v. 3, n. 93, 2023

International Journal of Health Science

EPIDEMIOLOGICAL AND SOCIODEMOGRAPHIC PROFILE OF PREMATURITY IN THE STATE OF MATO GROSSO FROM 2015 TO 2020

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Abstract: Goal: To identify the epidemiological and sociodemographic profile of prematurity in the state of Mato Grosso (MT), from 2015 to 2020. **Methodology:** Quantitative cross-sectional study, with data source in the Information System on Live Births of the State of Mato Grosso (SINASC-MT) available in the Mato Grosso State Department of Health Information Systems Data Repository (DwWeb SES-MT). Bivariate analysis was used to identify factors associated with prematurity. **Results:** A total of 308,684 live newborns were examined in the state of Mato Grosso, 10.63% of which were considered premature. The group of pregnant women at risk for prematurity was made up of mothers under the age of 16 and over 35 years of age, who had less than 8 years of schooling, who were white, who were employed, who had fewer than seven prenatal consultations. -natal and who were primiparous. Newborns with a risk profile for prematurity were those born with a weight of 501g to 2,499g, cesarean section, twins, Apgar scores lower than 7 in the 1st and 5th minutes and the presence of a malformation/anomaly. **Conclusion:** identifying the risk profile for prematurity at birth allows the planning of health actions and the implementation of specific strategies to prevent and/or modify unfavorable outcomes in this population.

Keywords: Premature newborn. Cross-sectional study. Risk factors. Maternal and child health.

INTRODUCTION

Prematurity is a public health problem responsible for the death of newborns (NBs) around the world (OLIVEIRA et al., 2016). It is considered a complex syndrome that begins during pregnancy, from pre-conception and pregnancy risk conditions, with possible repercussions throughout the child's life (MIRALHA et al., 2017). Consequently, it represents an illness that demands comprehensive and specialized work, generating high costs of assistance to health services, in addition to economic and social costs of post-discharge care for newborns who need continued attention. (GUIMARÃES et al., 2017) (RODRIGUES and BOLSONI-SILVA, 2011)

Complications associated with prematurity have ranked first in the causes of deaths in the first five years of life, since the 1990s, a worrying factor when considering that Brazil is among the ten countries where the most premature births occur in the world. The forms of occurrence vary, with 59% due to spontaneous prematurity (with or without rupture of membranes), 41% due to therapeutic prematurity (medical intervention through induction of labor or antepartum cesarean section) and almost all of them, 90%, due to cesarean section without labor. of birth. (OLIVEIRA et al., 2016) (MIRALHA et al., 2017) (RODRIGUES and BOLSONI-SILVA, 2011)

A newborn with a gestational age (GA) of less than 37 weeks is considered premature or preterm, with those from 34 weeks and 0 days to 36 weeks and 6 days belonging to the late preterm category, from 32 weeks and 0 days to 33 weeks and 6 days moderate preterm, 28 weeks and 0 days to 31 weeks and 6 days very preterm and below 28 weeks extreme preterm (MIRALHA et al., 2017). In Brazil, 74% of premature newborns belong to the late preterm category. (FIOCRUZ, 2016)

The global prematurity rate is around 11.1%, of which 60% occur in South Asia and Sub-Saharan Africa, followed by North America (10.6%), Latin America (8.1%) and Europe (6.4%). Brazil, in 2010, was identified by the Live Birth Information System (SINASC) with a total prevalence of prematurity of 7.2%, however in 2011 there was an increase in this

rate, reaching 9.8% on the national average, with distribution of 10.5%, 10%, 9.3%, 9% and 6.8% in the northeast, north, south, southeast and central-west regions, respectively. Today, even with improved attention and care for maternal and child health, it is estimated that the Brazilian prematurity rate is approximately 11.5%. (GUIMARÃES et al., 2017) (FIOCRUZ, 2016)

Prematurity is influenced by several factors, including the type of delivery, gestational age, multiple gestation, low birth weight, mother's age, education, exposure to toxic substances and absent or late prenatal care. (OLIVEIRA et al., 2016) (MIRALHA et al., 2017)

Regarding types of birth, it is important to highlight that Brazil has the highest rate of cesarean sections in the world (56%), which have the highest probability of subsequent complications when compared to vaginal birth. Furthermore, newborns born by cesarean section have a 15% greater chance of being premature due to pregnancy interruptions, whether due to a comorbidity such as high blood pressure that leads to pre-eclampsia, or incorrect calculation of gestational age (GA). (GUIMARÃES et al., 2017) (FIOCRUZ, 2016)

The GA calculation is mainly done from obstetric ultrasound (USG) in the first trimester of pregnancy, however, only 45% of women who are assisted by the single health system (SUS) have access to USG in this period, thus making it difficult to adequate prenatal care. (MIRALHA et al., 2017). Estimating this gestational age is very relevant, as it is an important indicator of survival and future chronic events in the child's life. (GUIMARÃES et al., 2017)

It is known that the lower the gestational age, the greater the probability of risk for mortality and health problems, as a result of incomplete fetal development and greater susceptibility to infections (GUIMARÃES et al., 2017). The immaturity of the premature newborn's body reveals the possible difficulties that this child may face at older ages. An example of this is delayed motor development, such as difficulties in carrying out activities of daily living and academic activities, which can compromise school performance (RODRIGUES and BOLSONI-SILVA, 2011). Furthermore, premature children may have growth restrictions, often requiring specific monitoring. Therefore, it is important to know how to identify each normal evolutionary stage of the child in order to determine warning signs of delay, whether in growth, development, language or cognition. (BRAZILIAN SOCIETY OF PEDIATRICS, 2012)

