

Breastfeeding in indigenous children from two cities in the West Brazilian Amazon

Aleitamento materno em crianças indígenas de dois municípios da Amazônia Ocidental Brasileira

Vanizia Barboza da Silva Maciel¹

Romeu Paulo Martins Silva¹

Adriana Sañudo²

Erika de Sá Vieira Abuchaim²

Ana Cristina Freitas de Vilhena Abrão²

Keywords

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Descritores

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Corresponding author

Vanizia Barboza da Silva Maciel
Canela Fina Road, Km 12, 69980-000,
Cruzeiro do Sul, AC, Brazil.
enfer_van@yahoo.com.br

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Abstract

Objective: To analyze breastfeeding practice among indigenous children aged between zero and two years and the factors associated with ab lactation.

Methods: Cross-sectional study conducted with 94 indigenous children and 91 indigenous women. Data were collected in households by applying an instrument specifically developed for the study. Logistic regression was used for the analysis.

Results: A total of 60.6% of the children were breastfeeding. Exclusive breastfeeding was present in 35% of the children aged under six months. The only association of early ab lactation with the variables was the ethnic group, in which the chance of early ab lactation among the *Poyanawa*, *Nawa*, and *Nukini* ethnic groups was 3.7 times higher than the *Katukinas*.

Conclusion: The prevalence indices of breastfeeding is below the recommendations of the WHO. Only the variable ethnic group was found to be associated with early ab lactation. These data highlight the need to implement programs to promote breastfeeding among indigenous people.

Resumo

Objetivo: Analisar o aleitamento materno de crianças indígenas de zero a dois anos e os fatores associados ao desmame.

Métodos: Estudo transversal realizado com 94 crianças e 91 mulheres indígenas. Os dados foram coletados nos domicílios, com aplicação de um instrumento construído especificamente para o estudo. Para a análise foi utilizada a regressão logística.

Resultados: Estavam em aleitamento materno 60,6% das crianças. Em menores de seis meses o AM esteve presente em 35% das crianças. A única associação do desmame precoce com as variáveis foi a etnia, em que a chance de desmame precoce entre as etnias *Poyanawa*, *Nawa* e *Nukini*, foi 3,7 vezes maior em relação a etnia *Katukina*.

Conclusão: As prevalências de AM encontram-se aquém das recomendações da OMS. Somente a variável etnia mostrou-se associada ao desmame precoce. Esses dados mostram a necessidade de implementações de programas de incentivo ao AM entre os indígenas.

¹Universidade Federal do Acre, Cruzeiro do Sul, AC, Brazil.

²Escola Paulista de Enfermagem, Universidade Federal de São Paulo, São Paulo, SP, Brazil.

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Introduction

Children that are breastfed for a longer period present lower morbidity and mortality rates, less dental malocclusion, and a higher level of intelligence than those that are breastfed for shorter periods or are not breastfed. Breastfeeding may protect against being overweight and having diabetes in the future. The World Health Organization (WHO) and the Ministry of Health (MS) recommend exclusive breastfeeding (AME) during the six first months of life, then supplemented with other foods until the child is 2 years old or older.⁽¹⁻³⁾

Research conducted in 2008 in Brazil by the Ministry of Health in Brazilian capitals and in the Federal District showed an increase in breastfeeding duration. The median duration of exclusive breastfeeding (AME) was 1.8 months, and the median duration of breastfeeding (AM) was 11.2 months.⁽⁴⁾ In 2008 the prevalence of exclusive breastfeeding in children aged under 6 months in *Rio Branco*, capital of Acre, was 36.1%, and in *Cruzeiro do Sul* this number was 28.4%. These numbers are considered poor according to the parameters of the WHO.⁽⁵⁾ Despite the improvement in these rates, a large number of early-weaned children still existed, making breastfeeding a public health problem in Brazil, including among indigenous people.

