

Types of Feeding and Presence of Harmful Oral Habits in Children with Cleft Lip and/or Palate: A Pilot Study

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Abstract

Objective: To verify the relationship between the types of feeding and presence of harmful oral habits (HOH) in children with cleft lip (CL), palate (CP) and cleft lip and palate (CLP), as well as to compare the different types of cleft to each other. **Material and Methods:** A form was applied to the parents of 162 children (3-5 years old), addressing the following variables: gender, cleft type, age, socioeconomic conditions, type of breastfeeding, presence of HOH, and the parents' knowledge about the consequences of oral habits. The data obtained were analyzed by chi-square test ($p < 0.05$). **Results:** The majority of children (83.3%) were bottle-fed and 12.3% were exclusively maternal breastfed. The main reason for weaning was the presence of cleft (59.9%). Breastfeeding was significantly higher in children with CL (75%) in comparison with CP (20%) and CLP (5%) ($p < 0.001$). Children with CLP were 12 times more likely to be bottle-fed than children with CL (OR=12.21; CI=4.09-36.45). The prevalence of HOH was 37%. Sociodemographic characteristics were not associated with the presence of HOH ($p > 0.05$). The type of feeding and cleft were not decisive to present some type of HOH ($p > 0.05$) and 87% of parents stated that HOH could lead to serious complications of tooth misalignment. **Conclusion:** The type of feeding and fissure did not determine the acquisition of harmful oral habits in children with cleft. However, the greater the fissure's complexity, the lesser the chance of children receiving exclusive breastfeeding.

Keywords: Breast Feeding; Habits; Pacifiers; Cleft Lip; Cleft Palate.

Introduction

Breast milk is the main source of nutrition, which aims at the survival of the baby [1,2], meeting all nutritional needs [3-5] and promoting the affective bond between mother and child, which helps to build a suitable environment for the child [6]. In addition, it plays a very important role in the proper development of dentofacial structures and their functions [4], contributing to maxillary growth [7], harmonic development of dental arches and reducing the risk of acquiring some type of malocclusion [8,9].

The difficulty of breastfeeding may be due to several reasons: insufficient milk, mothers' work activity, greater comfort in the use of artificial milk, among others [1,4,10]. Often, breastfeeding is replaced by bottle feeding, which consequently requires the movement of fewer muscles compared to breastfeeding, capable of promoting adequate muscle activity, leading to the optimal development of bucomotor structures [11].

The sucking habit is a normal reflex present since the 29th week of intrauterine life [5,10]. It is considered an acceptable habit until three years old, being a natural part of the child's development and dentofacial strengthening [3]. If the oral habit is not discontinued at this age, it may cause oral damage such as morphological alteration in the palate, malocclusion (anterior open bite, and posterior crossbite) and gingival changes [8,9,12,13]; also the severity of the damage is related to the frequency, duration and intensity of the oral habit [14].

Exclusive breastfeeding for at least six months may prevent the acquisition of some non-nutritive sucking habits, but periods shorter than six months may represent a risk factor. Studies in the literature report that the longer the breastfeeding time, the lower the chance of the child having any type of oral habit [5,6,12,15,16].

In individuals with cleft lip and / or palate, breastfeeding becomes more difficult due to anatomical discontinuity of the lip and / or palate, making it difficult to establish the negative pressure necessary for sucking [17], which could cause a higher frequency of harmful oral habits (HOH). However, studies in the population of children with cleft of lip and/or palate regarding oral habits are scarce.

Therefore, this paper aims to investigate the association between type of feeding and the prevalence of HOH in children with cleft lip and/or palate, document the prevalence of habits in this specific population, and compare the different types of cleft to each other.

Material and Methods

Study Design and Sample

This is a cross-sectional and descriptive pilot study, carried out with a non-probabilistic sample of children aged 3 to 5 years, of both genders, submitted to cleft surgery of lip and/or palate and non-syndromic.

Data Collection

The research instrument consisted of a specific form for parents applied in the form of an interview, which addressed the following variables: gender, cleft type, age group, socioeconomic conditions, type of feeding and presence of HOH (as biting nails, pacifier sucking, finger sucking, lip and tongue interposition) of the child.

