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LOW WEIGHT AT BIRTH WITH A FOCUS ON MATERNAL DETERMINANTS

BAIXO PESO AO NASCER, COM ENFOQUE EM DETERMINANTES MATERNOS

BAJO PESO AL NACER, CON ENFOQUE EN DETERMINANTES MATERNOS

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ABSTRACT

Objective: to carry out a situational study of low birth weight, with a focus on maternal determinants. ***Method:*** descriptive and cross - sectional, quantitative approach, carried out in a reference maternity hospital. The sample consisted of (n = 200) participants. The data were processed in SPSS (version 19.0), using the X2 test (chi-square) to correlate the variables. ***Results:*** it was verified that the mother's age (p = 0.16) and the marital status (p = 0.26) were expressive. In addition, prenatal care is still a challenge, as 55.5% of mothers of low birth weight infants performed less than six visits. Despite the non-correlation with the low weight, the UTI (p = 0.55) and SAH (p = 0.19) were quite prevalent. In addition, 91% of the mothers reported not drinking alcohol during pregnancy. ***Conclusion:*** the variables studied were not correlated with low birth weight. However, sociodemographic data and previous pathologies were expressive. ***Descriptors***: Low Birth Weight Newborns; Risk Factors; Perinatal Care; Nursing.

RESUMO

Objetivo*:** realizar um estudo situacional do baixo peso ao nascer, com enfoque em determinantes maternos. ***Método*:** estudo descritivo e transversal, de abordagem quantitativa, realizado em uma maternidade de referência. A amostra foi constituída de n=200 participantes. Os dados foram processados no SPSS (versão 19.0), utilizando o teste X^2 (qui-quadrado) para correlacionar as variáveis. ***Resultados: verificou-se que a idade da mãe (p=0,16) e a situação conjugal (p=0,26) foram expressivas. Além disso, a assistência pré-natal ainda é um desafio, pois 55,5% das mães de recém-nascidos de baixo peso realizaram menos de seis consultas. Apesar da não correlação com o baixo peso, a ITU (p=0,55) e HAS (p=0,19) foram bastante prevalentes. Além disso, 91% das mães referiram não ter ingerido bebida alcóolica durante a gestação. ***Conclusão***: as variáveis estudadas não tiveram correlação com o baixo peso ao nascer. Todavia, os dados sociodemográficos e as patologias pregressas foram expressivos. ***Descritores*:** Recém-Nascido De Baixo Peso; Fatores de Risco; Assistência Perinatal; Enfermagem.

RESUMEN

Objetivo: realizar un estudio situacional del bajo peso al nacer, con enfoque en determinantes maternos. ***Método:*** estudio descriptivo y transversal, de abordaje cuantitativo, realizado en una maternidad de referencia. La muestra se constituyó de (n = 200) participantes. Los datos se procesaron en SPSS (versión 19.0), utilizando la prueba X2 (qui-cuadrado) para correlacionar las variables. ***Resultados:*** se verificó que la edad de la madre (p = 0.16) y la situación conyugal (p = 0.26) fueron expresivas. Además, la asistencia prenatal sigue siendo un desafío, pues el 55.5% de las madres de recién nacidos de bajo peso realizaron menos de seis consultas. A pesar de la no correlación con el bajo peso, la ITU (p = 0.55) y HAS (p = 0.19) fueron bastante prevalentes. Además, el 91% de las madres refirieron no haber ingerido bebida alcohólica durante la gestación. ***Conclusión:*** las variables estudiadas no tuvieron correlación con el bajo peso al nacer. Sin embargo, los datos sociodemográficos y las patologías anteriores fueron expresivos. ***Descriptores***: Recién Nacido de Bajo Peso; Factores de Riesgo; Asistencia Perinatal; Enfermería.

