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INCIDENCE OF LOW BIRTH WEIGHT IN THE MUNICIPALITY OF UBERLÂNDIA, MINAS GERAIS, 2018-2023

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Abstract: Introduction: Low birth weight (LBW) is an important benchmark for newborn development and has been a source of research in various regions of the country as a public health problem, prevalent in less developed countries. Epidemiological studies are important because they help to highlight possible causes and outline public health policies to help solve some problems. **Objectives:** to analyze the prevalence of LBW and associated factors in the period from 2018 to 2023 in the municipality of Uberlândia-MG. **Methods:** This is a descriptive cross-sectional epidemiological study that sought to identify the prevalence and factors associated with low birth weight, based on data available in the SINASC database of the Department of Informatics of the Unified Health System (DATASUS). **Results:** From 2018 to 2023, 58,109 births were registered in the city of Uberlândia, MG. The proportion of LBW was 10.89%. The factors associated with low birth weight were: female sex (53%), adult maternal age (9.6%), 7 or more prenatal consultations (8%), brown-skinned children (5.21%) and white children (4.43%), mothers with 8 to 11 years of schooling (6.52%) and single (5.81%), and cesarean delivery (8.12%). **Conclusion:** In this study, we found that LBW in Uberlândia-MG remained higher than the national average, showing that LBW is a significant challenge for public health in the municipality. The associated factors identified reinforce the need to raise awareness among mothers during prenatal care, as well as to pay attention to the risk factors of older mothers. Our findings contribute to the creation of public policy strategies in the municipality of Uberlândia-MG, contributing to a reduction in LBW, with a focus on risk prevention and the promotion of maternal and child health.

Keywords: Live births; Low birth weight; Risk factors.

INTRODUCTION

Low birth weight (LBW) has been defined by the World Health Organization as any live birth weighing less than 2,500 grams at the time of birth. It is a cutoff point adopted for international comparison and epidemiological research and is a determining factor in neonatal mortality. Newborns weighing less than 2,500 grams have a 20% higher risk of death than newborns with a higher weight. Public health and epidemiological research, globally, has raised questions about the causal role of birth weight and its outcomes on newborn health (WHO, 2014; Hughes et al., 2017). The scientific literature describes numerous studies that provide evidence of a strong association between LBW and neonatal and infant morbidity and mortality (Carniel et al., 2008; Silva et al., 2010; Lin, 2014, Moreira et al 2018), leading the WHO to identify this characteristic as the most important single factor in child survival.

LBW is an important clinical condition in determining neonatal morbidity and mortality and post-neonatal mortality. It is a global indicator of great relevance to public health and may be associated with reduced child growth and incidence of disease in adulthood (Dubois and Girard, 2006; Moraes, 2021; Moreira et al, 2018).

Birth weight is a sensitive indicator of the overall health status of the population. LBW babies are at risk of cognitive deficits, motor delays, cerebral palsy, and other behavioral and psychological problems (Mathewson et al., 2017; Hazzani et al., 2011). In addition, it is an indirect indicator of maternal health and a predictive indicator of potential neonatal death, child malnutrition, and risks of cardiovascular disease in adulthood (Arnold et al 2016). LBW varies greatly ly between different regions; however, scientific research shows that in low- and middle-income countries, and especially among the most vulnerable populations, there is a higher incidence of LBW (Unicef, 2004).

Regional estimates of low birth weight show 28% in South Asia, 6% in East Asia and the Pacific, 13% in Sub-Saharan Africa, and 9% in Latin America (Marete et al., 2020). Regional estimates for LBW also indicated that the occurrence in rural areas (11.2%) contrasted with urban areas (8.6%) (Victora et al., 1989; Monteiro, 1992).

Studies in the field of public health describe that several factors may be associated with LBW, such as: poor socioeconomic conditions, ethnicity, age, maternal height, sex of the newborn, and complications during pregnancy, mainly due to perinatal infections, preeclampsia, and uterine dysfunction (Pedraza et al., 2014; Santos et al., 2012; Gonzaga et al., 2016). In Uberlândia, MG, few studies have investigated the association of LBW. Given the above and the relevance of the topic as an important public health indicator, this study aimed to evaluate the factors associated with LBW in the municipality of Uberlândia-MG. The evidence from this study can support the planning of local public policies aimed at reducing LBW, in line with WHO recommendations.