Being indigenous in Brazil implies a higher chance of not completing the first year of life, suffering malnutrition and anemia during the growth period, living with a high burden of infectious and parasitic diseases, and being exposed to an accelerated process of nutritional transition. The First National Survey of Indigenous People's Health and Nutrition in Brazil showed evidence of a high prevalence of hospitalization due to diarrhea (37.2%) and acute respiratory infection (47.6%). Also, nearly a quarter (23.6%) of the indigenous children had diarrhea during the week before the interview, and this study also pointed out an environment marked by chronic malnutrition.⁽⁶⁾

Despite the significant number of published studies about the factors associated with early ab lactation in urban populations⁽⁷⁾ and, in smaller numbers in rural areas, there are few studies exploring this theme in indigenous populations.⁽⁸⁻¹⁰⁾

In view of these factors, this study aimed to identify and analyze the type of breastfeeding practiced among indigenous children aged between zero and two years old from the cities of *Cruzeiro do Sul* and *Mâncio Lima*, located in the far western region of the Brazilian Western Amazon, as well as identify the factors associated with early ab lactation.

Methods

Descriptive, cross-sectional study conducted in the state of Acre, in the cities of *Cruzeiro do Sul* (*Katukina* ethnicity) and *Mâncio Lima* (*Nukini*, *Nawa*, and *Poyanawa* ethnicities).^(11,12)

The estimated population for the study considered the data made available by the Special Indigenous Sanitary District of Upper River *Juruá* based on the *Sistema de Informação de Atenção à Saúde Indígena* (SIASI), of the *Fundação Nacional do Índio* (FUNASA). In the second half of 2012 the number of children aged between zero and two years in the indigenous villages of *Cruzeiro do Sul* and *Mâncio Lima* were 104 and 98, respectively, totaling 202 children.

Women with children aged \leq two years were included in the study. Mothers infected with the Human Immunodeficiency Virus (HIV) and human T-cell lymphotropic virus (HTLV1 and HTLV2), those using drugs incompatible with breastfeeding, and children with galactosemia were excluded from the study in accordance with the parameters of the Ministry of Health.

Data collection was conducted during October 2013 through semi-structured interviews covering characteristics of the mother, family, pregnancy, delivery, breastfeeding, and the child, conducted by the author in the presence of an Indigenous Health Agent from each village in order to enable the communication process. Information was obtained from the prenatal care card of the women, vaccination records of the children, and through the answers to the questions.

The results were analyzed through the software SPSS 16.0 for Windows. Pearson's chi-squared test or Fisher's exact test was applied for

associations between qualitative variables. For the quantitative variables the Student's t-test was used in cases where the normal distribution was met, or the Mann-Whitney test for cases that were not found to be normally distributed. A logistic regression model was used to verify the factors associated with the variable answer. The association between the variable answer and the explanatory variables was expressed in odds ratio (OR) and their respective IC (95%). A level of significance (α) of 5% ($\alpha=0.05$) was adopted in the entire statistical analysis, that is, results presenting p-value below 5% ($p<0.05$) were considered as statistically significant.

The study was registered in *Plataforma Brasil* under *Certificado de Apresentação para Apreciação Ética* number (CAAE): 14924313.8.0000.5505.

Results

Of the expected total 202 children, 91 women and 94 children participated in the study. The difference between the expected number and the actual number was due to the fact that the data provided by the *Sistema de Informação de Atenção à Saúde Indígena* (SIASI) of the *Fundação Nacional do Índio* (FUNASA)/MS were not up-to-date.

The population was distributed between the cities of *Mâncio Lima* (49.5%) and *Cruzeiro do Sul* (50.5%). Regarding the ethnic groups, the *Katukina* was represented by 50.5% of them, followed by *Poyanawa* (28.6%), *Nukini* (12.1%), and *Nawa*, with 8.8%. The mean age of the women was 26 years, and most of them had a partner (75%), were illiterate or had not completed elementary school (72.5%), were housewives (82%), and had income below the minimum wage (78%).

According to the gestational characteristics and the delivery, it was observed that most women attended less than six prenatal visits (60%) and had vaginal delivery (87.9%); of these, 59.3% were performed at home. Almost all of them had only one child under two years old (95.6%), and nearly 39% presented an illness during pregnancy (the most recurrent was malaria).

Among the indigenous children it was observed that 98% of them were born at 39 weeks or more, and most of them presented 6 months or more of life (79%), were male (53%), with birth weight between 1,500 and 4,800 grams. Respiratory problems (83%) and diarrhea (76%) were the most recurrent health problems.