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INTRODUCTION

Birth weight is an important parameter for public health, since it is an indicator that portrays maternal and child health and is associated with socioeconomic, obstetric and with countless morbimortalities. Moreover, prematurity requires continuous, specialized, multiprofessional and networked care. Thus, prenatal care, delivery and postpartum care are essential for minimizing risks to the mother and essential for healthy birth.[1]

Low birth weight is conceptualized as any child who, at birth, weighs less than 2500 grams. In addition, there is a subclassification, for low weight, divided into low weight (1501g to 2500g), very low weight (1000g to 1500g) and extreme low birth weight (less than 1000g).[2]

Low birth weight may be influenced by biological factors such as age, stature and morphology of the female reproductive system. However, sociodemographic determinants such as schooling, income and marital status, are highlighted as major influencers for low birth weight, given that self-care instruction, family support and increased purchasing power contribute to the adherence and expansion of puerperal care.[3-4]

Thus, diseases occurring during the gestational period, such as pregnancy-specific hypertension, diabetes and urinary tract infection may interfere with the intrauterine growth of the unborn child. [5-7] However, the unhealthy habits of the mother during pregnancy, Such as the consumption of alcohol, tobacco, and other drugs, are factors that can lead to prematurity, low birth weight and congenital malformations. [8-9]

In this context, prenatal care, with a minimum of six visits, as recommended by the Ministry of Health, through all screening exams, vaccines, iron and folic acid supplementation, healthy eating, Of risk, flow and contra flow, in addition to early interventions, in cases of complications during pregnancy, are fundamental care for the minimization of low birth weight.[10]

The decrease in the infant mortality rate is one of the goals of the Ministry of Health, whose advances have occurred through the expansion of services, family planning, humanized childbirth and the establishment of the Stork Network. In addition, the immediate and immediate care of the low birth weight neonate leads to greater neonatal survival. However, the increase in intensive neonatal services, intermediate care and Kangaroo are decisive for the reduction of morbidity and mortality.[11]

OBJECTIVE

- To perform a situational study of low birth weight; with a focus on maternal determinants.

METHOD

Descriptive and cross-sectional study, with a quantitative approach, whose purpose is to describe the characteristics of the individuals of a population with respect to the suspected causal factors in a given specific period, [12] carried out in a public maternity hospital in the State of Piauí, which is a reference in the complexity of health care for women and children.

The sample consisted of mothers of low birth weight infants from August to December 2015, totaling (n = 200) participants. The inclusion criteria for the sample were the records of newborns weighing less than 2500g, born in the studied maternity, of mothers with gestational age from 27 to 42 weeks who agreed and signed the FICF (Free and Informed Consent Form).

Data collection was performed through interviews and documentary analysis of the medical record, using a semi-structured form, which listed the following variables related to the mother: age; marital status; family income; schooling; occupation; race; gestational pathologies; gestational age at the prenatal stage; type of delivery; number of prenatal consultations; number of pregnancies; births; inter-childbirth interval; abortions; gestational age at delivery; use of alcohol; smoking and drugs. And related to the newborn: weight; cephalic perimeter; length; 1st and 5th Apgar index; oxygen use; postpartum destination and congenital malformations.

After data collection, they were compiled into Excel 2010 Software and then processed in the Statistical Package for the Social Sciences (SPSS) for Windows, version 19.0. The information of importance for the study was organized into tables to facilitate the analysis, and univariate and bivariate descriptive analyzes were performed. The test selected to observe the relationship between the study variables was X2 (chi-square). The confidence interval adopted was 95% and the null hypothesis was accepted whenever the p value was higher than 0.05.

In compliance with the ethical precepts of Resolution 466/2012 of the National Health Council, this study was approved by the Research Ethics Committee of the State University of Piauí with CAAE

44585415.7.0000.5209 and authorized by the maternity of the research.

RESULTS

Regarding the sociodemographic variables, table 1 shows that the age range of the mothers of low birth weight newborns that prevailed most was from 20 to 25 years, with 25%. The skin color that stood out the most was brown, in 63% of the cases, and 73% had a companion. The family income that prevailed was one to two minimum wages in 50.3%, and 33.5% had incomplete elementary education.

Table 1. Sociodemographic variables of mothers of low birth weight infants in a reference maternity unit. Teresina (PI), Brazil, 2016.

