Original Article

Maternal characteristics of live newborns in Acre: sociodemographic and obstetric analysis between 2015 and 2019

Características maternas de nascidos vivos no Acre: análise sociodemográfica e obstétrica entre 2015 e 2019

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ABSTRACT | OBJECTIVE: To investigate the sociodemographic and obstetric maternal characteristics of live births in the state of Acre in the period between 2015 and 2019. **METHODOLOGY:** This is a descriptive, ecological, time-series study with a quantitative approach based on data from the Information System on Live Births (SINASC) available on the website of the Computer Department of the Brazilian National Health System. Data were analyzed using the Microsoft® Office Excel 2016 program, calculating absolute and relative frequencies for sociodemographic and obstetric variables. **RESULTS:** It was observed that 81934 live births were registered, with the highest frequency of births in 2015 (20.75%) and in the municipality of Rio Branco (40.10%). Predominated mothers who were between 20 to 39 years (47.23%), brown-skinned (80.34%), 8 to 11 years of study (45.7%), and had a partner (76.92%). Pregnancies were single (98.06%), with up to six prenatal visits (48.90%), full-term (81.37%), vaginal delivery (58.02%), and carried out in health facilities (95.62%). **CONCLUSIONS:** The characteristics of the mothers of live births represent the epidemiological profile of the region and can be used to establish measures and strategies for maternal and child health care in the state.

KEYWORDS: Maternal and Child Health. Live birth. Health Status Indicators. Health profile. Pregnant women.

RESUMO | OBJETIVO: Investigar as características sociodemográficas e obstétricas maternas de nascidos vivos no estado do Acre no período de 2015 e 2019. **METODOLOGIA:** Estudo descritivo, ecológico de série temporal, com abordagem quantitativa, realizado a partir de dados do Sistema de Informações sobre Nascidos Vivos (SINASC) disponíveis no site do Departamento de Informática do Sistema Único de Saúde. Os dados foram analisados por meio do programa *Microsoft® Office Excel* 2016, sendo calculadas as frequências absolutas e relativas quanto às variáveis sociodemográficas e obstétricas. **RESULTADOS:** Observou-se que foram registrados 81934 nascidos vivos, sendo a maior frequência de nascimentos no ano de 2015 (20,75%) e no município de Rio Branco (40,10%). Predominaram mães que apresentavam entre 20 a 39 anos (47,23%), cor parda (80,34%), 8 a 11 anos de estudo (45,7%) e possuíam companheiro (76,92%). As gestações eram únicas (98,06%), com até seis consultas do pré-natal (48,90%), evolução a termo (81,37%), parto vaginal (58,02%) e realizados em unidades de saúde (95,62%). **CONCLUSÕES:** As características das mães dos nascidos vivos representam o perfil epidemiológico da região e podem ser utilizadas para o estabelecimento de medidas e estratégias de atenção à saúde materno-infantil no estado.

PALAVRAS-CHAVE: Saúde Materno-Infantil. Nascido Vivo. Indicadores Básicos de Saúde. Perfil de Saúde. Gestantes.

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Introduction

Maternal and child health remains at the core of health actions and programs with the objective of expanding and improving care for women and children since maternal, child, and perinatal health indicators constitute evidence of the social, economic, health, and social development conditions of the population, as well as reflect the access, quality of services and the effectiveness of public policies involving the mother-child binomial.[1]

It is known that interventions related to prenatal care, labor, birth and the first year of life directly impact the reduction of maternal and child mortality rates, the prevention of unfavorable outcomes, the provision of safe services, and the promotion of healthy births and newborns.[2,3] However, in view of the existing regional diversities and social vulnerabilities faced in Brazil, some factors linked to maternal health conditions and the living conditions of women and families influence obstetric and neonatal outcomes, including maternal age, marital status, income, education, housing, parity and diseases in pregnancy.[3,4]

In this scenario, the knowledge of maternal characteristics allows identifying situations of risk to maternal and child health, tracing the regional *loco* epidemiological panorama, and planning strategies to improve care with repercussions on the quality of services, health, and well-being of this specific group. In this field of knowledge, the use of national health information systems allows conducting population-based and nationwide investigations of high completeness, low cost, and high reliability.[5]

Regarding maternal and child health, the Sistema de Informação sobre Nascidos Vivos - SINASC (Information System on Live Births) provides data on births, structured by Brazilian municipalities, which allows the survey of the number of live births and the analysis of variables related to pregnancy, childbirth, mother and newborns.[6] The production of evidence from the data available in this system allows monitoring the profile of the population segment and identifying health determinants, including those with influence on maternal and child morbidity and mortality, and supporting planning and decision-making by managers, especially in regions difficult to access for primary data collection[7], a situation found in this study.