As for multiple pregnancies, an estimated 15-fold increase in the chance of premature births in twins when compared to single-fetus pregnancies (OLIVEIRA et al., 2016) (MIRALHA et al., 2017). Furthermore, maternal age of less than 20 years or more than 40 years also influences, as younger women may have greater complications during childbirth due to intrauterine growth restriction and physical immaturity. Older women are more likely to have hypertensive diseases and gestational diabetes, resulting in a high-risk pregnancy. (GUIMARÃES et al., 2017) (OLIVEIRA et al., 2016)

Furthermore, the mother's low level of education must also be considered, as the difficulty in accessing information and prevention and health promotion measures makes maternal self-care and the search for assistance difficult. (OLIVEIRA et al., 2016) (GUIMARÃES et al., 2017)

Another important fact is that around 25% of pregnant women undergo an insufficient number of prenatal consultations, contrary to what is recommended by the Ministry of Health, which establishes a minimum of 6, one in the first trimester, two in the second and three in the third. This makes it difficult to

identify gestational risks for premature birth, treat complications and refer them to more complex treatment, if necessary. (OLIVEIRA et al., 2016) (GUIMARÃES et al., 2017)

Therefore, the objective of this study is to identify the epidemiological and sociodemographic profile of prematurity in the state of Mato Grosso, from 2015 to 2020.

MATERIALS AND METHODS

This is a quantitative cross-sectional study of live newborns, carried out in the state of Mato Grosso. The data were obtained from the Information System on Live Births of the State of Mato Grosso – SINASC - MT, made available in the Information Systems Data Repository of the State Department of Health of Mato Grosso (DeWebSES-MT) – a government data warehouse in the period from 2015 to 2020.

The initial study population was 308,684 live newborns and to reach the final number of 32,820, some exclusion criteria were used, such as weight range <500g and gestation weeks < 22 weeks, as these are values that do not add the study at this time (MAIA and SOUZA, 2010). The reason why a birth weight of 500g does not fit into this study is explained by the fact that it is included in Extremely Low Weight and, consequently, also in Low Weight (MAGALHÃES et al., 2011). Therefore, even the database including these intervals is not viable for inclusion in the analysis.

Prematurity was considered as a dependent variable and the exposure variables related to maternal sociodemographic data were: age (10 to 49 years), years of education (none, 1 to 3, 4 to 7, 8 to 11, 9 to 11, 12 or more), race/color (brown, white, indigenous, yellow and black), marital status (married, legally separated/ divorced, single, consensual union, widow). Those related to obstetric data were: number of previous pregnancies (00 to 20), gestational age in weeks (22 to 27, 28 to 31, 32 to 36, 37 to 41, 42 or more), type of delivery: (cesarean section, vaginal), type of pregnancy (single, double, triple and more), prenatal visits (none, 1 to 3, 4 to 6, 7 and more), stillbirths (none, 1 to 3, 4 to 6, 7 and more), living children (none, 1 to 3, 4 to 6, 7 and more). Variables related to the newborn: year of birth (2015 to 2020), Apgar in the 1st and 5th minutes (0 to 3, 4 to 7 and 8 to 10), birth weight (501g to 999g, 1,000g to 1,499g, 1,500g to 2,499 g, 2,500g to 2,999g, 3,000g to 3,999g and 4,000g and more), sex (female, male), malformation (yes, no).

The data were entered into a Table in Excel and analyzed using the EPI-INFO 7.0 program. The variables were described in absolute frequencies (n) and relative frequencies (%). In the bivariate analysis, associations were identified between the outcome variable - through the calculation of Prevalence Ratios, and the variables: Age, Education, race/color, Marital Status, Parity, Gestational Age, Type of Delivery, Type of Pregnancy, Preliminary Consultations -Natal, Dead and/or Living Children, Year of Birth, Apgar, Birth Weight, Sex and Malformation.

To calculate the statistical significance of the association, the chi-square test ($p<0.05$) was used, using the Mantel-Haenszel method (95% CI). Statistically significant results were considered to be those whose p-value was less than 0.05.

Carrying out this work did not require the application of the Free and Informed Consent Form (Res. CNS 466/2 in its chapter IV.8), as it is an analysis of public domain data (SIM) with unrestricted access, where no data is provided. personal records and, according to Resolution 510/2016, Law 12,527/2011, it was not necessary to submit this research for the evaluation of the CEP-CONEP System.

RESULTS AND DISCUSSION

The total study population was 308,684 live newborns who were born in the State of Mato Grosso, with 32,820 (10.63%) considered premature at birth (Table 1).

Premature newborns accounted for 1.55% in the presence of malformation/anomaly, almost three times more than in the total population. The majority of PTNBs had their 1st minute Apgar score between 8 and 10 (77.21%). In the 5th minute, the prevalent Apgar score range was also 8 to 10, with an increase in cases, corresponding to 93.10% (Table 1).

NEWBORN VARIABLES				
Year of birth	**n**	**%**	**PT (n)**	**PT (%)**
2015	51.883	16,81	5.583	17,01
2016	47.302	15,32	4.869	14,84
2017	52.143	16,89	5.431	16,55
2018	54.187	17,55	5.733	17,47
2019	54.738	17,73	5.825	17,75
2020	48.431	15,69	5.379	16,39
TOTAL	308.684	100,00	32.820	100,00
Delete number 1				
0 to 3	2.674	0,87	1.157	3,53
4 to 7	27.818	9,01	6.322	19,26
8 to 10	278.192	90,12	25.341	77,21
Delete Number 5				
0 to 3	747	0,24	417	1,27
4 to 7	4.413	1,43	1.849	5,63
8 to10	303.524	98,33	30.554	93,10
Malformation/anomaly				
Yes	1.908	0,62	510	1,55
No	306.776	99,38	32.310	98,45

Table 1: Variables for the total number of newborns (n = 308,684) and premature newborns (n = 32,820), in Mato Grosso, from 2015 to 2020.

Total maternal age ranged from 10 to 49 years, with a mean of 26.12 ± 7.22 years (25th, 50th and 75th percentiles corresponded to ages of 21, 26 and 31 years, respectively). These results are very close to the maternal age of premature newborns (PTNB), with only the mean and standard deviation changing in the latter group, which is 26.38 ± 6.99 years.

