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Breastfeeding among teenage and adult mothers in Brazil

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ABSTRACT

Objective

To estimate the prevalence of *breastfeeding among teenage mothers (less than 20 years old) and adult mothers of six-month-old children and to identify factors associated with weaning.*

Methods

This was a cross-sectional study by means of a structured questionnaire applied in the home, of a sample of 237 teenage mothers and 239 adult mothers living in the city of Montes Claros, Brazil, whose babies were six months old at the time of the interview. To assess factors associated with weaning, univariate and bivariate Mantel-Haenszel analyses and multiple logistic regression were performed.

Results

The prevalence of breastfeeding for children aged 6 months was 71.3% among teenage mothers and 77.4% among adult mothers (crude OR=1.38; p=0.128). After adjusting for control variables, the role

of adolescence in weaning gained importance. The factors associated with weaning were: marital status, activity outside of the home after delivery (both of these showed interaction with adolescence), difficulty in breastfeeding during the first few days after delivery and exclusive breastfeeding at the time of hospital discharge.

Conclusions

The interactions with adolescence that were observed in relation to weaning suggest that motherhood within this age group has peculiarities that make it a matter for further investigation.

Keywords

Breast feeding. Adolescent. Mothers. Prevalence. Weaning. Cross-sectional studies. Age factors. Socioeconomic factors. Motherhood.

INTRODUCTION

The World Health Organization (WHO)²¹ defines adolescence as the period of life within the age range of 10 to 19 years. Teenagers represent 20 to 30% of the world's population, a figure that has been increasing in the urban regions of emerging countries. According to data from the Instituto Brasileiro de Geografia e Estatística (IBGE – Brazilian Institute of Geography and Statistics),⁸ teenagers comprised 20.8% of the total population of Brazil in the year 2000, 20.4% in the State of Minas Gerais and 22.4% in the municipality of Montes Claros, within the State of Minas Gerais. For most people, sexual activity begins during adolescence.²¹ Despite great social, scientific and cultural progress over recent decades, it is still difficult for teenagers and their parents to discuss the topic of sex and sexuality. On the other hand, this progress – plus the reduction in the age of the menarche²¹ – has been stimulating teenagers to begin sexual activity early without, however, preparing them for what it brings.¹⁹

Pregnancy among this age group is increasing. The official data available from SINASC (Sistema de Informações sobre Nascidos Vivos),¹⁶ the information system for live births), relating to the years 1994 to 1999, although subject to failures in its coverage, allow the annual rates of live births per thousand teenage girls during this period to be calculated and followed up. For the whole of Brazil it went from 30.4 to 42.5; in Minas Gerais, from 5.4 to 34.1; and in Montes Claros, from 12.0 to 39.4. Exclusive breastfeeding provides the ideal food for the newborn up to the age of six months. Over recent decades, after a period of decline that culminated at the beginning of the 1970s, there has been an increase in natural breastfeeding practices.⁹

Epidemiological studies on morbidity-mortality among children fed artificially, and the participation of entities such as WHO, UNICEF (the United Nations Children's Fund) and the International Baby Food Action Network (IBFAN) in the promotion of breastfeeding, have had vital importance in increasing breastfeeding rates.¹⁸

According to the IBGE, the municipality of Montes Claros had 306,947 inhabitants in 2000, 94.2% of whom were living within the urban zone. The city is a center of attraction for the whole of the northern region of Minas and even the south of the State of Bahia, including in relation to medical attendance. According to SINASC,¹⁶ more than 92% of the deliveries are done in hospital.

Amador et al,¹ in their literature review of 1992 regarding breastfeeding among teenagers and adults, showed that the proportion of mothers exclusively breastfeeding was lower among teenagers. They also observed that the frequency of complete termination of breastfeeding by the end of the third month was also greater in this group.

In Pelotas, State of Rio Grande do Sul, in a cohort of children born in 1993,⁷ the prevalence of breastfeeding when the child was six months old was lower among teenage mothers than among adults. The mother's age remained as a risk factor for terminating breastfeeding, even after adjusting for another ten socioeconomic, demographic and nutritional variables. However, the general prevalence of breastfeeding at the age of six months was very low: only 35.1%.

In the city of Montes Claros, the general prevalence of breastfeeding when the child was six months old increased from 59.3% in 1993¹¹ to 65.0% in 1996.⁴ The present study had the objective of verifying whether adolescence was associated with the prevalence of weaning by the sixth month of the child's life.

METHODS

A cross-sectional study via sampling was performed using a structured retrospective questionnaire applied in the homes of teenage and adult mothers living in the city of Montes Claros, State of Minas Gerais, Brazil, six months after the delivery.