Thus, the objective was to investigate the maternal sociodemographic and obstetric characteristics of live births in the state of Acre in the period of 2015 and 2019.

Methodology

Descriptive, ecological, time series, retrospective study with quantitative approach about the maternal characteristics of live births in the State of Acre.

Data were obtained during October and November 2021 from the records in the SINASC available on the website of the Departamento de Informática do Sistema Único de Saúde - DATASUS (Department of Informatics of the Unified Health System). The sample consisted of the total number of records of live births in the State of Acre from 2015 to 2019. The time frame is justified because this period of five years has the most recent data fully containing the information available on the said website.

The information was collected directly from SINASC and extracted in the form of a *spreadsheet of the Microsoft® Office Excel* 2016 program, including the variables fully available: year and municipality of birth, age, race/color, marital status, schooling, type of pregnancy, gestational age, number of prenatal consultations, type and place of delivery. Data analysis was performed using simple descriptive statistics through absolute and relative frequencies of the variables, and the results were presented in tables.

In compliance with the ethical aspects of research, the study was produced with secondary and public domain data, and given this, appreciation and approval by the Ethics Committee were not necessary.

Results

In the state of Acre, from 2015 to 2019, 81,934 live births were registered, with the highest frequency of births in 2015 (20.72%) and in the municipality of Rio Branco (40.10%).

The variables of maternal sociodemographic characterization indicate, according to table 1, that the prevalent age group was 20 to 29 years (47.23%), followed by the age group 30 to 39 years (24.73%). Regarding race, mixed complexion was highlighted with 80.34%. The predominant schooling was from 8 to 11 years (45.7%), and it is relevant to note that 14.5% of the women had 12 or more years of schooling, which consisted of primarily white women, and that the percentage of illiteracy corresponded to 3.4%. The low level of education, including from zero to three years of schooling, was expressive in women with mixed and indigenous complexion. The presence of a partner corresponded to the most recurrent marital status for women (76.92%); however, among these, the stable union was the predominant bond (73%).

Table 1. Maternal characterization according to sociodemographic variables of live births in the State of Acre between 2015 and 2019. Rio Branco- AC (2021)
(to be continued)

Variables	N	%
Year of birth		
2015	16980	20,72
2016	15773	19,25
2017	16358	19,96
2018	16543	20,19
2019	16280	19,87
Municipality of birth		
Rio Branco	32858	40.10
Cruzeiro do Sul	8720	10,64
Tarauacá	5711	6,97
Feijó	4143	5,06
Sena Madureira	3945	4,81
Other municipalities	26557	32,42
Age (years)		
10-14	1430	1,75
15-19	19444	23,73
20-29	38701	47,23
30-39	20263	24,73
40-49	2054	2,33
≥ 50	19	0,20
Not informed	23	0,03
Race/Color		
White	4821	5,88
Black	1064	1,29
Yellow	343	0,41
Mixed Color	65833	80,34
Indigenous	4151	5,06
Not informed	5722	6,98

Table 1. Maternal characterization according to sociodemographic variables of live births in the State of Acre between 2015 and 2019. Rio Branco- AC (2021) (conclusion)

Variables	N	%
Schooling (years of study)		
Non-literate	2781	3,4
1-3	5676	6,9
4-7	22685	27,7
8-11	37418	45,7
≥ 12	11847	14,5
Not informed	1527	1,9
Marital Status		
No mate	17433	21,28
With mate	63026	76,92
Not informed	1475	1,8

Source: Prepared by the authors based on the Sistema de Informação sobre Nascidos Vivos - SINASC (Information System on Live Births).

Regarding obstetric conditions, the analysis showed that there was a predominance of single pregnancies (98.06%), which evolved at term (81.76%), with preterm deliveries occurring mainly between 32 and 36 weeks. The deliveries occurred hegemonically in the public health units (95.62%); however, there were deliveries at home and in indigenous villages, and these events were associated with indigenous women living in the cities of Feijó, Jordão, Marechal Thaumaturgo, Tarauacá, and Santa Rosa do Purus, municipalities that have the highest numbers of residents in rural areas and indigenous peoples in the State. In addition, Santa Rosa do Purus, Jordão, and Marechal Thaumaturgo are situated in a region where large rivers and a wide expanse of forests predominate and where access is feasible only by water or small-aircraft planes.

