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Perfil das malformações congênitas na Região Nordeste do Brasil: estudo ecológico[1]

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Resumo:

O presente estudo objetivou analisar o perfil das malformações congênitas na região nordeste do Brasil, no período de 2011 a 2020. Trata-se de um estudo do tipo ecológico, de série temporal, sobre as malformações congênitas em recém-nascidos, nascidos nos estados que compõem a região Nordeste do Brasil, no período de 2011 a 2020. Os principais resultados evidenciaram a notificação no Sistema de Informação sobre Nascidos Vivos 8.210.800 nascimentos na região nordeste do Brasil, deste total, 63.209 recém-nascidos possuíam algum tipo de malformação congênita (MC), o que corresponde a uma taxa de 7,69 crianças com MC para cada 1.000 nascidos vivos. O Estado da Bahia, apresenta o maior quantitativo de casos dentre os diversos tipos de MC, seguido de Ceará; a idade com maior frequência foi a de 20 a 29 anos, e a de menor frequência foi a de 40 anos a mais; grande maioria foram de anomalias congênitas relacionadas ao sistema osteomuscular e deformidades congênitas dos pés; as informações obtidas neste estudo permitiram a descrição de algumas das características sociodemográficas e da gestação das mães com crianças portadoras de malformações congênitas. O estudo reforça a importância da realização de pesquisas epidemiológicas voltadas à ampliação do conhecimento das malformações congênitas.

Descritores: Malformações Congênitas. Enfermagem. Recém-Nascido. Saúde da Criança. Epidemiologia.

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Abstract:

This study aimed to analyze the profile of congenital malformations in the northeastern region of Brazil, from 2011 to 2020. This is an ecological, time-series study on congenital malformations in newborns born in the states that make up the Northeast region of Brazil, from 2011 to 2020. The main results showed notification in the Information System on Live Births, with 8,210,800 births in the northeastern region of Brazil, of this total, 63,209 newborns had some type of congenital malformation (CM), which corresponds to a rate of 7,69 children with CM for every 1,000 live births. The state of Bahia has the highest number of cases among the various types of CM, followed by Ceará; the age most frequently was 20 to 29 years, and the lowest frequency was 40 years more; were congenital anomalies related to the musculoskeletal system and congenital deformities of the feet; the information obtained in this study allowed the description of some of the sociodemographic characteristics and pregnancy of mothers with children with congenital malformations. The study reinforces the importance of conducting epidemiological research aimed at expanding the knowledge of congenital malformations.

Descriptors: Congenital Abnormalities. Nursing. Newborn. Child Health. Epidemiology.

INTRODUCTION

Congenital malformations can be defined as all functional or structural changes of fetal development whose origin occurs before birth, having genetic, environmental or unknown causes, even if this anomaly manifests itself years after birth. The main causes are associated with infectious agents, licit and illicit drug use, teratogenic medications, maternal endocrinopathies, and genetic alterations (MENDES, 2018).

In Brazil, perinatal mortality rates related to congenital malformations vary according to the studied region (MONTENEGRO, FILHO, 2017). According to Oliveira and López (2020) this difference is evidenced in the types of congenital anomalies between Brazilian regions, and according to the International Classification of Diseases 10th edition are: spina bifida, congenital malformations of the nervous system, congenital malformations of the circulatory system, cleft lip and cleft palate, absence of atresia, among other congenital malformations.

The Northeast region has one of the highest rates of congenital malformations in relation to other regions of Brazil; this locality is marked by great social inequalities, thus favoring the dependence of public policies on health services, which may contribute substantially to the appearance of congenital malformations (PARGA, 2022).

The Ministry of Health disclosed through the Epidemiological Bulletin of Brazil that these congenital anomalies are the second leading cause of death among children under five years of age in the country (BRAZIL, 2021). In this context, it is essential to track congenital malformations, so that it is possible to remedy and intervene in the various demands that may be causing this problem, and thus address its management more appropriately, avoiding the emergence of new cases. (MONTENEGRO, FILHO, 2017).

Given the above and in order to understand the increase of this profile, the present study brings as a guiding question the following question: what profile of congenital malformations in the Northeast of Brazil. To answer the question, the study aims to analyze the profile of congenital malformations in the Northeast of Brazil.