Data on socioeconomic status were obtained from the patient's medical records, according to the following classification, which considers six categories: Lower-Lower (F), Lower-Upper (E), Lower-Middle (D), Middle (C), Upper-Middle (B) and High (A) [18]. The classification had the family as its central nucleus, more specifically its living conditions. Therefore, it was considered socio-analytical information about their

income, occupational activity that their members perform, family demographic composition, educational level and housing conditions [18]. In addition, it was analyzed the parents' knowledge about the consequences of oral habits.

Data Analysis

The obtained data were organized and analyzed in the Statistical Package for Social Science, version 20.0 (SPSS for Windows, Chicago, USA). To verify the association between the studied variables, were used the Chi-square test and crude odds ratios (OR) with 95% confidence intervals (CI) and significance level of $p < 0.05$, respectively.

Ethical Aspects

The study was approved by the ethics committee of Hospital for Rehabilitation of Craniofacial Anomalies, University of São Paulo (Process No. 39216514.3.0000.5441).

Results

A total of 162 children (79 females and 83 males) with a mean age of 4.40 (± 0.70) were assessed and their respective parents were interviewed. According to the type of cleft, 50.6% presented cleft lip and palate (CLP), 26.5% cleft lip (CL) and 22.8% presented cleft palate (CP). Regarding the type of feeding, 83.3% of the children received bottle-fed, 12.3% had exclusive breastfeeding and 4.4% had another type of feeding (dropper or spoon). The presence of cleft was the main reason for the weaning reported by mothers (59.9%). On the other hand, the prevalence of HOH in the evaluated population was 37%, being nail-biting the most frequent (11.1%) (Figure 1).

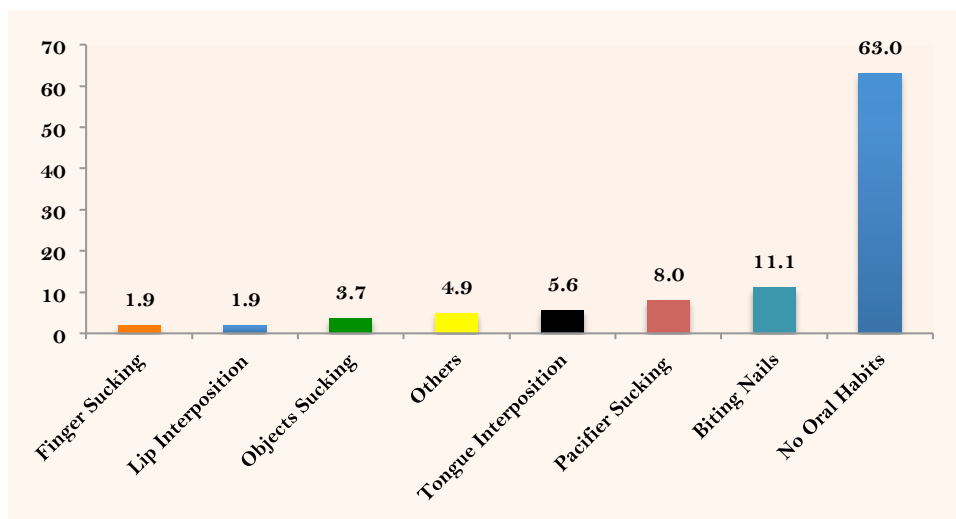


Figure 1. Frequency of harmful oral habits in children.

In the bivariate evaluation between the type of feeding and type of cleft, it was observed that bottle-fed was more prevalent in children with CLP (57.8%), while breastfeeding was more prevalent in children with CL (75%), which shows statistically significant differences ($p < 0.001$). Children with CLP were 12 times more commonly bottle-fed than children with CL (OR = 12.21; CI = 4.09-36.45). On the other hand, there was no statistically significant association between the presence of HOH and the type of cleft ($p = 0.120$) (Table 1).

Table 1. Association between presence of harmful oral habits, breastfeeding type and types of cleft.