A higher frequency of vaginal deliveries (58.02%) was observed in all municipalities, except for the capital, where the proportion of cesarean deliveries is higher, as well as, when analyzing the time series, there was an increase in operative deliveries in all cities between 2015 and 2019. Although the number of consultations higher than seven increased during the period, the number of prenatal consultations between 1 and 6 consultations was predominant, associated with women with less than eight years of study (Table 2).

Table 2. Maternal characterization according to obstetric variables of live births in the State of Acre between 2015 and 2019. Rio Branco- AC (2021) (to be continued)

Variables	N	%
Type of pregnancy		
Only	80346	98,06
Twins	1318	1,60
Triple or more	28	0,03
Not informed	242	0,30
Duration of pregnancy		
36 weeks or less	11127	13,58
More than 37 weeks	66990	81,76
Not informed	3817	4,65

Table 2. Maternal characterization according to obstetric variables of live births in the State of Acre between 2015 and 2019. Rio Branco- AC (2021) (conclusion)

Variables	N	%
Prenatal consultations		
None	2920	3,56
1- 6	40067	48,90
7 or more	38717	47,25
Not informed	230	0,28
Type of delivery		
Vaginal	47540	58,02
Cesarean	34189	41,72
Not informed	205	0,25
Places of delivery		
Health Services	78348	95,62
Domicile	1679	2,05
Indigenous Village	1626	1,98
Other	237	0,29
Not informed	44	0,05

Source: Prepared by the authors based on the Sistema de Informação sobre Nascidos Vivos - SINASC (Information System on Live Births).

Discussion

The number of live births in the State of Acre during the period under analysis showed a slight decrease, confirming a trend in the country in the reduction of births due to urbanization, economic reasons, expansion of schooling and human capital, and advances in reproductive planning and increased longevity.[8] Moreover, the municipalities in which the number of births was significant corresponds to the cities with the highest number of inhabitants and concentration of resources, equipment and care capacity of the health services offered, being referenced in the health regions.

The maternal sociodemographic characterization shows the prevalence of women aged between 20 and 39 years, mixed complexion, with 8 to 11 years of schooling and with a partner. These data reinforce the sociodemographic profile of mothers of live births found in several states, such as Rio de Janeiro[4], Rondônia[7], Piauí[9], Goiás[10], and Paraná[11] in the last decade.

Regarding maternal age, there is a trend in fertility rates increasing in women from 30 years of age, considered the age of physical and psychological maturity, which occurs due to the participation of women in the labor market, access to health education, contraceptive methods and the fact that this age group corresponds to the peak of the reproductive phase.[12] However, it is notable that 25.48% of the mothers of live births were between 10 and 19 years of age, signaling the challenge of teenage pregnancy experienced in Brazil, as well as in other countries, and also in the context under analysis. It should be noted that pregnancies at extreme ages, during adolescence and after 35 years, are associated with possible complications in pregnancy, childbirth, and perinatal period, such as pregnancy-specific hypertensive disease, gestational diabetes, miscarriages, premature births and low birth weight[7], and higher frequency of hospitalizations.[1]

Regarding marital status, the prevalence of women who had a partner was higher than the results found in Rondônia[7], Goiás[10], and Ceará[13] and similar to those found in Minas Gerais[14] and Piauí.[9] The marital status of the mothers in the present study is characterized as a protective aspect since the presence of the partner provides safety and satisfaction for the woman, allows the strengthening of the affective family bond, and positively affects

the treatment in prenatal care, while the absence of the partner constitutes a risk factor for the development of the pregnancy and is associated with a decrease in psychological and emotional support, and less social and economic stability.[15]

For the maternal race/color data, the mixed complexion is shown to be predominant. This result should be interpreted in relation to the sociocultural history of colonization and interbreeding of the state, as well as from demographic data, according to Instituto Brasileiro de Geografia e Estatística - IBGE (Brazilian Institute of Geography and Statistics), in which the majority of the Brazilian population declares itself as mixed race (46.8%).[16] However, the racial differences existing in the country stand out since the relevance of the number of indigenous mothers, a finding that differs from other states, which may be related to the fact that the state is located in the area of the Legal Amazon, a region where the largest indigenous population of the country resides.[17]