As shown in figure 1, the extremes of age presented a higher percentage (3.17% for 10 to 15 years old and 11.15% for those over 35) in mothers of premature newborns when compared to the total cases (2. 12% for 10 to 15 years old and 8.59% for those over 35).

As for education, mothers who had premature children who never attended school accounted for 0.47%, and those who had more than 8 years of education accounted for 87.02%. The mother's race/color was mostly brown (67.18%), followed by white with 25.08% in cases of premature children. Mothers who had some occupation/work accounted for 41.60% and those who had no occupation and/or were students accounted for 58.40% (Table 2).

MATERNAL SOCIODEMOGRAPHIC VARIABLES				
Education (years)	**n**	**%**	**PT (n)**	**PT (%)**
None	1.365	0,44	154	0,47
1 to 3	3.969	1,29	516	1,57
4 to 7	31.779	10,29	3.588	10,93
8 to 11	197.276	63,91	20.373	62,07
12 and more	74.295	24,07	8.189	24,95
Maternal race/color				
Brown	209.504	67,87	22.050	67,18
White	76.035	24,63	8.232	25,08
Black	16.168	5,24	1.691	5,15
Yellow	1.316	0,43	145	0,44
Indian	5.661	1,83	702	2,14
Maternal occupation				
Employed	125.508	40,66	13.652	41,60
Unemployed	167.902	54,39	17.346	52,85
Student	15.274	4,95	1.822	5,55

Table 2: Maternal sociodemographic variables of the total number of newborns (n= 308,684) and premature newborns (n = 32,820), in Mato Grosso, from 2015 to 2020.

As it was shown in Table 3, of the newborns analyzed, 89.37% were born at term and

post-term and 10.63% were born pre-term. Regarding weight, the majority of preterm infants (55.31%) were in the range classified as adequate weight (2,500g to 3,999g), with the vast majority being in the range of 32 to 36 weeks of gestation (97.62%). It was also possible to observe that a large proportion of PTNBs (43.52%) were in the range classified as low weight (less than 2,500g).

Cesarean section birth was recorded in 64.06% of cases of premature babies. The majority of mothers were multiparous, with 64.05% of cases being PTNB mothers. More than half of the mothers (55.30%) had seven or more prenatal consultations for premature newborns, which constitutes complete prenatal care. Regarding the type of pregnancy, all newborns presented 2.04% of twins, while newborns born to premature babies presented 11.43% of the same variable (Table 4).

MATERNAL OBSTETRIC VARIABLES				
Parity	**n**	**%**	**PT (n)**	**PT (%)**
Primiparous	109.306	35,41	11.800	35,95
Multiparous	199.378	64,59	21.020	64,05
Delivery route				
Vaginal	116.890	37,87	11.795	35,94
Cesarean	191.794	62,13	21.025	64,06
Type of pregnancy				
Unique	302.390	97,96	29.069	88,57
Twins	6.294	2,04	3.751	11,43
Prenatal consultations				
None	1.682	0,54	330	1,01
1 to 3	15.753	5,10	3.278	9,99
4 to 6	70.511	22,84	11.061	33,70
7 and more	220.738	71,51	18.151	55,30

Table 4: Obstetric variables of women among the total number of newborns (n= 308,684) and premature newborns (n = 32,820), in Mato Grosso, from 2015 to 2020.

In bivariate analysis, all variables were associated with prematurity, in which none had a protective effect calculated, but a risk one.

Maternal factors (Table 5) associated with premature newborns were mothers under 16 and over 35 years of age - 1.33 (CI 1.30-1.37), who had less than 8 years of schooling - 1.09 (IC 1.05-1.12), who are white - 1.02 (IC 1.00-1.04) and who were employed - 1.03 (IC 1.01-1.06).

Regarding obstetric factors, the associated risk factors were premature children who were born weighing 501g to 2,499g - 9.44 (CI 9.27-9.60), who had a cesarean section - 1.08 (CI 1.06 -1.10), who were born to primiparous mothers - 1.02 (CI 1.00-1.04), who had fewer than seven prenatal consultations - 2.02 (CI 1.98- 2.07) and which were twins - 6.19 (IC 6.05-6.34).

The greatest risks observed in these factors were for babies born with low birth weight, twins and who had no to six prenatal consultations.

The neonatal variables that were related to premature newborns were Apgar less than 7 in the 1st minute - 2.69 (CI 2.63-2.75), and also in the 5th minute - 4.36 (CI 4.22- 4.50), and the presence of malformation/anomaly - 2.53 (CI 2.35-2.73), all of which present a high risk.

Premature birth, according to Carvalho and Gomes (CARVALHO and GOMES, 2005), is associated with 75% of neonatal mortality, being the most frequent cause of neonatal morbidity, and may be related to some demographic and obstetric risk factors. Brazil is among the ten countries with the highest rates, which are responsible for 60% of premature births in the world. (WORLD HEALTH ORGANIZATION, 2015)

In the present study, the extremes of age presented a risk almost twice as high for prematurity. It is understood that maternal age influences the occurrence of premature birth (WITT et al., 2014). Authors suggest that adolescents and women aged 35 and over are generally susceptible to adverse perinatal outcomes and maternal morbidity