Variables	Types of Cleft			p-value ¹
	Lip N (%)	Palate N (%)	Lip and Palate N (%)	
Presence of Harmful Oral Habits				
Yes	20 (33.3)	9 (15.0)	31 (51.7)	0.120
No	23 (22.5)	28 (27.5)	51 (50.0)	
Feeding Type				
Breast Milk	15 (75.0)	4 (20.0)	1 (5.0)	0.001*
Baby Bottle	27 (20.0)	30 (22.2)	78 (57.8)	
Others	1 (14)	3 (42.9)	3 (42.9)	

¹Chi-squared test; *Statistically Significant.

No statistically significant differences were observed between the presence of HOH and sociodemographic variables such as age, gender, socioeconomic level and parental education ($p > 0.05$). The type of feeding and duration of breastfeeding were not associated with the presence of HOH (Table 2). When analyzing parents' knowledge about HOH, 58.6% answered that the type of feeding does not influence the acquisition of oral habits. However, 87% of parents stated that HOH could lead to serious complications of tooth misalignment.

Table 2. Association between presence of harmful oral habits and sociodemographic factors.

Variables	Presence of Harmful Oral Habits (HOH)		p-value ¹
	Yes N (%)	No N (%)	
Gender			
Male	34 (56.7)	49 (48.0)	0.369
Female	26 (43.3)	53 (52.0)	
Age			
3 Years	7 (11.7)	14 (13.9)	0.746
4 Years	19 (31.7)	36 (35.6)	
5 Years	34 (56.7)	51 (50.5)	
Caregiver's Educational Level			
Elementary School	11 (18.3)	27 (26.5)	0.409
High School	30 (50.0)	50 (49.0)	
Higher Education Level	19 (31.7)	25 (24.5)	
Socioeconomic Status			
A	13 (21.7)	27 (26.5)	0.611
B	40 (66.7)	60 (58.8)	
C	7 (11.7)	14 (13.7)	
D	0 (0.0)	1 (1.0)	
Feeding Type			
Breast Milk	4 (6.7)	16 (15.7)	0.201
Baby Bottle	54 (90.0)	81 (79.4)	
Others	2 (3.3)	5 (4.9)	
Breastfeeding Duration			
< 6 Months	21 (70)	27 (54.0)	0.239
≥ 6 Months	9 (30)	23 (46.0)	

¹Chi-squared test.

Discussion

The present study revealed a high prevalence of artificial feeding in children with a cleft (83.3%) and a low prevalence of exclusive breastfeeding (12.3%), similar results were found in a study carried out with

Brazilian children [17]. The presence of cleft was the main reason for weaning children reported by parents, agreeing with previous studies [17,19], but these differ from the results found in Brazilian babies without cleft, where the main cause for weaning is mother's return to work (20.9%), followed by lack of milk (19.4%) [4]. In our study, these causes were also reported, but in a lower percentage (6.8% and 4.9%, respectively).

Regarding the type of cleft, this study revealed that the more complex the cleft (CLP), the greater is the degree of difficulty for breastfeeding. In this sense, it was observed that children with isolated CL were more favored for breastfeeding compared to children with CP or CLP, agreeing with a previous study [20]. The difficulties of breastfeeding babies with palatal cleft involvement could occur due to anatomical changes, presenting communication between the oral and nasal cavities. This leads to poor suction because is not possible to establish adequate intraoral negative pressure for breast milk suction [17,19].

A prevalence of HOH in children without cleft is verified by various studies in the literature [4,6,15,16,21,22], which showed that the longer duration of exclusive breastfeeding, lower the chance of to present HOH; showing an association between breastfeeding and HOH. In the present study, a higher frequency of HOH was observed among children who were breastfed for less than six months. However, there was no statistically significant difference, possibly due to the sample size. Therefore, future studies with larger numbers of individuals are suggested to confirm this tendency. Furthermore, in this study, although there was a low percentage of children with cleft breastfeeding, there was also a low prevalence of HOH (37%) when compared to studies done in children without clefts (81.5% [23] and 61.8% [24]) who did not have exclusive breastfeeding.

