Orofacial myofunctional profile of children seen in the pediatric dental clinic of the University Hospital of Aracaju/SE

Perfil miofuncional orofacial de crianças atendidas no ambulatório odontopediátrico do Hospital Universitário de Aracaju/SE

Perfil miofuncional orofacial de niños pacientes del ambulatorio dental pediátrico del Hospital Universitario de Aracaju / SE

Silvia Elaine Zuim de Moraes Baldrighi[*]
Carla Patrícia Hernandez Alves Ribeiro César[*]
Aline Ferreira de Brito[**]
Gabriela Guimarães Ferreira[***]
Marianne Ribeiro Costa Rodrigues[***]
Liz Teixeira Nascimento[***]
Fernanda Santana Santos[***]

Abstract

Introduction: To trace the profile of health in a community is important for the implementation of actions at different levels of care as well as to structure interdisciplinary services in Health. **Purpose:** To describe the orofacialmyofunctional profile of thechildren seen at the pediatric dentistry department of a University Hospital, enabling future proposals of interdisciplinary performances. **Material and Methods:** This is a clinical observational, descriptive, quantitative article conducted from a screening with 60 children of both genders, aged from five to ten years, all from the pediatric dentistry clinic at the University Hospital (UH) of the UniversidadeFederal de Sergipe, SE, Brazil. Parents or guardians authorized the inclusion of

[*] *Department of Speech Language Pathology and Audiology, Orofacial Motricity area of the Universidade Federal de Sergipe.*
[**] *Master student in Speech Language Pathology and Audiology at PontifíciaUniversidadeCatólica de São Paulo,Brazil*
[***] *Speech Language Pathologist and Audiologist, undergraduate at Universidade Federal de Sergipe (UFS) – Brazil*

Conflict of interests:*No.*
Authors' Contributions: *SEZMB - Lead Author, effective participation from design to preparation of the manuscript. AFB - participated in the data collection. GGF - participated in the data collection. MRCR - participated in the data collection. LTN - participated in the data collection. FSS - participated in the data collection. CPHARC - participated in the preparation and review of the manuscript..*
CorrespondenceAdress: Silvia Elaine Zuim de Moraes Baldrighi,Rua Francisco Rabelo Leite Neto 500 apto 905 Bl Caueira Aracaju. Atalaia *E-mail adress: silviazbaldrighi@uol.com.br*
Received:01/10/2013 *;* **Accepted:** 05/11/2014

children by signing the Instrument of Consent.We used theprotocol MBGR (Genaro et al., 2009) adapted. **Results:** Of the 60 children studied, 34 were male (56.7%) and 26 female (43.3%). Of these, 39 (65.0%) showed changes in respiration, 36 (60.0%) chewing, 26 (43.3%) of swallowing, 21 (35.0%) in speech and 6 (10.0 %) did not show changes in orofacial myofunctional structures. **Conclusions:** It was observed that most of the children had myofunctional disorders, with changes on the breathing mode and chewing being the most prevalent in the study group. Thisinformation suggests the importance ofthe partnership between Speech Therapy and Pediatric Dentistry and Otolaryngology, in order to minimize the impact of orofacial myofunctional changes and maximize the quality of life of these children.

Keywords: Speech, Language and Hearing Sciences; Pediatric Dentistry, Stomatognathic System, Health Profile..

Resumo

Introdução: *Traçar o perfil de saúde de uma determinada comunidade faz-se importante para a implementação de ações em diferentes níveis de atenção, bem como para estruturar serviços interdisciplinares em Saúde.* ***Material e método:*** *Trata-se de um estudo clínico-observacional, descritivo, quantitativo, realizado a partir de uma triagem com 60 crianças de ambos os gêneros, na faixa etária de cinco a dez anos, oriundas do ambulatório de odontopediatria do Hospital Universitário da Universidade Federal de Sergipe. Os pais ou responsáveis autorizaram a participação das crianças assinando o Termo de Consentimento Livre e Esclarecido. Utilizou-se o protocolo MBGR (GENARO et al., 2009) adaptado.* ***Resultados:*** *Das 60 crianças avaliadas, 34 eram do gênero masculino (56,7%) e 26 do gênero feminino (43,3%). Dessas, 39 (65,0%) apresentaram alteração na respiração, 36 (60,0%) na mastigação, 26 (43,3%) na deglutição, 21 (35,0%) na fala e seis (10,0%) não apresentaram alterações nas estruturas miofuncionais orofaciais..*