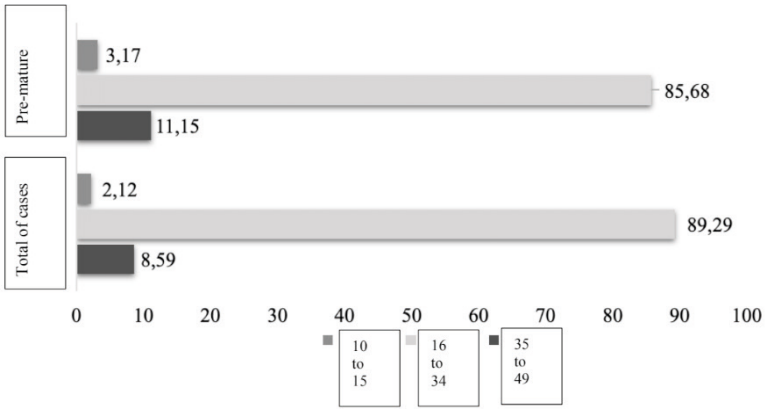

Figure 1: Relationship between maternal age group and newborn prematurity

BIRTH WEIGHT ACCORDING TO GESTATIONAL AGE								
BIRTH WEIGHT (grams)		**GESTATIONAL AGE (weeks)**						
		PRE-TERMS				**TERMS**	**POST-TERMS**	**TOTAL**
		total <37	22 to 27	28 to 31	32 to 36	37 to 41	42 and more	
501 to 999		1.057	731	275	51	73	0	1.130
1.000 to 1.499g		1.750	236	1.010	504	163	6	1.919
1.500 to 2.499g		11.477	48	966	10.463	8.633	137	20.247
2.500 to 2.999g		9.981	22	169	9.790	57.963	888	68.832
3.000 to 3.999g		8.172	47	193	7.932	188.595	4.121	200.888
4.000 and more		383	3	13	367	14.780	505	15.668
TOTAL	**n**	32.820	1.087	2.626	29.107	270.207	5.657	308.684
	%	10,63	0,35	0,85	9,43	87,54	1,83	100,00

Table 3: Birth weight of live births according to gestational age in Mato Grosso, from 2015 to 2020.

ASSOCIATION BETWEEN MATERNAL, OBSTETRIC AND NEONATAL VARIABLES					
Age	**n**	**PT (n)**	**PT (%)**	**Gross RPa (IC95%[b])**	**Value of p[c]**
≤15 and ≥36	34.254	4.699	13,72	1,33 (1,30-1,37)	<0,001
16 to 35	274.430	28.121	10,25	1,00	
Education (years)					
Up to 7	37.113	4.258	11,47	1,09 (1,05-1,12)	<0,001
8 and more	271.571	28.562	10,52	1,00	
Color					
White	76.035	8.232	10,83	1,02 (1,00-1,04)	0,045
Others	232.649	24.588	10,57	1,00	
Occupation					
Employed	125.508	13.652	10,88	1,03 (1,01-1,06)	<0,001
Unemployed	183.176	19.168	10,46	1,00	
Weight (grams)					
501 to 2.499	23.296	14.284	61,32	9,44 (9,27-9,60)	<0,001
2.500 and more	285.388	18.536	6,50	1,00	
Delivery route					
Cesarean	191.794	21.025	10,96	1,08 (1,06-1,10)	<0,001

Vaginal	116.890	11.795	10,09	1,00	
Prenatal consultations					
Until 6	87.946	14.669	16,68	2,02 (1,98-2,07)	<0,001
7 and more	220.738	18.151	8,22	1,00	
Parity					
Primiparity	109.306	11.800	10,80	1,02 (1,00-1,04)	0,029
Multiparity	199.378	21.020	10,54	1,00	
Type of pregnancy					
Twins	6.294	3.751	59,60	6,19 (6,05-6,34)	<0,001
Unique	302.390	29.069	9,61	1,00	
Apgar Number 1					
Up to 7	30.492	7.479	24,53	2,69 (2,63-2,75)	<0,001
8 to 10	278.192	25.341	9,11	1,00	
Apgar Number 5					
Up to 7	5.160	2.266	43,91	4,36 (4,22-4,50)	<0,001
8 to 10	303.524	30.554	10,07	1,00	
Malformation/anomaly					
Yes	1.908	510	26,73	2,53 (2,35-2,73)	<0,001
No	306.776	32.310	10,53	1,00	

Table 5: Association between maternal, obstetric and neonatal characteristics and the occurrence of prematurity in newborns in Mato Grosso, between 2015 and 2020.

a) RP: prevalence ratio.

b) 95%CI: 95% confidence interval.

c) p≤0.05 considered statistically significant by the Mantel-Haenszel test.

and mortality (GRAVENA et al., 2012). These are related to early pregnancy, increased risks for newborns with low birth weight, micronutrient deficiencies and intrauterine growth restriction, leading to changes in the evolution of this pregnancy and fetal growth, which can also result in premature birth. (SANTOS et al., 2012)

A study carried out in Bahia demonstrated that the risk of premature birth increased as maternal age decreased, reaching a relative risk of 10 times higher in women up to 16 years of age. (AUGER et al., 2013)

The literature points out, as an explanation for the association between prematurity and teenage pregnancy, a higher incidence of hypertensive disease and anemia, lower weight gain, in addition to birth complications, with a consequent increase in maternal mortality. Regarding newborn problems, low birth weight, prematurity and anoxia can be mentioned. (GUIMARÃES, 2001)

Regarding pregnancy at an advanced age, the authors identify a greater probability of hypertensive diseases and gestational diabetes in this group (ARAGÃO and OLIVEIRA, 2004). A study carried out in Denmark showed that more than half of late pregnancies resulted in spontaneous abortion, ectopic pregnancy or intrauterine fetal death (ANDERSEN et al., 2000). This would probably be the result of an increase in the number of fetal malformations incompatible with life or a decrease in uterine and hormonal function. (ARAGÃO and OLIVEIRA, 2004)

There are authors who explain that "the hypothesis that preterm birth in adolescents could be considered a form of adaptive response to the physical immaturity of these women, aiming to ensure a better

prognosis for smaller fetuses (AZEVEDO et al., 2002). pregnant women at an advanced age may be associated with factors such as clinical complications (hypertension, diabetes mellitus, heart disease and urinary tract infection) and obstetric complications (premature rupture of membranes and placenta previa). (MORON et al., 1989)