METHOD

This is an ecological, time-series study on congenital malformations in newborns born in the states that make up the Northeast region of Brazil, from 2011 to 2020.

Data were collected in September 2022, in the Information System on Live Births (SINASC), in the database of the Department of Informatics of the Unified Health System (DATASUS). The SINASC was implemented in 1990 by the Ministry of Health of Brazil, in order to gather epidemiological information regarding births reported throughout the national territory, it is also important to highlight that information contained in SINASC, are from the Live Birth Declarations (BRAZIL, 2011).

All NB born in the northeastern region of Brazil, in the period mentioned above and who were reported in SINASC were included in the study. In addition to collecting data on the number of live births (LB) with CM (dependent variable), other information (independent variables) was collected and grouped as follows:

✓ Maternal and gestational sociodemographic variables: age (10 to 19 years, 20 to 29 years, 30 to 39 years and 40 years or more), schooling in years of study (none, 1 to 7 years, 8 to 11 years, 12 years or more), marital status (single or married), number of prenatal visits (none, 1 to 6 appointments and 7 consultations or more), type of pregnancy (single fetus, double fetus or more) and type of delivery (vaginal or cesarean);

✓ Newborn variables: sex (male or female), color/race (white, black, yellow, brown and indigene), gestational age (up to 36 weeks, 37 to 41 weeks and 42 weeks or more),, Apgar in the 1st and 5th minute of life (0 to 7 points or 8 to 10 points) and birth weight (up to 2.499g, from 2.500g to 3.999g and 4.000g or more).

✓ Type of congenital malformation (according to the International Classification of Diseases 10th edition): spina bifida, other congenital malformations of the nervous system, congenital malformations of the circulatory system, cleft lip and cleft palate, The absence of atresia and stenosis of the small intestine, other congenital malformations of the digestive system, non-descended testicle, other malformations of the genitourinary system, congenital deformities of the hip, other malformations and congenital deformities of the musculoskeletal system, chromosomal abnormalities not classified elsewhere, hemangioma and lymphangioma, and other congenital malformations.

After data collection, they were inserted into a spreadsheet using Microsoft Excel, after they were submitted to analysis, using descriptive statistics, through the parameter of dispersion measures, using the arithmetic mean and standard deviation (X ± S), besides the percentage variation analysis. Subsequently presented through tables and graphs.

The CM rate in LB was calculated for both the northeastern region and the states that make up the region, following the formula:

Number of LB with CM per year or period in a given location	X 1.000
Number of LB per year or period in a given location	

It is noteworthy that, because it is a study where the data used were from a public domain platform, it was not necessary to evaluate this study by a Research Ethics Committee.

RESULTS

In the period from 2011 to 2020, 8,210,800 births in the northeastern region of Brazil were reported in the Information System on Live Births (SINASC), of this total, 63,209 newborns (NB) had some type of congenital malformation (CM), which corresponds to a rate of 7.69 children with CM for every 1,000 live births.

The highest number of cases of CM in NB was recorded in 2016, while the lowest was in 2014. When analyzing the number of CM in NB per state that make up the Northeast region of Brazil, it was observed that Bahia, Pernambuco and Ceará had the highest means of CM in NB, while Piauí, Alagoas and Rio Grande do Norte had the lowest. Regarding the percentage variation, considering the extremes of the time series under study, it was observed that Paraíba (-24.2%), Bahia (-7.55%) and Maranhão (-1.7%) were the only states that showed reductions in CM in the study period, The other states showed an increase in the quantity of CM, with the highest values recorded in the following states: Ceará (28.6%), Piauí (22.3%) and Rio Grande do Norte (17.8%). At the regional level, the variation was 4.67%, from 5,958 to 6,236 NB with CM (Table 1).

Table 1: Distribution of congenital malformations in newborns in the northeast region of Brazil, according to state of residence. 2011-2020, Brazil.