Descritores: *Fonoaudiologia, Odontopediatria, Sistema Estomatognático, Perfil de Saúde.*

Resumen

Introducción: *Trazar el perfil de la salud de una determinada comunidad es importante para la implementación de acciones en diferentes niveles de atención y para estructurar servicios interdisciplinares en Salud.* ***Objetivo:*** *Describir el perfil miofuncional orofacial de niños asistidos en un ambulatorio dental pediátrico de un hospital universitario, permitiendo futuras propuestas de actuación interdisciplinaria.* ***Material y método:*** *Estudio clínico-observacional, descriptivo, cuantitativo, de una proyección con 60 niños de ambos los géneros, en el grupo de edad de cinco a diez años, oriundas del ambulatorio dental pediátrico del Hospital Universitario de la Universidad Federal de Sergipe. Los padres o responsables autorizaron la participación de los niños firmando el Termo de Consentimiento Libre y Esclarecido. Se utilizó el protocolo MBGR adaptado.* ***Resultados****: De los 60 niños evaluados, 34 eran del género masculino (56,7%) y 26 del género femenino (43,3%). De estas, 39 (65,0%) presentaran alteración en la respiración, 36 (60,0%) en el acto masticar, 26 (43,3%) en la deglución, 21 (35,0%) en la habla y seis (10%) no presentaran alteración en las estructuras miofuncionales orofaciales.* ***Conclusiones:*** *La mayoría de los niños presentó disturbio miofuncional orofacial, siendo que las alteraciones cuanto al modo respiratorio y cuanto a la masticación fueran las más prevalentes en el grupo de estudio. A partir de estos datos, se justifica la importancia de la actuación fonoaudiológica, en colaboración con la Odontología Pediátrica y la Otorrinolaringología, con el fin de minimizar el impacto de los cambios miofuncionales orofaciales y maximizar la calidad de vida de estos niños.*

Palabras clave: *Fonoaudiología, Odontología Pediátrica, Sistema Estomatognático, Perfil de Salud.*

Introduction

This study arose from the close relationship between the pediatric dentistry and speech, language and hearing sciences with regard to one of his objects of study and work: dental, morphological and functional relationships that exist in the stomatognathic system.

The speech, language and hearing sciences and dentistry are the Health areas that need to interact with each other so they can act on individual (s) and community (ies), promoting health, researching, preventing, diagnosing and rehabilitating changes that cause damage in the stomatognathic system[1]. The performance of oral functions such as breathing, chewing, swallowing and speech influences and is influenced by structural and functional aspects of the craniofacial complex, so that, orofacial myofunctional disorders can have a negative impact on their development[2]. Studies show that early intervention in orofacial myofunctional disorders can minimize damage caused in the development and craniofacial growth[3], being understood by orofacial myofunctionaland cervical disorder any disorder involving the orofacial and cervical muscles that interferes with the growth, development or operation of structures and orofacial functions[4].

A study from Minas Gerais[6] identified complaints related to orofacial motor skills in patientsaged up to 17 years in 15.0% of the sample (n = 161) without, however, describing which were such complaints.

As it can be seen, in the literature, few studies with odontopedriatric patients were found[5,6]. However, similar studies in student population in the same age[7,8] has shown orofacial myofunctional changes in the children studied. The research[9] quoted orofacial myofunctional disorders in 33.3% of the population (of these, dental malocclusion and altered breathing mode were the most frequent findings) and other pointed[10] change in speech in 14.9% of the sample.

