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Low birth weight: study of associated factors in a tertiary hospital in the Greater Vitória Area, ES, Brazil

Baixo-peso ao nascer: estudo de fatores associados em um hospital terciário da grande Vitória, ES, Brasil

Abstract

Low birth weight (LBW) is an important clinical condition in the determination of neonatal morbidity and mortality and postneonatal mortality. It is a highly relevant indicator to public health. This study aimed to evaluate the factors associated with low birth weight of newborns treated at a highly complex public hospital located in the city of Vitória, ES, Brazil. This is a cross-sectional study in which the population consisted of 246 mothers and children up to two incomplete years of age, who sought care at the hospital services from September 2017 to March 2018. The association between LBW (dependent variable) and independent variables (sociodemographic, obstetric and clinical-surgical conditions) was studied using the chi-square test. The strength of association was estimated by calculating the odds ratio and its 95% confidence intervals (95% CI).To control possible confusing factors in the associations obtained, the multivariate binary logistic regression model was used, and

the significance level adopted was p <0.05. Analyzes were performed using the Stata 13.0 statistical package. In this study, the prevalence of LBW found was 22.4% (95% CI 17.5-28.0). Of the six variables included in logistic regression, only the number of prenatal visits <6 weeks (OR = 7.61), presence of complications during pregnancy (OR = 2.29), gestational age <37 weeks (OR = 26, 89) and the gender of the female newborn (OR = 2.67) remained associated with the outcome. The number of prenatal consultations >6, absence of complications during pregnancy, gestational age ≥37 weeks and the gender of the male newborn showed a protective factor against the occurrence of low birth weight. The results found here justify the need to develop more effective actions directed to the maternal and child public..

Keywords: Low birth weight. Mother-infant healthcare. Risk factors. Public health. Birth weight.

Resumo

O baixo-peso ao nascer (BPN) é uma condição clínica importante na determinação da morbimortalidade neonatal e da mortalidade pós-neonatal, sendo um indicador global de grande relevância para a saúde pública. Este estudo objetivou avaliar os fatores associados ao baixo-peso ao nascer de recém-nascidos atendidos em um hospital público de alta complexidade localizado no município de Vitória-ES. Trata-se de estudo de delineamento transversal no qual a população foi constituída por 246 mães e crianças de até dois anos de idade incompletos, que procuraram atendimento nos serviços do hospital no período de setembro de 2017 a março de 2018. Estudaram-se a associação do BPN (variável dependente) e as independentes (condições sociodemográficos, obstétricas e clínico-cirúrgicas) utilizando-se o teste de qui-quadrado. A força de associação foi estimada calculando-se a razão de chances (***odds ratio***) e seus intervalos de confiança de 95% (IC95%). Para o controle de possíveis fatores de confusão nas associações obtidas, usou-se o modelo de regressão logística binária multivariada, e o nível de significância adotado foi de ***p*** <0,05. As análises foram realizadas utilizando o pacote estatístico Stata 13.0. Neste estudo, a prevalência encontrada de BPN foi de 22,4% (IC95% 17,5-28,0). Das seis variáveis incluídas na regressão logística, somente o número de consultas de pré-natal <6 semanas (OR=7,61), presença de intercorrências na gestação (OR=2,29), idade gestacional <37 semanas (OR=26,89) e o sexo do recém-nascido feminino (OR=2,67) permaneceram associados ao desfecho. O número de consultas de pré-natal >6, ausência de intercorrências na gestação, idade gestacional ≥37 semanas e o sexo do recém-nascido masculino apresentaram fator protetor à ocorrência de baixo-peso ao nascer. Os resultados aqui encontrados justificam a necessidade de desenvolver ações mais efetivas direcionadas para o público materno-infantil.

Palavras-chave: Baixo-peso ao nascer. Saúde materno-infantil. Fatores de risco. Saúde pública. Peso ao nascer.

