USE OF DUMMY AND POSSIBLE MORPHOLOGICAL AND FUNCTIONAL CHANGES IN CHILDREN

Uso de chupeta e as possíveis alterações morfológico-funcionais em crianças

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RESUMO

Introdução: o hábito de sucção pode causar alterações no sistema estomatognático devido ao desequilíbrio das forças que atuam naturalmente na cavidade oral. Quando este hábito se estende durante a mastigação e dentição mista, pode causar alterações no desenvolvimento e crescimento da face, afetando a dentição. **Objetivo:** este estudo teve como objetivo avaliar as alterações morfológico-funcionais causadas pelo uso prolongado da chupeta em crianças de 5 a 12 anos de idade, que possuíam tal hábito. **Médotos:** fizeram parte desta pesquisa 38 crianças, de ambos os sexos que freqüentavam a Clínica da Criança e do Adolescente III e IV da Universidade de Passo Fundo/RS. Foi aplicado um questionário para as mães ou responsável a fim de investigar tempo de uso e características da chupeta utilizada. **Resultados:** destas, 22 apresentaram algum tipo de alteração, sendo

a mais prevalente a mordida aberta anterior representando 57% das encontradas. Pode-se observar também mordida cruzada posterior, sobressaliência, desenvolvimento maxilar excessivo e ausência de selamento labial. Observou-se que as crianças que usaram chupeta até os dois anos de idade não apresentaram qualquer tipo de alteração proveniente do hábito de sucção. **Conclusão:** a idade em que o hábito é removido merece atenção por parte dos cirurgiões dentistas, alertando o momento apropriado em que o hábito bucal deletério deve ser removido.

Palavras-chave: Mordida aberta. Má oclusão. Chupetas.

ABSTRACT

Introduction: *the sucking habit can cause changes in the stomatognatic system due to the imbalance of the forces that act naturally in the oral cavity. When this habit becomes extended during chewing and mixed dentition, it can cause changes in the development and growth of the face, affecting the dentition.* **Objective***: this study aimed to evaluate the morphological and functional changes caused by prolonged use of pacifiers in children 5-12 years of age, who had the habit.* **Methods:** *they were part of this study 38 children of both sexes who attended the Clinic of Children and Adolescents III and IV of the University of Passo Fundo / RS. a questionnaire for mothers or responsible to investigate time of use and characteristics of the used pacifiers was applied.* **Results:** *of these, 22 had some kind of change, the most prevalent anterior open bite representing 57% of the found. One can also observe posterior crossbite, overbite, excessive jaw development and absence of lip seal. It was observed that children who used a pacifier up to two years old did not show any change from the sucking habit.* **Conclusion:** *the age at which the habit is removed deserves attention from dentists, alerting the appropriate time the deleterious oral habits should be removed.*

Keywords: *Open bite. Malocclusion. Pacifiers.*

INTRODUCTION

The sucking habit can cause changes in the stomatognatic system due to the imbalance of the forces that act naturally in the oral

cavity. When this habit becomes extended during chewing and mixed dentition, it can cause changes in the development and growth of the face, affecting the dentition (AMARAL et al., 2009).

A malocclusion is considered an anomaly of dental development and or dental arches, which causes problems aesthetic/functional order, with the frequent cause functional conditions acquired in the osteogenic development, heredity and this general of the children are contributing factors to the installation and or worsening of the pathology (GARCIA et al., 2010). The anterior open bite in deciduous dentition has been associated with nutritive sucking habits returned (ROMERO et al., 2011).

Studies report that children who quitted sucking habits at four to six years old showed spontaneous correction of anterior open bite, defined as the presence of a negative vertical dimension between the incisal edges of upper and lower anterior teeth (NEIVA e LEONE, 2006).

However, some children who have the habit removed early are subject to correct swallowing pattern and proper position of the tongue at rest position. The restoration of these functions depends on the balance of forces acting in the oral cavity, which may promote self-correction of open bite anterior (PIVA et al., 2012)

The craniofacial growth and development, despite being conditioned to genetic factors, are strongly influenced by the functional pattern of orofacial muscles. Each individual has his own pattern of growth that suffers action from environmental factors that, in some cases, might change it (COSTA et al., 2008).

Pacifier use is one of non-nutritive sucking habits more common in the first years of life. Although there was a reduction in the prevalence of these habits with age, its prolonged use can cause dento alveolar problems in a variety of degrees, depending on the frequency, intensity and duration of use. These oral habits can act interfere with the normal growth and development of jaws, favoring the development of malocclusion, as well as changes in the normal pattern of swallowing and phonation. The habit is directly related to weaning or as indicative of difficulties in maintaining breastfeeding (MUZULAN e GONÇALVE, 2011).