METHOD

This is a descriptive cross-sectional epidemiological study based on data from the Live Birth Declarations (LBD) of the Live Birth Information System (SINASC), available on the website of the Department of Informatics of the Unified Health System (DATASUS. http://www.datasus.gov.br), referring to births of women residing in Uberlândia-MG, occurring between 2018 and 2023.

The data used is in the public domain from secondary data and corresponds to the DATASUS system database, which exempts the project from review by a Research Ethics Committee.

The sample consisted of all live births in the municipality of Uberlândia between 2018 and 2023, totaling 58,109 live births. The de-

pendent variable of the study was birth weight (<2,500 g), and the independent variables were maternal sociodemographic characteristics related to pregnancy, childbirth, and the newborn. We analyzed the following variables: birth weight (<2,500 grams or >2,500 grams), sex (female or male), gestational age in weeks (in the ranges of 22-27, 28-36, 37-41, and equal to or greater than 42), maternal age (in the ranges of 12-20, 21-30, 31-40, 41-50, 51-54 years), number of prenatal consultations (from 1-3, 4-6, and equal to or greater than 7 consultations), and Apgar score at 5 minutes <7 or >7. These variables were chosen in order to evaluate the obstetric and neonatal characteristics of newborns with LBW. Newborns weighing less than 2500 grams and containing maternal information on gestational age at birth and number of prenatal consultations were included. After data collection, we performed a descriptive analysis of the data to assess the distribution and characterize the study population, whose information was organized into tables using Microsoft Excel so that the results could be compared with other studies related to this topic.

RESULTS

In the period analyzed, 2018 to 2023, there were 58,109 live birth declarations corresponding to children of mothers residing in the municipality of Uberlândia-MG. the highest number of births occurred in 2018, totaling 10,422, with variations in other years of 17.8% and 15.7%, and the year with the lowest incidence was 2023 with 9,119 live births (Table 1).

The most predominant sex at birth is male, 51.4%, with the highest incidence of live births in 2018 and 2019. Females had an incidence of 48.6%. However, for the year 2023, the occurrence of live births by sex according to the year of birth was 4,726 for males (8.1%) and 4,389 (7.6%) for females.

The prevalence of LBW in the sample studied averaged 10.8% (Table 2). It can be seen that most children (n=51,782) were born with adequate weight, i.e., greater than 2,500 grams. Thirteen cases were ignored because their sex was not identified in SINASC. In terms of age, the mothers who most frequently had low birth weight children were those aged 20 to 24 (2.3%), 25 to 34 (2.6%), and 35 to 39 (1.6%). The total percentage of newborns with low birth weight during the study period was 10.8%.

The maternal age of the mother ranged from 10 to 59 years. Table 2 shows the number and proportion of live births according to the mother's age and low birth weight. Considering the entire age group corresponding to adolescence (10 to 19 years), the proportion of LBW (1.2%) was lower when compared to the proportion of non-adolescents (9.6%).

Table 3 shows the gender distribution among live births with low birth weight. Although there is a slight difference between the groups, the highest proportion (53%) of neonates with low birth weight was concentrated among females, while males accounted for 47%.

Table 4 shows the incidence of low birth weight by color/race (n=58,109). The largest population of live births with low birth weight was among brown-skinned individuals, with 5.21%, followed by 4.43% white, 1.20% black, 0.02% yellow, 0.01% indigenous, and 0.01% unidentified race.

The main anomalies presented due to low weight are shown in Table 5, with the highest incidence for congenital deformities of the musculoskeletal system, congenital malformations of the circulatory system, foot deformities, cleft lip and cleft palate, congenital malformations of the nervous system, and NCOP chromosomal anomalies.

