AFGHAN MEDICAL JOURNAL
KABUL UNIVERISITY OF MEDICAL SCIENCES ABU ALI IBN SINA
Volume 2, Issue 1 | May 2025 AMJ e-ISSN: 3007-0805

PREVALENCE OF LOW BIRTH WEIGHT AMONG NEONATES ADMITTED TO THE FRENCH MEDICAL INSTITUTE FOR MOTHERS AND CHILDREN

Basir Ahmad Froogh, [1*] Mansoor Aslamzai[2] Rahim Raheen[3] Omid Faizi, [4] Ahmad Wali Ataye[5]

[1, 2,3] Department of Neonatology, Kabul University of Medical Science.
[4] Department of Neonatology, French Medical Institute for Mother and Children
[5] Department of Microbiology at Kabul University of Medical Science.

Abstract

Background: Birth weight is crucial for a newborn baby to survive and grow and develop normally. Low birth weight (LBW) is a serious and difficult public health issue. The global average prevalence rate of LBW is 15%, meaning that 20 million out of 130 million newborns annually are LBW.
Aims: The aim of this article is to find the prevalence of low birth weight who are born in the Obstetric/Gynecology Unit of the French Medical Institute for Mothers and Children (FMIC) Hospital of Kabul City. To evaluate the frequency and percentages of maternal risk factors for low birth weight and sex of neonates with low birth weight neonates.
Methods: A descriptive cross-sectional study was conducted at the Obstetric/Gynecology Unit of FMIC Hospital, Kabul City. The study population is comprised of all neonates who were born in the Obstetric/Gynecology Unit of FMIC hospital from January until June 2021. the inclusion criteria were Newborns and infants less than 48 hours of life & the
Exclusion criteria were Neonates with incomplete data and whose parents refused to participate. The Sample Size was all neonates who were born in the Obstetric/Gynecology Unit of FMIC during the first six months of 2021.
Results: A total of 795 newborns were born at the French Medical Institute for Mothers during the first 6 months of 2021 year and out of them 59 (7,43 %) of them were low birth weight.
Conclusion: The prevalence of low birth weight at the French Medical Institute for Mothers and Children Hospital of Kabul city during the first 6 months of this year was lower than in the other developed countries which is more seen in Low birth weight male babies and multiparous women in middle ages as well as caesarian section delivery.
Keywords: Prevalence, Low Birth Weight, Newborn.

Introduction

Birth weight is crucial for a newborn baby to survive and grow and develop normally [1]. Low birth weight (LBW) is a serious and difficult public health issue. The global average prevalence rate of LBW is 15%, meaning that 20 million out of 130 million newborns annually are LBW [2]. Birth weight is linked to chronic disease later in life and stunts cognitive growth and development [3]. Neonatal death rates for babies with LBW are 20 times higher globally than those for babies weighing more than 2.5 kg. According to WHO estimates, about 90% of the approximately 25 million LBW newborns born each year occur in poor nations [4]. Globally about 2·4–2·8 million neonates died in 2017 and during this period south Asia and Africa had the highest neonatal mortality rate [5, 6].

The neonatal mortality rate in Afghanistan is one of the highest in the world and it was reported by UNECEF in 2022, 37 deaths per 1000 live births [7, 8]. Momeni et al. carried out a cross-sectional investigation in Iran's Karman province in 2015,9.4% of the participants in this study had LBW. Regardless of gestational age, low birth weight is defined as weighing less than 2500 g at birth. While, less than 1500g and less than 1000 is classified as very low birth weight and extremely, respectively [9].