INTRODUCTION

The clinical status of the newborn (NB) can be assessed in several ways, one of which is by birth weight.[1] The World Health Organization (WHO) classifies low birth weight (LBW) children as having weight less than 2,500g.[2] LBW is an important clinical condition in determining neonatal morbidity and mortality and postneonatal mortality, and it is a global indicator of great relevance to public health.[3]

About 20% of newborns worldwide are estimated to have LBW, which would correspond to over 20 million births per year.[2,4] In the assessment of data from the Live Birth Information System (SINASC) carried out in Brazil between 1996 and 2011, there was an 8.0% proportion of children with BPN in the 26 state capitals and the Federal District. The Southeast (8.4%) and South (8.0%) regions corresponded to the highest proportions; and the Northeast (7.6%), Midwest (7.4%) and North (7.2%) regions, the lowest proportions of the country.[4] According to data provided by the Ministry of Health, in 2004, the Espírito Santo State had a prevalence of 7.5% of LBW, and the other states of the Southeast Region, higher than 9%.[5]

Studies in the Public Health area show that the determination of LBW involves an association of factors, including poor socioeconomic conditions; ethnicity; age; maternal height; sex of the newborn and complications during the gestational period, mainly due to infections, perinatal diseases, preeclampsia and uterine dysfunctions.[1,3,6] Low assistance during pregnancy can also be considered an important risk factor for the birth of low-weight children, as it is already agreed in the national and international literature that Prenatal care contributes favorably to timely interventions, avoiding unfavorable outcomes for the mother or infant, and

the possibility of maintaining it is linked to the Women's and Children's Health Care Program for follow-up.[7-9]

Given the above and given the relevance of the theme as an important indicator of public health, this study aimed to evaluate the factors associated with low birth weight of newborns treated at a highly complex public hospital located in the city of Vitória, ES, Brazil.

METHODS

This is a cross-sectional study that used data collected from September 2017 to March 2018, from a research entitled "Influence of maternal food consumption on infant feeding and breastfeeding practice". The study population consisted of mothers and children up to two incomplete years old, who sought care at the human milk bank (HMB), high-risk maternity and pediatric outpatient services of a tertiary hospital in Greater Vitória area, ES, Brazil.

The sample size calculation took into account an estimated population of 4,848 children served from September 2017 to March 2018. With a predicted proportion of 50% corresponding to the lack of prior information on this percentage, the significance level of 5% and a 90% confidence level, a representative sample of 251 children was obtained. In the present study, 246 children were included. The others were excluded due to the lack of outcome data.

Data collection was performed through a structured questionnaire, developed and tested for the study. The questionnaire consisted of gestational and birth history, obtained through research in medical records of the service, child or pregnant woman's book. The maternal height was also measured by Seca® stadiometer, with measuring range 20-205cm; and women's body weight, using the Wiso® brand digital scale, with a capacity of 180kg, and 100g graduation. Measurement techniques were adopted according to the protocol of the Food and Nutrition Surveillance System (SISVAN).[10]

The profile of mothers and newborns was identified through sociodemographic characteristics (maternal age, maternal height, ethnicity/skin color, socioeconomic class, maternal education, head of household education, marital status of mothers); gestational characteristics (pre-gestational age, weight gain during pregnancy, number of prenatal consultations and gestational complications); and related to childbirth and birth conditions (type of delivery, gestational age and weight of the newborn).

For the analyses, the dependent variable was birth weight, categorized as low weight <2500g and normal weight ≥ 2500g. The independent variables were: maternal age (<19 years; 19-34 years and ≥ 35 years); maternal height (<1.45m and ≥ 1.45m); ethnicity/skin color (white; black; brown/yellow); socioeconomic class (A/B and C/D/ E); maternal education (up to 7 and 8

or more completed school years); head of household's education (up to 7 and 8 or more years of schooling completed); marital status of mothers (with partner and without partner), pre-gestational weight (<45, 45-74 and ≥ 75 kg), weight gain during pregnancy (<7, from 8 to 11.4, from 11.5 at 15.9 and ≥ 16 kg), number of prenatal consultations (<6 and ≥6 consultations); complications during pregnancy (yes and no); gestation duration (<37 and ≥37 weeks); type of delivery (normal and caesarean section) and gender of the newborn (male and female).For the categorization of the variables, the Brazilian Ministry of Health technical manual was used as criteria.[11]

The analyses were performed using the Stata 13.0 statistical package, and to characterize the studied population, the calculations of proportions and their respective 95% confidence intervals (95% CI) were included; measures of central tendency and dispersion were expressed as means and standard deviation (mean ± SD).