	NB Weight			p value
	< 1000g	1000g to 1499g	1500g to >2500g	
Variables	n(%)	n(%)	n(%)	
Age group				*0.16*
15 to 25 years	6(3)	24(12)	86(43)	
26 to 35 years	5(2.5)	27(13.5)	52(26)	
Skin color / race				-
White	3(1.5)	8(4)	14(7)	
Black	1(0.5)	9(4.5)	36(18)	
Yellow	-	-	3(1.5)	
Brown	7(3.5)	34(17)	85(42.5)	
Marital status				*0.26*
Single	2(1)	10(5)	42(21)	
Married / married	9(4.5)	41(20.5)	96(48)	
Family Income (MW)				*0.78*
Does not have	3(1.5)	11(5.5)	41(20.5)	
Less than 1 MW	1(0.5)	7(7.5)	22(11)	
From 1 to 2 MW	7(3.5)	29(14.5)	65(32.5)	
More than 2 to 5 MW	-	4(2)	10(5)	
Education				-
No schooling	1(0.5)	-	1(0.5)	
Incomplete elementary school	-	17(8.5)	50(25)	
Complete elementary education	-	3(1.5)	10(5)	
Incomplete high school	3(1.5)	15(7.5)	32(16)	
Incomplete higher education	-	4(2)	6(3)	
Complete Higher Education	-	2(1)	13(6.5)	

Source: Medical and Statistical Service (MSS) and direct interview

Table 2 highlights the pre-existing diseases: in which 39% of the mothers had Systemic Hypertension and 1.5% had Diabetes Mellitus. In addition, 39.5% were diagnosed with Urinary Tract Infection, and 83.54% of these patients did not receive treatment.

Table 2. Pre-existing diseases in mothers of low birth weight infants in a reference maternity hospital. Teresina (PI), Brazil, 2016.

	NB Weight			
	< 1000g	1000g to 1499g	1500g to >2500g	
Variables	n(%)	n(%)	n(%)	
Systemic Arterial Hypertension				*0.19*
Yes	3(1.5)	25(12.5)	50(25)	
No	8(4)	26(13)	88(44)	
Diabetes Mellitus				-
Yes	-	-	3(1.5)	
No	11(5.5)	51(25.5)	135(67.5)	
Urinary Tract Infection				*0.55*
Yes	5(2.5)	17(8.5)	57(28.5)	
No	6(3)	34(17)	81(40.5)	

Source: Medical and Statistical Service (MSS) and direct interview

Regarding the gynecological and obstetric history, the most evident gestation number was the multigesta, in 51%. Cesarean delivery was the most prevalent, in 61%. 98.5% underwent prenatal care, and 55.5% had less than six visits. Regarding the number of birth, the primipara was highlighted, with 54.5%, and the most prevalent interpartal interval was equal to or greater than two years in 31.5% of the cases, according to table 3.

Table 3. Gynecological and obstetric history of mothers of low birth weight infants in a reference maternity unit. Teresina (PI), Brazil, 2016.

	NB Weight			p value
	< 1000g	1000g to 1499g	1500g to >2500g	
Variables	n(%)	n(%)	n(%)	
Number of pregnancies				*0.06*
Primiparous	3(1.5)	20(10)	75(37.5)	
Multiparous	8(4)	31(15.5)	63(31.5)	
Type of birth				*0.18*
Normal	6(3)	15(7.5)	57(28.5)	
Cesarian	5(2.5)	36(18)	81(40.5)	
Made prenatal				-
Yes	10(5)	50(25)	137(68.5)	
No	1(0.5)	1(0.5)	1(0.5)	
No. of prenatal visits				*0.07*
Less thansix	9(4.5)	29(14.5)	73(36.5)	
Six and over	1(0.5)	21(10.5)	64(32)	
Number of current deliveries				*0.17*
Primitive	4(2)	24(12)	81(40.5)	
Multifarious	7(3.5)	27(13.5)	57(28.5)	
Interpartal Interval				*0.19*
Less than two years	4(2)	6(3)	18(9)	
Two years and over	3(1.5)	21(10.5)	39(19.5)	

Source: Medical and Statistical Service (MSS) and direct interview

Regarding the risk factors for low weight, Table 4 highlights that 91% of the mothers did not drink alcohol during pregnancy. 95.5% reported that they did not use tobacco and 99% responded that they did not use illicit drugs during the gestational period.

Table 4. Risk factors for low birth weight in a reference maternity. Teresina (PI), Brazil, 2016.

