

BREAST FEEDING AS A PROTECTION FACTOR TO AVOID NON-NUTRITIVE SUCKING HABITS

Aleitamento materno como fator de proteção contra a instalação de hábitos bucais deletérios

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ABSTRACT

Purpose: evaluate association between social and demographic variables, breastfeeding interruption and deleterious oral habits and the prevalence of non-nutritive sucking habits in 03 to 05 years old school children in Vitória, Espírito Santo. **Method:** this is a retrospective longitudinal study with a final random sample of 903 children from a universe of 9.829 students. The comparison between predictive variables and non-nutritive sucking habits used Fisher Exact test and strength of association verified by Odds Ratio. **Results:** 12,4% of the children present or had presented finger sucking habit and 37,7% of sucking pacifier. There was no statistically significant association between finger sucking with weaning. Female children had 20% more chance to have habit of sucking pacifier ($p=0,000$). Children that had early breast feeding interruption presented approximately 4 times more chance of developing the habit of sucking pacifiers ($p= 0.000$). **Conclusions:** the association of pacifier sucking habit and weaning was verified. Early weaning can be considered a risk factor for maintenance of pacifiers sucking habit.

KEYWORDS: Habits; Breast Feeding; Weaning; Pacifiers; Fingersucking

■ INTRODUCTION

Breastfeeding constitutes one of the fundamental pillars for children's health promotion worldwide,

offering advantages not only for the baby, but also for the mother¹. Mothers' milk has been considered the best feed for infants, acting as an immunological reinforcement against infectious and allergic diseases, playing an important role in reducing child mortality²⁻⁴.

Breastfeeding is not only related to the nutritional aspects but also fulfills the emotional needs of the baby through the closeness established between mother and child^{5,6}. Breastfeeding also brings benefits to women⁶; this practice promotes better uterine involution in postpartum period^{1,6}, with consequent reduction in bleeding¹. Incidence of breast cancer^{1,6} is minimized as well, besides its contraceptive effect, practicability, and inexpensiveness for families⁶.

In addition to the nutritional⁷, immunological^{3,4,7} and emotional benefits, breastfeeding promotes stomatognathic system's health⁷, stimulating orthopedic normal growth of the jaws³. It allows the correct establishment of nasal breathing and normal development of the entire craniofacial complex⁷. It also

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presents positive action in preventing non-nutritive sucking habits⁸.

Moyers⁹ relates that after the first dentition is completed, no sucking habits may persist, as sucking instinct must be substituted by biting and catching behaviors. Prolonged oral phase is not physiological and everlasting sucking habits may become harmful. Such habits must contribute as a risk factor for malocclusions and can be considered a deleterious habit according to frequency, intensity and movement duration^{7,10}, individual susceptibility, age, nutrition conditions and consequent general health¹⁰.

Most common deleterious oral habits or non nutritive sucking habits are pacifier and digital sucking; persistence of these may affect normal development of stomatognathic system⁸.

Early weaning can stimulate the development of deleterious oral habits as pacifier and digital sucking, children in this situation develop a risk seven times greater than children in exclusive breastfeeding⁶.

Although early weaning exert an indirect role on malocclusion development in primary dentition^{7,10}, longitudinal studies are necessary to appreciate the benefits of exclusive breastfeeding as a protection factor against deleterious oral habits set up, which are considered risk factors on the etiology of malocclusion.

The aim of this research was to evaluate possible association between sociodemographic variables, early weaning and the development and maintenance of non-nutritive sucking habits in 03 to 05 years old school children in Vitória, Espírito Santo.

■ METHOD

The research project was approved by the Ethics Research Committee from Federal University of Espírito Santo, on July 23rd 2010, register number 084/10.

This observational retrospective study with a longitudinal design was made in Vitória, Brazil, 2010. Target population included 9.829 children born between 2005 and 2007 and, in 2010 enrolled in public schools. Sample calculation was based on some parameters: a prevalence of 35%, a confidence level of 95% and margin of error of 5%. It resulted in 920 children, considering 20% extra for possible losses. A random sample was conducted proportionally to the number of children in each school.

Inclusion criteria involved 3 to 5 years old children enrolled in one of Vitória public schools with complete primary dentition. Syndromes with oral manifestation, especially related to dentition/occlusion motivated exclusion of the research.

Two questionnaires were used for data collection. The first contained six open and eighteen closed items regarding the following variables: sex, age, mothers' education level, deleterious oral habits – digital sucking and pacifier use – and data about breastfeeding style. The second questionnaire is the Brazilian instrument used to classify families in a social scale (A, B, C, D, E), based on consumer goods possession.