The association between the dependent variable and the independent variables was studied using the chi-square test. The strength of association was estimated by calculating the odds ratio and its 95% confidence intervals (95% CI).To control possible confounding factors in the associations obtained, the multivariate binary logistic regression model was used. The variables that showed association (p value <0.20) with the dependent variable in the bivariate analysis were introduced in the multivariate model, while significant variables remained in the model (p value <0.05). The categories chosen as reference in the univariate and multivariate analysis were those with the lowest expected risk for low birth weight, as pointed out in the literature.[4,6,11]

The study was approved by the Research Ethics Committee (CEP) of the Federal University of Espírito Santo (UFES)/Health Sciences Center (CCS), registered under CAAE no. 71101417.9.0000.5060, following the guidelines of Resolution no. 466/12 of the National Health Council/Ministry of Health, for studies with human beings.

RESULTS

A total of 246 newborns were included in the analysis, most of them male (52.2%).Statistically significant differences were observed in mean birth weight according to gender (p = 0.002), with an average weight of 3.14 kg ± 0.76 for males, and 2.83 kg ± 0.85 for females. Summary statistics of birth weight by sex of newborns are shown in Figure 1. Male birth weight values showed lower variability and higher frequency of atypical values. The minimum and maximum birth weight values for boys and girls were 750g and 4.49kg, and 670g and 4.62kg, respectively.

In this study, the prevalence of low birth weight found was 22.4% (95% CI 17.5-28.0). The gender variable for the newborn, which showed a significant association with low weight (p =

0.043), had a lower prevalence for males, 17.2% (95% CI 11.5-24.8), compared to with females, 27.9% (95% CI 11.5-24.8), as shown in figure 2.

Figure 1. Summarized statistics of birth weight by gender.Vitória, Espírito Santo, 2017.

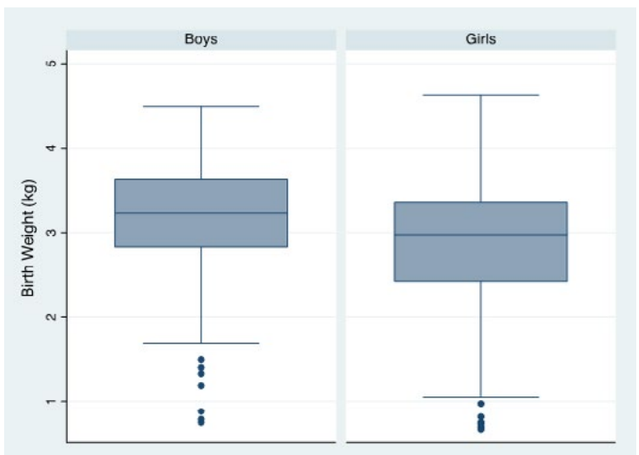
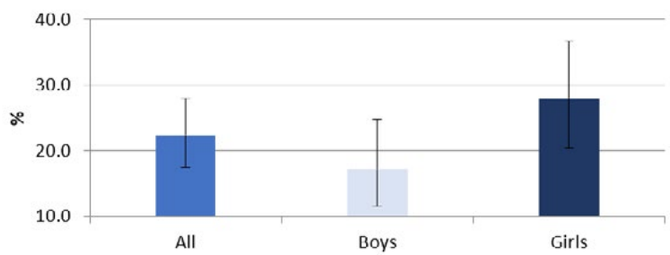


Figure 2. Prevalence of low birth weight by gender.Vitória, Espírito Santo, 2017.