There is no concrete information in the literature that explains whether maternal age is an independent risk factor, with a direct effect on prematurity, or whether it acts indirectly, associated with confounding factors such as chronic diseases or sociodemographic conditions. However, it is known that advanced maternal age is related to an increase in the prevalence of pre-existing chronic diseases and complications during pregnancy and childbirth. (WITT et al., 2014)

In this study, a statistically significant association was found between maternal education level of up to 7 years of study and prematurity. The study by Castellano et al. (CASTELLANO et al., 2001) agrees with this work, as a higher frequency of prematurity was found as the level of education was lower. The author describes that the cultural level (here valued as level of education) is closely linked to socioeconomic level, lifestyle and access to medical services (MAIN, 1991). Studies consider that low maternal education predisposes maternal and child risk situations, such as difficulty in accessing information and prevention and health promotion measures, intellectual restrictions on the exercise of citizenship and the ability to self-care and seek assistance. (RAMOS and CUMAN, 2009)

Regarding maternal occupation, the present study found a significant association between employed pregnant women and prematurity. Studies report that agriculture, the service sector or standing for more than 8 hours have been associated with the occurrence of premature birth and low birth weight. (SAVITZ et al., 1996)

This can probably be explained by physical effort (BONZINI et al., 2007). In another study, Douglas (DOUGLAS, 1964) demonstrated a higher frequency of prematurity in women who work outside the home and who remained working until the last trimester of pregnancy. Marcondes (MARCONDES, 1973) states that excessive work at the end of pregnancy is considered a predisposing factor to prematurity.

This research did not reveal the level of work intensity of mothers, nor the activity carried out. Therefore, in the absence of data regarding the type of work, it was not possible to determine its effective influence on premature births. It must be considered necessary to investigate these conditions in future studies.

Low birth weight is conditioned by the length of gestation and intrauterine growth, which are influenced by the pregnant woman's nutritional status at the beginning of pregnancy and throughout it, diseases, smoking, adequacy of prenatal care, pregnant woman's age and parity. Such conditions would be, in part, consequences of the socioeconomic situation, which includes family income and the pregnant woman's level of education. (MONTEIRO et al., 2000)

Studies show that the determination of prematurity, restricted intrauterine growth (IUGR) and low birth weight involves a common set of factors, including precarious socioeconomic conditions, lack or deficiency of prenatal care and multiple pregnancies (MINISTRY OF HEALTH, 2004), in addition to maternal morbidity during pregnancy. (WORLD HEALTH ORGANIZATION, 2004)

Rugolo (RUGOLO, 2005) states that low weight and IUGR can act alone or together, to varying degrees. He reports that in developed countries, low birth weight is represented, for the most part, by premature newborns. In

underdeveloped countries, there are preterm infants who have suffered IUGR, and these are predominantly small for gestational age (SGA). However, there are reports of an increase in low birth weight in some countries, and even in some cities in Brazil, resulting from the increase in premature births. (ANDRADE et al., 2005)

This study showed that prematurity (gestational age less than 37 weeks) is an almost 10 times greater risk factor for low birth weight. The study by Omena et al. (OMENA et al., 2020) also found an association between low birth weight and prematurity, as did Guimarães and Velásquez-Meléndez (GUIMARÃES AND VELÁSQUEZ-MELÉNDEZ, 2002), who detected significant associations between prematurity and low birth weight. (KILSZTAJN et al., 2000)

Work carried out in other Brazilian states, which refers to prenatal care, has shown that the increase in the number of prenatal consultations and greater accessibility for risk categories makes it possible to reduce the prevalence of intrauterine growth retardation, prematurity, low birth weight and deaths from conditions in the neonatal period. (MINISTRY OF HEALTH, 2011)

The Ministry of Health, through the Rede Cegonha initiative in 2011, established the performance of more than seven prenatal consultations as a quality indicator (BARBAS et al., 2009). In this study, a 2 times higher risk of prematurity was found for cases of incomplete prenatal care (up to 6 consultations).

It is known that pregnant women with low socioeconomic status have lower adherence to prenatal care, a later start, difficulty in access and lack of information about its importance, implying a greater risk of low birth weight and prematurity (CARNEIRO et al., 2015). The influence of prenatal care is seen in premature births, even in the presence of adverse clinical conditions (ARAÚJO and TANAKA, 2007), and is smaller the greater the number of prenatal consultations. (LOPES and MENDES, 2013)

The number of prenatal consultations may have a confounding bias in association with a shorter duration of pregnancy (fewer weeks of gestation), due to the possibility of there being fewer records of prenatal consultations simply due to the early termination of pregnancy. Intercurrences during pregnancy can "shorten" the gestation period and, consequently, result in lower birth weight and "cancel" planned prenatal consultations (fewer number of consultations). However, a study comparing national statistics states that even if there is an underreporting of gestational age records, data show that, for the same region, there was no underreporting of the number of prenatal consultations. Therefore, even extremely premature infants (those with less than 32 weeks of gestational age) would still reach the third trimester of pregnancy, a period in which pregnant women must have had at least four consultations (MELO and CARVALHO, 2014). Therefore, not having prenatal care continues to be an undesirable situation.

The bivariate analysis showed statistical significance ($p=<0.001$) for twins to be a risk factor for the occurrence of prematurity, inferring that mothers who have twins are six times more likely to have their children born prematurely when compared to mothers with single pregnancies. The logistic regression of the study by Melo and Carvalho showed the same association (AUGER et al. 2014). Another Brazilian study demonstrated that twin pregnancy increased the chance of premature birth by 15 times. (RODRIGUES et al., 2005)

Studies report that the simple presence of one more fetus increases the chance of premature fetuses, high blood pressure, rupture of membranes and intrauterine fetal death (UCHIMURA et al., 2008). Ramos and

Cuman (RAMOS and CUMAN, 2009) report that the incidence of twinning is significant in proportion to the total number of premature births and in itself increases all the risks and situations already considered for prematurity.