Parents were informed about the aim of the research and after signature of Informed Consent Form, the interview was carried out when children were entering or leaving school.

It was used as the dependent variable, prevalence of oral habits (digital sucking and pacifier use) and as explanatory variables, gender, age, breastfeeding and socioeconomic status (SES). Early weaning was considered when breastfeeding was partially or completely interrupted before six months and substituted by another feed. When interviewing parents about deleterious oral habits, the time of starting and the duration of the habit were registered.

Collected data was organized in frequency tables. The possible association between deleterious oral habits and sociodemographic and early weaning variables was verified by Fisher Exact test. The strength of association was measured by Odds Ratio with respective 95% confidence intervals. Significance level adopted was 5%. Statistical package SPSS version 15 was used for analysis.

■ RESULTS

The final sample was of 903 children and there was no loss due to the increase of 20% performed on the sample size calculation.

Table 1 presents a well distribution between boys and girls. Three years old was the most frequent age (43,3%) and social class C was over half the sample (57,7%).

When analyzing distribution related to geographic area in Vitoria, it was observed that proportionality was maintained as the sample plan criteria was based at random and proportional to the number of children enrolled in each school. Schools which had more children were more substantially represented.

Table 1 – Sociodemographic data of 3 to 5 years old from Vitória, Espírito Santo state

Characteristic	Number	Percentual
Gender		
Female	452	50,1
Male	451	49,9
Age		
3 years old	391	43,3
4 years old	245	27,1
5 years old	225	24,9
Not related	42	4,7
Mothers' Schooling		
Illiterate or up to 3rd grade of ES	47	5,2
From 4th to 7th grade of Junior H S	192	21,3
Complete Junior High School	179	19,8
Complete High School	367	40,0
Superior complete	83	9,2
Not related	35	3,9
Socioeconomic status		
Class A	19	2,1
Class B	220	24,4
Class C	521	57,7
Class D	125	13,8
Class E	18	2,0
Region		
Santo Antonio	159	17,6
Centro	50	5,5
São Pedro	161	17,8
Jardim Camburi/P. Canto	100	11,1
Continente	118	13,1
Jucutuquara	116	12,8
Maruipe	199	22,0
Total	903	100,0

Legend: ES: Elementary School; Junior H S: Junior High School

In relation to deleterious oral habits, it was observed that 12,4% children had digital sucking finger habit in some time of life, and 56,3% of these had prolonged the habit until 3 years old or more (Table 2).

As can be seen in Table 3, it could be verified that 37,7% of the infants used or had used pacifier and 65% initiated the habit at birth; a frequency of 38,5% still had the habit until three years old or more.

Table 2 – Digital sucking habit in 3 to 5 year old children from Vitória, Espírito Santo state

Characteristic	Number	Percentual
Digital sucking		
Yes	112	12,4
No	791	87,6
Since		
At birth	72	64,3
2 months of age	10	8,9
6 months of age	6	5,4
1 year old	3	2,7
2 years old	5	4,5
3 years-old or more	9	8,0
Not know	7	6,3
Until		
1 year old	11	9,8
2 years old	13	11,6
3 years old or more	63	56,3
Not known	25	22,3

Table 3 – Pacifier use in 3 to 5 year-old children in Vitória, Espírito Santo state

Characteristic	Number	Percentual
Pacifier use		
Yes	340	37,7
No	563	62,3
Since		
At birth	221	65,0
2 months of age	37	10,9
6 months of age	27	7,9
1 year old	25	7,4
2 years old	11	3,2
3 years old or more	11	3,2
Not known	8	2,4
Until		
1 year old	75	22,1
2 years old	97	28,5
3 years old or more	131	38,5
Not known	37	10,9

Observing results in Table 4, there were no significant associations between independent variables – sex, age, SES, mothers' schooling level, early weaning – and digital sucking habit. In Table 5, the test result showed a significant association between independent variables: gender ($p=0,045$), early weaning ($p=0,000$) and pacifier sucking. The

strength of association verified by Odds, showed that female (OR = 1,274, IC 95%= 0,973-1,669) had 1,2 times more chances to prolong the habit; while the ones who had early weaning presented 3,8 times more chances (OR = 3.871, IC 95%= 2,830; 5,296).