For the independent variables analyzed, those that showed significant association with the study outcome were: maternal age and height, number of prenatal consultations, complications during pregnancy, gestation length and gender of the newborn, as shown in tables 1 and 2 below.

The highest prevalence of low birth weight can be observed at intermediate maternal ages (19 to 34 years), followed by older mothers. Relevant observation should also be made regarding maternal height: all mothers under 1.45 meters tall gave birth to low-weight children (Table 1).

Table 1. Birth weight according to maternal sociodemographic characteristics.Vitória, Espírito Santo, 2017.

Variables	Weight < 2,500 grams N (%)	Weight ≥ 2,500 grams N (%)	p-value*
Age (years)			
< 19	3 (5.4)	11 (5.8)	**0.020**
19-34	32 (58.2)	143 (75.7)	
≥ 35	20 (36.4)	35 (18.5)	
Height (m)			
< 1.45	2 (4.0)	0 (0.0)	**0.049**
≥ 1.45	48 (96.0)	175 (100.0)	
Skin color/Ethnicity			
White	11 (20.0)	50 (26.2)	0.267
Black	12 (21.8)	26 (13.6)	
Brown/Yellow	32 (58.2)	115 (60.2)	
Socioeconomic Class			
A/B	18 (32.7)	53 (27.7)	0.501
C/D/E	37 (67.3)	138 (72.3)	
Mother's educational background (years of education)			0.456
< 8	7 (12.7)	18 (9.4)	
≥ 8	48 (87.3)	173 (90.6)	
Head of the family's educational background (years of education)			1.000
< 8	8 (14.5)	30 (15.7)	
≥ 8	47 (84.5)	161 (84.3)	
Marital status			
Without partner	24 (43.6)	83 (43.5)	1.000
With partner	31 (56.4)	108 (56.5)	
Total	55 (22.4)	191 (77.6)	

Table 2. Birth weight according to characteristics of pregnancy, childbirth and newborn.Vitória, Espírito Santo, 2017.

Variables	Weight < 2,500 grams N (%)	Weight ≥ 2,500 grams N (%)	p-value*
Pre-Gestational Weight (Kg)			
<45	3 (5.5)	4 (2.2)	0,325
45-74	38 (70.4)	124 (68.1)	
≥ 75	13 (24.1)	54 (29.7)	
Gestational Weight Gain (Kg)			
< 7.0	20 (38.5)	43 (25.1)	0,126
8.0 – 11.4	17 (32.7)	48 (28.1)	
11.5 – 15.9	8 (15.4)	43 (25.1)	
≥ 16	7 (13.5)	37 (21.6)	
Number of consultations Prenatal			
<6	22 (44.9)	27 (15.1)	**<0,001**
≥6	27 (55.1)	152 (84.9)	
Pregnancy complications			
Yes	40 (72.7)	96 (51.1)	**0,005**
No	15 (27.3)	92 (48.9)	
Gestational age (weeks)			
< 37	40 (75.5)	15 (8.0)	**<0,001**
≥ 37	13 (24.5)	173 (92.0)	
Delivery Type			
Vaginal	19 (35.2)	61 (31.9)	0,743
Cesarean	35 (64.8)	130 (68.1)	
Newborn sex			
Male	22 (40.0)	106 (55.5)	**0,047**
Female	33 (60.0)	85 (44.5)	
Total	55 (22.4)	191 (77.6)	

There was a predominance of complications during pregnancy (72.7%), premature birth (75.5%), cesarean section (64.8%) and birth of female children (60%) in the group of children with birth weight less than 2,500g. High proportion of mothers with low assistance during pregnancy can also be observed in this group, since 34.7% had less than six consultations during the period (Table 2).

Table 3. Crude and adjusted odds ratios of the final low-birth weight model according to analysis variables, Vitória, Espírito Santo, 2017.