	NB Weight			p value
	< 1000g	1000g to 1499g	1500g to >2500g	
Variables	n(%)	n(%)	n(%)	
Alcohol use				*0.16*
Does not use	9(4.5)	44(22)	129(64.5)	
Uses	2(1)	7(3.5)	9(4.5)	
Smoking				-
Does not use	10(5)	47(23.5)	134(67)	
Uses	1(0.5)	4(2)	4(2)	
Use of drugs				-
Does not use	10(5)	50(25)	138(69)	
Uses	1(0.5)	1(0.5)	-	

Source: Medical and Statistical Service (MSS)

Regarding the variables of low birth weight infants, Table 5 highlights that the majority had weight equal to or greater than 1500g and less than 2500g, with a percentage of 69%. The use of oxygen after delivery was evident in 43.5% of the cases. The Neonatal Intensive Care Unit was the largest destination of newborns after delivery, with 42.5%. In addition, 9% of low birth weight infants had congenital malformations.

Table 5. Variables of low birth weight newborns in a reference maternity hospital. Teresina (PI), Brazil, 2016.

Variables	n	%
Weight of RN		
<1000g	11	5.50
≥ 1000g <1500g	51	25.50
≥ 1500g <2500g	138	69.00
Use of oxygen after childbirth		
Yes	87	43.50
No	113	56.50
Destination of the newborn after birth		
Joint accommodation	61	30.50
Kangaroo Nursing	8	4.00
UTIN *	85	42.50
UCINCO **	46	23.00
Congenital malformation		
Yes	18	9.00
No	182	91.00

* Neonatal Intensive Care Unit
** Conventional Neonatal Intermediate Care Unit
Source: Medical and Statistical Service (MSS) and direct interview

DISCUSSION

The age group of the mother is an important variable, since it is related to the morphophysiology of the woman, being highlighted as an influencer of the intrauterine growth of the concept and the weight gain. The observational case-control study, which aimed to identify maternal factors for low birth weight, found that mothers aged up to 19 years and above or equal to 35 years suffer twice as much exposure to low birth weight. However, in this study, age was not significant.[13]

The predominant race was brown, which was justified by the fact that 64.6% of the Piauíans were self-described as brown.[14] This was a similar result to a study conducted in Rio de Janeiro, where 47.4% of mothers of newborns Weight were brown, being evidenced that this variable also did not influence the birth weight.[15]

Family support, and especially of the spouse, is essential for the acceptance of gestation, adherence to prenatal care and implementation of care during pregnancy and the puerperium. Thus, this study showed that the majority had a companion. On the other hand, the study, which aimed to evaluate the factors associated with the increase in the insufficient weight of newborns, found that the majority, that is, 31.6% of the mothers, had no partners and that the marital situation interfered directly with the low birth weight.[4]

Family income is a socioeconomic variable linked to quality of life and is directly related to the expansion of care during pregnancy. Thus, in line with this research, the cross-sectional quantitative study carried out in two public maternity hospitals in Santa Maria (RS) found that 75% of mothers of low birth weight infants had income of up to two minimum wages. Moreover, the most prevalent occupation was home care in 70% of the participants.[16]

In a meta-analysis, it was shown that high maternal schooling showed a protective effect in 33% of low birth weight. In addition, mothers with a higher level of education were twice as likely to have more than six visits during prenatal care and their onset would occur earlier. This is a worrying fact, since most of the mothers in this study had incomplete elementary education.[3]

The percentage of puerperae with arterial hypertension in this study presented an expressive value, however, there was no correlation with low birth weight. Thus, a study carried out in São Paulo found that 13.9% of the puerperas presented arterial hypertension and that the assistance performed is extremely important in the reduction of morbidity and mortality at birth due to prematurity.[17] In addition, a case-control study carried out in China pointed out that arterial hypertension and high-risk gestation are factors related to low birth weight.[18]

Likewise, Diabetes Mellitus also had no influence on low birth weight. On the other hand, a retrospective cohort study showed that Diabetes, during gestation, presented a double risk of prematurity.[6] In addition, a study carried out in the United States pointed out that Diabetes and inadequate prenatal care are factors of Risk for low birth weight.[19]

Urinary Tract Infection (UTI) was very evident, but it was also not related to low weight. However, UTI is associated with complications in the maternal-fetal binomial, such as premature delivery, premature rupture of amniotic membranes, intrauterine

growth restriction, mental retardation, and perinatal death.[7]

The number of pregnancies, type of delivery, parity and interpartal interval had no correlation with low weight. However, a cross-sectional epidemiological study showed that primigra- tion contributed significantly to low birth weight.[20] In addition, a study conducted in Maringá (PR) showed that primiparas and normal birth presented greater risks for low birth weight. Nevertheless, the decrease in the interpartal interval was also very significant.[21]

