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SOCIODEMOGRAPHIC PROFILE OF CHILDREN SERVED IN A NEONATAL SCREENING

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ABSTRACT

Objective: To identify the socio-demographic profile of children attended at three Family Health Units (Unidade Saúde da Família - USF) in the city of Castanhal, state of Pará, Brazil. **Method:** A multi - case study was used to conduct the research, with a quantitative, descriptive, longitudinal and retrospective approach. Data collection was performed through the records found in the Neonatal screening room of the three health units, and their analysis was performed after registration, reading and organization in a database. **Result:** We found categories in the records, being it, to the dwelling, origin; skin color and sex. **Conclusion**: In this study it was possible to identify that the majority of newborns live in the urban area, are white and male.

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INTRODUCTION

Neonatal screening is a means of early diagnosis of several congenital diseases that do not present symptoms in the neonatal period, in order to intervene in its natural course, preventing the onset of the symptoms arising from them (LUZ *et al*., 2008). It is popularly called "foot test", because it is performed through the analysis of blood samples collected from the heel of the newborn (MATTOZO; SOUZA, 2005). The National Neonatal Screening Program (Programa Nacional de Triagem Neonatal - PNTN) comprises very complex structures that encompass a wide network of collection units, a specialized laboratory, an active search system, and infrastructure for diagnostic confirmation, multidisciplinary treatment and follow-up over time. These activities are usually subordinated to different managers and should be well articulated in order to ensure that the program reaches its objectives in full (BOTLER *et al*., 2010). In this context, the PNTN guarantees an early and effective diagnosis, so it can favor the patient an adequate intervention in a timely manner, which is one of the most important steps for the success of the goals proposed by the PNTN (STREFLING *et al*., 2014). According to the Ministry of Health, all Brazilian States must have at least one Neonatal Screening Reference Service (Serviço de Referência em Triagem Neonatal - SRTN) and several collection points distributed by the municipalities of the State. Blood samples should be obtained correctly and in a timely manner with rapid referral to the laboratory, which should perform the tests with severe quality control (MENDES; SANTOS; BRINGEL, 2013). In this context, when a test is supposed to be positive, a new blood sample should be requested and sent to the SRTN for diagnostic confirmation. After confirmation, the second step of the neonatal screening, which in Brazil, is called active search, is a structure set up to call the newborn and follow-up of cases with altered results, since the time of the treatment is crucial for mortality, morbidity, and sequelae to be prevented (MENDES; SANTOS, BRINGEL, 2013). The implantation of the PNTN in Brazil was originally designed to occur in phases, according to the level of organization and coverage of each state of the federation: in phase I, the diseases triada are phenylketonuria and congenital hypothyroidism; in stage II, screening for hemoglobinopathies is added to the panel and in

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phase III, cystic fibrosis screening is added (SILVA *et al*., 2015). In 2014, the Ministry of Health authorized the expansion of PNTN to phase IV, which included the screening of adrenal hyperplasia and biotinidase deficiency (BRASIL, 2014). In the State of Pará, the Laboratory of Research in Diagnostic Support (Laboratório de Pesquisa em Apoio Diagnóstico - LAPAD) is the reference service in the diagnosis of neonatal screening, which examines the materials collected by the collection points of the 144 municipalities of Pará. The examination is done from the analysis of blood drops collected from the child's heel, preferably between the third and fifth day of life. The result, if negative, is disclosed in five days. If positive, the patient is notified immediately and called for a new confirmatory examination at the Referral Service in Neonatal Screening (Serviço de Referência em Triagem Neonatal - SRTN) of the University of the State of Pará (UEPA) (LIMA, 2014). At the regional level, in the State of Pará, more than 600 health posts throughout the state collect blood samples and refer to LAPAD, which does more than 10,000 tests every month. Before, due to distance, the collections arrived in up to 29 days. Since 2014, the speed has optimized the screening, since the samples arrived by the fast delivery service of the Brazilian Post Company (PAES, 2015). Thus, the test of the foot is a strategy of prevention of death and / or disability, which reflects in the improvement of the quality of life of the individuals traced, since when discovered early allows a greater longevity of these individuals (SOUZA; SCHWARTZ; GIUGLIANI , 2002).