Variables	Crude analysis *Odds Ratio* IC95%	p-value*	Adjusted Analysis *Odds Ratio* IC95%	p-value*
Mother's age				
19-34	1.00	0.012	1.00	0.681
<19 e ≥ 35	2.23 (1.18 – 4.19)		1.23 (0.45 - 3.31)	
Gestational Weight Gain (Kg)				
Adequate	1.00	0.147	1.00	0.503
Inadequate	1.84 (0.80 - 4.23)		0.64 (0.20 - 2.20)	
Number of consultations Prenatal				
<6	6.78 (3.00 - 15.32)	**<0.001**	7.61 (2.01 - 28.74)	**0.003**
≥6	1.00		1.00	
Pregnancy complications				
Sim	2.55 (1.32 - 4.93)	**0.005**	2.29 (1.09 - 9.93)	**0.034**
Não	1.00		1.00	
Gestational age (weeks)				
< 37	35.48 (15.65 – 80.44)	**<0.001**	26.89 (9.28 - 58.32)	**<0.001**
≥ 37	1.00		1.00	
Newborn sex				
Male	1.00	**0.044**	1.00	**0.050**
Female	1.87 (1.01 - 3.44)		2.67 (1.00 - 7.38)	

Table 3 shows the results of the logistic regression and the adjusted ORs of the final low birth weight model, according to the analysis variables. Of the six variables included in logistic regression, only the number of prenatal visits <6 weeks (OR = 7.61), presence of complications during pregnancy (OR = 2.29), gestational age <37 weeks (OR = 26, 89) and the gender of the female newborn (OR = 2.67) remained associated with the outcome after controlling for potential confounding factors.

In the present study, maternal height was considered an important biological factor associated with LBW, but this variable cannot be considered in logistic regression analyses due to the low frequency found.

DISCUSSION

The present study shows a high prevalence of low birth weight in a sample of users of a tertiary hospital in Vitória, ES, and it was significantly associated with the number of prenatal consultations, clinical complications during pregnancy, gestational age, and sex of the newborn. Because it is an important health marker in determining neonatal morbidity and mortality and post-neonatal mortality, understanding the factors associated with LBW is extremely important in improving clinical care practices, thus strengthening public policies aimed at the population in question.Thus, the factors associated with the high prevalence of low birth weight found here will be the most relevant element in the discussion to be developed.

World-wide[12] surveys in 2000, and national,[13] carried out in 2010, reveal a prevalence of low birth weight around 15.5% and 8.4%, respectively, much lower than those reported in this study (22.4%).The United Nations (UN)14 recommends that countries improve health care for the pregnant population, so that low weight prevalence remains close to 10%.

However, because it is a sample of pregnant women and children who sought assistance in a high-complexity hospital, which may justify the prevalence much higher than the values found in different regions of the country,[4,5] it is worth comparing the data found here to studies carried out in a similar hospital. Thus, research conducted in a hospital in Santos,[15] state of São Paulo, Brazil, found a prevalence of 15.8% of low birth weight, which is lower than the values found here.

Based on the prevalence of 10% of LBW recommended by the UN,[14] the high values observed in the present study, in the state of Espírito Santo and other regions of the country[4,5] in recent years, can be explained by the high number of premature births. Such increase is justified by the increasing number of cesarean sections and induction of premature births, probably generated by complications during pregnancy. However, the prevalence of LBW is still variable in different regions of the country and also worldwide, with disadvantages for those populations in unfavorable socioeconomic conditions.[2,4,5]

Regarding birth weight by sex, the highest averages were observed among male children. It is unclear in the literature how a child's gender influences birth weight; However, it is known that girls have lower weight than boys of the same gestational age and a higher risk of intrauterine growth restriction, as documented in other studies.[16,17]

The sex of the newborn showed an association with the outcome analyzed, indicating that girls were more likely to have low birth weight than boys (OR = 2.67). A survey conducted in 2009 in municipalities of Acre found a higher proportion of LBW for females compared to males, with values of 10.4% and 7.8%, respectively, revealing that girls had 1.3 times more chances of LBW.[16]