Although this topic has been already discussed in the literature, it becomes relevant, because thespeech,language and hearing sciences courseat the Universidade Federal de Sergipe (UFS) is new in the state. And that,in a way, implies an emergent process in Sergipe of practices and knowledge production involving this field of knowledge, in addition to promote better understanding by professionals in related fields, on the performance of the speech therapist in multi and interdisciplinary teams. Definingthis profile will allow the planning of interdisciplinary actions that promote health and prevention, considering that the dental-speech interdisciplinary approach results from the belief that the form and the function does not exist in isolation, is closely linked and therefore, should be analyzed together, reinforcing what the literature exposed above[1] and minimizing the consequences of orofacial myofunctional disorders in the development of complex orocraniocervical[2,3].

Therefore, this study aimed to describe the orofacial myofunctional profile of children seen in pediatric dental clinic of a university hospital, enabling future proposals for interdisciplinary actions in Health.

.

.Materials and Methods

This is a clinical-observational study of convenience, descriptive and quantitative. We screened patients in the outpatient of pediatric dentistry I and II, serving a demand of children without neurological disorders or disabilities, aged zero to twelve years old, totaling 109 children of both genders.

The inclusion criteria adopted were: to be attended by these clinics, present the family's interest in participating in the study, to be in the age group between five and ten years old. Restricting the age of the participants is justified by the fact that until the age of ten the child has not yet entered the growth spurt, which usually occurs between 10.1 and the peak 11.1 years old for females and for males starting and the maximum growth spurt to 11.4 and 12.3 years old, respectively[11, 12]. Were excluded the patients that: did not consent to the search, did not cooperate during screening; underwent prior speech therapy; had abnormal craniofacial or occlusal morphology; had prior exposure to surgical orthodontic or otorhinolaryngological treatment; and the ones who got cold or flu[13] during the test.

For the selection of children, parents or guardians completed a brief questionnaire directed, containing data corresponding to the exclusion criteria adopted for the presented study. The positive response to any of the criteria described before excluded the child from the research. After the selection of children, the parents authorized the completion of clinical assessment held in pediatric

dentistry clinic at the University Hospital (HU) of UFS, by signing the Informed Consent Statement.

We used the orofacial myofunctional evaluation protocol MBGR[14] synthesized (because of the purpose of screening), in order to investigate possible stomatognathic changes.

It was asked the kids to position themselves sitting on a regular chair with their feet flat on the floor, back straight and the head oriented to the Frankfurt plane parallel to the horizontal plane and the median sagittal plane perpendicular to the horizontal plane. At this moment, the structural and functional aspects of the stomatognathic system were observed.

Breathing was assessed by observation of nasal expiratory airflow with the use of graded mirror of Altmann and quantified in millimeter paper in the reference block of said mirror (Pro-Fono®)[15] which was placed under the nostrils of the children to check the air passagethrough the nose, the symmetry and the reduction of the flow (right and left) in both nostrils[16,17] being applied with and without cleaning the nostrils. To assess the breathing mode, the patient was instructed to breathe normally for a few seconds, and observed that the mode was nasal, oral or oronasal. This test was performed after cleaning the nose. By filling the mouth with water, the child was asked to stay with the water in the mouth, having been clocked the time, considering the best score (zero) when the child kept the water in the mouth for two minutes or more, checking thus the possibility of nasal use. These tests were supplemented by observations made during clinical tests and by information obtained from the patients themselves[14]. In this test, the position of the mandible was also observed[18].

The breathing mode observed at rest was classified as:

- Nasal (appropriate): when performed exclusively by the nose, with lip sealed.

It was considered abnormal when:

- Unsystematic oronasal (when performed either through the nose and sometimes the mouth) and

- Oral (when performed exclusively by mouth)[18].

In the evaluation of masticatory function it was used wafer cookie as solid food (the wafer package was opened only at the time of evaluation, for consistency). This function was evaluated for masticatory type[14.18], considering the food crunch position in the dental arches, with the following classification:

- Suitable (toggled bilateral), when chewing is performed on both sides of the dental arches alternately.