Regarding primiparity, studies with similar results were found (FERRAZ and NEVES, 2011) (NASCIMENTO et al., 2012). According to them, parity is a factor that, together with factors such as extreme maternal age and low education, can increase the risk of premature birth. Publications show that primiparity is a risk factor for prematurity, however, most of the time the cause is unknown. (RAMOS and CUMAN, 2009)

In this study, white race/color presented statistical significance, conferring a 1-fold greater risk for prematurity. Ramos' study also found this significance and highlighted the non-relevance of the information, as the white majority was justified by the fact that the black race has little influence in the region. (RAMOS and CUMAN, 2009)

The work of Nascimento et al. (NASCIMENTO et al., 2012) also observed casuistry between prematurity and white race and attributed the possibility of measurement bias, given the difficulty of measuring this variable, especially in multiracial societies. Many of the racial and ethnic differences remain unexplained. (CASCAES et al., 2008)

Regarding the type of birth, a statistically significant association was found between cesarean section and prematurity. Cesarean section predominated among the cases and showed associations between premature birth and/or low birth weight in the findings of Cascaes et al. (CASCAES et al., 2008) and Gonçalves et al. (GONÇALVES et al., 2009). However, there is the possibility of reverse causality, as complicated pregnancies from a clinical-obstetric point of view generally result in an appropriate indication for cesarean section.

Regarding Apgar, it was twice as likely to occur as an Apgar score below 7 in the 1st minute and 4 times more likely in the 5th minute. According to the test, the Apgar score for both the 1st and 5th minutes showed statistical significance, considering the number of chances of occurring.

An Apgar score below 7 is a warning sign according to the pathophysiological change and maturity of the conceptus (CUNHA et al., 2004). Studies carried out in the municipalities of Botucatu-SP (LUQUE et al., 2011) and Rio de Janeiro-RJ (CUNHA et al., 2004), similar results were observed, confirming the prevalence of low Apgar scores and a relevant risk factor for morbidity and mortality among premature newborns.

An Apgar score between 0 and 6 in the 5th minute has a strong association with neurological health prognosis and infant death (GAIVA et al., 2014). The index reflects the quality of childbirth care, with lower Apgar values implying lower chances of survival, generating the need to adapt care at the time of labor and birth. (RIBEIRO et al., 2009)

However, it must be taken into consideration, that low Apgar scores in premature newborns are observed even in the absence of indicators of fetal distress, and are due to physiological immaturity, with decreased reflex irritability and inability to respond autonomously to functions. cardiovascular and respiratory (ILIODROMITI et al., 2014). However, in most of the studies found, prematurity was associated with Apgar < 7. (FIGUEIRÓ-FILHO et al., 2014) (CHENG et al., 2013)

In the present study, there was a significant association between prematurity and malformation/anomaly, with the risk of a malformation/anomaly leading to prematurity being twice as high. In the study by Pimenta, Calil and Krebs (PIMENTA et al., 2010) a greater risk of congenital anomalies in premature infants was also observed. This association can be explained by failures

in the screening, diagnosis and/or therapy of potentially treatable pathologies during pregnancy (GAIVA et al., 2014), such as infectious diseases (GIGLIO et al., 2000), mainly in underdeveloped countries. There is evidence of a greater association between congenital malformations, short birth and prematurity (LANSKI et al., 2002). Although the incidence of malformations is difficult to control, some recorded cases of death were related to malformations resulting from conditions that can be prevented and treated. (GIGLIO et al., 2000)

CONCLUSIONS

In this study, the group of pregnant women at risk for prematurity was made up of mothers under the age of 16 and over 35, who had less than 8 years of schooling, who are white, who were employed, who had fewer than seven prenatal consultations. -natal and who were primiparous. Newborns with a risk profile for prematurity were those born with a weight of 501g to 2,499g, cesarean section, twins, Apgar scores lower than 7 in the 1st and 5th minutes and the presence of a malformation/anomaly.

The identification of the epidemiological and sociodemographic profile of premature newborns is essential, as it allows the planning of health actions and the implementation of specific strategies for that population, promoting quality care, both in prenatal care, for pregnant women, and for newborns.

REFERENCES

1. Oliveira, L.L., Gonçalves, A.C., Costa, J.S.D. et al. Maternal and neonatal factors related to prematurity. Rev Esc Enferm USP, v.50, n. 3, p. 382-389, 2016.

2. Miralha, A.L., Greve, H.W.F., Bouzada, M.C.F. et al. Prevenção da prematuridade – uma intervenção da gestão e da assistência. Departamento Científico de Neonatologia. Sociedade Brasileira de Pediatria, v.2, p. 1-6, 2017.

3. Guimarães E.A.A., Vieira C.S., Nunes F.D.D. et al. Prevalência e fatores associados à prematuridade em Divinópolis, Minas Gerais, 2008-2011: análise do Sistema de informações sobre Nascidos Vivos. Epidemiol. Serv. Saude, v.26, n. 1, p. 91-98, 2017.

4. Rodrigues, O.M.P.R.; Bolsoni-Silva, A.T. Efeitos da prematuridade sobre o desenvolvimento de lactentes. Rev. Bras. Cresc. e Desenv. Hum. v. 21, n. 1, p. 111-121, 2011.

5. https://portal.fiocruz.br/noticia/taxa-de-bebes-prematuros-no-pais-e-quase-o-dobro-do-que-em-paises-da-europa

6. http://epidemio-ufpel.org.br/uploads/teses/Volume%20Final%20tese%20Ana%20Daniela.pdf

7. https://www.sbp.com.br/fileadmin/user_upload/pdfs/seguimento_prematuro_ok.pdf

8. Maia, R.R.P., Souza, J.M.P. Fatores associados ao baixo peso ao nascer em Município do Norte do Brasil. Rev. Bras. Cresc. e Desenv. Hum. v. 20, n. 3, p. 735-744, 2010.