Asgarian et al conducted a study with 602 newborn participants at the Qom hospitals in Iran in 2017. The overall incidence of LBW in born neonates was 9.6[10]. A study conducted by Zafar et al. included 397 live births. 53 patients were born weighing less than 2.5 kg; the mean birth weight was 2.74±0.39 overall. Low birth weight occurred 13.35% of the time in this study [11]. Seyede et al conducted a cross-sectional study at Rawalpindi Pakistan the LBW frequency of 8.9% was determined. 10.8% of primigravida mothers gave birth to LBW children [12]. Hussain S et al carried out, the distribution of men and women in this 45.2% and 55%, respectively, 38.6% of the babies were full-term LBW. The distribution of birth weight alone revealed that 3.3% of newborns weighed less than 1000 grams, 11.2% weighed between 1 and 1.499 kilograms, 21.1% weighed between 1.5 and 1.999 kilograms, and 64.4% weighed between 2.0 and 2.499 kilograms. Maternal age between 20 and 29 years contributed to 58.90% of LBW newborns among maternal risk factors [13]. A study by Elmoussaoui S and colleagues was carried out on 365 (12.98%) of the 2810 deliveries that were made were LBW [14]. In a study conducted by Alsamae A. and colleagues, 350 mother-newborn pairs took part. 16.7% of these term neonates were determined to be LBW [15]. Girotra S and colleagues showed that half of the mothers with LBW newborns were aged 26 to 35. The proportion of newborns with LBW was 17.29%, of which 6% had very low birth weight (less than 1500 g) [16]. Amalizade A conducted a study on 472 term babies using an institutional cross-sectional study design. Of the term infants, 161 (34.1%) were low birth weight [17]. Studies by Darman et al. in Afghanistan revealed that the prevalence of low birth weight (LBW) was 17% [18].

Despite high neonatal mortality due to low birth weight and its complications, there is not enough scientific information regarding the epidemiology of low birth weight in such infants of Afghanistan. This information is very useful for the generation of hypotheses and further research with regard to low birth weight neonates in Afghanistan.

* **Corresponding Author: Basir Ahmad Froogh**
Email:
Received 05 Apr 2025; Received in revised form 28 Apr 2025; Accepted 20 May 2025; published Online 27 May 2025.

Thus, the aim of this article is to find the prevalence of low birth weight who are born in the Obstetric/Gynecology Unit of the French Medical Institute for Mothers and Children (FMIC) Hospital of Kabul City.

Material in methods

A descriptive cross-sectional study was conducted at the Obstetric/Gynecology Unit of FMIC Hospital, Kabul City. The study population is comprised of all neonates who were born in the Obstetric/Gynecology Unit of FMIC hospital from January until June 2021. the inclusion criteria were Newborns and infants less than 48 hours of life & the exclusion criteria were Neonates with incomplete data and whose parents refused to participate. The Sample Size was all neonates who were born in the Obstetric/Gynecology Unit of FMIC during the first six months of 2021.

The neonates' birth weight as gram is determined by accurate balance during the first 24 hours of life. According to the birth weight the neonates are classified as low birth weight (1500-2500g), very low birth weight (1000-1500g), and extremely low birth weight (less than 1000g). Neonates' gestational age as weeks was determined by LMP or antenatal maternal ultrasound or neonatal heel-toe distance. Maternal age, place of delivery, type of delivery, and parity defined as the number of births with a gestational age of more than 20 weeks were recorded.

The raw data was collected in data collection sheets and then entered into SPSS 16 software for statistical analysis.

Results

A total of 795 newborns were born at the French Medical Institute for Mothers during the first 6 months of 2021 year and out of its 59 (7,43 %) of them were low birth weight.

Fig.1: The prevalence of low birth weight at the French Medical Institute for Mothers and Children (FMIC) Hospital of Kabul City during the first 6 months of 2021 was found 7,43 %.

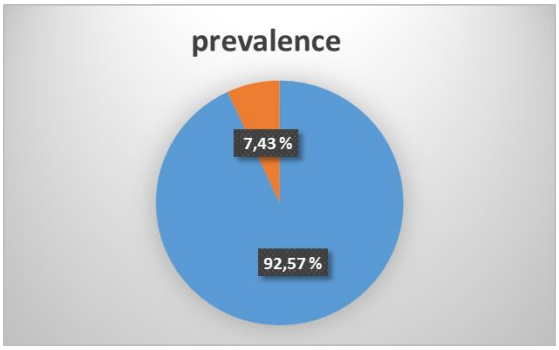

Table 1- Frequency of low birth weight in term and preterm neonates.

Birth Weight	Preterm	Term
Low Birth Weight No (%)	Late premature	
29(49.2%)	(35-36 weeks)	15 (25, 4%)
	19 (32, 2%)	
Very LBW No (%)	Moderate	
18(30, 5 %)	(32-34 weeks)	10(16, 9 %)
	22 (37, 3%)	
E LBW No (%)	Early	
2 (3, 4 %)	(Less than 32 weeks)	0 %
	3 (5, 1 %)	

According to the above table, the high prevalence was seen in low birth weight term and moderate preterm babies.