Table 6 shows the maternal age of mothers of low birth weight newborns. It can be seen that the highest incidence of low birth wei-

Year	Total births Total	%	Low weight	Sex			
				Female	%	Male	%
2018	10.422	17,9	1,093 (1.88%)	5,041	8,7	5,377	9,3
2019	10.368	17,8	1,061 (1.83%)	5,058	8,7	5,309	9,1
2020	9.636	16,6	975 (1.68%)	4,695	8,1	4,940	8,5
2021	9.305	16,0	1,006 (1.73%)	4,523	7,8	4,780	8,2
2022	9.259	15,9	1,084 (1.87%)	4,508	7,8	4,750	8,2
2023	9.119	15,7	1,108 (1.91%)	4,389	7,6	4,726	8,1
Total	**58.109**			**28.214**		**29.882**	

Table 1 - Total number of live births and sex in Uberlândia-MG, from 2018 to 2023 (n=58,109).

Source: Birth Information System – SINASC

Mother's age	2018	2019	2020	2021	2022	2023	Total	%	<2500g	%	>2500g	%
10 to 14 years	50	34	29	24	20	24	181	0.31	35	0.1	146	0.3
15 to 19 years	1061	996	856	725	698	649	4985	8.58	661	1.1	4324	7.4
20 to 24 years	2341	2389	2156	2046	2000	1918	12,850	22.1	1357	2.3	11,493	19.8
25 to 29 years	2718	2598	2559	2463	2434	2389	15161	26.1	1493	2.6	13,668	23.5
30 to 34 years	2532	2516	2334	2282	2255	2290	14209	24.5	1488	2.6	12,721	21.9
35 to 39 years	1406	1487	1361	1375	1456	1433	8518	14.7	957	1.6	7561	13.0
40 to 44 years	302	330	321	373	374	387	2087	3.6	307	0.5	1780	3.1
45 to 49 years	12	17	18	15	20	27	109	0.2	27	0.0	82	0.1
50 to 54 years	-	1	1	2	2	2	8	0.0	2	0.0	6	0.0
55 to 59 years	-	-	1	-	-	-	1	0.0	0	0.0	1	0.0
Total	10.422	10.368	9636	9305	9259	9119	58109	100.00	6327	**10,8**	51782	**89,1**

Table 2 - Total number of live births, low birth weight, and maternal age in Uberlândia-MG, from 2018 to 2023 (n= 58,109)

Source: Birth Information System – SINASC

Low birth weight newborns (n=6,327)		
Sex	**N**	**%**
Female	3.326	53
Male	2.992	47

Table 3 - Gender distribution among low birth weight children in Uberlândia, MG (n= 6,327)

Source: Birth Information System – SINASC

Birth weight	White	Black	Asian	Brown	Indigenous	Ignored	Total
Less than 500g	85	20	-	85	-	-	190
500 to 999g	171	47	-	205	-	-	423
1000 to 1499 g	249	67	1	312	1	-	630
1500 to 2499 g	2072	566	8	2428	4	6	5084
Total <2500g	2577	700	9	3030	5	6	6327

%	4,43	1,20	0.02	5,21	0,01	0,01	10,89
Over 2500g							
2500 to 2999 g	5943	1383	14	6439	2	11	13792
3000 to 3999 g	15784	3294	42	16460	9	35	35624
4000g and above	974	216	3	1171	1	1	2366
Total >2500g	22701	4893	59	24070	12	47	51782
%	39,07	8,42	0,10	41,42	0,02	0,08	89,11%
Total	**25278**	**5593**	**68**		**17**	**53**	**58109**

Table 4 - Distribution of low birth weight according to race (Total live births N=58,109).