Prenatal care is essential for the health of the mother and the unborn child. Thus, the Ministry of Health recommends a minimum of six consultations, the first being performed by the end of the first quarter, two in the second quarter and three in the last quarter. Thus, it was observed that the prenatal care program has a wide coverage in the State of Piauí, since most of the mothers studied had access to this type of care.[10]

In turn, the number of consultations performed was lower than that recommended by the World Health Organization and the Ministry of Health, which reflects on the health care of precarious women and contributes to the increase in the rate of neonatal morbidity and mortality birth weight. A similar scenario with a municipality in Maranhão where 67.4% of the mothers performed less than six prenatal consultations.[22]

Thus, a study that aimed to analyze the sociodemographic, prenatal and, low birth weight characteristics showed a higher prevalence of low birth weight in postpartum women who had less than six visits. However, researchers point out that this result may reflect the difficulty of accessing this care, especially in poorer places, being a mirror of social exclusion.[20]

Alcohol, tobacco and illicit drugs are harmful substances to the concept. However, in this study, these substances had no relation to low weight. On the other hand, a cross-sectional study found that 26.3% of mothers who ingested alcohol during pregnancy had low birth weight infants.[8] Moreover, another study confirmed the adverse effects of tobacco on newborn weight and negative impacts In length and cephalic perimeter.[9] Observational epidemiological study was consistent with this research, evidencing that illicit drug use was not associated with low weight.[23]

Birth weight is a measure used to evaluate the child's birth conditions. Thus, the more premature and underweight, the greater the complications at birth.[1] Thus, a descriptive and cross-sectional study highlighted a prevalence of low birth weight at 15.8%, higher than that found in developed countries, that is between five and 6%.[24]

Although postpartum oxygen use was quite expressive in low birth weight infants, it was not a majority, and this may explain why part of the neonatal intensive care unit (NICU) was the most important destination for these infants. However, this scenario is quite intriguing, since the Apgar of these newborns showed itself in excellent conditions, both in the 1st, and in the 5th. This research corroborates in parts with a study carried out in Belém (PA), in which 66.3% of the underweight babies used oxygen after childbirth, but 55.6% of these went to the joint room.[25]

The percentage of congenital malformations in this study was expressive, although it was not correlated with low weight. However, a study conducted in a municipality in southern Brazil showed that the prevalence of congenital malformations was 3.3%, presenting a significant association with low birth weight and a sixfold risk of hospitalization in the NICU.[26]

Although the mean evidence that most low birth weight infants were preterm, in this study, gestational age had no correlation with birth weight. Moreover, the percentage of abortions did not present significance. However, a study, whose objective was to analyze the conditions of gestational care, delivery and its main outcomes at the national level, showed that prematurity was associated with low birth weight, and children born before 37 weeks had 21 times less than 2500g in relation to those with a higher gestational age.[20]

CONCLUSION

The maternal age, between 21 and 25 years, was in agreement with the national age group. Moreover, the socioeconomic situation was worrisome, since the low level of schooling, the low purchasing power and the number of puerperas without companions have a direct repercussion on adherence to care during pregnancy.

Although the biological variables and the preexisting diseases did not influence the low birth weight, the frequency of Systemic Arterial Hypertension and Urinary Tract Infection were quite relevant, since, in several studies, SAH and UTI they are associated with prematurity and, concomitantly, with low weight. Moreover, the marked number of untreated urinary tract

infections may be a consequence of poor access to health services.

Although a broad coverage of prenatal care has been shown, the number below six visits is still a challenge, given that prenatal care is essential for the early detection of complications, a moment for health education and the implementation of Care for healthy birth.

In addition, the means of gestational age at the beginning of prenatal care are in agreement with that recommended by the Ministry of Health. In addition, the low birth weight infants were preterm, with mothers presenting a low average of previous abortions, cephalic perimeter, and Length relationship compatible with gestational age, in addition to *Apgar* in the first and fifth minutes in optimal conditions, not requiring oxygen after birth, which attracted a great deal of attention, since the majority had a NICU destination.

The variables in this study were not correlated with low birth weight. Therefore, new research is necessary focusing on other gynecological, obstetrical, social and pre-existing diseases, since low birth weight is directly associated with the number of neonatal and infant morbidity and mortality.

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