Table 2: Frequency and percentages of maternal risk factors for low birth weight and sex of neonates

Variables	Frequency	Percent (%)
Mother's age groups (years), No (%)		
< 18		
19-29	1	1,6
.>30	37	62,7
	22	37,2
Sex of neonate, No (%)		
Male	31	52,5
Female	28	48,5
Parity, No (%)		
Prim parous	16	27,1
Multiparous	43	72,9
Mode of delivery, No (%)		
Vaginal /normal	13	22,1
Caesarian section	46	77,9
Place of birth No (%)		
French Hospital	45	76,3
Other	14	23,7
Prolong rupture of membrane No (%)		
Yes	21	35,6
No	38	64,4

The high prevalence was found in low birth weight male babies as well as in multiparous middle Ages and caesarian section delivery.

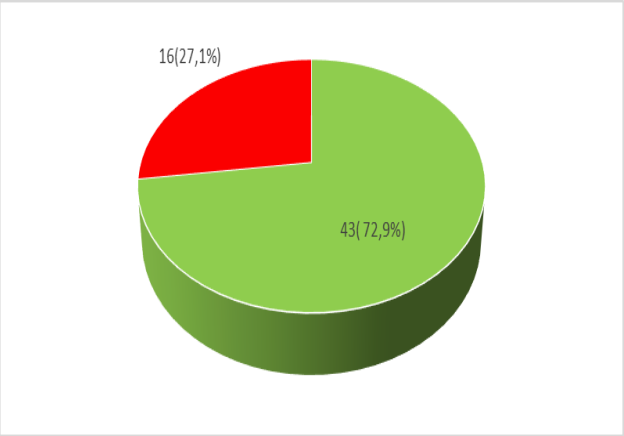

Fig.2: Proportion of mortality percentage in LBW neonate

Discussion

In our study's LBW prevalence of 7.33% was comparatively lower than the estimates from the previous studies. According to a cross-sectional study by Momeni [9], the prevalence of LBW in Iran's Karman province was 9.4%, in another study done in Iran by Amalizade [17] & Asgarian [4]. The prevalence of LBW was 9.7% and 13.8% respectively. The total prevalence of LBW was 9.6%. According to a study by Zafar [11] conducted in Rawalpindi Pakistan, the overall prevalence of LBW was 8.9%.

In a cross-sectional study conducted by Hussain [13], in Pakistan,12.98% of them were LBW. Research by Kumari[19] in South India found that 17.8% of the study group's infants had low birth weight. In a study is conducted in India by Girotra [16] there were 17.29% of babies with LBW. In a study conducted by Ansar [2]. In Afghanistan, 12.98% of the deliveries that took place were LBW. A research by Elmoussaoui [14] in Marrakech, 16.7% of term neonates were discovered to be LBW. Our study's prevalence of 7.43% did not match those of prior studies; this discrepancy could be caused by variations in sample size and composition, study location, data collection methods, and socioeconomic factors.

The majority of mothers in this study 62.7% were between the ages of 19 and 29, 37.2% were over 30, and 1.6% were under 18, which was comparable and similar to other studies like Hussain's findings in Pakistan [13]. The maternal age parameter showed that 58.90% of LBW babies were born to mothers between the ages of 20 and 29. In south India, Kumari. Observed that the majority of mothers were over 18 years old 96%[19]. While Girotra found that a significant percentage of mothers in India 71.39% were between the ages of 21 and 30[16]. Mehare in Ethiopia found that 30.3% of the mothers in their study were between the ages of 20 and 30[20]. Jawed in Pakistan had a maternal mean age of 25.49±4.35 years, Additionally, in Iran, mothers who gave birth to children weighing less than 2500g on average were 27.8+1.3 years old.

Our study found that 48.5% of LBW babies were male and 52.5% were female, which was more seen in females than males and in line with a study by Hussain in Pakistan that found 45.2% of newborns were male and 55% were female[13]. In a study by Elmoussaoui in Marrakesh, 49.5% of newborns were females and 51.5% were males [14]. Zafar in Pakistan found that 48.6% were female and 51.3% were male and Hajizadeh in Iran found that, 50.1% of newborns were males and 51.7% females [11, 21].