It is recommended to observe when the habit of pacifier sucking can be practiced without clinical consequences, and how important it is to choose an orthodontic nipple when the habit is present.

Habits result from the repetition of a pleasurable act, bring satisfaction to the individual and have a specific purpose. If not moderated, they may turn into harmful habits, depending on their frequency and intensity (DALVI e MOTTA, 2007). Some studies in

Brazil show a high prevalence of malocclusion in children during the primary dentition, with values higher than 70% (TOMASI et al., 2011). Oral habits have been studied by health professionals as it has a direct bearing on the development cranio-facial, interfering directly in engines and morphology and in vital functions of our body: sucking, breathing, chewing, swallowing and phonation (AMARY et al., 2002; RODRIGUES et al., 2010).

The high frequency of pacifier use reflects the magnitude of this habit in low-income population. Most mothers are unanimous in attributing the pacifier a function of "infant soothing", what justifies their commitment to early introduction to most children. Moreover, the pacifier is accepted as natural and is seen in most cases as an object that is part of the baby layette (MASSUIA e CARVALHO, 2012).

The pacifier with an orthodontic tip are less harmful to occlusion than the habit of finger sucking, because the orthodontic tip is the one that best fits in the mouth, similar to the nipple (MUZULAN e GONÇALVES, 2011). Pacifiers help to prevent most harmful habits and difficult to remove, as finger sucking, for example.

The growing habit of pacifier sucking can be related to the production of neurotransmitters (endorphins) by the central nervous system that generates the sensation of pleasure during its use. Sucking on a pacifier activates salivation and swallowing, sending information to the functional feeding system. Consequently, the body produces satiety masking a possible hunger or thirst. Malocclusions have been highlighted as one of the diseases of modern civilization, so as diabetes and coronary heart disease, with various conceivable agents such as respiratory allergies, soft diet, premature loss of deciduous teeth, lack of breastfeeding, oral breathing and harmful habits (MASSUIA e CARVALHO, 2012).

MATERIAL AND METHOD

The present study had the participation of 38 children, accompanied by their mother or guardian, of which 16 were boys and 22 were girls, aged between 5 and 12, and made dental treatment at the Clinic of Child and Adolescent III and IV at the School of Dentistry, University of Passo Fundo (UPF).

We requested the authorization of the institution and parents or guardians. Upon release, each parent or guardian answered a questionnaire with four questions: age of the child; when s/he started using a pacifier; how old the habit has been removed (for those who have discontinued use); and how was the shape of the

nozzle or conventional orthodontic like (there was an illustrative drawing to answer it). Children with the pacifier sucking habit underwent a clinical examination to verify the absence or presence of malocclusion from the use of pacifiers.

Through clinical examination, it was investigated aspects as: time of pacifier use, open bite, crossbite, overbite and overjet. Anterior open bite: when the upper teeth do not pierce nor touch the bottom ones, vertically; lateral open bite: when the lateral teeth not touching the vertical direction; bite butt, when anterior teeth are positioned one over the other, without vertical overlap; overbite: when the vertical overlap of anterior teeth exceeds one-third of the vertical dimension of the lower incisors; overjet, when anterior teeth are spaced on the horizontal axis, for more than two millimeters, or are visibly distant; crossbite, when the lower teeth contain the upper ones, in other words, the upper teeth are inside the lower teeth. It may occur in the anterior, lateral (unilateral or bilateral) segment or only in some elements. Presence of changes in facial muscles, change in timing of tooth eruption, among other unusual aspects that may be present due to the use of pacifiers.

This study was approved by the Ethics Committee in Research of the University of Passo Fundo - RS/Brazil, with number 5342/2012.

RESULTS

From the analysis of the data collected through the questionnaires answered by parents, and children observation, the following results emerged.