Regarding maternal age, there is a significant association in the crude analysis, and no such association with the LBW when the adjusted analysis is performed. However, several studies have shown that during pregnancy there is a physiological increase in nutritional needs, so that in adolescence this increase is even greater due to the demands related to the accelerated growth of this age group and those related to fetal development.[18-20] Some authors report probable nutrient competition between mother and fetus, which may result in the birth of low-weight children.[21-24] The increase in pregnancy and reproductive life limits – before 19 and after 35 years of age – has been more and more frequent.[20,25] Gestation over 35 years of age has become increasingly common due to adequate birth control, advances in assisted reproduction technology, higher education and socioeconomic status of women and better health care assistance.[25]

Maternal age is seen as an important variable in the determination of neonatal mortality, since the extremes of reproductive age are more likely to have LBW and the consequent risk of death.[26] Results from a study carried out in England with women over 35 years showed that women in this age group are at higher risk for preeclampsia, emergency cesarean delivery, premature children and low birth weight.[27] Cases of chronic hypertension increase with maternal age, being explained by age-specific vascular involvement. In addition, preeclampsia is reported to be more recurrent at the extremes of reproductive life, especially among women considered to be of advanced age for reproductive purposes.[27,28] When relating maternal height to birth weight ranges, Lima et al.[29] point to lower height as a risk factor for low birth weight. Short women (<145 cm) are more likely to have a small pelvis and may experience cephalopelvic disproportion, premature labor and intrauterine growth restriction.[11,29]

Regarding the variables ethnicity / skin color, maternal education, head of household's education, socioeconomic status and marital status, no association was found with the outcome of the study. A study conducted with pregnant women in Brazil found that among those who had black skin color, there was a higher occurrence for low adherence to beginning prenatal care and low proportion of the number of consultations, which are determining factors for LBW.[30] Meyer et al.[31] emphasize that the racial issue seems to affect perinatal outcomes, since access to education is related to the issue of racial diversity that occurs in the educational sector. The fewer the years of education, the higher the conditions of poverty and family vulnerability.

In the study by Barros et al.,[32] mothers with higher education (more than 8 years of schooling) did not show a significant association with low birth weight. This data is extremely relevant, since education is a modifiable risk factor and it is considered a protection condition in the birth of low-weight children.[33] This fact can be explained by the better and greater access to promotion and prevention information related to healthcare practices during this

period. Low education level[34] and, consequently, low socioeconomic level, have been shown to be positively associated with the onset of LBW, and are also related to the nutritional status of the pregnant woman and consequent reflection on intrauterine growth velocity.[32]

From the perspective of maternal marital status, the latter has been considered an important risk factor, since the absence of a partner may bring less financial stability and less adherence to follow-up in the healthcare service. Thus, it may present a higher risk for low birth weight, a condition confirmed in previous studies, according to which mothers who live without a partner are predestined, in most cases, to have greater chances of giving birth to children with insufficient weight.[5,7]

No association was found between pre-gestational weight and weight gain during LBW pregnancy, unlike what was reported in a study by Santos et al.,[1] in which such association was positive, taking into account pre-gestational body mass index (pgBMI) and insufficient birth weight. In this study, we found that mothers with pre-gestational low birth weight were more likely to have children weighing less than 3,000 grams. Another study carried out in a teaching maternity hospital involving adult mothers and their newborns showed a 7.1 times higher chance of low birth weight among women with pgBMI considered low.[35] According to a recommendation from the Ministry of Health , the total weight gain at the end of pregnancy should remain between 8 and 16 kg, and values below 7 kg and above 16 kg are likely to face greater complications during this period.[11, 22]

Nutritional changes in pregnancy have a major impact on maternal and infant health, both regarding maternal pre-gestational low weight (<45kg) –related to specific nutrient deficiencies that can result in LBW – and overweight and obesity (> 75kg), which may be associated with the development of diabetes, gestational hypertensive syndromes and macrosomia for the newborn.[11,36]