A total sample size of 480 mothers (240 in each group) was calculated, to enable odds ratios (OR) of greater than or equal to 1.75, with α of 5% and statistical power of 80%, to be demonstrated as significant for weaning. The sample was selected sequentially from the declarations of live births received by the Municipal Health Department, in order of delivery date. The criterion for inclusion in the sample was that the mothers should live within the urban zone of Montes Claros. To reach the calculated number of 480 mothers, 692 addresses were investigated. Of these, 212 were discarded for the following reasons: 114 mothers (53.8%) were not found; 71 (33.5%) had moved to an unknown location; 16 (7.5%) had the wrong address; 10 (4.7%) with nobody at home after two attempts; and 1 (0.5%) with house demolished.

To avoid losses among the 480 addresses identified, the following procedure was utilized: if the mother was not present or could not respond to the interview at the time of the visit, the interviewer arranged another time to come back; if the mother was at another address, the interviewer went there. All the 480 mothers found at home agreed to participate in the study.

The interviews were performed by selected university students, who underwent five full days of training for this. The modified questionnaire model devised by Caldera⁴ (1998) was applied, which was tested in advance, standardized and precoded in order to obtain the information needed in relation to breastfeeding. It took an average of 15 minutes to apply the questionnaire, and data collection was performed during the period from January 1 to June 30, 2000.

Of the 480 mothers, four were excluded: two teenage mothers and one adult mother because their children had died; and one teenage mother because the child had been offered for adoption. The three deaths occurred during the first month of life: two due to respiratory illnesses and one due to prematurity.

Children were considered to be breastfed when they were exclusively or partially receiving breast milk. They were considered not to be breastfed when they were receiving no breast milk at the age of six months.

In the analysis of associations between the mother's age category (independent variable) and weaning (dependent variable), the control variables considered were: the mother's education level, conjugal life, cohabitation with the partner, number of previous children, whether the mother had breastfed previously, parity, activity outside of the home after the delivery, number of people living in the home, prenatal attendance and number of consultations, desire to breastfeed, guidance regarding breastfeeding during prenatal and postnatal periods, type of delivery, length of time after delivery for breastfeeding to be started, whether the mother was able to stay together with the child in the hospital, type of feed being given to the child at the time of release from hospital, difficulty in breastfeeding during the first few days, the child's sex, low birth weight (<2500 g), and whether the child received any child development attendance. The variable *income* could not be utilized because there were 48 replies of "I don't know".

The chi-squared test with one degree of freedom was applied (χ^2_{1df}) when there was no restriction on its use. When indicated, the Student t test for two averages coming from independent samples and unequal variance was utilized. The Mann-Whitney test was utilized in cases when normality could not be assumed.

The intensity of the associations between the independent variables studied and the dependent variable was measured by means of the odds ratio (OR). The possible interactions between the independent variables were evaluated two-by-two using the stratified Mantel-Haenszel analysis, by applying the homogeneity test for the OR of the strata. The criterion for entering the multivariate logistic model was that $p < 0.25$ for the OR in the univariate analysis or for the interactions in the bivariate model.

In the multivariate analysis, initially the model was tested with all the selected interactions against one without interactions, using the likelihood ratio (LR) test. Having defined the initial model, the independent variables were removed one-by-one, using the criterion of $p < 0.05$, except if they were components of a no-discardable interaction. The adaptation of the use of the logistic model was assessed by means of the goodness-of-fit test.

The analyses were done by means of the Stata™ version 6.0 statistical package.

The present study had approval from the Research Ethics Committee of Universidade Estadual de Montes Claros and the Research Ethics Committee of Universidade Federal de São Paulo.

RESULTS

Table 1 presents the characteristics of the 476 mothers studied (237 teenage mothers and 239 adult mothers), according to the age group. With regard to the personal and sociodemographic attributes considered, the teenagers only did not differ from the adults in relation to the number of people living in the home. With regard to the variables from the prenatal period, the high coverage of attendance and the high frequency with which the pregnant women were advised regarding breastfeeding were similar between the two groups. The desire to breastfeed and the average number of consultations was greater among the adults. During the perinatal and postnatal periods, a large percentage of mothers were able to stay together their child in the hospital and received postnatal guidance, without difference between the groups. However, while the adults took longer to begin breastfeeding after delivery, the teenagers had more difficulty in breastfeeding during the first few days. The percentage

of children receiving exclusive breastfeeding at the time of release from hospital was similar between the groups, and these children did not differ in relation to the characteristics evaluated.