The pathologies identified by neonatal screening imply great damage to the lives of the affected individuals. However, their damage can be reduced or even neutralized if they receive adequate treatment and follow-up from the first months of life. The early detection of these diseases is extremely important for Brazilian health, as it rationalizes expenses with high complexity services. Thus, the PNTN is understood as a public health policy that is really aimed at the establishment of a healthier and more valued society in its citizenship rights (LUZ *et al*., 2008). Therefore, conducting research with a descriptive epidemiological character is important, since epidemiology, in its descriptive process, studies the frequency distribution of diseases and injuries to collective health due to variables related to time, space - environmental and population - and people, making it possible to detail the epidemiological profile (ROUQUAYROL; FILHO, 2003). The focus of this research is to investigate the profile of the newborns that underwent neonatal screening. The municipality of Castanhal is considered the most populous and most developed municipality in the Northeast of Pará State, with 159,110 inhabitants (COORDENADORIA, 2015). This indicates the importance of investigating the prevalence of pathologies included in neonatal screening in the municipality. In addition, such disclosure will be important for health professionals to be aware of the seriousness of the diseases detected and the economic and social impact on the family and society. On basis of these considerations, the objective of this study was to identify the profile of children treated in the Neonatal Screening in children born from January 2012 to May 2015 in the municipality of Castanhal, Pará, Brazil.

MATERIALS AND METHODS

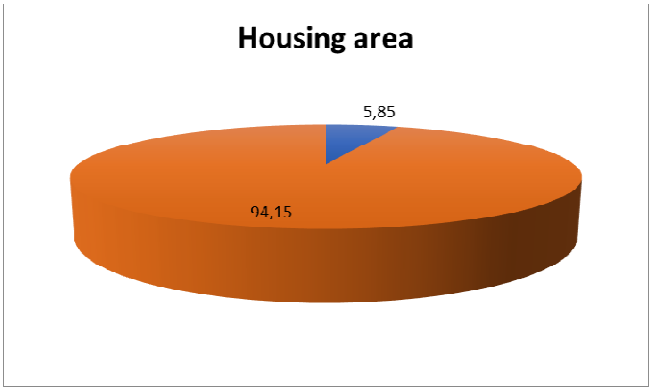
This is a multiple case study research, with a quantitative, descriptive, longitudinal and retrospective approach. The quantitative method is often applied in descriptive studies (those that seek to discover and classify the relation between variables), which propose to investigate "what is", that is, to discover the characteristics of a phenomenon as such (RICHARDSON, 1989 apud DALFOVO (2006). The quantitative research focuses on objectivity and is influenced by positivism, and considers that reality can only be understood based on the analysis of raw data, collected with the aid of standardized and neutral instruments (FONSECA, 2002). The study was carried out in the city of Castanhal, in the state of Pará, considered to be a polo city and is among the five main cities of the state, as a type of metropolis in the Northeast of Pará, and is located 65 km from the state capital. The research was carried out in the Family Health Strategies (Estratégia Saúde da Família - ESF) Dr Luiz Charllet, ESF Ziulália Leão Luna and ESF Esmailda Marinho de Oliveira, located in the municipality of Castanhal / PA.

The study population includes all newborns enrolled and registered by the PNTN from January 2012 to May 2015, it is worth mentioning that this period was defined due to the beginning of the PNTN in the three Family Health Strategies included in the research and ending up the month of May 2015, because it was the last month in which data were available in the record book of the test of the foot at the time of collection, attended by the mentioned FHS, in the municipality of Castanhal. To analyze the content and to contribute to the process of knowledge production in health and thus become useful for disease prevention and health promotion, data generated by epidemiological studies need to be analyzed. In order to work the vast material collected, a few steps were performed as described below: 1) Literal transcription of the records referring to the result of the collection of the neonatal screening and the profile of the newborns; 2) Reading and rereading the vast material collected in all its details; 3) The results of the collection of records and profiles of newborns were organized in a database (Microsoft Excel Starter 2010.