The results found here show a statistically significant association between the number of prenatal consultations and LBW. Women who had less than six consultations during pregnancy were 7.6 times more likely to have children with LBW than the group that had more than six consultations. Coelho et al.[37] highlight the importance of adequate and quality medical and nutritional care in prenatal care to reduce gestational complications and health problems of the mother-child binomial, such as prematurity, low birth weight and maternal and child mortality. The Brazilian Ministry of Health establishes at least six antenatal consultations to promote appropriate care.[11]

It is emphasized that the concern with the adequate number of prenatal consultations should also be associated with adequate care, and should not be limited only to the prevention of low birth weight. Through this supervision, one can have a full look at the mother-baby

binomial, identifying the various risk situations for pregnancy and childbirth, enabling timely interventions and avoiding unfavorable outcomes.

Different maternal complications are related to low birth weight, and data from this research showed that mothers who were diagnosed with some pregnancy complication were approximately 2.3 times more likely to have a low birth weight newborn. Preeclampsia, anemia, placental displacement, premature birth, among others, are confirmed in the literature as a risk for LBW in children.[8,38] As found in a study carried out at the same hospital in 2013, women with diabetes presented one sixth (0.173) chance of giving birth to a child with low weight.[39]

There is an association between the occurrence of prematurity (<37 gestational weeks) and low birth weight. Fetal weight gain is found to be higher in the third trimester of pregnancy, especially around 34 weeks, which helps to understand a close relationship between preterm and LBW.[38,40] Low birth weight is pointed out as one of the main public health problems, especially in underdeveloped countries, where the impact on child morbidity and mortality is still significant. Intrauterine growth restriction (IUGR) and prematurity are considered as the major causative factors in the condition. The correlation of these outcomes forms an important picture of exposure to illness, prolonged hospitalization, and death in the first year of life.[41]

No significant relationship was observed between the type of delivery and low birth weight. Of the mothers assessed in this research, the most common delivery method for the NB <2,500g group was cesarean section (64.8%), with a slightly lower prevalence than that found in the study by Serra et al.[15] in 2015, which was 74%, even though it is higher than that recommended by WHO (15%).[42]

The present study has some limitations: The sample consisted of a population of pregnant women, mothers and children who sought a hospital of high complexity, served by the Unified Health System (SUS), which is a reference in the clinical care of pregnant women at risk. This prevents the generalization of results to other populations, but that can be applied to discuss the vulnerabilities of populations with the same profile. The homogeneity of the population seeking care at this hospital may have decreased the associations between socioeconomic and demographic variables with the outcome under analysis.

The results found here justify the need to develop more effective actions directed to the maternal and child public. LBW is considered multifactorial. Thus, the socioeconomic, obstetric, gynecological, and clinical and surgical factors are considered extremely relevant. Some of these factors are preventable through an appropriate intervention in the health services, highlighting the need for managers and health professionals to review the quality of care

provided, by investing both in prenatal care, so as to reduce low birth weight, and in childbirth and the care provided to these newborns. In this sense, we reinforce the need for public policies directed to this population to be effectively implemented. The actions that benefit the community have to be continued and the result obtained should be known. Managing and maintaining services efficiently has a long-term effect on the quality of life of the assisted population.

Producing healthcare spaces that promote quality of life, access to information, health education and social interaction can be decisive through actions that transform care models and reorganize relationships within teams in order to build an intervention that is concerned about humanized care.[43]

CONCLUSION

The findings of the present study suggest that low birth weight, in addition to being an important indicator of health problems, reflects social inequalities, deficiencies and qualities of the healthcare system, especially maternal and child care programs, and cultural habits, among others.

Of the variables studied, the number of prenatal consultations ≥6, absence of complications during pregnancy, gestational age ≥37 weeks and the sex of the male newborn were protective factors in the occurrence of low birth weight. Thus, it is evident that quality health care, as well as early and timely interventions, contribute strategically to reducing the morbidity and mortality of this population.

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Contributors

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