Of the total of 94 children, it was verified that 20 were aged less than or equal to 6 months, and 74 were older than 6 months. Of the total, 57 were breastfeeding (60.6%). Regarding the distribution of the types of breastfeeding practiced among the 57 children, the most common was supplemented breastfeeding (73.7%), followed by exclusive breastfeeding and predominant breastfeeding (12.3% each) and partial or mixed breastfeeding (1.7%).

Table 1 shows the distribution of the types of breastfeeding practiced among the indigenous children according to age.

Table 1. Distribution of breastfeeding according to the age of the children

Type of breastfeeding	Age of the child	
	≤ 6 months n(%)	> 6 months n(%)
Exclusive breastfeeding	7(35.0)	0(0.0)
Predominant	6(30.0)	1(1.3)
Mixed or Partial	1(5.0)	0(0.0)
Supplemented	5(25.0)	37(50.0)
Artificial	1(5.0)	36(48.7)
Total	20(100.0)	74(100.0)

AM - Breastfeeding; AME - Exclusive breastfeeding

The mean age in which the children discontinued the exclusive breastfeeding was 5.1 months; mean age for ab lactation was 11.4 months (Table 2).

A total of 87 children that were not exclusively breastfed were selected for the assessment of early ab lactation. There was information in 82 of them, and early ab lactation was observed in 50% of the children (IC 95% [38.7%; 61.3%]).

The variables presenting $p<0.20$ (ethnic group, occupation, and place of delivery) were selected for the multivariate model. The variable income was removed from the initial model due to the fact that occupation and income were found to be highly associated ($p<0.001$), thus impairing the logistic model.

Table 2. Distribution of breastfeeding according to age and ethnic group of the child

Variables	Age of the child	
	≤ 6 months n(%)	> 6 months n(%)
<i>KATUKINA</i>		
Exclusive breastfeeding	5(25.0)	0(0.0)
Predominant	2(10.0)	1(1.3)
Mixed or partial	0(0.0)	0(0.0)
Supplemented	2(10.0)	13(17.5)
<i>NAWA</i>		
Exclusive breastfeeding	0(0.0)	0(0.0)
Predominant	0(0.0)	0(0.0)
Mixed or partial	1(5.0)	0(0.0)
Supplemented	0(0.0)	4(5.4)
<i>NUKINI</i>		
Exclusive breastfeeding	1(5.0)	0(0.0)
Predominant	1(5.0)	0(0.0)
Mixed or partial	0(0.0)	0(0.0)
Supplemented	2(10.0)	5(6.7)
<i>POYANAWA</i>		
Exclusive breastfeeding	1(5.0)	0(0.0)
Predominant	3(15.0)	0(0.0)
Mixed or Partial	0(0.0)	0(0.0)
Supplemented	1(5.0)	15(20.2)

AME - Exclusive breastfeeding

After the adjustment of the multivariate model, it was concluded that only the variable ethnic group was found to be independently associated with early ab lactation ($p=0.027$).

The distribution of early ab lactation among the ethnic groups revealed that the *Katukina* presented lower percentage of early ab lactation than the others. Through the generalization of Fisher's exact test it was verified that the ethnic groups *Poyanawa*, *Nawa*, and *Nukini* did not differ in terms of percentage of early ab lactation ($p=0.163$). The chance of early ab lactation among the ethnic groups *Poyanawa*, *Nawa*, and *Nukini* was 3.7% higher than that observed for the *Katukina* ethnicity (IC 95% [1.496; 9.318], $p=0.005$).

Among the alleged reasons for early ab lactation that the present study points out are: the baby quit breastfeeding (24.3%), insufficient milk/dried milk (8.1%), and other reasons (64.9%). Among the latter, the ones most often mentioned were mother interrupted breastfeeding (70.8%), mother got pregnant, and mother returned to school, with 12.5% each.

Discussion

Among the limitations of the study was the fact that the number of individuals represented a major challenge, as the data provided by SIASI-FUNASA/MS were not up-to-date and the gap was only perceived upon initiation of the collection, leading to a reduced studied sample. The difficulty of access to the *Nawa* and *Nukini* ethnic groups, which demanded an approximately 6-hour trip in a small boat, and the difficulty in communication with the women of the *Katukina* ethnicity, which occurred through an interpreter (the Indigenous Health Agent) were also pointed out.

