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PROFILE OF CHILD DEATHS: A HEALTH CARE REFLECTION

PERFIL DOS ÓBITOS INFANTIS: UM REFLEXO DA ASSISTÊNCIA À SAÚDE

PERFIL DE LAS MUERTES INFANTILES: UN REFLEJO DE LA ASISTENCIA DE LA SALUD

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ABSTRACT

Objective: to analyze the profile of infant deaths according to age group. ***Method:*** this is a quantitative, descriptive, population-based study on infant death. The data was obtained by DATASUS, organized and analyzed in the Microsoft® Excel program. The calculation of early and late neonatal, postnatal and infant mortality rates was performed. Results were presented in the form of tables. ***Results:*** 1.231 infant deaths, 56% in male children, white (42.4%); As to the place of death, 94.2% occurred in a hospital. It was pointed out that, in relation to maternal characteristics, 37.9% of the mothers were between 20 and 29 years of age, 34.6%, schooling between eight and 11 years of schooling and 23.9% of the pregnancies had a duration of 37 to 41 (23.9%) weeks. ***Conclusion:*** there was a need to qualify the assistance processes related to prenatal services, child care, growth and development monitoring to ensure the pregnant woman and the child access to quality services and, consequently, reduction of the risk of death children. ***Descriptors:*** Infant Mortality; Primary Health Care; Child Health; Perinatal Death; Family Health; Pediatric Nursing.

RESUMO

Objetivo*:** analisar o perfil dos óbitos infantis segundo a faixa etária. ***Método*:** trata-se de um estudo quantitativo, descritivo, de base populacional, sobre o óbito infantil. Obtiveram-se os dados pelo DATASUS, organizando-os e analisando-os no programa *Microsoft® Excel*. Realizou-se o cálculo das taxas de mortalidade neonatal precoce e tardia, pós-neonatal e infantil. Apresentaram-se os resultados em forma de tabelas. ***Resultados*:** registraram-se 1.231 óbitos infantis, 56% em crianças do sexo masculino, cor branca (42,4%); quanto ao local do óbito, 94,2% ocorreram em um hospital. Apontou-se que, em relação às características maternas, 37,9% das mães tinham entre 20 e 29 anos de idade, 34,6%, escolaridade de oito a 11 anos de estudo e 23,9% das gestações tiveram duração de 37 a 41 (23,9%) semanas. ***Conclusão: verificou-se a necessidade da qualificação dos processos assistenciais referentes aos serviços de pré-natal, puericultura, acompanhamento de crescimento e desenvolvimento para assegurar à gestante e à criança o acesso aos serviços de qualidade e, consequentemente, a redução dos riscos de óbitos infantis. ***Descritores*:** Mortalidade Infantil; Atenção Primária à Saúde; Saúde da Criança; Morte Perinatal; Saúde da Família; Enfermagem Pediátrica.

RESUMEN

Objetivo: analizar el perfil de las muertes infantiles según el grupo de edad. ***Método:*** se trata de un estudio cuantitativo, descriptivo, de base poblacional, sobre la muerte infantil. Se obtuvieron los datos por DATASUS, organizándolos y analizándolos en el programa Microsoft® Excel. Se realizó el cálculo de las tasas de mortalidad neonatal precoz y tardía, post-neonatal e infantil. Se presentaron los resultados en forma de tablas. ***Resultados:*** se registraron 1.231 muertes infantiles, 56% en niños de sexo masculino, color blanco (42,4%); en cuanto al lugar de la muerte, el 94,2% ocurrió en un hospital. Se observó que, en relación a las características maternas, el 37,9% de las madres tenían entre 20 y 29 años de edad, el 34,6%, escolaridad de ocho a 11 años de estudio y el 23,9% de las gestaciones tuvieron una duración de 37 a 41 (23,9%) semanas. ***Conclusión:*** se verificó la necesidad de la calificación de los procesos asistenciales referentes a los servicios de prenatal, puericultura, seguimiento de crecimiento y desarrollo para asegurar a la gestante y al niño el acceso a los servicios de calidad y, consecuentemente, la reducción de los riesgos de muertes infantiles. ***Descritores*:** Mortalidad Infantil; Atención Primaria de Salud; Salud del Niño; Muerte Perinatal; Salud de la Familia; Enfermería Pediátrica.