Table 1 – Personal and sociodemographic, prenatal, perinatal and postnatal characteristics for teenage and adult mothers and their children in Montes Claros, Minas Gerais, 2000.

Characteristics	Mother		p
	% Teenager N=237	% Adult N=239	
Personal and sociodemographic			
Average age (in years)	17.5	26.9	<0.001
With more than grade school completed	34.6	43.9	0.037
With conjugal life	69.2	85.3	<0.001
Living together with the partner	68.4	84.5	<0.001
Average* number of children born previously	0.26	1.28	<0.001
Previous breastfeeding experience	17.3	61.9	<0.001
Primiparous	79.7	33.5	<0.001
With activity** outside of the home after the delivery	23.2	34.3	0.007
From a home with up to 4 residents	57.8	52.3	0.227
Prenatal period			
Attended in prenatal consultations	95.4	95.0	0.847
Average number of consultations	5.3	5.8	0.022
With the desire to breastfeed	88.2	95.4	0.004
With prenatal guidance on breastfeeding	79.3	77.4	0.611
Perinatal and postnatal periods			
With cesarean delivery	22.4	27.2	0.222
With a time until the first breastfeeding >120 min	34.6	46.0	0.011
Able to stay together with child in the hospital	91.6	92.5	0.715
With postnatal guidance on breastfeeding	90.3	87.0	0.261
With exclusive breastfeeding at the time of release from hospital	95.8	97.9	0.184
With difficulty in breastfeeding during the first few days	44.3	31.0	0.003
Child			
Male	50.2	51.5	0.784
With birth weight <2,500 g	10.1	7.2	0.253
With child development guidance	93.2	92.0	0.616

* The average is presented only as a reference, considering that the statistical test utilized was non-parametric.

** Study and/or work.

With regard to the effect on weaning of each category of the variable “mother’s activity outside of the home during the first six months of her child’s life”, it was observed that only the category “just studying” had an influence on weaning before the child reached 6 months of age, which justifies the subsequent dichotomization done thus (Table 2).

Table 2 – Effect of the variable “mother’s activity outside of the home during the first six months of her child’s life” in relation to weaning, Montes Claros, Minas Gerais, 2000.

Activity	N	OR	95% CI	p
Just studying	33	2.61	1.26-5.41	0.010

Just working	96	1.04	0.62-1.77	0.870
Both	8	0.45	0.05-3.69	0.455
None*	339	1.00	-	-

* Reference category.

At the time of the interview, 117 mothers (24.6% of the total) were exclusively breastfeeding, of whom 35 were teenagers (14.8% of all teenagers) and 82 adults (34.3% of all adults), $p < 0.001$. With regard to weaning by the time of the interview, 68 teenage mothers (28.7%) and 54 adult mothers (22.6%) had already weaned their children. Table 3 shows the raw OR for the variables potentially associated with weaning, selected by means of the criterion " $p < 0.25$ ". The OR values for "mother's age category", "conjugal life" and "type of activity outside the home after delivery" must not be interpreted in the way they appear in this table, since the OR of their strata displayed heterogeneous behavior in the bivariate analysis.

Table 3 – Factors potentially associated* with weaning by the sixth month of the child's life, Montes Claros, Minas Gerais, 2000.

Characteristic	OR _{raw}	95% CI	p
Teenage mother**	1.38	0.91-2.08	0.128
With conjugal life**	0.54	0.34-0.87	0.010
Previous breastfeeding experience	0.52	0.33-0.82	0.004
Just studying as the activity after the delivery*	2.62	1.28-5.37	<0.001
Prenatal attendance	0.43	0.18-1.00	0.050
Cesarean delivery	1.47	0.93-2.32	0.102
Time until the first breastfeeding > 120 min	1.56	1.03-2.36	0.037
Able to stay together with child in the hospital	0.56	0.28-1.12	0.103
Postnatal guidance	1.83	0.87-3.86	0.114
Exclusive breastfeeding at the time of release from hospital	0.12	0.04-0.37	<0.001
Difficulty in breastfeeding during the first few days	2.76	1.81-4.20	<0.001
Some child development follow-up	1.73	0.70-4.26	0.237

OR_{raw} – Raw odds ratio

*Chosen for subsequent multiple logistic regression analysis through the criterion "p value < 0.25".

**Variables that presented multiple interaction. The interpretation of the respective OR must be done separately within each stratum.

These latter interactions are presented in Table 4, in which it is seen that the "teenager" category of mother's age had an antagonistic effect on weaning, in relation to the "conjugal life" stratum, and a synergic effect on weaning, in relation to the "type of activity outside the home after delivery".