- Changed (chronic unilateral or bilateral simultaneous): when chewing was performed only on one side of the dental arches or simultaneously in both arches.

To determine which side chewing occurred, the researcher positioned the hand on the masseter region and watched the side where the food was being crushed[19]. The preferred side, was confirmed at some times, during the grinding process, the child was asked to open his mouth for a view of the food trituration side.

It was checked if the lip closure during mastication occurred: in a systematic manner (appropriate), unsystematic or absent (amended)[14,20]. For evaluation of swallowing, it was used water (liquid) and transparent disposable cup[21]. During the execution of the function, it was verified if there was or there was not the occurrence of interposition and pressing of the tongue through the cup bottom viewing. The solid swallowing was observed after thetrituration process of wafer cookie. Possible occurrences were evaluated: tongue thrust, tongue pressing against the teeth, exaggerated contraction of the perioral muscles, excessive contraction of the chin muscle and presence of food waste. From these parameters, swallowing was considered[19]:

- Suitable: when children did not show any of the characteristics above.

- Amended: when presented one or more of the characteristics above.

Then, the speech evaluation was made. The child was prompted to respond spontaneously (the fourth proofof speech of the MBGR protocol) questions like “What’s your name?”; “How old are you?”; “Tell me what do you like do.”; among other possibilities. The evaluation of speech also occurred by naming pictures used in the protocol itself (second proof of speech).After, a transcription of the oral emissions was performed, in the sheet of the data collector. The following aspects were observed: presence or absence of saliva on the labial commissures, in the lower lip, drool; mouth opening (normal, exaggerated or reduced); tongue position during the act of speech, articulatory imprecision and distortions.The parameters used to classify speech in adequate or changed were:

- Suitable: the child did not have the changes above.

- Changed: when any of the changes were observed.

At the end, it was given a feedback for the participants' parents and guardians, in a room of HU, effecting up of the necessary measures to each situation. Subsequently, the results were analyzed statistically, the department of mathematics and statistics of UFS using the statistical software package for the social sciences (SPSS, version 18, 2008, SPSS Inc., Chicago, Illinois, USA)[22]. For a characterization of the population it was used thedescriptivestatistics (prevalence, central tendency measures and dispersion). To evaluate the relationship between sociodemographic and anthropometric variables it was applied the Pearson's Chi-squared test(for sex) and, for comparison of orofacial myofunctional disorders and age of the study participants, the Mann-Whitney's test (average test) adopting a level of significance in 5%. This work was approved by the Research Ethics Committee through the CAAE-0195.0.107.000-09.

Results

After applying the inclusion and exclusion criteria, the sample consisted in 60children with an average of 7.33(± 1.63) years old. (Of these, 34 (56.7%) were male and 26 (43.3%) were female.

In decreasing order of prevalence of orofacial myofunctional disorders (Figure 1), it was obtained: Change on the breathing mode (oral: 26 – 43.3% and oronasal: 13 – 21.7%), mastication (vertical movement of jaw: 13 - 21.7%; unilateral in the right: 22 - 36.7% and in the left: 11 - 18.3%, and maintenance of open lips systematically: 7 - 11.7%), swallowing (mentalis muscle contraction, tongue interposition and pressing the tongue on the teeth: 18 - 30.0% each and exaggerated contraction of the perioral muscles: 13 - 21.7%) and speech (locked joint: from 15 - 25.0%, lisping: 6 - 10.0% and jaw displacement: 4 - 6.7%).