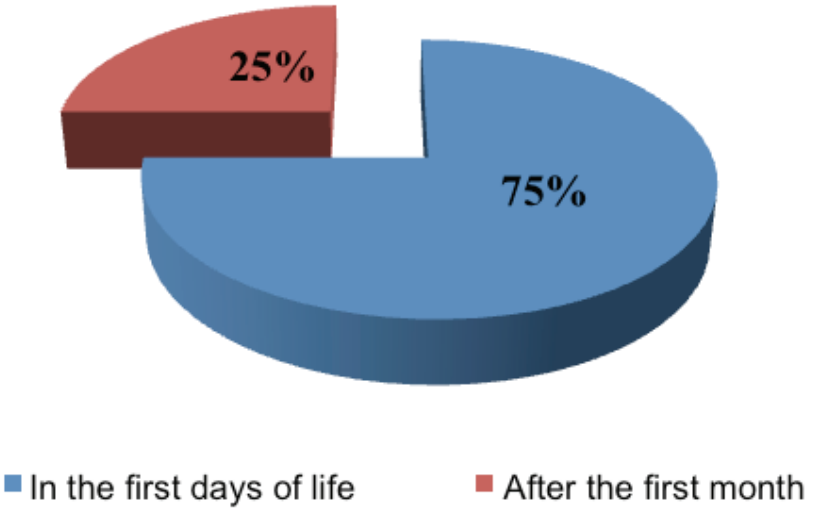

Figure 1 - At what age the child started using a pacifier.

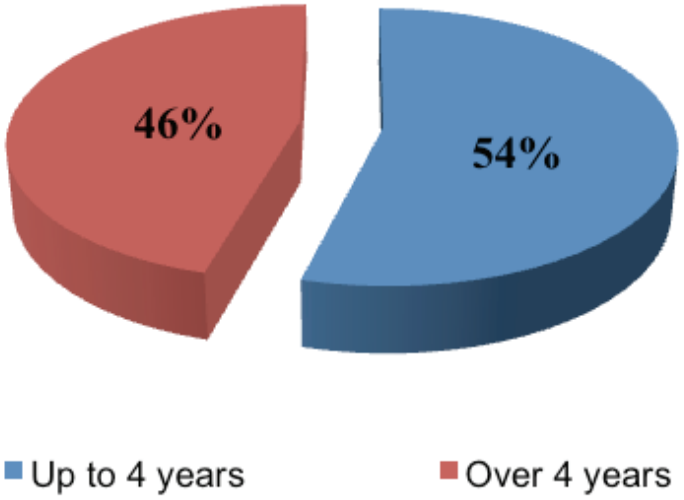

Figure 2 - Age which the pacifier sucking habit was discontinued.

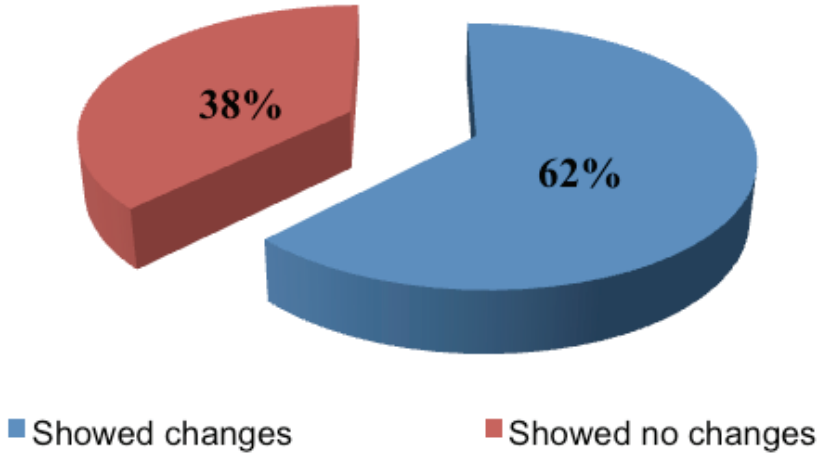

Figure 3 - Percentage of changes in children who used a pacifier.

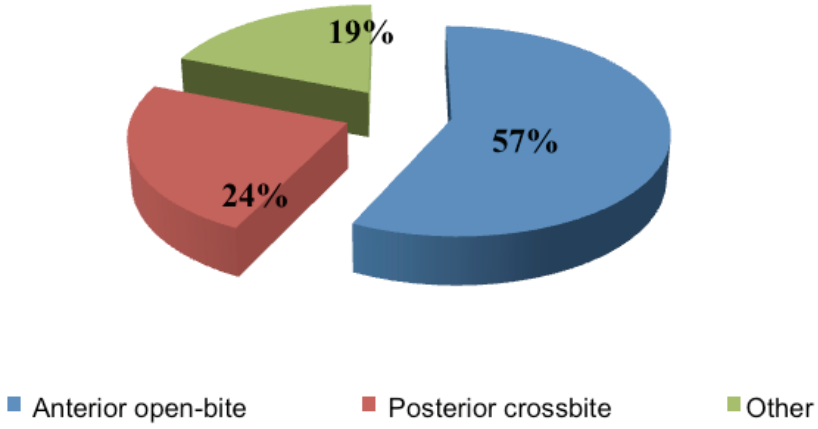

Figure 4 - Percentage of oral abnormalities observed in children who used pacifiers