The variable schooling presented prevalence of women with a study time of more than 8 years, which represents a protective factor for pregnancy outcomes because according to the available evidence, the low level of education is strongly associated with infant mortality, with non-access to prenatal care and non-adoption of healthy habits for pregnancy. On the other hand, the higher the level of maternal education, the better the conditions for guiding her to self-care during the puerperal pregnancy cycle and with the newborn.[13]

Regarding obstetric variables, the frequency of multiple pregnancy was inexpressive when compared to single pregnancy, which minimizes the risk for prematurity and low birth weight. In this context, despite the higher frequency of term pregnancies, a significant proportion of premature deliveries were observed, converging with consolidated findings in the literature and revealing higher rates than those found in other Brazilian states and developed countries.[9,10,14] This fact supports the strengthening of actions to prevent prematurity, including qualification of prenatal care, control of risks in pregnancy, use of good practices in labor and delivery, and adequate care for vulnerable newborns since lower gestational ages are associated with reduced compatibility with life and, consequently to infant mortality.[13]

In this context, prenatal care is emphasized, recognized as a valuable indicator of the quality of health services, whose objective is to ensure the healthy development of pregnancy and safe birth through continuous care[18], which is related to fragility in access or support in this study by the sharp proportion of the number of consultations lower than recommended by health authorities, with national indicators of 27.1% of insufficient prenatal consultations.[19] Prenatal care is assessed based on the number of consultations, beginning during the first trimester and by performing laboratory tests[20], being considered inadequate or intermediate in the scenario in focus and suggesting disarrangements in local health services. In addition to these findings, the lower prevalence of adequacy of prenatal consultations was concentrated in the North and Northeast regions of the country.[21]

Studies indicate that the inadequate number and content of prenatal consultations are related to low age, income, education, and support during pregnancy. In addition, they consist of risk factors for prematurity, low birth weight, complications from birth, and neonatal death.[18,22] Thus, despite the improvement and expansion in the provision of prenatal services in recent years, there are still challenges and inequities to be faced, especially concerning the demographic, socioeconomic, and geographical characteristics of the population, ratifying the urgency of political attention and preventive actions that reinforce strategies and procedures for promoting favorable maternal-child outcomes.[11,21]

In the scenario of prenatal care, it is worth highlighting the expressive performance of the nurse, who performs nursing consultations, prescription of medications and examinations according to protocols of health services, provides care to pregnant women, parturient, postpartum and performs health education; contributing to prevent, detect and control injuries, favoring prenatal care and establishing a relationship of support and trust that promotes safety and satisfaction of women with the care offered. [18-20] Thus, nurses are of high importance in the organization and management of maternal-fetal care, gaining visibility, not only for their technical actions but also for the competence and innovation in the planning and development of strategic actions in a collective nature that has in the epidemiological profile and

in the determinants of health a central tool to direct health care and meet guidelines of the Sistema Único de Saúde - SUS (Unified Health System).[23]

It was observed that most births occurred in a hospital environment, similar to other data found in the literature[7,9,10], converging with the sociocultural changes that surround the institutionalization of childbirth and with the development of public policies that involve the qualification of maternal and child health care, ensuring access to services, linking to maternity hospitals, availability of qualified professionals and implementation of good practices in labor and delivery. Moreover, this fact is considered an indicator of survival in the face of obstetric and neonatal complications to which the binomial is exposed, allowing specialized interventions in a timely manner.[2,13]

Regarding the delivery route, this study identified that the main occurrence of these was vaginal, presenting values lower than the national average of 56.3% in 2019[20] and contrasting other studies that portray the prevalence of operative deliveries in the country.[7,9-11,14] However, the rate presented goes beyond that recommended by the World Health Organization (WHO) and assumes a progressive percentage among the years analyzed, a situation that is recurrent among Brazilian women, especially among those with better socio-economic conditions, related to cultural aspects, the urban environment, the undervaluation of the risks of the procedure and the representation of cesarean delivery as a reflection of safety and good care.[24] It is noteworthy that cesarean sections performed with indication contribute to the reduction of maternal and perinatal morbidity and mortality, however, scientific evidence suggests that cesarean rates greater than 10% do not bring benefits to the mother-child binomial and expose them to the risk of negative outcomes such as prematurity, low birth weight and low vitality at birth, infections; thrombosis in the lower limbs, reactions to anesthetics and hospitalization in intensive care units.[24,25]