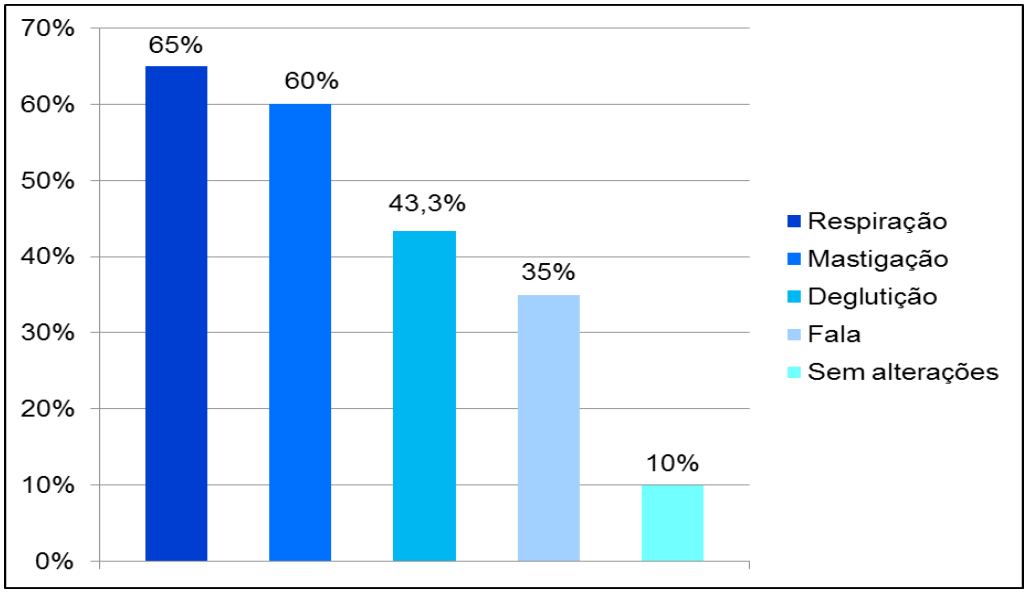

Figure 1 – Distribution of the sample of Pediatric Dentistry Clinic of theChildren's University Hospital (HU) ofUniversidade Federal de Sergipe, according to the orofacial myofunctional disorders.

A By applying the Chi-squared test (for sex) and the Mann-Whitney's test (average test for age),it was found that the studied stomatognathic functions did not suffer interference of socio demographic variables age and gender as shown in tables 1 and 2.

Table 1 - Comparison of the gender variable for children at the pediatric dentistry clinic of university hospital (hu), universidade federal de sergipe, in relation to the orofacial myofunctional changes.

Variables	Sex				P*
	Male		Female		
	n	%	n	%	
Breathing					
Normal	11	52,4	10	47,6	0,623
Changed	23	59	16	41	
Mastication					
Normal	12	50	12	50	0,395
Changed	22	61,1	14	38,9	
Swallowing					
Normal	21	61,8	13	38,2	0,362
Changed	13	50	13	50	
Fala					
Normal	21	53,8	18	46,2	0,548
Changed	13	61,9	8	38,1	

Nível de significância para p < 0,05

* Teste Qui-quadrado de Pearson

Table 2 - Comparison of the gender variable for children at the pediatric dentistry clinic of university hospital (hu), universidade federal de sergipe, in relation to the orofacial myofunctional changes.

Variables	**Mean Age**	**Dp**	**P***
Breathing			
Normal	7,1	1,578	0,409
Changed	7,46	1,688	
Mastication			
Normal	7,33	1,736	0,982
Changed	7,33	1,586	
Swallowing			
Normal	7,18	1,604	0,376
Changed	7,54	1,679	
Speaking			
Normal	7,13	1,641	0,194
Changed	7,71	1,586	

Level of significance p <0.05

*Teste Mann Whitney

Discussão

Of the 60 children studied, only 10.0% of these showed no changes, showing high occurrence of disturbances in the studied sample, which justifies the Speech and Dental interdisciplinaryaction. So, this work is justified, because theknowledge about the child population that attends the pediatric dentistry clinic at the HU / UFS is essential for planning care programs and for the implementation of prevention and treatment services, as well as for dissemination of speech, language and hearing sciences, which is an incipient science in the state.