9. Magalhães, L.C., Fonseca, K.L., Martins, L.D.T.B. et al. Desempenho de crianças pré-termo com muito baixo peso e extremo baixo peso segundo o teste Denver-II. Rev. Bras. Saúde Matern. Infant, v. 50, n. 3, p. 445-453, 2011. https://doi.org/10.1590/S1519-38292011000400011

10. Carvalho, M., Gomes, M.A.S.M. A mortalidade do prematuro extremo em nosso meio: realidade e desafios. J. Pediatr,; v.81 (Suppl 1), p.S111, 2005.

11. World Health Organization. Preterm birth [Internet]. Geneva: WHO, updated Nov 2015 [cited 2021 mai 09]. Available from: https://www.who.int/news-room/fact-sheets/detail/preterm-birth

12. Witt, W.P., Cheng, E.R., Wisk, L.E. et al. Preterm birth in the United States: the impact of stressful life events prior to conception and maternal age. Am J Public Health. v. 104 (Suppl 1), p. S73-80, 2014.

13. Gravena, A.A.F., Sass, A., Marcon, S.S.et al. Resultados perinatais em gestações tardias. Rev Esc Enferm USP. v. 40, n. 1, p. 15-21, 2012.

14. Santos, M.M.A.S, Baião, M.R., Barros, D.C. et al. Estado nutricional pré-gestacional, ganho de peso materno, condições da assistência pré-natal e desfechos perinatais adversos entre puérperas adolescentes. Rev Bras de Epidemiol, vol.15, n.1, p.143-54, 2012.

15. Auger, N., Hansen, A.V., Mortensen, L. Contribution of maternal age to preterm birth rates in Denmark and Quebec, 1981-2008. Am J Public Health, v.103, n.10, p.e33-8, 2013.

16. Guimarães, E.M.B. Gravidez na adolescência: uma visão multidisciplinar. Pediatria Moderna, v.37, p. 29-32, 2001.

17. Aragão, F.M.X., Oliveira, M.C.R. A influência da idade materna sobre as condições perinatais. Revista Brasileira em Promoção da saúde, v.17, n. 2, p.56-60, 2004.

18. Andersen ,A.M.N., Wohlfahrt, J., Christens P. et al. Maternal age and fetal loss: population based register linkage study. Br Med J, v. 320, p.1708-12, 2000.

19. Azevedo, G.D., Freitas, R.A.O.J., Freitas, A.K.M.S.O. et al. Efeitos da idade materna sobre os resultados perinatais. Rev Bras Ginecol Obstetr, v. 24, p.181-5, 2002.

20. Moron, A.F., Almeida, P.A.M. Gestação em idade avançada. In: Sales JM, Vitiello N, Conceição ISC, Canella PRB. Tratado de Assistência Pré-Natal. São Paulo: Roca; p. 199-205, 1989.

21. Castellano, G.R.R., Medina, J.M.P., Rigau, J.M.M. et al. Análisis multivariada de factores de riesgo de prematuridad em Matanzas. Rev Cubana Obstet Ginecol, v. 27, p. 62-9, 2001.

22. Main D.M. Epidemiología del parto pretérmino. Clin Obstet Ginecol Norteam, vol. 3, p. 5,07-17, 1991.

23. Ramos, H.A.C., Cuman, R.K.N. Fatores de risco para prematuridade: pesquisa documental. Esc Anna Nery Rev Enferm, v. 13, n. 2, p. 297-304, 2009.

24. Savitz, D.A., Olshan, A.F., Gallagher, K. Maternal occupation and pregnancy outcome. Epidemiology, vol. 7, p.269–74, 1996.

25. Bonzini, M., Coggon, D., Palmer, K. Risk of prematurity, low birth weight and preeclamsia in relation to working hours and physical activities: a systematic review. Occup Environ Med, vol. 64, p.228–43, 2007.

26. Douglas, J.W.B. Etiologia de la premadurez. Donnelly, F. J. Clin. Obstet. Y Ginecol, 647-657, 1964.

27. Marcondes E. et al. Pediatria Neonatal. Pediatria Básica, vol 1, n. 6, p. 447-459. 1973.

28. Monteiro, C.A., Benicio, M.H.D., Ortiz, L.P. Tendência secular do peso ao nascer na cidade de São Paulo (1976- 1998). Rev Saude Publica, vol. 34(Supl. 6), p.26-40, 2000.

29. Brasil. Ministério da Saúde (MS). Saúde Brasil 2004: uma análise da situação de saúde. Cap 2. Saúde reprodutiva: gravidez, assistência pré-natal, parto e baixo peso ao nascer. [site na Internet]. [acessado 2021 mai 09]. Disponível em: http://bvsms.saude.gov.br/bvs/publicacoes/partes/saude_brasil2004_capitulo2.pdf

30. World Health Organization (WHO), United Nations Children's Fund (Unicef). Low birthweiight: contry, regional and global estimates. New York: WHO, Unicef; 2004

31. Rugolo, L.M. Peso de nascimento: motivo de preocupação em curto e longo prazo. J Pediatr (Rio J), vol.81, p.359-60, 2005.

32. Andrade, C.L.T., Szwarcwald, C.L., Castilho, E.A. Baixo peso ao nascer no Brasil de acordo com as informações sobre nascidos vivos do Ministério da Saúde, 2005. Cad Saude Publica, vol. 24, n. 11, p.2564-2572, 2008.

33. Omena, L.C., Firmo, P.B., Santos, C.F.M. Perfil clínico e epidemiológico de puérperas e de seus recém-nascidos prematuros, admitidos na unidade de terapia intensiva de um hospital escola. Gep News, vol. 1, n.1, p. 351-359, 2020.