Table 4 – Interactions associated with weaning by the sixth month of the child's life, Montes Claros, Minas Gerais, 2000.

Variable	Stratum	OR for "teenage mother" with "weaning by the sixth month of the child's life"	p*
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Conjugal life	With	1.93	0.001
	Without	0.36	
Activity outside of the home after the delivery	Just studying	5.38	0.184
	Others**	1.17	

*Probability that the OR of the strata are homogenous.

**Just working, or working and studying, or neither of these activities.

Table 5 shows the interactions and variables that remained associated with weaning after performing multiple logistic regression analysis. From the results, it is seen that: a) the effect of adolescence on weaning varies according to the conjugal status (it is protective among teenage mothers without conjugal life and harmful among those with conjugal life); b) "just studying" as an activity after delivery and "difficulty in breastfeeding during the first few days" have an effect that favors weaning; c) exclusive breastfeeding at the time of release from hospital protects against weaning before the child reaches six months of age.

Table 5 – Interaction factors and terms associated with weaning by the sixth month of the child's life, Montes Claros, Minas Gerais, 2000.

Category	OR _{adjusted}	95% CI	p
Teenage mother, without conjugal life	0.21	0.0823-0.5231	<0.001
Teenage mother, with conjugal life	1.67	1.0003-2.7877	0.049
Teenage mother, just studying as the activity after the delivery	2.48	1.1306-5.4342	0.023
Exclusive breastfeeding at the time of release from hospital	0.19	0.0562-0.6531	0.008
Difficulty in breastfeeding during the first few days	2.47	1.5711-1.8912	<0.001

With regard to the difficulties in breastfeeding during the first few days, the difficulty most frequently reported by the 179 mothers who had such difficulties was "problems with the nipples" (in 51 mothers, or 28.5%), followed by "pain" in 40 (22.3%), "cracks" in 35 (19.5%), "absence of milk" in 24 (13.4%), "mastitis" in eight (4.5%), and diverse other reasons in 21 mothers (11.8%).

DISCUSSION

Although in the present study no case of refusal to be interviewed occurred, it was surprising that the mothers were not found at 114 of the addresses appearing on the declarations of live births to mothers living in the city of Montes Claros. When added to the other 98 addresses discarded for reasons that were easier to understand, these amounted to 30.6% of the live birth occurrences declared, the information that is transmitted to SINASC. Nonetheless, with regard to education level, the mothers included in the study were similar to those that were not included, thus leading to the belief that the results obtained would also apply to the latter.

Over recent decades, after a period of decline that culminated at the beginning of the 1970s, there has been an increase in natural breastfeeding practices.⁹ The profile of breastfeeding in Brazil was defined from the National Survey of Health and Nutrition compiled by the Ministry of Health with

support from UNICEF.¹⁰ This showed that in 1989 61.0% of the children were partially weaned at the age of six months.

The prevalence of breastfeeding in Brazil in the sixth month was found to be 59.8% in the National Survey on Demography and Health, performed in 1996.* A study by the Ministry of Health** performed in 1999 showed that 80.5% of Brazilians who lived in the state capitals and the Federal District were breastfeeding up to the sixth month and that 13.6% of the mothers interviewed were exclusively breastfeeding in the sixth month. This was a result similar to the 10.0% found by Paz¹² in São Paulo in 1999, but lower than the 24.6% obtained in the present study in 2000.

*BEMFAM. Pesquisa Nacional sobre Demografia e Saúde: relatório de pesquisa. Rio de Janeiro; 1997 (Unpublished data).

**Ministério da Saúde. Prevalência de aleitamento materno nas capitais brasileiras e no Distrito Federal: relatório de pesquisa. Brasília, 2001 (Unpublished data).

A study performed by Leite & Nunes,¹¹ with the participation of UNICEF, to assess the health conditions of children in the northern region of the State of Minas Gerais, in 1993, revealed that the prevalence of breastfeeding was 59.3% at the age of six months, in the city of Montes Claros. In 1996, in a study conducted by Caldeira, this figure rose to 65.0%.⁴ Comparing these results with those obtained in the present study (breastfeeding prevalence of 74.4% at the age of six months in the same city, in 2000), it can be seen that there was a notable increase in breastfeeding in Montes Claros over the course of those years.