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INTRODUCTION

It is known that, in the last decades, Brazil underwent several changes related to socioeconomic development, urbanization, medical attention and the health of the population. Child mortality is used as an indicator of the living conditions of the country's population; [1] in this sense, the Ministry of Health (MH) has promoted the improvement of its vital information systems, such as the Mortality Information System (MIS) and the Live Birth Information System (SINASC).[2]

It is noteworthy that despite the reduction from 12.7 million in 1990 to 5.9 million in 2015 of the number of deaths among children under five years of age, insufficient action is still being taken to prevent further deaths. It is verified that the world lost, in that period, about 236 million children in this age group.[3]

The reduction of infant mortality as one of the priorities of social health policies in Brazil has been considered, for many decades. It is observed that there have been improvements in access and quality of health care in Brazil, with the Unified Health System (UHS) and greater investments in the area, which contributed to the greater organization in the care of pregnant women and newborns.[4]

The inequality of a society and the effectiveness of access to health services in terms of its resolution are revealed by the infant mortality rate. This is a challenge for the UHS, since it does not only involve biological issues; social, economic, environmental, and cultural issues that require a health system that is capable of offering the population a biopsychosocial care, focused on actions to promote health in the community.[5]

It is pointed out that the Family Health Strategy (FHS) is a care model that was created to change the way of approaching health care, in a way that changes the focus of health care to the achievement of health promotion, with the appreciation of the quality of life. This is a model of health care proposed by the Ministry of Health, with the objective of reordering the assistance from a teamwork.[6] Aponta-se que a Estratégia de Saúde da Família (ESF) é um modelo de atenção que foi criado para mudar a forma de abordagem da atenção à saúde, de maneira que se altera o foco da assistência à doença para a realização da promoção da saúde, com a valorização da qualidade de vida. Trata-se de um modelo de atenção à saúde proposto pelo Ministério da Saúde, com o objetivo de reordenar a assistência a partir de um trabalho em equipe.[2] It is suggested that the implementation of public policies directed to Primary Health Care (PHC) in Brazil has contributed to the reduction of deaths in children under one year.[7]

The association between the number of prenatal consultations and maternal socioeconomic conditions, birth and birth characteristics of the children who died in the neonatal period, mostly with less than seven days' life is presented in the studies. It is verified that the low quality of prenatal care is related to the increase in neonatal deaths due to causes that could be avoided during the prenatal period due to preventive and maternal health promotion actions carried out in the Primary Health Care network.[8]

It is worth noting that although the infant mortality rate in Brazil has shown a significant decrease in recent years, there are still obstacles to be overcome related to social inequalities, socioeconomic development and access to health services. The problems related to the coverage of vital events are added, which influence the knowledge of the dimension of infant mortality and also the identification of associated factors.[9]

The following programs were implemented in the State of Goiás: Siga Mamãe and Siga Bebê, one of the objectives of which is to reduce the infant mortality rate (IMR) and to accompany the pregnant woman and the baby during the first year of life by the public health system through an electronic medical record.[10]

It is necessary, given the fact that the reduction in infant mortality is included among the priority items of the Siga Bebê program of Goiás More Competitivo, which intends to reduce the infant mortality rate in the State to 10.6%, a thorough analysis of the factors associated with it. More specifically, this analysis on children's deaths in Goiás, in the year 2015, allows not only the collection of data, but also the development of a reality-oriented policy and the evaluation of PHC programs, since this type of study has the essential role of subsidizing the planning, implementation and evaluation of policies and actions of the UHS and, consequently, contribute to the reduction of infant mortality in the first year of life.

OBJECTIVE

- To analyze the profile of infant deaths by age group.

METHOD

This is a quantitative, descriptive, population-based study on infant death in the State of Goiás, Brazil.

The data from the databases derived from UHS information systems were removed. In the study population, all children under one year of age who died in the year 2015 were included.

Data on infant deaths were obtained from the Department of Informatics of the Unified Health System (DATASUS), available at http://www.datasus.gov.br. It should be noted that DATASUS provides information that assists objective analyzes of the health situation, for evidence-based decision-making, and the development of health action programs.[11]

Data was collected on the electronic website and organized into Microsoft® Excel program spreadsheets for further analysis.

Included in the study were data on the age range of infant death, sex, place of death, race / color, mother's age and education, gestation duration, type of pregnancy, type birth weight, and the underlying causes of death, as listed in the International Classification of Diseases and Related Health Problems (ICD) 10).

Infant mortality is defined as the sum of deaths occurring in the early neonatal (0-6 days of life), late neonatal (7-27 days) and post-neonatal (28-364 days).