The breathing mode, among the stomatognathic functions, wasthe most affected finding in this study on the order of 65.0%, and the exclusive mouth breathing was found in 26 patients (43.3%) and in 13 (21.7%), it wasoronasal. When nasal breathing is replaced by oral or oronasal, it should be considered a pathological condition[18] and, therefore, the referral for evaluation and otorhinolaryngology conduct is necessary.

Different findings were obtained by researchers[3,6,7,30]withahigher percentage of occurrence of nasal breathing (64% of a sample of 50 patientsaged between five and eight years[3]; 62.39% of a sample of 229 children between 3 and 14 years old[6], 82.1% of a sample of 173 students and 64.5%7 sample of 200 patients from 8 to 11 years and 11 months old)[30]. Note that in the study of Monteiro, Brescovici and Delgado[30], the risk factors for lisp was investigated, among which, the altered breathing pattern, being investigated the suggestive signs of oral breathing in children whose age is a predisposing for nasal breathing due to the growth of bone and tooth bases stability.

Similar results were obtained in the literature[2,8,25], with 60.43% of 235 schoolchildren between six and eleven years old [8], 62.0% of children, between six and eight years old, who composed the sample group (Group I) showed changes on the breathing mode, in other words, with the same age group in this study and 56.8% of school children aged between six and nine years of age (median of seven years old), identified by questionnaires answered by parents or guardians[25]. Although the results were similar to those of Merighi's group[2], the author found a higher occurrence of mixed mode (53.0%)[2], while this investigation had a higher occurrence of oral breathing mode (43.3%), the conclusion was that in this way, there will be a bigger commitment of the stomatognathic system in thosewho had higher duration and chronicity of the respiratory function.

This is because the establishment and persistence of oral breathing mode during an individual's development phase can cause a number of stomatognathic changes, among which may be mentioned: the vertical rise of the face, facial asymmetry, deep and atresic palate, increased gonialangle, dental malocclusion, short upper lip and everted lower, the amended rest position of the lips and tongue, a sagging of the elevator muscles of the jaw and of the tongue, altered swallowing, and postural changes[24]. About breathing, it is known that when there is a permanence of the changed respiratory condition,itputs in danger the balance of the other stomatognathic functions, such as chewing, swallowing and speech.This conditions influence the craniofacial growth and growth[23]. Astudy[9] found even higher percentage of mouth breathers (77.78%). This discrepancy can be attributed to the difference betweenthe samples of the studies, namely, nine patients[9] and 60 in this study.

In general, the change in chewing was the second most affected function in this study, namely, 60.0% of the sample, with chronic unilateral pattern was the most prevalent characteristic(33patients-50.0%). About the type of mastication, this may present changes due to events occurring in the mixed denture, can also be influenced due to the state of disrepair of the teeth, exfoliation and eruption of primary teeth, as well as softer diets, making it difficult to bilateral chewing. This unilateral pattern may affect bone and muscle development of the face, being over stimulated the work side and less, the side of the swing, causing facial asymmetry, with high influence in the middle and lower thirds of the face[21], preventing the stabilization of the structures involved in this[25]. A study proves that due to the presence of a preferred side for chewing, thefunction[26] worsens. Researchers[3] also found high rates of orofacial myofunctional disorders, and,among the changes, chewing was among the most common. Other percentages were obtained by researchers, most likely by the occlusal alterations of the groups investigated[9.27] oreven for the higher age average[10]. These results run counter to the study conducted in 2011, which showed cheeks asymmetry in children with mouth breathing, due to the strength reduction in masticatory

muscles associated with the presence of unilateral mastication[28].

One aspect that deserves attentionconcernsthe masticatory adaptations present in children erupting phase of the first permanent molars and of the fall, emergency and eruption of the incisors (central and lateral), since the sample consisted mostly by children with mixed dentition. It was observed clinically that children who had complete eruption of the first permanent molars presented a faster and more efficient mastication, in contrast to those who had primary dentition or were during the outburst phase of the mentioned teeth. The incision of food was another aspect that suffered adaptation of the patients participating in the research, as some had falling incisors (central or lateral) in both arches orevenan emergence of eruption of theseteeth.The adaptations found in the first transitional phase of the mixed dentition of the studied groupwere not considered changes, since in these conditions are generatedocclusal instabilities that are expected during the development of children.