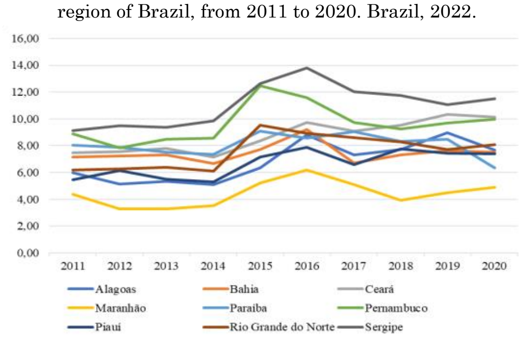
FU	2011 n (%)	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	X*± S**	PC
AL	324 (9.29)	270 (7.74)	281 (8.05)	265 (7.60)	332 (9.52)	425 (12.18)	369 (10.58)	404 (11.58)	447 (12.81)	372 (10.66)	348.9 ± 65.1	14.8
BA	1,537 (10.15)	1,518 (10.03)	1,490 (9.84)	1,359 (8.98)	1,592 (10.52)	1,841 (12.16)	1,367 (9.03)	1,504 (9.93)	1,510 (10.97)	1,421 (9.39)	1,513.9±136.8	-7.55
CE	959 (8.62)	956 (8.59)	974 (8.76)	919 (8.26)	1,107 (9.95)	1,226 (11.02)	1,160 (10.43)	1,254 (11.27)	1,336 (12.01)	1,123 (11.08)	1,112.4.6±150.7	28.6
MA	530 (10.47)	379 (7.48)	378 (7.46)	412 (8.14)	615 (12.14)	685 (13.53)	575 (11.35)	459 (9.06)	510 (10.07)	521 (10.29)	506.4±101.7	-1.7
PB	472 (10.14)	447 (9.60)	428 (9.19)	423 (9.08)	538 (11.55)	481 (10.33)	520 (11.17)	501 (10.76)	489 (10.50)	358 (7.69)	465.7±53.2	-24.2
PE	1,245 (9.38)	1,107 (8.34)	1,199 (9.03)	1,226 (9.24)	1,809 (13.63)	1,517 (11.43)	1,321 (9.95)	1,278 (9.63)	1,293 (9.74)	1,280 (9.64)	1,327.5±198.9	2.8
PI	274 (8.57)	295 (9.23)	255 (7.98)	254 (7.94)	353 (11.04)	371 (11.60)	320 (10.01)	384 (12.01)	356 (11.14)	335 (10.48)	319.7±47.9	22.3
RN	298 (8.41)	294 (8.30)	298 (8.41)	293 (8.27)	468 (13.21)	405 (11.43)	398 (11.23)	398 (11.23)	340 (9.60)	351 (9.91)	354.3±60.8	17.8
SE	319 (8.57)	323 (8.68)	320 (8.60)	338 (9.08)	441 (11.5)	444 (11.93)	407 (10.94)	403 (10.83)	361 (9.70)	365 (9.81)	372.1±48.7	14.4
Total	5,958 (9.43)	5,589 (8.84)	5,623 (8.90)	5,489 (8.68)	7,255 (11.48)	7,395 (11.70)	6,437 (10.18)	6,585 (10.42)	6,642 (10.51)	6,236 (9.87)	6,320.9±863.8	4.67

Source: Information System on Live Births (SINASC)
Legend: X*= Mean; S**=Standard deviation; PC= Percentage Change.

When analyzed the mean rate of proportional CM per 1,000 NB for each state of the northeast region, the following rates were observed: Sergipe (11.03), Pernambuco (9.63), Ceará (8.70), Paraíba (8.07), Rio Grande do Norte (7.60/1,000 NV), Bahia (7.44), Alagoas (81) and Maranhão (4.42). In the regional scenario, there was an average of 7.70 NB with CM for each 1,000 LB.

Graph 1 shows the CM rates per year and per state of the northeastern region. It is observed that the highest rates during the entire study period are from the state of Sergipe and the lowest in the state of Maranhão (Graph 1).

Graph 1: Congenital malformation rate per 1,000 live births, according to state in the Northeast region of Brazil, from 2011 to 2020. Brazil, 2022.



Source: Information System on Live Births (SINASC).

Table 2: Absolute and relative number of live births with congenital malformation, according to maternal and gestational variables, by state in the northeast region, from 2011 to 2020. Brazil, 2022.