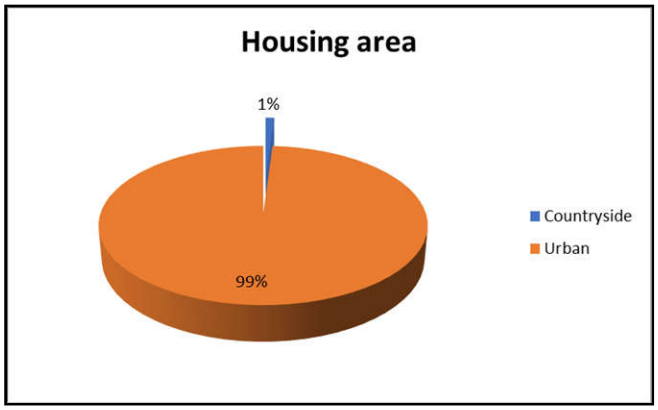
RESULTS

The results obtained on the variables were grouped in five categories: they refer to the dwelling and origin; skin color and sex; life time at the date of collection and prematurity; feeding of the newborn. The charts were prepared according to the records collected from the three Family Health Strategies. These results confirmed the profile of each of the ESF included in the research.

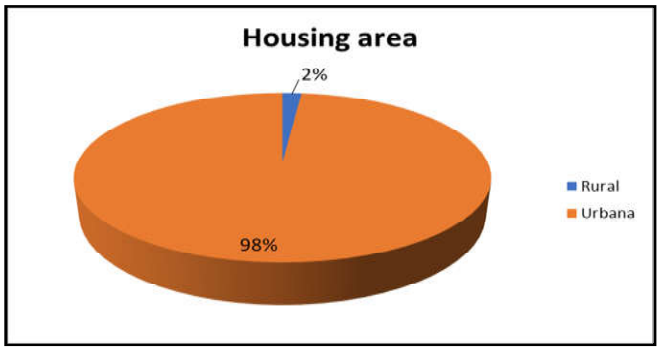
Category 1: Housing



Graph 1. Newborn's housing area attended at the ESF Dr. Luiz Charllet (2012 - May / 2015)

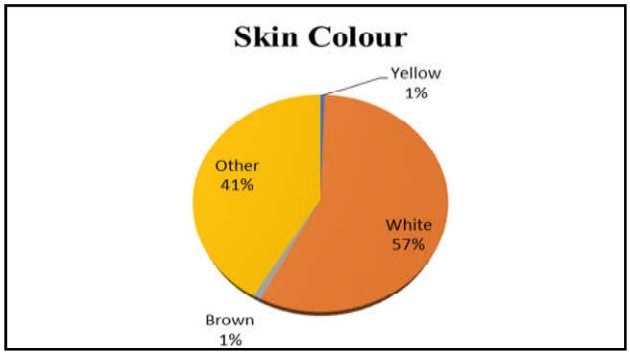


Graph 2. Newborn's housing area served at ESF Ziulália Leão Luna (2012 - May / 2015)

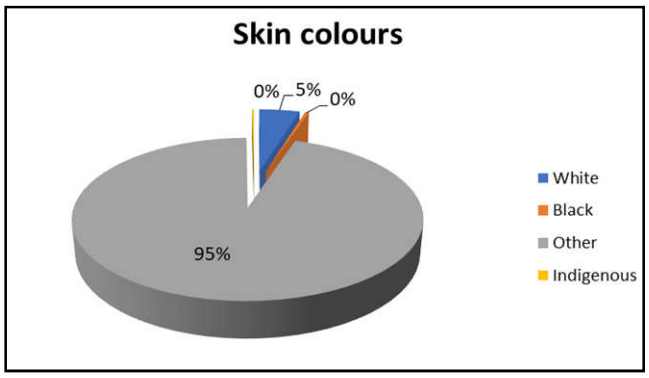


Graph 3. Newborn's housing area served at ESF Esmailda Marinho de Oliveira (2012 - May / 2015)