Table 4 – Association between digital sucking habit and sociodemographic data, mothers' schooling and early weaning in 3 to 5 year old children in Vitória, Espírito Santo state

Characteristic	Digital sucking		No sucking		p-value	Odds Ratio CI
	Nº	%	Nº	%		
Sex						
Female	64	14,2	388	85,8	0,066	1,385 0,929-2,065
Male	48	10,6	403	89,4		
Age						
3 anos	41	10,5	350	89,5	0,059	1,419 0,938-2,147
4 e 5 anos	67	14,3	403	85,7		
SES						
A/B	34	14,2	205	85,8	0,188	1,246 0,808-1,921
C/D/E	78	11,7	586	88,3		
Mothers' schooling						
Up to Junior High	28	11,7	211	88,3	0,442	1,067 0,673-1,690
Junior H S or higher	78	12,4	551	87,6		
Early Weaning						
Sim	31	13,5	199	86,5	0,320	1,139 0,730-1,775
Não	81	12,0	592	88,0		

Legend: CI: Confidence interval 95%; SES: Socioeconomic status; Junior H S: Junior High School;
Statistical analyzes: Chi-Square test ($p \leq 0,05$).

Table 5 – Association between pacifier sucking habit and sociodemographic data, mothers' schooling and early weaning in 3 to 5 year old children in Vitória, Espírito Santo state

Characteristic	Pacifier		No pacifier		p-value	Odds Ratio CI
	Nº	%	Nº	%		
Sex						
Female	183	40,5	269	59,5	0,045	1,274 0,973-1,669
Male	157	34,8	294	65,2		
Age						
3 years old	151	38,6	240	61,4	0,340	1,070 0,812-1,411
4 e 5 years old	174	37,0	296	63,0		
SES						
A/B	100	41,8	139	58,2	0,070	1,271 0,940-1,719
C/D/E	240	36,1	424	63,9		
Mothers' schooling						
Up to Junior High	84	35,1	155	64,9	0,230	1,138 0,835-1,553
Junior H S or higher	240	38,2	389	61,8		
Early weaning						
Yes	142	61,7	88	38,3	0,000	3,871 2,830-5,296
No	198	29,4	475	70,6		

Legend: CI: Confidence interval 95%; SES: Socioeconomic status; Junior H S: Junior High School;
Statistical analyzes: Chi-Square test ($p \leq 0,05$)

■ DISCUSSION

Nowadays, the literature about oral habits prevention has appreciated breastfeeding for an adequate time. Cultural aspects related to the pacifier use or feeding bottle are so deep-rooted in collective subconscious that many families cannot avoid the habit and others even encourage it¹¹.

It has been suggested that the greater frequency of pacifier sucking habit compared with digital sucking occurs due to social acceptance of pacifier use. Pacifier introducing in the very first days of age is very common. This can be confirmed in this study: 65% of the parents who had children that used or had used pacifier said they acquired the habit at birth. It has been suggested that children that had early weaning are more likely to supply sucking necessity and as an alternative parents offer the pacifier.

Another reinforcement to the social acceptance hypothesis is the fact that in this study there had been no difference in the prevalence of sucking pacifier habit among children from all social classes. An observational study conducted in Paraná had not found significant statistical differences in pacifier use prevalence and mothers' schooling level¹². However, in Porto Alegre city¹³, most of the infants who had pacifier habits came from adverse social classes and were male. In contrast with this research which found that most infants with pacifier sucking habit were female (40,5%, $p=0,045$), what suggests variation in different populations.

Exclusive breastfeeding until six months of age can be considered a protective factor against constant pacifier use. Similar results were found in Porto Alegre city¹³, which verified a weaning incidence between first and sixth months of age of 22,4% for infants with no pacifier use habits and 50,8% for users ($p<0,001$).

Almost 2/3 of the pacifier users had breastfeeding interrupted until the end of the second month of age. These results support those found by other studies^{2,3,8,14}. Pacifier using has been associated with less breastfeeding duration¹⁵. Infants in exclusive breastfeeding pattern presented more prevalence of no pacifier. On the other hand, for those infants who had initiated weaning, pacifier use was more frequent^{3,16}.

In João Pessoa city, children with less breastfeeding duration, developed deleterious oral habits more frequently, with a risk seven times greater than those breastfed for a minimum period of six months⁸. A negative relation of—between breastfeeding duration and prolonged sucking habits was found in a study conducted in Ribeirão Preto city, São Paulo state¹⁷. Most observational studies describe

an association between pacifier use and short-term breastfeeding¹⁸. Children exclusively breastfed showed lower risk of acquiring non-nutritive sucking habits¹⁹.

It was observed in the present study relevant differences between digital sucking and pacifier use. Pacifier is much used as an instrument to calm children. This research verified a low prevalence of children with a digital finger habit (12,4%). One hypothesis suggested to explain the difference in relation to the use of pacifier (37,7%) is social acceptance. Digital sucking habit can be considered not socially adequate and can be easily associated with "twisted teeth".