Variable	Federative Unit									Total
	AL	BA	CE	MA	PB	PE	PI	RN	SE	
	n (%)	n (%)	n (%)	n (%)	n %	n %	n %	n %	n %	n %
Total	3,489 (100.0)	15,139 (100.0)	11,124 (100.0)	5,064 (100.0)	4,657 (100.0)	13,275 (100.0)	3,197 (100.0)	3,543 (100.0)	3,721 (100.0)	63,209 (100.0)
Maternal age										
10 - 19 years	944 (27.06)	2,976 (19.66)	2,121 (19.07)	1,266 (25.00)	882 (18.94)	2,774 (20.90)	634 (19.83)	674 (19.02)	679 (18.25)	12,950 (20.49)
20 - 29 years	1,626 (46.60)	6,832 (45.13)	5,201 (46.75)	2,489 (49.15)	2,232 (47.93)	6,348 (47.82)	1,548 (48.42)	1,645 (46.43)	1,630 (43.81)	29,551 (46.75)
30 - 39 years	804 (23.04)	4,594 (30.35)	3,234 (29.07)	1,162 (22.95)	1,338 (28.73)	3,549 (26.73)	883 (27.62)	1,048 (29.58)	1,213 (32.60)	17,825 (28.20)
40 years or more	115 (3.30)	737 (4.87)	568 (5.11)	147 (2.90)	205 (4.40)	604 (4.55)	132 (4.13)	176 (4.97)	199 (5.35)	2,883 (4.56)
Education										

None	70 (2.01)	125 (0.83)	102 (0.92)	74 (1.46)	27 (0.58)	135 (1.02)	32 (1.00)	25 (0.71)	40 (1.07)	630 (1.00)
1 - 7 years	1,274 (36.51)	4,116 (27.19)	2,828 (25.42)	1,339 (26.44)	1,482 (31.82)	3,874 (29.18)	914 (28.59)	1,091 (30.79)	1,267 (34.05)	18,185 (28.77)
8 - 11 years	1,792 (51.36)	8,382 (55.37)	6,637 (59.66)	3,110 (61.4)	2,551 (54.78)	7,586 (57.15)	1,712 (53.55)	1,848 (52.16)	1,841 (49.48)	35,459 (56.10)
12 years or more	317 (9.09)	2,104 (13.90)	1,394 (12.53)	490 (9.68)	559 (12.00)	1,593 (12.00)	478 (14.95)	512 (14.45)	558 (15.00)	8,005 (12.66)
Ignored	36 (1.03)	412 (2.72)	163 (1.47)	51 (1.01)	38 (0.82)	87 (0.66)	61 (1.91)	67 (1.89)	15 (0.40)	930 (1.47)
Marital status										
Single	1,289 (36.94)	7,123 (47.05)	4,689 (42.15)	2,268 (44.79)	1,529 (32.83)	6,143 (46.27)	913 (28.56)	1,304 (36.80)	1,639 (44.05)	26,897 (42.55)
Married	2,168 (62.14)	7,699 (50.86)	6,245 (56.14)	2,730 (53.91)	3,078 (66.09)	7,049 (53.10)	2,232 (69.82)	2,200 (62.09)	2,068 (55.58)	35,469 (56.11)
Ignored	32 (0.92)	317 (2.09)	190 (1.71)	66 (1.30)	50 (1.07)	83 (0.63)	52 (1.63)	39 (1.10)	14 (0.38)	843 (1.33)
Type of pregnancy										
Single	3,385 (97.02)	14,607 (96.49)	10,773 (96.84)	4,876 (96.29)	4,508 (96.80)	12,865 (96.91)	3,107 (97.18)	3,456 (97.54)	3,612 (97.07)	61,189 (96.80)
Two or more	94 (2.69)	463 (3.06)	311 (2.80)	148 (2.92)	138 (2.96)	373 (2.81)	77 (2.41)	80 (2.26)	105 (2.82)	1,789 (2.83)
Ignored	10 (0.29)	69 (0.46)	40 (0.36)	40 (0.79)	11 (0.24)	37 (0.28)	13 (0.41)	7 (0.20)	4 (0.11)	231 (0.37)
Type of delivery										
Vaginal	1,317 (37.75)	6,918 (45.70)	4,016 (36.10)	2,099 (41.45)	1,753 (37.64)	6,090 (45.88)	1,192 (37.28)	1,204 (33.98)	1,691 (45.44)	26,280 (41.58)
Cesarean	2,158 (61.85)	8,143 (53.79)	7,072 (63.57)	2,934 (57.94)	2,896 (62.19)	7,148 (53.85)	1,999 (62.53)	2,325 (65.62)	2,025 (54.42)	36,700 (58.06)
Ignored	14 (0.40)	78 (0.52)	36 (0.32)	31 (0.61)	8 (0.17)	37 (0.28)	6 (0.19)	14 (0.40)	5 (0.13)	229 (0.36)
Prenatal consultation										
None	120 (3.44)	672 (4.44)	264 (2.37)	155 (3.06)	97 (2.08)	251 (1.89)	119 (3.72)	91 (2.57)	58 (1.56)	1,827 (2.89)
1 - 6	1,568 (44.94)	6,518 (43.05)	3,973 (35.72)	2,898 (57.23)	1,686 (36.20)	5,462 (41.15)	1,345 (42.07)	1,365 (38.53)	1,632 (43.86)	26,447 (41.84)
7 or more	1,741 (49.90)	7,780 (51.39)	6,803 (61.16)	1.978 (39.06)	2,752 (59.09)	7,414 (55.85)	1,714 (53.61)	2,010 (56.73)	2,024 (54.39)	34,216 (54.13)