Source: Birth Information System – SINASC

Type of congenital anomaly	**< de 500g**	**500 to 999g**	**1000 to 1499 g**	**1500 to 2499 g**	**<2500g**	**2500 to 2999 g**	**3000 to 3999 g**	**4000 g and above**	**>2500 g**
Spina bifida	1	1	2	6	10	6	16	-	22
Other congenital malformations of the nervous system	1	-	3	14	**18**	12	12	1	25
Congenital malformations of the circulatory system	-	2	5	13	**20**	19	24	-	43
Cleft lip and cleft palate	-	-	2	7	9	5	19	1	25
Absence of atresia and stenosis of the small intestine	-	-	-	1	1	1	-	-	1
Other congenital malformations of the digestive system	1	2	2	7	12	3	3	-	6
Undescended testicle	-	-	-	2	2	1	2	-	3
Other malformations of the genitourinary system	3	2	-	9	14	10	10	2	22
Congenital foot deformities	-	-	2	7	9	11	19	-	30
Other congenital malformations and deformations of the musculoskeletal system	-	2	7	22	**31**	40	38	3	81
Other congenital malformations	3	5	11	28	47	13	14	2	29
Chromosomal abnormalities NCOP	-	3	3	11	**17**	10	9	1	20
No congenital anomaly/not reported	181	406	593	4957	6137	13661	35458	2356	57612
Total	**190**	**423**	**630**	**5084**	6327	**13792**	**35624**	**2366**	**58109**

Table 5 – Incidence of congenital anomalies due to low birth weight (n=58,109) in Uberlândia, MG, from 2018 to 2023.

Source: MS/SVSA/CGIAE - Live Birth Information System – SINASC

Mother's age	<500g	500 to 999g	1000 to 1499g	1500 to	<2500g a 2499 g	2500 to 2999g	3000 to 3999 g	4000g and above	>2500g	Total
10 to 14 years	1	3	3	28	35	51	93	2	146	181
15 to 19 years old	22	55	61	523	661	1461	2752	111	4324	4985
20 to 24 years	46	88	119	1104	**1357**	3184	7843	466	11,493	12,850
25 to 29 years	48	110	163	1172	**1493**	3431	9588	649	13668	15,161
30 to 34 years	37	89	147	1215	**1488**	3236	8834	651	12721	14209
35 to 39 years old	25	60	91	781	957	1923	5254	384	7561	8518
40 to 44 years	8	18	39	242	307	481	1201	98	1780	2087
45 to 49 years old	2	-	7	18	27	23	54	5	82	109
50 to 54 years old	1	-	-	1	2	2	4	-	6	8
55 to 59 years old	-	-	-	-	0	-	1	-	1	1
Total	**190**	**423**	**630**	**5084**	**6327**	**13792**	**35624**	**2366**	**51782**	**58109**

Table 6 - Occurrence of low birth weight in relation to maternal age

Source: MS/SVSA/CGIAE - Live Birth Information System – SINASC

Birth weight	**<7**	**%**	**<7**	**%**
Less than 500g	113	0,19	48	0,08
500 to 999g	161	0,28	253	0,44
1000 to 1499 g	92	0,16	529	0,91
1500 to 2499 g	179	0,31	4855	8,35
Total <2500 g	545	0,94	5685	9,78
More than 2500g	**<7**	**%**	**<7**	**%**
2500 to 2999 g	136	0,23	13504	23.24
3000 to 3999 g	264	0,45	35109	60.42
4000 g and above	31	0,05	2323	4.00
Total >2500g	610	0,74	55791	87,7
%total	976	1,7	56,621	
Year of birth	<7	%	<7	%
2018	146	0,25	10187	17,5
2019	162	0,28	10104	17,4
2020	154	0,27	9391	16,2
2021	172	0,30	9067	15,6
2022	186	0,32	8973	15,4
2023	156	0,27	8899	15,3
Total	976	1,7	56,621	97,4

Table 7 - Distribution of newborns according to birth weight and Apgar score at 5 minutes, in Uberlândia-MG, from 2018 to 2023. Values expressed in absolute frequency (n) and percentage in relation to the total number of births in the period.