According to research conducted by Zafar in Pakistan Multiparous and primparous women made up 38.4% and 61.6% of the sample, respectively [11]. Elmoussaoui and colleagues in Marrakech found that Grand multipara women in India had the highest incidence of LBW births (53.70%) [14].In a study by Devaguru[24], parous women had 102 LBW kids (33.66%), while multiparous women had 51 LBW babies (18.68%). These numbers were comparable to our study, which found that parous women had 27.1% and Multiparous women had 72.9% of LBW newborns. In this study, the majority of mothers (77.9%) were born via cesarean section, while 22.1 percent gave birth naturally. On study by study by Elmoussaoui.[14] in Morocco found that most women delivered vaginally (66.2%) and 33.6 percent delivered via C-section, on a study by Saeed.[25] in Pakistan demonstrated that 60% of women had a normal vaginal delivery and the remaining 40% had a C-section. The findings of our study differed from those of these studies. The research location and socioeconomic characteristics could be the cause.

The study found that 35.5% had a history of prolonged rapture of the membrane, while 64.2% did not. This is in line with a study conducted in India by Kumari, which found that 25.8% mothers had this issue, while the majority, of participants (74.2%), did not [19].

Our study found that the frequency of LBW, VLBW, and ELBW were 49.2%, 30.5%, and 3.3%, respectively, which corresponded to Hussain.[13] (normal LBW, 89%), 1-1.499kg 11.2%, 1.5-1.999kg 21.1%, and 2.0-2.499kg 64.4% in Pakistan and Golestan[26]. in Iran. Which found that 7%, 9%, and 84% of LBW neonates were ELBW, VLBW, and MLBW, respectively. The risk of neonatal death in our study was 16 (27.1%), which entirely occurred in a moderately LBW neonate. Notably, the findings of our study are comparable to those of a study conducted in Iran by Golestan, which found that the risk of neonatal death in MLBW, VLBW, and ELBW was 11.5, 62.5 and higher than that of normal weight, respectively [26].

Conclusion: The prevalence of low birth weight at the French Medical Institute for Mothers and Children Hospital of Kabul city during the first 6 months of this year was lower than in the other developed countries which is more seen in Low birth weight male babies and multiparous women in middle ages as well as caesarian section delivery.

Ethical consideration: This study proposal is approved by the Department of Neonatology (Protocol no 5 date 2/11/1398), Kabul University Medical Science. Since this is an observational study there is no harm to the participants.

Declaration of Conflict of Interest

We do not have any conflicts of interest.

Corresponding author: Basir Ahmad Froogh MD, Associate Professor, Department of Neonatology, Kabul University of Medical Science (KUMS), Avicenna; Kabul, Afghanistan

References:

1- Brady JM, Barnes-Davis ME, Poindexter B B. The High Risk Infants. In Nelson Textbook of Pediatrics. 21th ed. Lange. USA. 2019. Ch. 117, PP 3865-3907.
2- 2Ansari N. The causes of neonatal mortality in Afghanistan. 48th International course in health development. Amsterdam. 2012. Available from: http://www.bibalex.org/Search4Dev/files/428883/455711.
3- Baghianimoghadam MH, Baghianimoghadam B, Ardian N, Alizadeh E. Risk factors of low birth weight and effect of them on growth pattern of children up to sixth months of life: A cross-sectional study. J Edu Health Promot 2015; 4:40.
4- Asgarian A, Sourani K, Afrashteh S, Mohammadbeigi A, Aligol M. Low birth weight incidence in newborn' neonate in Qom, Iran: Risk factors and complications. J Med Sci 2020; 40:162 6