Ignored	60 (1.72)	169 (1.12)	84 0.76)	33 0.65)	122 2.62)	148 1.11)	19 0.59)	77 2.17)	7 0.19)	719 1.14)

Table 3: Number by state of the northeast region, from 2011 to 2020. Brazil, 2022.

Variable	Federative Unit									Total
	AL	BA	CE	MA	PB	PE	PI	RN	SE	
	n (%)	n (%)	n %	n %	n (%)	n (%)	n (%)	n %	n %	N %
Total	3.489 (100.0)	15.139 (100.0)	11.124 (100.0)	5.064 (100.0)	4.657 (100.0)	13.275 (100.0)	3.197 (100.0)	3.543 (100.0)	3.721 (100.0)	63.209 (100.0)
Sex										
Male	1,969 (56.43)	8,494 (56.11)	6,268 (56.35)	2,781 (54.92)	2,732 (58.66)	7,615 (57.36)	1,782 (55.74)	1,960 (55.32)	2,169 (58.29)	35,770 (56.59)
Female	1,426 (40.87)	6,389 (42.20)	4,660 (41.89)	2,179 (43.03)	1,844 (39.60)	5,406 (40.72)	1,363 (42.63)	1,468 (41.43)	1,493 (40.12)	26,228 (41.49)
Ignored	94 (2.69)	256 (1.69)	196 (1.76)	104 (2.05)	81 (1.74)	254 (1.91)	52 (1.63)	115 (3.25)	59 (1.59)	1,211 (1.92)
Color/race										
White	230 (6.59)	1,324 (8.75)	730 (6.56)	457 (9.02)	475 (10.20)	2,449 (18.45)	348 10.89)	881 (24.87)	469 (12.60)	7,363 (11.65)
Black	36 (1.03)	2,292 (15.14)	86 (0.77)	212 (4.19)	67 (1.44)	754 (5.68)	172 (5.38)	110 (3.10)	244 (6.56)	3,973 (6.29)
Yellow	7 (0.20)	47 (0.31)	21 (0.19)	15 (0.30)	8 (0.17)	30 (0.23)	26 (0.81)	6 (0.17)	24 (0.64)	184 (0.29)
Brown	3,139 (89.97)	10,813 (71.42)	7,559 (67.95)	3,994 (78.87)	3,931 (84.41)	9,878 (74.41)	2,401 (75.10)	2,439 (68.84)	2,941 (79.04)	47,095 (74.51)
Indigenous	4 (0.11)	55 (0.36)	20 (0.18)	36 (0.71)	28 (0.60)	62 (0.47)	8 (0.25)	3 (0.08)	8 (0.21)	224 (0.35)
Ignored	73 (2.09)	608 (4.02)	2,708 (24.34)	350 (6.91)	148 (3.18)	102 (0.77)	242 (7.57)	104 (2.94)	35 (0.94)	4.370 (6.91)
Gestational age										
Up to 36 weeks	790 (22.64%)	3,456 (22.83)	2,738 (24.61)	1,284 (25.36)	1,034 (22.20)	3,120 (23.50)	813 (25.43)	903 (25.49)	870 (23.38)	15,008 (23.74)
37 - 41 weeks	2,503 (71.74)	10,441 (68.97)	7,723 (69.43)	3,360 (66.35)	3,422 (73.48)	9,505 (71.60)	2,180 (68.19)	2,412 (68.08)	2,729 (73.34)	44,275 (70.05)
42 weeks or more	91 (2.61)	495 (3.27)	345 (3.10)	195 (3.85)	153 (3.29)	411 (3.10)	133 (4.16)	126 (3.56)	80 (2.15)	2,029 (3.21)
Ignored	105 (3.01)	747 (4.93)	318 (2.86)	225 (4.44)	48 (1.03)	239 (1.80)	71 (2.22)	102 (2.88)	42 (1.13)	1,897 (3.00)
1st-minute										