The lip closure during chewing was obtained by the majority of the sample, regardless if the dentition is deciduous or mixed, although those with altered breathing mode need to chew, in an adapted form, with open lips. In this situation, change was noticed, although secondary, inlip closing. Another clinical finding was the presence of kneading the food rather than triturating it, by the majority of children with altered breathing mode, regardless of age, gender and dentition. One of the aspects to be considered, according to the literature[8], relates to the occlusion, which usually is altered in mouth breathers. The structural aspects related to the stomatognathic system have negative impact in the execution of oral functions. Literature[24] still has pointed out that mouth breathing children present pathological adaptations, as half openedusual lip position and tongue in the oral floor, highlighting the importance of an early diagnosis in order to avoid future orofacial changes. In addition, depending on the condition that prevents the nasal breathing, chewing patterns, swallowing and speech may suffer changes, especially in situations such as asthma, regardless of its severity[13].

The swallowing disorders was observed in 43.3% of the sample, being observedacontractionof the mentalis muscle, interposition of thetongue and pressing the tongue against the teeth in 18patients (30.0%), excessive contraction of the perioral muscles in13 (21.7%). Higher percentages were obtained from the literature[13,29], in 62.7% of the sample with the same age group in this study. It is justified by the research method adopted. In this study we used transparent glass and observed the posture of the tongue during water swallowing. However, the authors cited[13] used the evaluators' thumbs in order to prevent the lip seal, and thus have a direct view of the tongue. This procedure was not used because it is believed that,when the lips move away, passively, during swallowing, it cangenerate imbalance of the muscles involved in the act of swallowing, and you can find anterior tongue interposition as a compensatory mechanism to the opposition movement applied by the evaluator.

It is worthnotingthatpatients with abnormal breathing mode in the sample showed a higher amount of food waste when compared to nasal breathing.It was observed when the oral vestibule was verified after the chewing and swallowing of solid food, in this case, the wafer.In this group of patients, it was also easier to visualize the tongue,duringthe act of swallowing, since it was possible to see it by the partial or absent lip closure. The tongue, during the act of swallowing of these patients, presented interposed. The literature has shown changes in swallowing pattern in mouth breathing children with, as the primary manifestation, asthma[13]. In addition, researchers showed that the tone and the usual position of lips and tongue found themselves changed in mouth breathing children[17], reasons that also affect the implementation of oral functions such as swallowing.

The children in the samplethatwere passing through falling, emergence and eruptionphaseof the incisors (central and lateral) also showed tongue posture between or against the teeth in the swallowing act and, therefore, this data was considered as a transient functional adaptation and not pathological, that is, as a feature of normal seasonal development of swallowing interference with the mixed dentition, and this may be an acceptable variable. Highlighting that the individual variations of deglutory process should always be related to the severity of muscle impairment, to the presence or absence of malocclusion of the dental segment, the exchange of teeth and altered anatomical conditions associated with harmful oral habits. These variables influence, and much, the therapeutic option to be displayed.

The phonetic speech disorders were observed with smaller prevalence, that is, in 35.0% of the sample, observing locked joint (15 - 25.0%), lisp (6 - 10.0%) and mandibular displacement (4 - 6.7%). Similar percentages were obtained regarding the lisp, as 18.2% [23] (more often the frontal lisp) and 19.0%[24,30], with a higher prevalence in girls[24]. Another study did not find this association with gender, but with craniofacial growth (the higher the age, the lower the prevalence of lisp), with the presence of harmful oral habits (nonnutritive sucking) and face with its lower third increased (the higher the citedthird, the more likely is the presence of lisp)[25].