According to type of habit, biting nails was the most frequently reported (11.1%), whereas finger sucking was the least frequent (1.9%). A previous study reported a lower prevalence of pacifier sucking (2.7%) and a higher prevalence of other oral habits in children with cleft [25]. In the present study, a prevalence de pacifier sucking was 8.0%.

Nevertheless, another pilot study reported an occurrence of thumb and finger sucking of 26.9% among children with cleft, however, this was not statistically significant when compared to children without cleft [26]. Thus, there was a higher percentage of finger sucking compared with our study. A possible reason for this result would be that in the hospital early lip and palate repair surgery that is performed, before the age of three, where which the parents are advised by the plastic surgeon and pediatric dentist to prevent the child uses a pacifier or performs finger suction, in order to obtain good postoperative results avoiding risks of infection or trauma in closing the cleft being beneficial for not presenting oral habits.

The correlation between HOH and gender was not statistically significant in the present study, as observed by other authors in Brazilian children from 3 to 6 years old [27]. However, it differed from other studies conducted in Brazilian children without cleft between ages 2 to 5 years that found an association between non-nutritive sucking habits and females [6,9,16]; according to these authors, there is no consensus in the scientific literature to explain the higher prevalence of habits among girls and therefore suggest the need for investigations into psychological differences between genders. Similarly, in this study was not observed a significant correlation between age and HOH. However, it is known that increasing age leads to a reduction in sucking habits [28] and, therefore, would be an orthodontically relevant factor, since occlusal damage, such as open bite treated early in the deciduous or mixed dentition decreases the chance of recurrence [29].

In the present study, the socioeconomic indicator and parents' education also showed no significant association with HOH. However, it can be observed that there are controversies in the literature. It was reported that children whose parents have a higher level of education present a higher risk of prolonged

pacifier sucking [3,6]. Similarly, the high family income has shown a high relationship with the pacifier habit. On the other hand, previous authors observed that most mothers or caregivers of children who presented non-nutritive sucking habits also had low family income (70.6%) [4]. The non-association results of the present study could be because regular patients formed the total population from the pediatric dental department of the hospital where they received specialized dental care and informative talks according to each one's needs. Therefore, this can be considered a protective factor for HOH in this population group.

The assessment of parental knowledge about HOH showed that 41.4% were unaware of a relationship between type of feeding and oral habits. However, most of them mentioned the relationship between habits and the development of serious complications of tooth misalignment (87%). A similar result was obtained by previous authors that found that 97.1% of parents knew that habits could cause damage to teeth [30]. This knowledge of parents may be due to the frequent guidance that parents of children receive on each dental checkup at the hospital.





Finally, these results cannot be generalized due to cultural and socioeconomic factors. Therefore, these observations point to the need to conduct studies with larger samples to verify the present data.

These results highlight the importance of early intervention in the dental clinic during the care of babies with cleft lip and / or palate, through guidance to parents about the importance of breastfeeding, which should be performed whenever possible. However, when the child already has HOH, the pediatric dentist should inform parents about the risks of damage to the child's occlusion if the deleterious habit is not eliminated in a period of 3 years, due to the fact that it increases the probability of alterations significantly not only in occlusion but also in speech and breathing [3]. Therefore, the presence of habits should be monitored to prevent them from becoming deleterious.

Conclusion

The type of feeding and cleft did not determine the acquisition of harmful oral habits in children with cleft. However, the greater the complexity of the fissure, the lesser the chance of the child receiving exclusive breastfeeding.

Authors' Contributions

KMSG	 0000-0001-5513-9905	Conceptualization, Methodology, Investigation and Writing – Original Draft Preparation.
MLM	 0000-0001-6777-3225	Writing – Original Draft Preparation and Writing – Review and Editing.
GFAC	 0000-0002-8137-0307	Writing – Original Draft Preparation and Writing – Review and Editing.
BC	 0000-0002-7917-3072	Conceptualization, Methodology and Formal Analysis.
All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.		

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Conflict of Interest

The authors declare no conflicts of interest.

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