Apgar										
0 - 7	1,074 (30.78)	5,201 (34.35)	3,816 (34.30)	1,988 (39.26)	1,363 (29.27)	4,067 (30.64)	1,122 (35.10)	1,222 (34.49)	1,129 (30.34)	20,982 (33.19)
8 - 10	2,288 (65.58)	9,393 (62.05)	7,177 (64.52)	2,846 (56.20)	3.254 (69.87)	9,037 (68.08)	1,899 (59.40)	2,296 (64.80)	2,482 (66.70)	40,672 (64.35)
Ignored	127 (3.64)	545 (3.60)	131 (1.18)	230 (4.54)	40 (0.86)	171 (1.29)	176 (5.51)	25 (0.71)	110 (2.96)	1,555 (2.46)
5th-minute Apgar										
0 - 7	458 (13.13)	2,422 (16.00)	1,825 (16.41)	1,077 (21.27)	688 (14.77)	1,938 (14.60)	554 (17.33)	603 (17.02)	550 (14.78)	10,115 (16.00)
8 - 10	2,860 (81.97)	12,170 (80.39)	9,162 (82.36)	3,754 (74.13)	3,929 (84.37)	11,199 (84.36)	2,462 (77.01)	2,918 (82.36)	3,066 (82.40)	51,520 (81.51)
Ignored	171 (4.90)	547 (3.61)	137 (1.23)	233 (4.60)	40 (0.86)	138 (1.04)	181 (5.66)	22 (0.62)	105 (2.82)	1,574 (2.49)
Birth weight										
≤2,499g	835 (23.93)	3,878 (25.62)	2,811 (25.27)	1,431 (28.26)	1,080 (23.19)	3,313 (24.96)	818 (25.59)	945 (26.67)	907 (24.38)	16,018 (25.34)
2500g - 3999g	2487 (71.28)	10,517 (69.47)	7,797 (70.09)	3,324 (65.64)	3,323 (71.35)	9,351 (70.44)	2,227 (69.66)	2,412 (68.08)	2,624 (70.52)	44,062 (69.71)
≥4,000g	167 (4.79)	743 (4.91)	515 (4.63)	308 (6.08)	254 (5.45)	606 (4.56)	151 (4.72)	186 (5.25)	190 (5.11)	3,120 (4.94)
Ignored	0 (0.00)	1 (0.01)	1 (0.01)	1 (0.02)	0 (0.00)	5 (0.04)	1 (0.03)	0 (0.00)	0 (0.00)	9 (0.01)

Table 4: Absolute and relative number of live births with congenital malformation, according to newborn variables, by state in the northeast region, from 2011 to 2020. Brazil, 2022.