Brazil experienced a change in birth patterns, in which cesarean sections reached 85% of deliveries performed in private services and 40% in public health services. Among the factors associated with the increase in the incidence of cesarean sections, the incidence of pregnancy at the extremes of reproductive age, before 20 and after 35 years of age, is listed by exposure of the binomial to severity conditions; deficiencies in prenatal guidance on benefits and indications of types of delivery, generating psychological unpreparedness for vaginal delivery; the improvement of surgical techniques and the model of medical-hospital care.[24,25]

In this sense, the role of nurses in the transformation of maternal and child health is reiterated because they are professionally trained to meet the expectations and needs of patients through welcoming, consultations and health education, and their commitment and significant involvement in the provision of good practices in prenatal care, labor and birth, consistent with the guidelines of public policies to achieve respectful care, safe and dignified, based on the best scientific evidence, for women and their conception.[23]

It is noteworthy that the presence of ignored information, with emphasis on the variables of race and duration of pregnancy, permeates a study gap. The completeness of the fields of completion of the Declaration of Live Birth is a fundamental element for the quality of health information and the evaluation and monitoring of maternal and neonatal conditions, however, this incompleteness was less than 10% in the variables analyzed, being classified as a good percentage of unfilled field[6], but points to opportunities for improvement in relation to the registration of information by professionals and the management of these by the systems, given their usefulness for public health.

The Information System on Live Births proved to be an accurate, reliable, and safe source for epidemiological studies involving vital maternal statistics in the region, providing managers and professionals with knowledge about situations of vulnerability and the basis for planning and implementing resolution and evidence-based interventions to reduce risks, achieve satisfactory results and comply with the guidelines proposed by current health programs.

Furthermore, considering the responsibilities of nursing in the care of women during the pregnancy-puerperal cycle, established in public policies, law of professional practice, and resolutions of the category[23] council, epidemiological data on maternal characteristics presented represent an important

instrument of knowledge for understanding risk factors, relationships, and distribution among variables and for assessing the quality and adequacy of the health services, supporting care practices, team supervision, maternal-fetal binomial surveillance, and indicator monitoring.

Among the existing limitations, it is possible to consider that the understanding of maternal characteristics obtained in this investigation, through data from the National System of Live Births, is close to the reality and epidemiological behavior of the variables in the State but does not reach deep associations due to the descriptive design used. However, it contributes to future studies with the aim of showing changes in the maternal profile, as well as promoting the development of studies with a larger time interval, with primary data, focusing on maternal and neonatal outcomes, and with a high level of evidence.

Conclusions

The results presented in the study show the profile of mothers of live births in Acre composed of mixed-complexioned women, from 20 to 39 years of age, with more than eight years of schooling and with a partner. Pregnancies were unique, evolving at term, with up to six prenatal consultations and vaginal delivery performed in health units. It is noteworthy that among the variables analyzed, attention is paid to the high percentage of insufficient numbers of prenatal consultations and the growth in cesarean rates beyond those indicated by health agencies, which may have a negative influence on perianal outcomes.

Thus, the plurality and regional diversities found in the State of Acre incite reflections on the peculiarities and intrinsic demands of the population and on the establishment of strategies and public policies that consolidate the network of assistance to women and newborns during the puerperal pregnancy cycle. This calls for noting the importance of professionals in an integrated, vigilant, and multidisciplinary approach to the mother-child dyad, given they have the knowledge about maternal characteristics in their practice to detect risk factors and offer specialized care at all levels of health care, in order to contribute to health statistics and the quality of life of the binomial.

Authors' contributions

Silva SO participated in the conception of the research question, methodological design, search and statistical analysis of the research data, interpretation of the results and writing of the scientific article. Fialho LL and Soares SS participated in the conception of the research question, methodological design, search and statistical analysis of the research data, interpretation of the results and writing of the scientific article. Rodrigues ARM participated in the search and statistical analysis of the research data, interpretation of the results and writing of the scientific article. Arruda EF participated in the conception of the research question, methodological design, interpretation of the results and writing of the scientific article. All authors reviewed and approved the final version and agree with its publication.

Conflict of interest

No financial, legal or political conflict involving third parties (government, companies and private foundations, etc.) has been declared for any aspect of the work submitted (including, but not limited to grants and financing, participation in advisory board, study design, manuscript preparation, statistical analysis, etc.).

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