Source: MS/SVSA/CGIAE - Live Birth Information System – SINASC

Mother's education	<2500g	%	>2500g	%
None	10	0,02	63	0,11
1 to 3 years	38	0,07	153	0,26
4 to 7 years	429	0,74	2766	4,76
8 to 11 years	3786	6,52	29753	51,20
12 years and older	2058	3,54	19001	32,70
Ignored	6	0,01	46	0,08
Total	6327	10,89	51,782	89,11
Mother's marital status/	**<2500g**	**%**	**>2500g**	**%**
Single	3377	5,81	24964	42,96
Married	2301	3,96	21329	36,71
Widowed	16	-0,03	62	0,11
Legally separated	131	0,23	943	1,62
Common-law marriage	497	0,86	4435	7,63
Ignored	5	0,01	49	0,08
Total	**6327**	**10,8**	**51782**	**89,1**

Table 8 – Number and proportion of live births, according to maternal education and marital status, from 2018 to 2023, in Uberlândia-MG.

Race	B	%	Pr	%	A	%	Par	%	In
Single	9790	16,85	3277	5,64	13	0,02	15239	26,22	6
Married	12935	22,26	1746	3,00	44	0,08	8896	15,31	5
Widow	29	0,05	11	0.02	1	0,00	33	0,06	4
Sep Justice	536	0,92	83	0,14	0	0,00	446	0,77	1
One. conse	1967	3,39	475	0,82	10	0,02	2477	4,26	1
Ignored	21	0,04	1	0,00	0	0,00	9	0,02	0
Total	25278	43,50	5593	9,63	68	0,12	27100	46,64	17

Table 9 – Number and proportion of live births, according to the mother's race, from 2018 to 2023, in Uberlândia-MG. B (white), P (black), Yellow (A), Brown (par), Indigenous (In)

Gestational age	Number	%	<2500g	%	>2500g	%
Less than 22 weeks	83	0.14	83	0,14	0	0,0
22 to 27 weeks	361	0.62	355	0,61	6	0,0
28 to 36 weeks	6403	11.0	3740	6,44	2615	4,5
37 to 41 weeks	50907	87,60	2115	3,64	48792	84,0
≥ 42 weeks	300	0,51	20	0,03	280	0,5

Table 10 – Number and proportion of live births, according to gestational age and weight, from 2018 to 2023, in Uberlândia-MG.

Type of delivery	Weight			
	Low		Normal	
	<2500g	%	>2500g	%
Vaginal	1609	2,77	16111	27,73
Cesarean	4717	8,12	35668	61,38
Ignored	1	0,00	3	0,01
Total	**6327**	**10,89**	**51,782**	**89,11**

Table 11 – Number and proportion of live births, according to type of delivery and weight, from 2018 to 2023, in Uberlândia-MG.

Type of delivery	Weight			
	Low		Normal	
	<2500g	%	>2500g	%
Single	5197	8,94	51111	87,96
Double	1065	1,83	658	1.13
Triple and more	65	0.11	2	0.00
Ignored	0	0.00	11	0.02
Total	**6327**	**10,89**	**51,782**	**89.11**

Table 12 – Number and proportion of live births, according to type of delivery and weight, from 2018 to 2023, in Uberlândia-MG.

Prenatal consultation	Weight			
	Low		Normal	
	<2500g	%	>2500g	%
None	63	0,11	153	0,26
1 to 3 consultations	310	0,53	662	1,14
From 4 to 6 consultations	1301	2,24	2971	5,11
7 or more consultations	4646	8,00	47,992	82,59
Ignored	7	0,01	4	0,01
Total	**6327**	**10,89**	**51,782**	**89,11**

Table 13 - Number and proportion of live births, according to the number of prenatal consultations and weight, from 2018 to 2023, in Uberlândia-MG.

ght was in the 25-29 and 30-34 age groups (n=1493 and n=1488). These age groups also had the highest incidence of congenital anomalies at birth, as shown in Table 5.

The Apgar score assesses birth conditions and is also an important predictor of mortality (Araujo, 1999). In the population studied, it was found that the ratio of LBW (,2500g) to Apgar score at 5 minutes <7 was 0.94%, and when compared with Apgar <7 at 5 minutes, we found a percentage of 9.78%, indicating a higher risk of unfavorable conditions in this group. It was also noted that the extremes of weight (less than 1000g) concentrated a significant portion of cases with Apgar <7, reinforcing the vulnerability of premature and very low birth weight infants.