The results of this research contribute to a diagnosis of the situation of breastfeeding and early ab lactation in the studied ethnic groups, providing support for the implementation of public policies and specific research for the indigenous community in the field of breastfeeding. Breastfeeding must be encouraged and improved in the *Nawa*, *Nukini*, *Katukina*, and *Poyanawa* ethnic groups through the example of leadership and families in the cultural context for compliance with the guidelines of the WHO and the Ministry of Health. This will improve the current situation of the high frequency of diarrhea, respiratory problems, malnutrition, and other infections.

Indigenous women know the benefits of breastfeeding, however only 60.6% of them were breastfeeding at the time of the study. A small difference (66.7 %) was observed in the comparison of this rate with the rate found in the last national survey on breastfeeding conducted in 2008 with indigenous children of the city of Cruzeiro do Sul; the same was found for the city of Rio Branco, capital of the state of Acre, with 62, 8%.

A study conducted with indigenous children from Sydney, Australia, from a very different reality revealed a slightly lower frequency among the *Gudaga* (64.7%) in relation to non-indigenous children born locally (75.2%).⁽¹⁰⁾

The average duration of breastfeeding was 11.4 months, considered a poor rate according to the parameters of the WHO that recommends supplemented breastfeeding until the child is two years old or older.⁽⁴⁾

Lower data were also found in the comparison between indigenous and rural populations. Results of a study conducted in 2006 in Brazil identified a median value of 15.8 months for breastfeeding in the rural area and 12.9 months for the urban area.⁽¹³⁾ This difference may be related to feeding difficulties among children in the rural area and the higher availability of food in the urban area. Also, there are cultural interferences, and influence from the media in relation to female aesthetics and advertising of packaged foods.

A better result in relation to this duration was identified among the indigenous people of Upper *Xingu* in *Mato Grosso*, as their feeding during almost the entire first year of life is based on breastfeeding until approximately the third year of life.⁽¹⁴⁾

Among the children under six months old, only 35% were breastfeeding. The mean value for exclusive breastfeeding was 5.1 months.

The prevalence of exclusive breastfeeding among the indigenous peoples in this study was lower than the rate found in *Rio Branco* (36.1%) in 2008 and higher than that found in *Cruzeiro do Sul* (28.4%) in the same period.⁽⁵⁾

A systematic review of the nutritional status and infant feeding of Amerindians identified that exclusive breastfeeding is not practiced by 48% of the women of a given indigenous ethnic group in *Peru*, who introduced supplemental foods before the child was six months old.⁽¹⁵⁾

In the 1996 and 2006 National Demographic and Health Survey (PNDS) the median duration of breastfeeding was higher in the urban area than in the rural area (1.4, and 1.2 months, respectively); this results may be associated with the access to information about the benefits of breastfeeding and the higher educational level of the mothers.

Data showed a significant association between the type of breastfeeding and the age of the child ($p < 0.001$), that is, supplemented breastfeeding was most frequent among children older than six months. These data are in accordance with the practice recommended by the WHO and the Ministry

of Health^(2,3), which recommend supplemented breastfeeding after the child is six months old in order to add to breastfeeding, not replace it.

The other types of breastfeeding were more frequent among children aged six months or less, differing from the recommendation that in this period exclusive breastfeeding must not be supplemented by the introduction of any other food, except for drops or syrups containing vitamins, oral rehydration salts, mineral supplements, or ritual fluids or drugs. This recommendation was made in order to avoid competition with breastfeeding.⁽²⁾

In relation to some aspects that could affect the duration of breastfeeding, it was observed that almost all the women had previous experience in breastfeeding, evidence of the fact that this is a common practice in the studied ethnic groups. Most children breastfed in the first hour of life, a good result according to the classification of the WHO for breastfeeding at this time of life, as these values were found in between 50% - 89% of the cases.⁽⁴⁾

An interesting result was the participation of the father or partner, mentioned by almost half of the interviewed women, differing from the expectations for an indigenous community where men, in general, leave the initial care of the children as the responsibility of the mother or other close relatives. As expected, family support was frequently noted, revealing that breastfeeding among the indigenous population has a social nature and it is not something exclusive to the mother. This enhances the chances of optimizing breastfeeding because the process of health education is performed jointly.