For the calculation of the rates of early neonatal mortality, the number of deaths of residents from zero to six days of life was divided by the total number of live births of resident mothers, multiplied by one thousand; already for the calculation of the late neonatal mortality rates, the number of deaths of residents from seven to 27 days was divided by the total number of live births of resident mothers, multiplied by one thousand; for the calculation of post-neonatal mortality rates, the number of resident deaths from 28 to 364 days was divided by the total number of live births of resident mothers, multiplied by one thousand; Finally, for the calculation of infant mortality rates, the number of deaths in children under one year of age in residents of the Center-West region of Brazil was divided by the total number of live births of resident mothers, multiplied by one thousand.

This study was carried out from a secondary source database, available for public research, and was therefore not submitted to any Ethics Committee. It should be emphasized that the study was based on the guidelines and regulatory standards established in NHC Resolution 466/2012, taking into account the ethical and scientific foundations required.

RESULTS

A total of 1,231 infant deaths were recorded in Goiás during the year 2015, as shown in Table 1.

Table 1. Characterization of infant deaths according to age group. Goânia (GO), Brazil, 2015.

Variables	Age group							
	0 to 6 days		7 to 27 days		28 to 364 days		Total	
	N	%	N	%	N	%	N	%
Sex								
Male	376	54.6	131	19	182	26.4	689	56
Female	280	52.1	112	20.9	145	27	537	43.6
Ignored	4	0.8	1	0.2	0	0	5	0.4
Race/color								
White	255	48.8	119	22.8	148	28.4	522	42.4
Black	4	23.5	2	11.8	11	64.7	17	1.4
Yellow	2	50	1	25	1	25	4	0.3
Brown	311	61.1	79	15.5	119	23.4	509	41.3
Ignored	88	49.2	43	24	48	26.8	179	14.6
Location of death								
Hospital	642	55.3	241	20.7	277	24	1160	94.2
Another health facility	6	37.5	1	6.2	9	56.3	16	1.3
Home	4	11.4	2	5.7	29	82.9	35	2.8
Public highway	6	54.5	0	0	5	45.5	11	0.9
Others	1	12.5	0	0	7	87.5	8	0.7
Ignored	1	100	0	0	0	0	1	0.1
Mother's age								
10 to 14 years	12	66.6	3	16.7	3	16.7	18	1.5
15 to 19 years	126	62.4	34	16.8	42	20.8	202	16.4
20 to 24 years	138	56.4	52	21.2	55	22.4	245	19.9
25 to 29 years	131	59	44	19.8	47	21.2	222	18
30 to 34 years	100	59.9	27	16.2	40	23.9	167	13.6
35 to 39 years	57	56.4	17	16.8	27	26.8	101	8.2
40 to 44 years	18	48.6	12	32.5	7	18.9	37	3
45 to 49 years	2	50	1	25	1	25	4	0.3
Age Ignored	76	32.3	54	23	105	44.7	235	19.1
Mother's schooling								
None	16	61.6	5	19.2	5	19,2	26	2,1
1 to 3 years	17	50	7	20.6	10	29,4	34	2,8
4 to 7 years	110	50.7	36	16.6	71	32.7	217	17.6
8 to 11 years	265	62.2	72	16.9	89	20.9	426	34.6
12 years or more	87	62.6	30	21.6	22	15.8	139	11.3
Ignored	165	42.4	94	24.2	130	33.4	389	31.6
Duration of gestation								
Less than 22 weeks	40	67.8	8	13.5	11	18.7	59	4.8
22 to 27 weeks	177	75	40	17	19	8	236	19.2
28 to 31 weeks	97	58.4	52	31.3	17	10.3	166	13.5
32 to 36 weeks	135	64.6	39	18.7	35	16.7	209	17
37 to 41 weeks	141	47.8	55	18.6	99	33.6	295	23.9
42 weeks or more	2	40	0	0	3	60	5	0.4
Ignored	68	26	50	19.1	143	54.9	261	21.2
Type of pregnancy								
Unique	558	57.6	188	19.4	223	23	969	78.7
Double	60	69.8	21	24.4	5	5.8	86	7
Triple or more	2	22.2	4	44.4	3	33.4	9	0.7
Ignored	40	23.9	31	18.6	96	57.5	167	13.6
Type of childbirth								
Vaginal	312	63.7	84	17.1	94	19.2	490	39.8
Cesarean	299	53.7	124	22.3	134	24	557	45.2
Ignored	49	26.6	36	19.6	99	53.8	184	15
Weight at birth								
Less than 500g	45	90	4	8	1	2	50	4.1
500 to 999g	191	67.5	65	23	27	9.5	283	23
1000 to 1499 g	85	66.9	32	25.2	10	7.9	127	10.3
1500 to 2499 g	129	56.8	46	20.3	52	22.9	227	18.4
2500 to 2999 g	81	52.2	26	16.8	48	31	155	12.6
3000 to 3999 g	80	44.7	30	16.7	69	38.6	179	14.5
4000g or more	4	33.3	4	33.3	4	33.3	12	1
Ignored	45	22.7	37	18.7	116	58.6	198	16.1
TOTAL							1.231	100