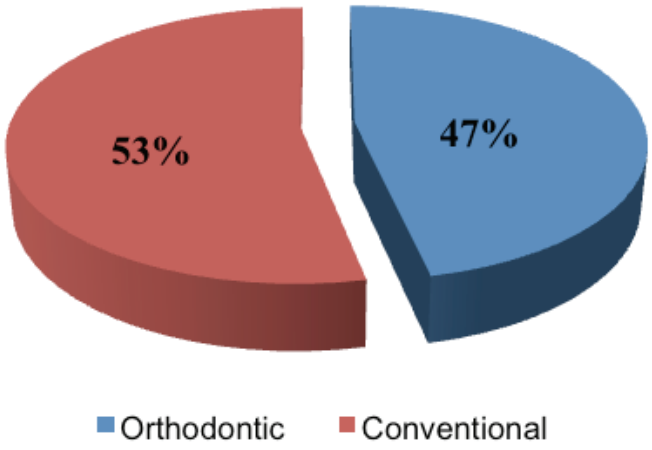

Figure 5 - Type of pacifier nipple used by children who had some kind of change.

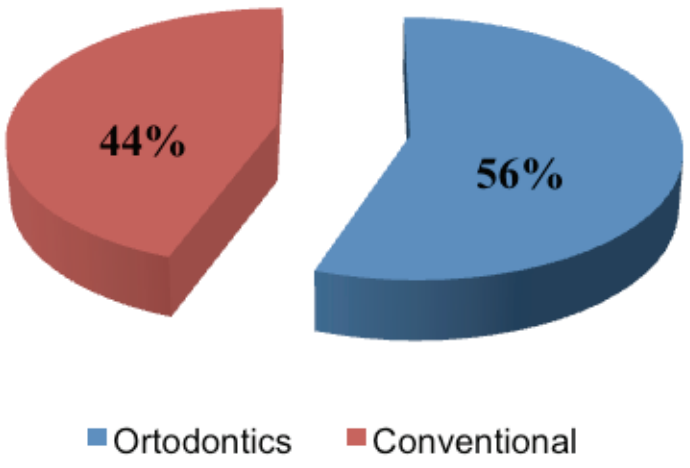

Figure 6 - Type of pacifier niplle used by children who showed no changes.

DISCUSSION

Breastfeeding is considered the most important food source for the development of children bringing physiological, immunological, neurological, emotional and functional benefits in growth and development of oral and facial structures (BUENO et al., 2013). The suction in the first months of life is an essential function for oral feeding and plays a key role in motor and verbal development (EMMERICH et al., 2004).

The American Academy of Pediatrics takes advantage of pacifier use as an effect and emphasizes disadvantages include interference with breastfeeding and malocclusion. The dentists give more attention to the impact it brings to the teeth, as psychologists and pediatricians relate your use artifice as a sedative for children (MOIMAZ et al., 2012; PRIMOZIC et al., 2014).

Habits are often defined as a behavior that, so often practiced, can become something unconscious and incorporate in the person's personality. In this case, oral habits refer to any action that is controlled or run by intraoral or perioral muscles.

A study of 100 questionnaires, which aim was to analyze sucking habits in children from 3 to 12 years old, revealed that 54% of them have some sucking habit, with the pacifier as the most prevalent. Most mothers were responsible to introduce harmful habits favoring occlusion of their children at 0 to 3 months of age, followed by 3 to 6 months of age (AMARAL et al., 2008).

A study conducted in 2008, aiming to identify the prevalence and types of malocclusion found in children in the age group 2-4 years was obtained as one of its conclusions that the pacifier has proved to be the most significant variable in unleashing of evil occlusions in children 24-58 months (BERWING et al., 2011).

Sucking pacifier is considered a negative habit because it is related to the determination of occlusion and craniofacial development of pediatric patients. Sucking habits are acquired by frequent repetitions of sucking, especially pacifiers (MACIEL, 2011).

Based on the analysis of the collected data, it can be noticed that most mothers offer pacifiers to their children in the first days of life, and they consider its use as a natural habit (MASSUIA e CARVALHO, 2012). Suction oral habits has been a source of study by several researchers because it may cause damages throughout the morphology and function of the stomatognathic system, and started being commonly observed in childhood.