The use of pacifiers and finger sucking were mentioned by less than 10% of the mothers, showing that such practices are not common among the studied indigenous ethnicities; among these, some mothers mentioned that the child had already quit the habit. However, the use of a baby bottle was mentioned by more than half the mothers, showing that the indigenous community has been increasingly influenced by other non-indigenous communities, as this is not a traditional habit. This is a worrying situation, as the use of baby bottle is associated to early ab lactation.^(16,17)

Through the identification of the factors associated with early ab lactation the multivariate analysis showed that only the variable ethnic group was associated in an independent manner, and the *Katukina* group presented lower percentage of early ab lactation than the others. The chance of occurrence of early ab lactation among the *Poyanawa*, *Nawa*, and *Nukini* ethnicities was 3.7 times higher than the values observed for the *Katukina* ethnicity.

Breastfeeding in the *Katukina* ethnic group

Breastfeeding is an entrenched practice in this ethnic group, but the difficulty of access to other foods (as well as their high cost) may be an explanation for the maintenance of this habit, instead of the awareness of the importance of breastfeeding for the healthy development of the children. This idea was corroborated in a report made by the indigenous community *Ojibwe* in Minnesota, United States.⁽⁸⁾ The practice of cross-breastfeeding was noted, and in this case it resulted from the lack of other foods. This cultural habit of cross-breastfeeding was also identified in the indigenous community *Ojibwe*.⁽⁹⁾

Breastfeeding in the *Poyanawa* ethnic group

Most children under six months old were breastfeeding in combination with water or water-based liquids. It is known that this practice may be associated to early ab lactation according to a cohort study conducted in the city of *Porto Alegre*, *Rio Grande do Sul*, which concluded that postponing the introduction of water and/or teas, as well as other types of milk, increased the chance of breastfeeding for over two years.⁽¹⁸⁾

Regarding the feeding of the children older than six months it was verified that all of them were subject to supplemented breastfeeding, as were the infants in the *Nawa* and *Nukini* ethnicities.

Breastfeeding in the *Nawa* ethnic group

This community was considered extinct for almost a century, and rose again in 1999 with many non-indigenous influences and as a mixed-race community⁽¹¹⁾, a fact that may partly explain the absence of exclusive breastfeeding. A similar situation was reported in the

indigenous community *Ojibwe*, whose culture suffered non-indigenous influences. These historical and social changes had an impact on them in the form of the use of baby bottles and formulas prescribed by doctors.⁽⁹⁾

Breastfeeding in the *Nukini* ethnic group

The early introduction of other foods may be a result of several activities engaged in by the women; many of them study, work at school, and in agriculture/fishing. Other foods being available, as well as influence from the media were also factors responsible for the introduction of supplemental feeding, as pointed out by the indigenous leader of this community.

The alleged reasons for early ab lactation in all the ethnic groups are similar to the findings of the study conducted in the city of *Pelotas*, *Rio Grande do Sul*, whose the most common reasons for ab lactation include: “there was no milk, little milk, or weak milk”, “the child did not want to breastfeed”, and “mother preferred not to breastfeed”.⁽¹⁹⁾

Other reasons mentioned are related to the indigenous culture, which recommends ab lactation for children aged one year old. Another reason is ab lactation due to a new pregnancy for this community believed that breastfeeding would harm the pregnancy.

Conclusion

Regarding the distribution of the types of breastfeeding practiced among the 57 children, the most common was supplemented breastfeeding (73.7%), followed by exclusive breastfeeding and predominant breastfeeding (12.3% each) and partial or mixed breastfeeding (1.7%). The mean age of exclusive breastfeeding was 5.1 months, and of breastfeeding was 11.4 months. Exclusive breastfeeding was present in 35% of the children under six months of age. The chance of occurrence of early ab lactation among the *Poyanawa*, *Nawa*, and *Nukini* ethnicities was 3.7 times higher than the values observed for the *Katukina* ethnicity. Reasons for early ab lactation include the baby quitting the breast, production of little milk/dried milk, mother interrupting breastfeeding, mother getting pregnant, and mother returning to school.

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Collaborations

Maciel VBS, Silva RPM, Sañudo A, Abuchaim ESV and Abrão ACFV state that they collaborated in the conception of the study, analysis, data interpretation, writing of the article, relevant critical review of its intellectual content, and final approval of the version to be published.

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