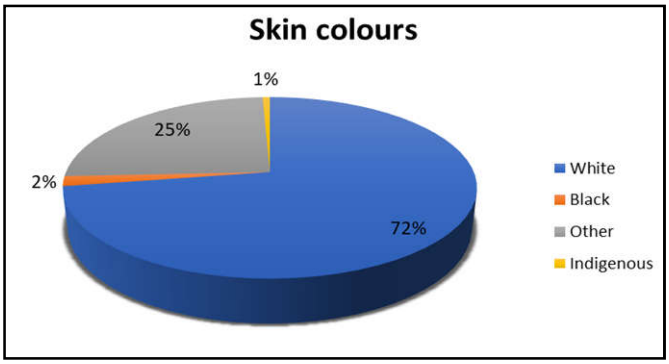
Category 2: Skin Color and Gender



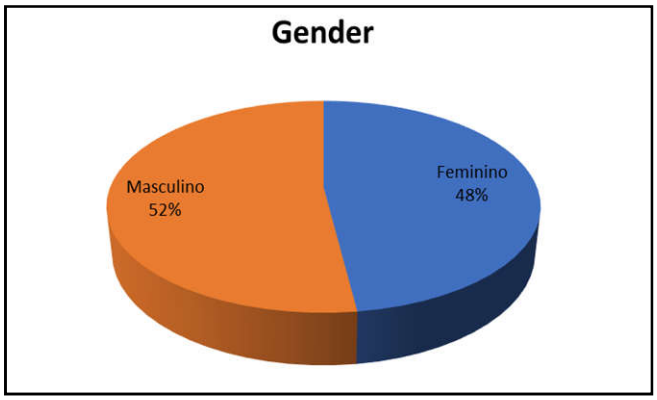
Graph 4. Newborn's skin color referring to the ESF Dr Luiz Charllet (2012 - May / 2015)



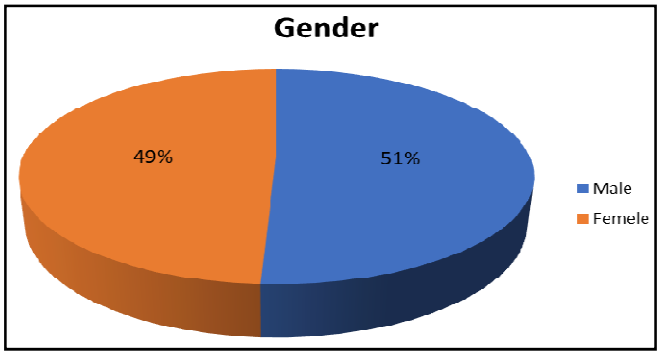
Graph 5. Newborn's skin colour referring to ESF Ziulália Leão Luna (2012 - May / 2015)



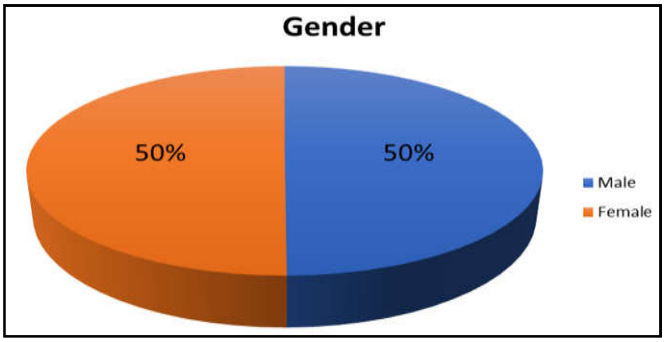
Graph 6. Newborn's skin colour referring to ESF Esmailda Marinho de Oliveira (2012- May / 2015)