34. Guimarães, E.A.A., Velásquez-Meléndez, G. Determinantes do baixo peso ao nascer a partir do Sistema de Informação sobre Nascidos Vivos em Itaúna, Minas Gerais. Rev. bras. saúde matern. Infant, vol. 2, n. 3, p. 283-290, 2002.

35. Kilsztajn S, Rossbach, A.C., Carmo, MSN. Assistência pré-natal, baixo peso e prematuridade no Estado de São Paulo, 2000. Rev Saúde Pública, vol. 37, n. 3, p. 303-10, 2003

36. Ministério da Saúde. Portaria 1 459/2011. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2011/prt1459_24_06_2011.html. Acessado em maio de 2021.

37. Barbas, D.S., Costa, A.J.L., Luiz, R.R. Determinantes do peso insuficiente e do baixo peso ao nascer na cidade do Rio de Janeiro, Brasil, 2001. Epidemiol. Serv. Saúde, vol. 18, n. 2, p.161-170, 2009.

38. Carneiro, J.A., Costa, F.M., Viera, M.M. Características de recém-nascidos de muito baixo peso admitidos em unidade de terapia intensiva neonatal. Rev Enferm UFPE online; vol.9, n. 4, p.7207-12, 2015.

39. Araújo, B.F., Tanaka, A.C.A. Fatores de risco associados ao nascimento de recém-nascidos de muito baixo peso em uma população de baixa renda. Cad. Saúde Pública, vol. 23, n.12, p.2869-2877, 2007.

40. Lopes, S.A.V.A., Mendes, C.M.C. Prematuridade e assistência pré-natal em Salvador. Rev. Ciênc. Méd. Biol., vol. 12, p.460-464, 2013.

41. Auger, N., Abrahamowicz, M., Wynant, W. Gestational age-dependent risk factors for preterm birth: associations with maternal education and age early in gestation. Eur J Obst Gynecol Reprod Biol. vol. 176, p.132-6, 2014.

42. Rodrigues, C.T., Ferreira, I.D., Nordeste, A. Epidemiologia da gestação múltipla casuística de 15 anos. Acta Med Port, vol.18, p.107 –11, 2005.

43. Uchimura,T.T., Pelissari, D.M., Uchimura, N.S. Baixo peso ao nascer e fatores associados. Rev Gaúcha Enferm, vol.29, n.1, p.33-8, 2008.

44. Ferraz, R.T., Neves, E.T. Fatores de risco para baixo peso ao nascer em maternidades públicas. Rev Gaúcha Enferm, vol. 32, n. 1, p. 86-92, 2011.

45. Nascimento, R.M., Leite, A.J.M., Almeida, N.M.G.S. Determinantes da mortalidade neonatal: estudo caso-controle em Fortaleza, Ceará, Brasil. Cad. Saúde Pública, vol. 28, n. 3, p.559-572, 2012.

46. Cascaes, A., Gauche, H., Baramarchi, F. Prematury ans associated factors in Santa Catarina State, Brazil, in 2005: an analysis based on data from the Information System on Live Births. Cad Saude Publica, vol. 24, n. 5, p.1024-1032, 2008.

47. Gonçalves, C., Cesar, J., Mendoza-Sassi, R. Quality and equity in prenatal care: a population-based study in Southern Brazil. Cad Saude Publica, vol. 25, n.11, p. 2507-2516, 2009.

48. Cunha, A.L., Fernandes, D.S., Melo, P.F. Fatores associados à asfixia perinatal. Rev Bras Ginecol Obstet, vol. 26, n.10, p.799-805, 2004.

49. Luque, A.L.F., Lima, C.M.G., Carvalhaes, M.A.B.L. Avaliação da atenção ao recém-nascido de risco, na perspectiva de uma política pública de saúde. Rev. Latino-Am. Enfermagem, vol.19, n. 2, p. 1-10, 2011.

50. Cunha A.A., Fernandes D.S., Melo P.F. Fatores associados à asfixia perinatal. Rev Bras Ginecol Obstet, vol. 26, n. 10, p.799-805, 2004.

51. Gaiva, M.A.M., Fujimori, E., Sato, A.P.S. Mortalidade neonatal em crianças com baixo peso ao nascer. Rev Esc Enferm USP, vol. 48, n.5, p.778-86, 2014.

52. Ribeiro, AM, Guimarães, M.J., Lima, M.C. Fatores de risco para mortalidade neonatal em crianças com baixo peso ao nascer. Rev Saúde Pública, vol. 43, n. 2, p.246-55, 2009.

53. Iliodromiti, S., Mackay, D.F., Smith, G.C.S. Apgar score and the risk of cause-specific infant mortality: a population-based cohort study. Lancet, vol. 384, n. 9956, p.1749-55, 2014.

54. Figueiró-Filho, E.A., Oliveira, V.M., Ferreira, C.M. Perinatal variables ans association with very low birthweight newborns in a Brazilian public university hospital. Rev Bras Ginecol Obstet, vol. 36, n.1, p.10-6, 2014.

55. Cheng, Y.W., Snowden, J.M., King, T.L. Selected perinatal outcomes associated with planned home births in the United States. Am J Obstet Gynecol, vol. 209, n. 4, p.325e1-8, 2013.

56. Pimenta, M.S., Calil, V.M.L.T., Krebs, V.L.J. Perfil das malformações congênitas no berçário anexo à maternidade do Hospital das Clínicas da Universidade de São Paulo. Rev Med, vol. 89, n. 1, p.50-56, 2010.

57. Giglio, M.R.P., Lamounier, J.A., Neto Morais, O.L. Baixo peso ao nascer em coorte de recém-nascidos em Goiânia-Brasil no ano de 2000. Rev Bras Ginecol Obstet, vol.27, n. 3, p.130-6, 2005.

58. Lanski, S., França, E., Leal, M.C. Mortes perinatais evitáveis em Belo Horizonte, Minas Gerais, Brasil, 1999. Cad Saúde Pública, vol.18, n.5, p.1389-400, 2002.