs and addressing barriers to IFA supplementation, healthcare systems can contribute to improved health outcomes for both mothers and newborns.

The significant p-value of 0.020 attributed to “birth interval” underscores its importance as a determinant of the outcome variable, specifically low birth weight (LBW). This result suggests that variations in birth interval significantly influence the likelihood of infants being born With LBW. This finding is supported by a study conducted at Butajira General Hospital in South Ethiopia, which found that mothers who gave birth with a birth interval less than 24 months between the last and current pregnancy were eleven times more likely to have a LBW baby compared to those with a birth interval greater than 24 months (1). Similarly, another study conducted in Kambata-Tembaro zone, southern Ethiopia, in 2018, found that mothers who gave birth with a birth interval less or equal to two years were two times more likely to have low birth weight babies compared to those with birth intervals of three years and above (26). This is because a short birth interval might increase the risk for mothers related to pregnancy and delivery complications, directly or indirectly affecting mothers’ health, economic, and social status during pregnancy. Birth interval, defined as the length of time between consecutive births, plays a crucial role in maternal and child health outcomes. Optimal birth spacing is associated with better maternal health, reduced risk of adverse pregnancy outcomes, and improved child survival rates. Studies have consistently demonstrated

that shorter birth intervals are associated with an increased risk of LBW. The physiological explanation lies in the fact that shorter intervals do not allow mothers sufficient time to recover fully from the physical and nutritional demands of the previous pregnancy before conceiving again. This can lead to maternal depletion, inadequate prenatal care, and suboptimal fetal development, contributing to the higher incidence of LBW among infants born after shorter birth intervals. Conversely, longer birth intervals provide mothers with adequate time to recover both physically and nutritionally, reducing the risk of maternal depletion and optimizing maternal health for subsequent pregnancies. This, in turn, leads to better pregnancy outcomes, including a lower likelihood of LBW. The observed relationship between birth interval and LBW aligns with existing literature, which highlights the critical role of birth spacing in promoting maternal and child health. Addressing disparities in birth spacing practices and promoting optimal birth intervals are essential strategies for reducing the incidence of LBW and improving birth outcomes.

The significant p-value of 0.007 associated with ANC visits suggests a noteworthy relationship between the frequency of antenatal care (ANC) visits and the outcome variable, specifically low birth weight (LBW). This finding underscores the critical role of ANC visits in influencing birth outcomes and mitigating the risk of LBW. This study is supported by a study in Bangladesh, which was a sub-sample-based study and found a significant association between ANC and low birth weight, with mothers who had access to ANC during pregnancy having a significantly lower risk of bearing an LBW child (27). However, conversely, another study conducted in rural Bangladesh found that antenatal care provision was not significantly associated with LBW. This discrepancy could potentially be attributed to the effectiveness of ANC offered by NGOs and home visits by health workers, which may have evened out the effect of ANC on LBW (28). Antenatal care plays a pivotal role in maternal and child health by providing essential medical services and health education during pregnancy. Adequate and timely ANC visits enable healthcare providers to monitor the health status of pregnant women, identify and manage risk factors, and provide necessary interventions to optimize pregnancy outcomes. The observed association between ANC visits and LBW aligns with existing evidence demonstrating the protective effect of prenatal care on birth weight. Studies have consistently shown that regular and timely ANC visits are associated with a reduced risk of LBW by facilitating early detection and management of maternal health conditions, promoting healthy behaviors, and ensuring appropriate prenatal nutrition. However, while the significant relationship between ANC visits and LBW is compelling, it is essential to acknowledge the complexity of factors influencing birth weight outcomes. Maternal characteristics, such as maternal age, pre-pregnancy body mass index, smoking status, and socioeconomic status, may interact with ANC utilization and contribute to variations in LBW rates.

The significant p-value of 0.002 attributed to “family income” underscores its importance as a determinant of low birth weight (LBW) prevalence. This result suggests that variations in family income significantly influence the likelihood of infants being born with LBW. This finding is corroborated by studies conducted in Felege Hiwot referral hospital, North West Ethiopia, where the lowest monthly income was significantly associated with low birth weight. Mothers with a monthly income less than 70 USD were three times more likely to have a low birth weight baby than those with an income greater than 175 USD (29). Similarly, research conducted in Bale zone hospitals, South-East Ethiopia, revealed that mothers who are illiterate and In a lower income level were at a higher risk of delivering LBW babies (30). Family income serves as a critical indicator of socioeconomic status (SES), encompassing economic resources, access to healthcare, and living conditions. The observed relationship between family income and LBW prevalence aligns with existing literature, which consistently demonstrates the impact of socioeconomic factors on birth outcomes. Higher family income is often associated with better access to prenatal care, improved maternal nutrition, reduced exposure to environmental stressors, and overall healthier lifestyles. These factors contribute to better maternal health during pregnancy, thereby reducing the risk of LBW among infants born to families with higher incomes. Conversely, lower family income may limit access to adequate prenatal care, nutritious food,

and essential healthcare services, leading to increased maternal and fetal health risks. Economic hardship and social disadvantage experienced by families with lower incomes can exacerbate stress levels, negatively impacting maternal health and fetal development. In conclusion, the significant association between family income and LBW prevalence highlights the critical role of socioeconomic factors in maternal and child health outcomes. Addressing disparities in income and access to resources is essential for reducing the incidence of LBW and improving overall birth outcomes in vulnerable populations.

Conclusion

The study identified a high prevalence of LBW in neonates born at Mirwais Regional Hospital. Maternal education, prenatal care, and nutritional status are significant predictors of LBW. Interventions focusing on improving maternal education, enhancing prenatal care, and ensuring adequate maternal nutrition are critical to reducing the incidence of LBW in this setting.

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Conflict of Interests

Authors express no conflict of interest in any part of the research.

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Authors Contribution

Authors contributed equally.

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