Graph 7. Newborn's sex referring to the ESF Dr Luiz Charllet (2012 - May / 2015)



Graph 8. Newborn's gender referring to the ESF Ziulália Leão Luna (2012 - May / 2015)



Graph 9. Newborn's gender referring to the ESF Esmailda Marinho de Oliveira (2012- May / 2015)

DISCUSSION

For this analysis, the neighborhood Saudade I, whose ESF Dr. Luiz Charllet is located, was the most required by the

community to perform the test of the foot. Followed by the neighborhoods Fonte Boa, Nova Olinda and Saudade II presented a high number of individuals because these districts did not have the test and therefore moved to the ESF Dr. Luiz Charllet, where it is reference for the accomplishment of the same. It is relevant to say that territorial proximity becomes a primary factor for user access, since it facilitates their movement and reduces costs. Already pertinent to the FHS, Ziulália Leão and Esmailda Marinho, respectively, presented the highest number of newborns services from the neighborhood where their respective family health strategies are located. Regarding the location of the dwelling, the majority of the newborns that performed the foot test reside in the urban zone, this allows a greater number of cases screened because most of them reside in the neighborhood or in the vicinity of the collection points. These results may be associated to the issue of access to health services, since, considering the service structure, location and qualification of services, access to goods and services is holistic. Nevertheless, it is important to point out that the FHEs included in the research are accessible and well located, so that the population can use other modes of transport than the non-motorized ones; on foot or by bicycle, or the public transport system, that is, collective bus.

It is assumed that the results of the rural area may have been found due to: lack of collection services for the Pezinho test in the newborn's housing area, as recommended by the PNTN, which was not investigated in this study; the possibility of choosing the strategy because they already did some kind of care in it, preferably the prenatal care that was not investigated; or by confidence in the strategy based on recommendations from third parties, which was also not investigated. The following attribution for skin color was observed through the data of the graphs 4, 5 and 6: for ESF Dr Luiz Charllet of 1,043 newborns the white color corresponded to 57% and 41% was identified in the records as other, that it is suggested to be related to the brown color. As for ESF Ziulália Leão 95% were attributed to the other topic and 5% to white. In relation to ESF Esmailda Marinho of 463 newborns, 72% corresponded to white and 25% others. It is important to report that the information regarding skin color among the three health strategies was according to the mother's own classification. According to Oliveira (2004), evidence-based medicine demonstrates that some diseases are more common or more frequent, or evolve differently, in certain racial or ethnic human groups, in accordance with certain environmental and cultural interactions with the genetic heritage. This can be explained by the evident racial miscegenation that occurred in our country. Among the diseases in which genetic factors are associated, sickle cell anemia is an example. This hemoglobinopathy is a genetic disease, occurring almost exclusively in black individuals, where a specific alteration in the DNA chain is enough for the individual to express the disease (BARRETO, 2004). Other studies show that Caucasian people are more likely to have cystic fibrosis than people of black color at any age (REIS; PARTELLI, 2014). In the analysis of the variable sex, it was observed that this research showed predominance of newborn male births. On the other hand, it was observed in a study by Pinheiro *et al*. (2006), which occurred in Fortaleza, from August 2001 to September 2002, the 389 records of the test of the foot analyzed, showed the predominance of the female sex with 200 newborns against 189 male. Another study confirming the predominance of the female sex occurred in Uberaba-MG, conducted by Campos, Dias and Mendes (2006), the results showed that 56% were female versus 44% male.

Final Considerations

In this study it was possible to identify that the majority of the NBs live in the urban zone and had the life time at the collection date up to two weeks, exceeding the time recommended by the Ministry of Health, were white and male, a percentage relatively high prevalence of premature newborns, and sickle cell trait was the most prevalent in the municipality. It is necessary to carry out new studies that seek to identify the pathologies other reference municipalities within the region, as well as to make new discussions regarding the demographic realities and their implications for the search of the test of the foot in the region.

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