In children with altered breathing mode, it was possible to perceive the presence of saliva accumulation in labial commissures when speaking and the production of phonemes with tongue interposition, showing a phonetic speech disorder. Researchers[6] commented that the occlusal changes, in particular the anterior open bite, provide speech disorders. It was found,in the study, a high incidence of mouth breathers, although astatistical test of correlation has not been effected in order to verify that besides the occlusal changes, the breathing mode also affected or not the speech. Another study[8] also showed increased frequency of malocclusion in mouth breathers in students between 6 and 11 years old, although the speech disorders occurred in 14.89% of the sample. Respiratory disorders such as asthma, may favor permanent speech distortions (not occurring only in times of crisis), even in mild cases[13].

The found speech disorders may even have occurred for different reasons, since child's inhibition and shyness perceived during the test (perhaps because it is a different experience for the child) to the prolonged use of harmful oral habits, as quoted in the literature [3, 9]; enlarged tonsils and allergenic factors that affect breathing[18] and, therefore,speech; tongue frenulum changes[5]; teeth exchange phase (resulting in temporary deviations of speech)[5]; temporomandibular[5]dysfunction, among others, being important a detailed assessment of these aspects, so that the speech intervention canreach success.

Our study has shown no influence of gender and age in relation to oral functions (Tables 1 and 2). In a master degree's thesis on the prevalence of speech-language disorders in school children in Belo Horizonte[10], similar results were obtained in relation to gender and speech, although this has not occurred withage, being foundmyofuncional orofacial disorders with greater prevalence between eight and nine years old.

From what was found in this sample,proposes of reception in both clinics (dentistry and speech, language and hearing sciences) were outlined to minimize the adverse effects of orofacial-myofunctional disorders in craniofacial growth, a referral for speech therapy(when necessary) and other specialties and interdisciplinary clinical care suggestion between speech, language and hearing sciences,pediatric dentistry and Otorhinolaryngology of the University Hospital (UH) of UFS, highlighting the importance of knowledge and organization of the demand for planning, structuring and offering health care services in order to reduce inequalities in health. In addition, it is intended to proceed with service organization guided on the analysis of the service capacity of each area together with the presence of the largest demonstrations, implanting programs and clinics for certain purposes (such as a clinic for mouth breathers) and after a time determined by an interdisciplinary team, assess the impact of orofacial myofunctional disorders. Thus, one can evaluate the implemented services and perform strategic realignment to reorganization of the offered services.

The main limitation of this study relates to the fact that it is composed of a population of convenience. Therefore, the results should be interpreted carefully, respecting this particularity.

From the results obtained, other risk factors for orofacial myofunctional disorders, that were notdiscussed in this study require further investigation for the implementation of proposals in the health service, such as the history of breastfeeding, socioeconomic factors, harmful oral and eating habits, so that the principles of expanded clinical inHealth can be adopted, performing a greater integration between the services allied to the establishment of projects and programs that minimize the prevalence and incidence of orofacial myofunctional disorders, regardless the complexity of the health system.

Thus, there would be the need to approach with counter-reference services, for a better attention to health, in Speech Therapy and Pediatric Dentistry in the capital of the state of Sergipe.

Therefore, the clinical practice of the cited specialties must be reconsidered, from the

implementation of integrated and performed protocols by the service to the integration of other specialties. There are many challenges to reduce the fragmentation of knowledge and the motivation and commitment of the professionals involved that make it possible to overcome the obstacles experienced in the daily Health.

.

Conclusion

It can be observed that most of the children presented changes in stomatognathic functions, especially the ones related to breathing and chewing. From these data, it is justified the importance of phonoaudiological intervention in partnership with the Pediatric Dentistry and Otolaryngology, in order to minimize the impact of orofacial myofunctional disorders and maximize these children's quality of life.

References

1.Amaral EC, Bacha SMC, Ghersel ELA, Rodrigues PMI. Inter-relação entre a odontologia e a fonoaudiologia na motricidade orofacial. Ver Cefac 2006; 8(3): 328-36. