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Original Article

## Factors Associated with Early Weaning

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### Abstract

**Objective:** To identify the factors that influenced early weaning and its incidence among children from six months old in five public hospitals of two states - Minas Gerais and Bahia, Brazil. **Material and Methods:** The sample (N = 104) was of convenience type composed of mothers of six-month-old infants from five public hospitals. Mothers answered a personal interview by phone when the child was six months old. Data analysis was performed by the association between the dependent variable, early weaning, and independent variables, maternal age, mother's marital status, education and job, family income, maternal belief about the amount of milk produced to be or not enough to feed her baby and breastfeeding interruption reason, through the chi-square test in SPSS software version 17.0 ( $p < 0.05$ ). **Results:** Among the relationships found, only maternal belief in milk failure was significantly associated with early weaning ( $p < 0.001$ ). Most mothers who did not perform early weaning believed they had satisfactory amount of milk (66.7%). The general weaning rate was  $\cong 30\%$ . **Conclusion:** Early weaning was related to maternal belief that the amount of milk was insufficient to meet the needs of the newborn and its incidence was high in the study population.

**Keywords:** Breast Feeding; Weaning; Mothers.

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## Introduction

Exclusive Breastfeeding up to six months of life is considered the ideal practice for growth, development and protection of the newborn. Breast milk is the ideal food for the infant [1], as it is rich in fats, minerals, vitamins, enzymes and immunoglobulins. For the mother, breastfeeding promotes well-being, return to pre-gestational weight and greater affective link to her child [2,3].

Due to the benefits of breastfeeding, the World Health Organization (WHO) in association with the United Nations Foundation (UNICEF) advocates that all women should be empowered to practice exclusive breastfeeding, and all infants should be exclusively breastfed from birth up to six months of age. After this period, the children should continue to be breastfed along with complementary foods up to the age of two years or more [4].

The absence of exclusive breastfeeding or early weaning with the introduction of other types of food before the age of six months has harmful consequences for the infant's health, such as early exposure to infectious agents, contact with foreign proteins and damages to the digestion process [5,6].

Some factors such as industrialization, insertion of women into the labor market and changes in the habits of modern society contribute to early weaning [7]. In addition, the introduction of bottles and pacifiers, inadequate maternal nutrition, short breastfeeds and with extensive intervals, thought of breast milk insufficiency and lack of knowledge may interfere with the breastfeeding duration, leading to early weaning. Therefore, guidelines and clarifications regarding breastfeeding should be initiated in prenatal care, emphasizing the importance of breastfeeding to the mother-child binomial [8-12].

Despite all the benefits and advantages that breastfeeding can offer for both infant and mother, the average duration of breastfeeding and exclusive breastfeeding in Brazil is usually below that recommended by WHO [13,14]. Considering the importance of exclusive breastfeeding for the general health of the baby in the first six months of life and also for the mother, this study aims to evaluate the factors associated with early weaning and its incidence in the study population.

## Material and Methods

### Study Design and Ethical Aspects

This cross-sectional study was approved by the Ethics Research Committee of the São Leopoldo Mandic School under protocol No. 2012/0062.

### Sample and Data Collection

The sample (N = 104) was of convenience type composed of mothers of six-month-old infants from five public hospitals of three different cities. Two of these hospitals are in the city of Três Corações and one in Pará de Minas. The other two hospitals are located in the city of Brumado.

Despite the diversified location, the three cities have approximately the same number of inhabitants. Pará de Minas is located in the mid-western region of the state of Minas Gerais and 90

km from the capital, with about 90,000 inhabitants. Três Corações is located in the southern state of Minas Gerais and 287 km from the capital, with about 80,000 inhabitants. Brumado is located in the mid-southern region of the state of Bahia, 550 km from the capital, with about 70,000 inhabitants. The Human Development Index - HDI in these cities varies from intermediate (Brumado-0.656) to high (Três Corações -0.744 and Pará de Minas-0.725). These cities have the Family Health Strategy – FHS as basic health care support, and in the hospitals where the research was carried out, urgency services, emergency services and elective procedures are offered.

All mothers admitted to hospitals within 72 hours of delivery in July 2012, on the days of sample selection, were invited to participate in the study. They signed the Free and Informed Consent Form and reported a telephone number for further contact. When the infant completed six months of age, mothers were contacted by telephone to respond to a questionnaire, exclusively developed for this research, about the infant's weaning. Information on maternal age, marital status, maternal schooling and work, family income, maternal belief about the amount of milk to be enough or not to feed her child and reason for the breastfeeding interruption was also collected. Data collection was performed in January 2013. None of the mothers refused to participate in the study at the first contact. Three researchers were trained to apply the interviews to participants in a standardized and impartial way. A sample of 20 mothers of six-month-old infants answered the questionnaire twice with a 15-day interval to check the reliability of questions. The Kappa index was considered satisfactory for all questions, ranging from 0.82 to 0.88.

All mothers who could be located when the infant completed six months of age, the period of exclusive breastfeeding determined by WHO, were included in the study. Mothers of preterm infants (up to 35 weeks), mothers of infants admitted to the Intensive Care Unit, mothers who did not agree to participate in the study on second contact, and mothers whose babies had special needs were excluded.

### Data Analysis

Data analysis was performed using the SPSS program version 17.0. The association between early weaning and independent variables was verified using the Chi-Square test. For this, maternal age was dichotomized in its median. Maternal status was dichotomized only into marital status: married or single. Maternal schooling was dichotomized into incomplete high school (low) and from complete high school to higher education (high). The significance level was adopted at 95%.

### Results

A total of 156 mothers were included. Of these, 52 (33.33%) were excluded because they could not be located six months after giving birth. Thus, the sample was composed of 104 mothers of infants with six months of age. Not all of them answered all the questions.

The mothers' ages ranged from 16 to 43 years, with mean of 26.85 and standard deviation of 6.61. A total of 52 mothers (50.0%) were married, 27 (26.0%) were single and 25 (24.0%) lived together with their partners. Among infants, 53 (51.0%) were girls and 51 (49.0%) were boys.

Table 1 shows the absolute and relative frequency distribution of the sample according to socioeconomic factors and reasons for breastfeeding discontinuation. It was observed that more than half of mothers had between high school and higher education (66.0%). In relation to income, approximately half of mothers reported family income between two and four minimum wages (50.0%). A small percentage (14.3%) had some breastfeeding contraindication and 21.4% reported that their milk had dried up.

**Table 1. Absolute and relative frequency distribution of the sample according to socioeconomic data and reasons for early weaning.**

Variables	Category	Frequency	
		N	%
Maternal schooling	Up to complete 1 <sup>st</sup> to 4 <sup>th</sup> grades	6	6.4%
	Up to complete 5 <sup>th</sup> to 8 <sup>th</sup> grades	26	27.6%
	Up to complete 1 <sup>st</sup> to 3 <sup>rd</sup> grades	48	51.1%
	Up to complete higher education	14	14.9%
Income	No income	6	6.4%
	Up to 1 MW	21	22.3%
	Up to 2 MW	4	4.3%
	Up to 3 MW	41	43.6%
	Up to 4 MW	2	2.1%
	Up to 5 MW	14	14.9%
	More than 5 MW	6	6.4%
Reasons for breastfeeding discontinuation	Milk has dried up	8	28.6%
	Milk not sufficient	7	25.0%
	Work	5	17.8%
	Could not make a nipple	1	3.6%
	Can not breastfeed	4	14.3%
	School	1	3.6%
	Mother's disease	2	7.1%

The relationship between early weaning and independent variables is shown in Table 2. It was observed that early weaning was more prevalent among mothers aged over 26 years, those who were single, low schooling and income above one minimum wage. However, this difference was not significant. A statistically significant association was found only between early weaning and maternal belief that milk was not sufficient. The majority of mothers who did not perform early weaning believed that they had satisfactory amount of milk (66.7%).

**Table 2. Relationship between early weaning and independent variables.**

Variables	Early weaning				p-value
	N	Yes %	N	No %	
Maternal age					
13 to 25 y	12	41.4	35	53.8	p>0.05
26 to 43 y	17	58.6	30	46.2	
Marital status					
Married	14	49.2	33	50.8	p>0.05
Single / Live together	33	50.8	14	49.2	
Schooling					
Low	17	58.6	31	47.7	p>0.05
High	12	41.4	34	52.3	
Family income					
Up to 1 MW	6	20.7	17	26.2	p>0.05
Above 1 MW (R\$ 678,00)	23	79.3	48	73.8	
Working					
Yes	10	34.5	19	29.2	p>0.05
No	19	65.5	46	70.8	
Believes her milk is not sufficient to feed her baby					
Yes	0	0	42	66.7	p<0.001*
No	10	100	21	33.3	

\*Chi-Square test.

## Discussion

Previous studies have indicated that despite regional differences in Brazil, with different social and economic development indexes and several levels of health care, early weaning is a common practice in most of the population. This implies the need for more practices of population awareness regarding the importance of breastfeeding [14-16]. In the present study, early weaning was reported in approximately 30% of the sample, a value higher than expected according to WHO [13]. The same trend has also been observed in other studies [10,14,17,18].

The causes for early weaning are diverse. Researchers have shown that mothers with lower schooling and those who do not have access to sewage network system were more related to early weaning than those with higher schooling and those who have [19,20]. In the present study, schooling was not associated with early weaning. This difference may have occurred because mothers' average schooling in the present study was considerably higher than that of mothers in these studies. On the other hand, there was no relationship between weaning and family income, marital status and maternal age [19], as in the present study. It could be concluded that social issues are more important for the practice of weaning than economic ones.

Although there was no significant relationship between early weaning and the fact that the mother had paid work during the study, most mothers had not returned to work at the time of the interview, when infants had completed six months of life. In addition, most mothers who stopped breastfeeding worked and the opposite was also observed. A study carried out in the state of São

Paulo showed that returning to work is related to higher weaning rate, since the mother usually has to give up the care with the newborn to financially help at home [21]. Thus, policies to encourage breastfeeding need to consider maternity leave time and also measures that allow the infant to stay with the mother during the working hours, with intervals for breastfeeding.

The causes for early weaning were evaluated in a descriptive study with mothers of infants aged 6-12 months attending childcare at the University Hospital of the Federal University of Santa Catarina and Saco Grande Health Unit in the city of Florianópolis. It was observed that the most frequent reason for early weaning was maternal beliefs related to insufficient amount of milk [14]. In the present study, this relationship was also confirmed. It could be observed that most mothers reported that their milk had dried or was not satisfying their babies. Among those who had not stopped breastfeeding, most believed that their milk supply was sufficient. This result shows the importance of population awareness that milk production and flow are directly related to suckling by the infant [22]. Thus, the more sucking, the greater is the milk production.

Researchers have reported that the practice of breastfeeding is strongly influenced by the preexisting culture because beliefs play an important role in determining behavior and emotion [23]. Mothers who attributed early supplementation to fact that "milk is weak" or "milk does not feed," certainly feel more supported by the fact that this is a culturally accepted belief [24]. This minimizes any sense of guilt over breastfeeding failure and reduces the chances of persistence in the habit.

It is important to highlight some limitations of the present study. Convenience sampling does not allow data extrapolation. To minimize this inconvenience, individuals were selected in different municipalities. Probably, mothers present in hospitals on the days of collection should not present very different characteristics than those that were present in other days. Probably, memory bias was not a big problem, since questions about weaning occurred in the sixth month of the baby's life. In short time intervals, the possibility of memory failure is lower. On the other hand, as information was obtained through interviews, mothers may have provided some false answers, considering the general knowledge that breastfeeding should occur at least up to six months. In this way, early weaning may have been underestimated.

Further studies will contribute to greater knowledge about the prevalence of early weaning and the reasons for this practice to occur. Concomitantly, actions that promote information about the nutritional value of breast milk as well as the various benefits of this practice should continue to be disseminated, both in individual actions and in collective campaigns. The creation of groups to support breastfeeding can also be an interesting strategy, since social beliefs can be more easily demystified through knowledge and experience shared by groups.

## Conclusion

Early weaning in the present study was related to the maternal belief that the amount of milk was insufficient to meet the needs of the newborn and its incidence was high in the study population.

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