5- Hug L, Alexander M, You D, Alkema L. National, regional, and global levels and trends in neonatal mortality between 1990 and 2017, with scenario-based projections to 2030: A systematic analysis. The Lancet Global Health. 2019;7(6):e710-20.
6- Hug L, Sharrow D, You D. Levels and Trends in Child Mortality. UNICEF. 2017. Available from: https://www.unicef.org/publications/index_103264.html
7- Neonatal mortality. UNICEF DATA. 2018. Available from: https://www.unicef.org/topic/child-survival/neonatal-mortality.
8- -Health, UNICEF Afghanistan. 2019. Available from: https://www.unicef.org/afghanistan/health.s
9- Momeni M, Danaei M, Kermani AJ, Bakhshandeh M, Foroodnia S, Mahmoudabadi Z, et al. Prevalence and risk factors of low birth weight in the Southeast of Iran. Int J Prev Med 2017; 8:12.).
10- Jawed H, Mehmood B, Akram R Frequency of low birth weight in term pregnancy and its association with maternal risk factors. Rawal Medical Journal: Vol. 43. No. 1, Jan.-Mar. 2018.
11- Zafar, U., Zafar, S., Tariq, N., Rashid, F., Hassan, K. Frequency and Risk Factors of Low Birth Weight in Rawalpindi, Pakistan. Journal of Rawalpindi Medical College. 30Jun. 2021; 25(2): 202-207.DOI: https://doi.org/10.37939/jrmc.v25i2.1467
12- Seyede Soghra Ahmadi, Public HealthDept., Semnan University of Medical Sciences, Semnan, I.R. Iran, Tel: 00989136743820, E-mail: ahmadi2744@yahoo.com
13- 11-prevalence and associated factors of low birth weight (LBW) in Mirwais Regional Hospital (MRH) Kandahar. Razi International Medical Journal, 4(2). DOI:10.56101/rimj. v4i2.162
14- 12-IQBAL S, TANVEER A, KHAN Z et al Risk Factors of Low Birth Weight in Pakistan.P J M H S Vol. 16, No. 03, MAR 2022 1163.
15- Hussain S, Ahmed S, Tarar ST, Tasleem G.LOW BIRTH WEIGHT: FREQUENCY, DEMOGRAPHICPROFILE AND ASSOCIATION WITH MATERNAL RISK FACTORSATA TERTIARY CARE TEACHING HOSPITALPak ArmedForcesMed J 2018; 68 (4): 850-55
16- Elmoussaoui S, Kaoutar K, Chetoui A, El Kardoudi A, Chigr F, Borrous M, et al. Prevalence and determinant factors of low birth weight in Marrakesh province, Morocco: cross sectorial survey. Afri Health Sci. 2024;24(2). 293-301. https://dx.doi.org/10.4314/ahs.v24i2.32
17- Alsamae A, Elzilal H, Alzahrani E, and et al. Comparative Cross-sectional Study on Prevalence of Low Birth Weight and its Anticipated Risk Factors. Global Pediatric Health Volume 2023; 10: 1 –8.
18- Girotra S, Mohan N, Malik M. Prevalence and Determinants of Low BirthWeight in India: Findings from a NationallyRepresentative Cross-Sectional Survey (2019-21).2023 Cureus 15(3): e36717. DOI 10.7759/cureus.36717
19- AmalizadeA, RezaeianM,Vazirinejad R, Bitaraf S, Irannejad N, Khalili P*. Iran J Health Sci.2019; 7 (2): 9-18. DOI:10.18502/jhs. v7i2.1060
20- Darman A, Tareen Z, Ahmad Haroon Baray AH, Farzad A. Prevalence and associated factors of low birth weight (LBW) in Mirwais Regional Hospital (MRH) Kandahar. Razi International Medical Journal, 4(2). DOI:10.56101/rimj. v4i2.162
21- Kumari S, B.Renuka, P. Kaavya. A Cross Sectional Study on Prevalence and Risk Factors for Low Birth Weight Babies in South India. Indian Journal of Public Health Research and Development / Vol. 16 No. 1, January-March 202
22- Mehare1 T and Sharew Y. Prevalence and Associated Factors of Low Birth Weight amongTerm Newborns in Dilla Town, Southern Ethiopia. international Journal of Pediatrics Volume 2020, Article ID 8394578, 7 pageshttps://doi.org/10.1155/2020/8394578
23- Hajizadeh F, Jamalizade A, Mohsen Rezaeian M, Vazirinejad R Prevalence and Risk Factors of Low Birth Weight in Rafsanjan, Iran;2017: A cross-sectional study Iranian Journal of Health Sciences 2019; 7(2): 9-18
24- Devaguru A, Gada S, Potpalle D, et al. (May 05, 2023) The Prevalence of Low Birth Weight Among Newborn Babies and Its Associated MaternalRisk Factors: A Hospital-Based Cross-Sectional Study. Cureus 15(5): e38587. DOI 10.7759/cureus.38587
25- Saeed A, Muhammad Saeed A. Maternal predictors of Low Birth Weight among women attending private hospitals of Lahore, Pakistan. Progress in Nutrition 2017; Vol. 19, N. 3: 257-263 DOI: 10.23751/pn. v19i3.503
26- Golestan M, Razieh Fallah R., Sedighah Akhavan Karbasi S. (2008), Neonatal mortality of low birth weight infants in Yazd, Iran Iranian Journal of Reproductive Medicine Vol.6. No.4. pp: 205-208,