Various factors (media, awareness campaigns, world breastfeeding week and the Friend of the Child hospital initiative) must have contributed towards this rise, but the role of interventions during prenatal attendance has certainly already been demonstrated. Davies-Adetugbo et al⁵ compared a group of pregnant women to whom a breastfeeding promotion program was offered, with another group without this intervention. They observed the number of mothers who began breastfeeding immediately after delivery was greater in the group with the intervention (32.0% vs. 6.0%). Four months after the delivery, 40.0% of the mothers in the intervention group were still breastfeeding, versus 14.0% of the mothers in the control group. Prenatal attendance with guidance on breastfeeding was studied by Reifsnider & Eckhart¹⁵ among two groups of pregnant women, one a control group and the other an experimental group that received education regarding breastfeeding. This study showed that the group given guidance presented a greater percentage of mothers who were still breastfeeding three to four months after the delivery, in comparison with the control group.

In the present work, 95.2% of the mothers had prenatal attendance, with an average of 5.5 consultations, and 88.7% were given guidance about breastfeeding during their confinement. This high percentage of attendance must have contributed positively to the maintenance of breastfeeding until the date of the interview.

Exclusive breastfeeding at the time of release from hospital, which was found in 96.8% of the mothers interviewed, was shown to be an important independent protection factor against weaning, both among teenage mothers and among adults. This practice forms part of the recommendations of the National Program for Encouraging Breastfeeding. High percentages like those obtained in the present study are the result of the implementation of this program in maternity hospitals, as shown by Rea.¹⁴ This author also observed an increase in the duration of breastfeeding among mothers who were exclusively breastfeeding at the time of release from hospital.

Difficulty in breastfeeding during the first few days, which occurred more frequently among teenage mothers in the present study, was shown to be strongly associated with weaning, independent of

other factors. This observation leads to the belief that measures directed towards the period just after release from hospital should be tried out, with the aim of maintaining breastfeeding, whatever the mother's age is. In a literature review, Bergman et al³ observed that the main difficulties in breastfeeding were "sore nipples", "child that did not latch onto the breast" and "insufficient milk production". These results are concordant with those found in the present study.

The difference in the prevalence of breastfeeding at the age of six months (71.3% among adolescent mothers and 77.4% among adult mothers) did not reach statistical significance. It is possible that the present dissemination of breastfeeding encouragement practices has brought these figures together, because in a review by Amador et al¹ in 1992, they reported a greater frequency of weaning among teenage mothers, in comparison with adult mothers.

The results obtained here, however, suggest that motherhood during adolescence has peculiarities that make it a special and complex matter to study, going by the interactions observed within this age group alone.

Conjugal status had differing influence on weaning among teenage mothers. The univariate and bivariate analyses showed that, among teenage mothers, the existence of conjugal life favored weaning, while the opposite occurred without conjugal life. One explanation for this finding is what was proposed by experts from the Pan-American Health Organization:¹² faced with pregnancy and motherhood, teenagers have a lot of emotional turmoil, they are incapable of imagining themselves performing the role of a mother, and they have feelings of denial and isolation and that the father of the child has no place in their lives. Fergusson & Woodward,⁶ studying breastfeeding, observed that older women who were living with a partner breastfed for a longer time, which is in agreement with the results found in the present study.

The teenage mothers who said that studying was their only activity after the delivery presented a greater proportion of weaning by the child's sixth month of life. Comparing this result with others in the literature, Arlotti et al² also observed that returning to school diminished the prevalence of breastfeeding. The possible explanation is that these women are studying more, getting pregnant during periods of study and staying outside of the home for long periods, and there is no provision for breastfeeding at the study locations. According to data from the present survey, 104 mothers worked outside of the home during the first six months of their children's lives, and 75.9% of them did not wean their infants. Thompson & Bel,¹⁷ in a qualitative study that investigated factors that facilitate breastfeeding in the workplace, suggested that breastfeeding and working may be compatible.

Thus, although prenatal assistance with guidance on breastfeeding¹⁴ and being able to stay together with the baby in the hospital²⁰ are factors recognized to be protective against early weaning, the similarly high exposure of teenage and adult mothers to such practices that was found in the present study means that the difference in weaning observed between the two categories can be explained by variables relating to the teenagers' personal characteristics (conjugal and study status).

In conclusion, the results have shown that prenatal attendance with guidance on breastfeeding and the possibility for the mother to stay together with the baby in the hospital were protective against early weaning, independent of the mother's age category (teenager or adult).

However, the existence of conjugal life and "just studying" as the activity outside of the home during the child's first six months of life were only risk factors for weaning among teenage mothers. If future studies that also utilize multivariate techniques confirm such results, the occurrence of this phenomenon should become the subject of a qualitative investigation.

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