Table 2 shows the basic cause of death according to the age group.

Table 2. Basic cause of death according to age group. Goiânia (GO), Brazil, 2015.

Chapter ICD-10	0 to 6 days	7 to 27 days	28 to 364 days	TOTAL
I. Some infectious and parasitic diseases	2	0	25	27
II. Neoplasms (tumors)	1	2	5	8
III. Diseases of blood and blood-forming organs and some immune disorders	0	0	5	5
IV. Nutritional and Metabolic Endocrine Diseases	2	1	14	17
V. Mental and behavioral disorders	0	0	1	1
VI. Diseases of the nervous system	0	0	19	19
IX. Diseases of the circulatory system	0	0	6	6
X. Diseases of the respiratory system	0	1	47	48
XI. Diseases of the digestive system	0	0	3	3
XII. Skin and subcutaneous tissue disorders	0	0	3	3
XIV. Diseases of the genitourinary system	0	0	3	3
XVI. Some conditions originating in the perinatal period	516	177	30	723
XVII. Congenital malformations, deformities and chromosomal abnormalities	133	59	118	310
XVIII. Symptoms, signs, and abnormal clinical and laboratory findings	5	4	22	31
XX. External causes of morbidity and mortality	1	0	26	27
Total	**660**	**244**	**327**	**1.231**

Table 3 shows the mortality rate among the states of Mid-West Brazil.

Table 3. Mortality rate in the Midwest States. Goiânia (GO), Brazil, 2015.

Region	Early neonatal mortality rate Rate * 1,000	Late neonatal mortality rate Rate * 1,000	Post-neonatal mortality rate Rate * 1,000	Child mortality rate Rate * 1,000
Mato Grosso do Sul	7.0	2.2	4.5	13.7
Mato Grosso	6.5	1.5	4.0	12.0
Goiás	6.5	2.4	3.2	12.1
Distrito Federal	6.3	1.8	2.4	10.5
Total	**26.3**	**7.9**	**14.1**	**48.3**

DISCUSSION

It was verified that the majority of the deaths occurred in male children, who were born of cesarean delivery and with low birth weight, which is similar to the one found in a study carried out in the city of Caxias do Sul (RS) as a result, that among the variables related to death were male gender and low weight.[12]

It is also understood that the data found were similar to those of a study carried out in Fortaleza (CE) on neonatal deaths and surviving live births in 2009, which had, as a predominant result, male gender, gestational age less than 37 weeks, low birth weight (less than 1500g) and, in relation to maternal schooling, complete and incomplete Primary School.[13] Similar results are found in a study conducted in Rio Grande do Sul, which found an association between infant death, maternal mortality less than eight years, and low birth weight.[14]

In a cohort study on neonatal mortality in the survey Born in Brazil, with interview and evaluation of medical records of 23,940 puerperae between February 2011 and October 2012, low birth weight, gestational risk and as the main factors related to neonatal death, and it was considered that

inadequate attention to prenatal and delivery indicated the unsatisfactory quality of care and association with death. It is worth noting that the neonatal mortality rate was more prevalent in males and in children of mothers with incomplete and complete elementary school, [15] which was similar to that found in this study.

In a similar study conducted in Cuiabá (MT), in 2007, characteristics related to mother, pregnancy and childbirth associated with neonatal death were observed. It is noteworthy that mothers between 21 and 30 years of age, with eight years of schooling, were single, with three to five prenatal appointments, vaginal birth and gestational age of less than 37 weeks; as to the neonatal characteristics, it was observed that the majority of deaths occurred in males of race / brown color, with low birth weight and in the early neonatal period.[16] It is noted that some of these characteristics are similar to the findings of this study, regarding age and maternal schooling, type of delivery, low birth weight and male gender.