Table 7 shows the Apgar score in newborns

with low birth weight and the year of birth. The highest proportion of neonates had an Apgar score <7 at 5 minutes, corresponding to 0.94%.

Table 8 shows the number and proportion of live births according to the mother's education, marital status, and weight. The relationship between the mother's education and LBW at birth showed that mothers with 8 to 11 years of education (6.52%) had a higher incidence of LBW children. Live births to unmarried mothers had a higher proportion of LBW (5.81%) compared to other categories. In relation to maternal characteristics, for each group, the highest percentages corresponding to marital status and race showed that unmarried mothers had more children (26.22%), with the proportion of brown mothers (46.64%), white mothers (43.5%), black mothers (9.63%), yellow (0.12%), and indigenous women with a low percentage close to zero (Table 9).

Analyzing the variable duration of pregnancy related to LBW in Table 10, we found that pregnancies lasting 22 to 41 weeks have an increased risk of LBW. There was a higher proportion of low birth weight from 28 to 36 weeks, corresponding to 6.44%. Regarding the type of delivery, the incidence of LBW was higher in cesarean deliveries (8.12%) (Table 11). The highest proportion of LBW occurred in live births to mothers who had single pregnancies (8.94%) (Table 12) and mothers who had 7 or more consultations (8%) (Table 13).

DISCUSSION

The birth rate in the city of Uberlândia, Minas Gerais, between 2006 and 2015 showed steady growth, rising from 7,899 in 2006 to 9,690 in 2015. There has been a consistent increase in the birth rate, which may be related to favorable socioeconomic or demographic factors during this period. In 2016, however, there was a reversal in the growth trend, showing that the live birth rate began to decline, with a slight reduction in 2016 and 2017. Although there was a slight increase in the birth rate in 2017 (9,636) and 2018 (10,422), in 2019, there were 10,368 live births, thus showing a progressive decline, culminating in 2020 with 9,636 births, which may have been influenced by the COVID-19 pandemic. In 2021, the birth rate continues to fall to 9,305 births, and in 2022 the number drops to 9,259 and continues to fall in 2023 with 9,119 cases. Our study is in line with the Uberlândia Health Department's newsletter, which found that these annual variations in births showed a change in reproductive behavior, as well as in maternal and child health conditions after the pandemic (SMS, 2024).

The LBW rate at birth of 58,109 newborns was 10.8% (6,327) in the period from 2015 to 2023. When analyzing the LBW trend year by year, it can be seen that in 2018 the LBW rate was 1.88%, with a decrease from 2020 (1.68%) to 2022 (1.87%). In 2023, the LBW rate (1.91%) was higher than in previous years. From 2015 to 2016, the prevalence of low birth weight in the city of Uberlândia-MG was 9.61% (Silva, 2019). These data show an upward trend in LBW in the municipality, which rose from 9.61% to 10.8%. LBW at birth has its highest percentages in regions with better socioeconomic conditions, a phenomenon known as the low birth weight paradox. More developed regions have higher rates of low birth weight; therefore, the presence of services and their use reduce infant mortality and increase LBW (Silva et al., 2010).

In the period evaluated in this study, female newborns showed a higher risk of LBW (53%). This incidence has also been described in other studies, confirming that females continue to be the most frequent in LBW newborns (Silva, 2019; Moraes et al, 2021). It is still unclear in the scientific literature how sex can influence birth weight. However, LBW in females was higher when compared to males, which is consistent with what has been des-

cribed in the literature (Moreira et al., 2018).

When we looked at maternal marital status, the highest proportion of children with LBW in the municipality were born to single mothers aged 35 years or older. Risk factors for mothers in adulthood are strongly influenced by high LBW rates (Carolan et al., 2011), which may be related to the aging process of the reproductive system. In addition, we observed a 7.7% reduction in the number of adolescent mothers and an increase in mothers aged 25 years or older. The number of mothers with 8 years of schooling increased by 51%. There has been a decrease in the number of teenage pregnancies in Brazil, which has been notable in recent years, with an increase in schooling, so that adult mothers may be postponing pregnancy (Da Silva et al., 2013).