Type congen anomal	**Federative Unit**								
	AL	BA	CE	MA	PB	PE	PI	RN	SE
Spina bifida	92 (2.64)	265 (1,75)	336 (3,02)	161 (3,18)	126 (2,71)	453 (3,41)	57 (1,78)	111 (3,13)	113 (3,04)
Other congenital malformations of the nervous system	462 (13.24)	1,879 (12,41)	1,330 (11,96)	849 (16,77)	608 (13,06)	1591 (11,98)	414 (12,95)	467 (13,18)	433 (11,64)
Congenital malformations of the circulatory system	112 (3.21)	559 (3,69)	548 (4,93)	187 (3,69)	173 (3,71)	595 (4,48)	115 (3,60)	137 (3,87)	111 (2,98)
Cleft lip and cleft palate	228 (6.53)	748 (4,94)	650 (5,84)	355 (7,01)	277 (5,95)	802 (6,04)	160 (5,00)	256 (7,23)	226 (6,07)

Absence of atresia and stenosis of the small intestine	3 (0.09)	18 (0,12)	16 (0,14)	8 (0,16)	6 (0,13)	7 (0,05)	6 (0,19)	4 (0,11)	0 (0,00)
Other congenital malformations of the digestive system	108 (3.10)	506 (3,34)	449 (4,04)	272 (5,37)	173 (3,71)	379 (2,85)	190 (5,94)	186 (5,25)	103 (2,77)
Undescended testicle	41 (1.18)	152 (1,00)	258 (2,32)	13 (0,26)	158 (3,39)	349 (2,63)	47 (1,47)	21 (0,59)	85 (2,28)
Other malformations of the genitourinary system	305 (8.74)	1,226 (8,10)	958 (8,61)	333 (6,58)	424 (9,10)	1,402 (10,56)	224 (7,01)	282 (7,96)	361 (9,70)
Congenital hip deformities	14 (0.40)	51 (0,34)	49 (0,44)	16 (0,32)	21 (0,45)	34 (0,26)	29 (0,91)	11 (0,31)	13 (0,35)
Congenital deformities of the feet	503 (14.42)	1,691 (11.17)	1,821 (16.37)	713 (14.08)	643 (13.81)	1.520 (11.45)	534 (16.70)	549 (15.50)	494 (13.28)
Other malform and congenital musculoskeletal deformity	1,065 (30.52)	5,451 (36.01)	2,550 (22.92)	1,362 (26.90)	957 (20.55)	3,913 (29.48)	838 (26.21)	847 (23.91)	1,147 (30.83)
Other congenital malformations	400 (11.46)	2,049 (13.53)	1,513 (13.60)	625 (12.34)	880 (18.90)	1,787 (13.46)	492 (15.39)	457 (12.90)	479 (12.87)
NCOP chromosomal anomalies	146 (4.18)	472 (3.12)	539 (4.85)	155 (3.06)	187 (4.02)	418 (3.15)	72 (2.25)	205 (5.79)	145 (3.90)
Hemangioma and lymphangioma	9 (0.26)	44 (0.29)	46 (0.41)	14 (0.28)	21 (0.45)	23 (0.17)	16 (0.50)	10 (0.28)	10 (0.27)
Uninformed	1 (0.03)	28 (0.18)	61 (0.55)	1 (0.02)	3 (0.06)	2 (0.02)	3 (0.09)	0 (0.00)	1 (0.03)
Total	3,489 (100.00)	15,139 (100.00)	11,124 (100.00)	5,064 (100.00)	4,657 (100.00)	13,275 (100.00)	3,197 (100.00)	3,543 (100.00)	3,721 (100.00)

Source: Information System on Live Births (SINASC).

DISCUSSION

The analysis of the states of the Northeast Region, as to the type of congenital malformation recorded during the study period, showed that the state of Bahia, presents the highest number of cases among the various types of CM, followed by Ceará. Regarding maternal data, the age with the highest frequency was 20 to 29 years, and the lowest frequency was 40 years older. In this context, a study conducted by Gonçalves et al (2021) showed similar results in which maternal age between 20 and 29 years was the most frequent. However, despite these results, it is known the relationship of advanced maternal age with a higher risk of development of chromosomal abnormalities, consequently caused by the process of ovarian aging, which increases the rate of nondisjunction meiotic (QADIR, AMIR, BANO, 2017).