In Rio de Janeiro it was observed a positive association between short-term breastfeeding and more frequency of pacifier sucking and malocclusion development¹⁴. This relation was also observed in a study made in Pelotas city, Rio Grande do Sul state²⁰, where the prevalence of non-nutritive sucking habits in children between 12 months and 4 years old period was revealed as a risk factor for anterior open bite. Removing sucking habits from children in primary dentition can stimulate self-correction or minimize anterior open bite, besides adequacy of structures and redirecting functions of stomatognathic system²¹.

A study conducted in the schools of Florianópolis city, Santa Catarina state⁵, observed an association between breastfeeding period and non-nutritive sucking habits development. Infants with an exclusive breastfeeding pattern were less likely to develop harmful habits. In this research conducted in Vitória, it was observed that 56,3% of the children with digital sucking habit and 38,5% of those that used pacifier, prolonged the habit until 3 years old or more. These data suggests that, once acquired, digital sucking habit is more difficult to remove.

Sociocultural aspects must be considered as determinants of breastfeeding patterns. Access to information and mothers' consciousness of the importance of breastfeeding may reflect on the practice and patterns⁷.

Internet information available must be useful to disseminate knowledge, but in a responsible way. Many health websites offer inaccurate guidance, considered correct by lay population. Besides that, this information is not sufficient to breastfeeding promotion²².

Another relevant points could be observed in this research related to socioeconomic status of the population referred to in this study. Only 2% of the participants were classified in social class E, and 5,2% of the parents interviewed were illiterate or had up to 3 three years of instruction.

This data leads to a question about social distribution of the children that had a vacancy in public schools, there is a high percentage of families inserted in social class B in contrast with a low frequency of the ones from class E. So the question is: does this distribution correspond to the real social distribution of the population or children from poorly families have been excluded from school? More researches must be done to highlight this point.

In Itapeva, São Paulo state, a study observed no significant differences between breastfeeding duration among social groups. It is important to consider the relevance of social determinants when implementing strategies for breastfeeding promotion, which may include information about harmful effects related to the pacifier use or bottle feeding²³.

Verification of the relation between socioeconomic status and non-nutritive sucking habits was impaired by the small number of participants representing social classes A and E. This could be considered a limitation of this study and open possibilities for new researches to evaluate the amount of children out of school; these children probably carry the weight of the object of this study.

Maternity leave allows mothers to take care of their children more thoroughly, what can contribute to exclusive breastfeeding until six months of age. In Brazil, there is a project to be analyzed by the House of Representatives that increases to 180 days maternity leave, a benefit already granted to public employees²⁴. Brazilian societal changes revealed in census 2010²⁵ showed a greater number of householder women not included in formal work. According to this fact, they do not receive the governmental benefit, which increases the disadvantages for this social group.

It can be suggested a great difficulty for this group of women to carry exclusive breastfeeding until 6 months of age regarding their needs to cater for their family. Probably these mothers are the ones that face barriers to get a vacancy in public schools.

■ CONCLUSION

This research found association between early weaning and pacifier sucking habit. Infants exposed to early weaning had a chance almost four times greater to acquire pacifier sucking habits.

RESUMO

Objetivo: avaliar a possível associação entre as variáveis sociodemográficas, desmame precoce e o desenvolvimento e manutenção dos hábitos bucais deletérios em crianças de três a cinco anos de idade das creches públicas de Vitória/ES. **Método:** trata-se de um estudo longitudinal, retrospectivo, com uma amostra final de 903 escolares, aleatorizada e representativa das 9.829 crianças matriculadas. Para a comparação entre as variáveis predictoras e hábitos foi utilizado o teste exato de Fisher e a força da associação medida pelo Odds Ratio. **Resultados:** 12,4% das crianças apresentaram hábito de sucção digital e 37,7%, o de chupeta. Não foi verificada associação estatisticamente significativa do hábito de sucção digital com desmame precoce. As crianças do sexo feminino ($p=0,045$) demonstraram 20% mais chance de adquirir e permanecer com o hábito de chupeta, e as que tiveram o desmame precoce apresentaram aproximadamente quatro vezes mais a chance de desenvolver o hábito de chupetas ($p= 0.000$). **Conclusão:** associação entre hábito de chupeta e desmame precoce foi verificada. O desmame precoce pode ser considerado fator de risco para a permanência do hábito de chupeta.

DESCRITORES: Hábitos; Aleitamento Materno; Desmame; Chupetas; Sucção de Dedo

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