It is understood, in relation to the cause of death, that the majority occurred due to some conditions originating in the perinatal period, which was similar to that found in a study carried out in Salvador (BA) 17 and another study carried out in Ribeirão Preto (SP) , in which it was observed that children less than one week old, with low birth weight and gestational age less than 37 weeks had the highest percentage of death, and prenatal care was considered insufficient for the vast majority of cases investigated.[18] It was also verified in another study conducted in 19 Brazilian hospitals that the majority of neonatal deaths in the first week of life had at least one of the perinatal conditions.[19] There is evidence of the importance of quality care in maternal and child care in Primary Health Care for the prevention of complications and infant deaths.

In a study carried out in Belo Horizonte (MG), the causes of neonatal deaths, an increase in neonatal deaths and related to malformations and perinatal conditions.[20] It is pointed out that the result was similar to that found in Goiás, in 2015, in which the main causes of neonatal deaths were neonatal conditions and congenital malformations, deformities and chromosomal abnormalities.

It is known that the causes of early neonatal deaths in Caxias do Sul were hyaline membrane disease, followed by congenital heart disease, extreme prematurity and premature placental abruption; [12] on the other hand, in Goiás, it was verified that most of the deaths neonatal infections in the early period occurred due to conditions in the perinatal period, followed by malformations, symptoms, signs and abnormal findings of clinical and laboratory exams, infectious and parasitic diseases, neoplasias and external causes.

It is necessary to review the access to health services, the quality of prenatal care, as well as the conditions of care for childbirth and the immediate care of the newborn. There is an association between early neonatal mortality and low maternal education, which suggests that pregnant women with lower levels of education need special attention in health services, regardless of other factors that may arise.[21] In this study, we observed a higher rate of early neonatal deaths in women with 12 or more years of schooling, and also in women with no schooling.

A study was conducted in Pelotas (RS), which identified the increase in prematurity as the main cause of death in the perinatal period and in the first year of life, suggesting that a large part of the deaths would be avoided through appropriate attention to in pregnancy, with regard to prenatal care and quality of care in PHC.[22]

They were found, in another study, as the main causes of neonatal death, cardiorespiratory arrest and prematurity; when the prenatal care of the mother was associated with the length of stay of the neonate in the Intensive Care Unit (ICU), the statistical significance was obtained. Based on these findings, the importance of planning assistance actions for women and the neonate.[23]

The mortality rates in the Midwest states that they were higher in Mato Grosso do Sul. It is known that the infant mortality rate expresses the risk of a live birth dying in its first year of life, reflecting the levels of development and health of a population, contributing to the management in the planning of actions aimed at prenatal, childbirth and child health, which may justify the highest rate found in this state.

It is worth highlighting from the data found in a study carried out in South-Mato Grosso municipalities that many identified causes of infant mortality would be avoided through the promotion of health associated with immunization, prenatal, family planning, childcare and structure and qualification of PHC workers.[24]

It is defined that the goal of PHC is to provide an effective articulation between

prenatal care, birth and the postnatal period, and should be the link between the family and the social support network, favoring and providing conditions so that the family develops in a satisfactory way to the health, considering its context and its experiences, and offering to the child the monitoring of its growth and development.[25] Therefore, the importance of quality care in PHC is important, as it relates to prenatal care, post-natal care, and the child's growth and development to avoid infant deaths.

CONCLUSION

The profile of infant deaths was verified in the State of Goiás in 2015. The main associated factors were children born of white race /color, born in hospital, cesarean delivery and with low birth weight. Regarding the maternal characteristics, education of eight to 11 years and with gestation duration of 37 to 41 weeks were reported. The most prevalent causes of infant deaths were considered to be conditions in the perinatal period and congenital malformations.

It is pointed out the importance of investments for the implementation of good practices based on scientific evidence for the qualification of health care processes in PHC, related to prenatal services, child care, growth and development monitoring to ensure the pregnant woman and the child access, in a timely manner, to the quality service and, consequently, the reduction of risks and infant deaths.

It is understood, therefore, that the State of Goiás deserves special attention focused on the reduction of infant mortality, especially for those causes that are related to the quality of the provision of health care services, with regard to PHC actions, knowing that the involvement of the pregnant woman in prenatal care is fundamental for the transformation of this reality.

It is important to carry out studies that assess the rates and causes of infant mortality, since this is a fundamental indicator to measure the quality of life of a population and the health services offered. It is therefore suggested that other researches related to this subject be carried out.

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