Concerning the level of schooling of mothers, the majority had between 8 and 11 years of schooling, followed by 1 to 7 years of schooling, and in a smaller proportion, 12 years or more of schooling. Education interferes in all areas of a person's life, and is no different with maternal education. Cisne (2022) states that there is a need for greater concern about the level of education and knowledge that pregnant women have when they become pregnant, because the lack of information about fetal care can directly interfere with the life of the newborn, especially those who have a malformation.

Referring to the type of delivery, it was observed that most births occurred through cesarean delivery. This predominance was present in another study, analyzing type of delivery and Apgar score, in which hospital delivery was justified as the best results for the binomial in the conditions of CM (BRAGA et al., 2021).

The data analysis of this study showed that most congenital malformations occurred in males, which converges with a study conducted in a state of the South Region in which the vast majority occurred in males (LIMA et al, 2019). One of the arguments for this prominence in relation to the male sex is the later maturation of the fetal lung, increasing the incidence of injuries, and also that the female sex has better adaptation and response to oxidative stress, which influences on fetal growth and survival (GAÍVA, 2018).

Regarding birth weight, most newborns have adequate weight. These data are similar to those found in national and international studies, as evidenced in a Libyan Hospital in which 24.69% of newborns had low birth weight and 62.96% had adequate weight (ALKARSHOUFI, GREIW, MISALLATI, 2019). The association between congenital malformations and other neonatal indicators has been demonstrated in national studies, regardless of birth weight (GAÍVA, 2018).

In relation to gestational age, most malformations were found in term newborns. Nevertheless, according to the literature, prematurity is a risk factor for infant mortality, malformations and complications in the development of the newborn (SILVEIRA et al, 2019). Gonçalves (2021) also states that the most significant risk factors for congenital malformations are related to preterm newborns, and in some way affirming the impartiality of the appropriate weight for malformations, but related as a determining factor for the survival of the neonate (FREITAS AND ET AL, 2021).

Linked to this, the study data showed that most mothers perform seven or more prenatal visits, being this datum the most representative of the sample. In Brazil, prenatal care is a right of pregnant women, since the increased number of prenatal visits is associated with adequate gestational age at birth and better perinatal outcomes, such as fetal growth and birth weight (SILVEIRA et al, 2019).

At least six prenatal consultations should be monitored and have sufficient quality to ensure early identification of gestational morbidities and congenital malformations. Still, the performance of prenatal care adequately contributes to the performance of interventions in the face of maternal behavioral risk factors, in addition to the control of infections and comorbidities, contributing to the reduction of unfavorable outcomes to the newborn and mother (SERRA et al, 2022).

Concerning the main types of malformations, the vast majority were congenital anomalies related to the musculoskeletal system and congenital deformities of the feet. Accordingly, a survey conducted in the Midwest of Brazil found data similar to these, with higher records of CM cases related to the musculoskeletal system followed by the nervous system and congenital foot deformities (CLAUDINO, SILVA; 2020). This datum may be related to the fact that these malformations are more easily visible after birth during physical examination and consequently recorded more frequently (OLIVEIRA, LOPEZ; 2020).

CONCLUSION

Through the analysis of the profile of congenital malformations in the northeastern region of Brazil, from 2011 to 2020, it was evidenced that congenital malformations lack exclusive and efficient measures in their prevention, early diagnosis and immediate therapy. The information obtained in this study allows the description of some of the sociodemographic characteristics and gestation of mothers with children with congenital malformations. In addition, a high rate of congenital malformations was observed, affecting the feet, the musculoskeletal system and the nervous system, which would be preventable with folic acid supplementation, a measure used in the public health system of the country.

The study reinforces the importance of conducting epidemiological research aimed at expanding the knowledge of congenital malformations. In addition to the improvement of public policies aimed at congenital malformations mainly in the northeastern region of the country. The intensification in scientific research in this area, the need for trained professionals to meet women of childbearing age and mothers with children with congenital malformations, monitoring and evaluation of the data contained in the information system and the expansion of reference centers and counter-reference for the care of congenital malformations are crucial measures for timely interventions and early diagnosis.

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