The assessment of children who used pacifiers have revealed that most of them had some kind of dental malocclusion, 62 % of study participants, and the installation for possible modification occurs mainly when the sucking habit is prolonged. Muzulan et al. (2011), in his cross-sectional study conducted in Mato Grosso. Once prevalence and associated factors in primary dentition in patients from three to five years old, assisted by the Family Health Unit (USF), confirms the data in this research, thus it shows that 53.2 % had malocclusions related to oral habits (prolonged use bottle, biting objects, pacifier use), being the anterior open bite the most frequent type of dental skeletal abnormality. Also, this research can be related to the study of Tibolla et al .(2012), which shows the close relationship between pacifier use and the presence of anterior open bite in deciduous and mixed dentition.

Considering the results of the research, 61% of the 24 children who used a pacifier but showed no changes were using an orthodontic nipple, while those who presented some sort of abnormality, only 47 % were using orthodontic nipples.

In the study of Corrêa (2014), the prevalence of malocclusion was 32.5 % of the children that participated. Open bite was the most frequent type of malocclusion. Children with a history of bottle-feeding and those with oral habits had the highest prevalence of malocclusion. Higher prevalence of open bite rates were also found in children with a history of bottle-feeding and those with oral habits , while the highest rates of prevalence of crossbite were found in boys

The malocclusion depends essentially on intensity, strength and duration of the habits involved in the act (OLIVEIRA et al., 2011).

The habits of nutritive sucking are not picky factors in the etiology of malocclusions mainly prolonged pacifier use, resulting in orofacial alterations and dentition (JABBAR et al., 2011).It is important to note that for many professionals in pacifier sucking area, if the pacifier were sucked until two years of age, approximately, it does not constitute clinical concern. For others, when the habit is abandoned spontaneously until four years of age, there is a strong tendency for self-correction of malocclusion.

This trend abruptly falls when it occurs mainly in the mixed and permanent dentition. The survey results showed that children who maintained negative habit only until 2 years of age did not show some type of abnormality, while those who did it for more than four years, it can be seen some type of alteration.

According to other studies, children who have prolonged sucking habits can have: anterior open bite; posterior crossbite; anterior crossbite; overjet; maxillary underdevelopment and difficulty in phonation. Therefore, it is noteworthy that health professionals must be enabled in a multidisciplinary approach related to the study of Montaldo et al. (2011), reported that children with non-nutritive sucking habits are associated with an increased risk triggering the open crossbite.

This study allowed us to conclude that the most prevalent malocclusion is the anterior open bite, representing 57 % of the changes found, followed by posterior crossbite, found in 24 % of children who had the habit of sucking a pacifier, and only19 % had other types of abnormality related to study of Luzzi et al. (2011), reporting the presence of anterior open bite in 50% of children, confirming the relation with non-nutritive sucking habits such as pacifier use.

The interviews conducted with mothers of patients allowed us to observe that most mothers have difficulty when the time to remove the pacifier comes, which makes indispensable the participation of a multidisciplinary team, with each professional in their specialty, collaborating with their knowledge and training to rehabilitate the patient in his integrity, always trying to establish an affective bond to achieved a better result.

Muzulanet al. (2011), in his study of recreational strategies to eliminate pacifier based on other authors, shows that the understanding of the child along with the parents' cooperation is essential, reinforcing positively with praises and smiles, instead of punishing children in an attempt to remove the pacifier. It also shows that sucking habits as well as three years of age are considered signs of anxiety, a way to get attention and even instability, influencing in

social experiences, problems with speech, chewing and aesthetics and abnormal pressures in the arcade, resulting in deviations in the normal growth of dental and facial structures.

Malocclusion resulting from environmental factors such as finger sucking or pacifier can be prevented if the habit is removed before age five, or more precisely, before the mixed dentition; provided that the child is experiencing a craniofacial development and the normal occlusion (BOECKER et al., 2013).

Most mothers are unanimous in attributing the pacifier a function of "infant soothing", what justifies their commitment to early introduction to most children. Moreover, the pacifier is accepted as natural and is seen in most cases as an object that is part of the baby layette[4].Therefore, pacifier use by children is a topic that has been much discussed in the health field of biological and cultural point of view (DADALTO e ROSA, 2013)

After analyzing the present study, it is evident that most mothers offer pacifiers to their children in the first days of life. And among the changes that we find, the anterior open bite is the most prevalent.

The age at which the habit is removed deserves attention from parents and dentists, alerting the appropriated time that the child should stop using the pacifier, since we can prove that if it were done by two years of age, approximately, the habit is not considered a clinical concern. When necessary, pacifiers with orthodontic nipple (anatomy) should be preferred as they can adapt better in the oral cavity and tend to cause less change.

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