Although mothers of newborns with low birth weight had higher levels of education and more prenatal consultations, highlighting the "low birth weight paradox" (SMS, 2024), the literature emphasizes that advanced maternal age may be associated with a risk of premature births, regardless of parity, especially in very premature births. Women aged 35 years or older, expecting their first, second, or third child, should be considered a risk group for very preterm births (Waldenström et al., 2017). Several studies have found that biological factors, such as sexually transmitted diseases, may also contribute to the epidemiological paradox of LBW, and further studies are needed to define the contribution of other biological risk factors to ethnic differences in perinatal outcomes (Fuentes-Afflick, 1999).

The number of mothers who did not attend any prenatal consultations was 0.11%, while the number of mothers who attended seven or more prenatal consultations was 8%. There has been an increase in the number of prenatal consultations in Brazil, but the maternal and neonatal mortality rates have not reflected this improvement. The Ministry of Health and researchers on the subject emphasize the need for investments in the quality of prenatal care in the country, which will have an impact on infant survival (Mendes, et al. 2015).

Between 2021 and 2023, the decline in births continued, especially among adolescents, while births among women aged 35 and over increased. In this study, the predominant type of delivery was cesarean section, a common occurrence among the population with a higher economic index (Assunção et al., 2012). The prevalence of premature newborns and cesarean sections seems to be a problem related to ethical issues. Several studies have shown that the prevalence of LBW is not considered significant when comparing vaginal deliveries with cesarean sections, and that the type of cesarean delivery is not related to low birth weight, which may be affected by maternal health characteristics (Maia; Souza, 2010). From 2011 to 2015, in the municipality of Patos de Minas, Silva et al. (2020) found that there were more cesarean sections than vaginal deliveries in women over 35 years of age.

Ribeiro et al. (2000) described that the increase in the number of cesarean sections may be one of the factors responsible for the increase in low birth weight. The higher the cesarean section rate or the lower the LBW rate, the greater the paradox, and this could be associated with a decrease in the infant mortality rate, suggesting that the LBW rate cannot be systematically considered an indicator of socioeconomic well-being, as it may be associated with low SINASC coverage or improvements in medical care (Silva, 2010).

In our study, the highest proportion of newborns had an Apgar score of <7 at 5 minutes, corresponding to 0.94%. Chermont et al. (2020) described that Apgar scores of less than seven at 5 minutes are associated with a higher risk of preterm birth and LBW in women of advanced maternal age. These findings confirm those described by Araujo (1999), who

linked LBW to worse Apgar scores, making it an important marker of neonatal morbidity and mortality. In addition, ABUKARI et al. (2021) identified an association between low Apgar 5 and risk factors for women of advanced maternal age, cesarean delivery, preeclampsia, and obstetric complications. It is important to note that Apgar 5 scores of zero to six are strongly associated with a prognosis of neurological health deficits and infant mortality (Galiassi et al., 2021). Thus, our results reinforce the relevance of epidemiological surveillance with the LBW index, maternal characteristics, and the Apgar 5 index as a basis for improving prenatal care and guiding policies to improve maternal and child health in the municipality of Uberlândia-MG.

CONCLUSION

In the municipality of Uberlândia-MG, between 2018 and 2023, the prevalence of LBW (10.8%) remained high, exceeding rates in other Brazilian regions and developed countries.

The profile of newborns with LBW was more frequent among females, brown-skinned/ethnicity/race, single mothers, and lower 5-minute Apgar scores, highlighting vulnerabilities that may impact newborn development.

Our results reinforce the relevance of epidemiological surveillance and systematic analysis of LBW as a sensitive factor for assessing maternal and child health conditions, which can help to create actions to improve maternal and neonatal health in Uberlândia-MG. Thus, this evidence expands knowledge about the epidemiological and demographic transition in maternal and child health in the municipality. Such information can contribute to the creation of effective strategies for policy-making, which can effectively contribute to reducing LBW and improving maternal and child health outcomes.

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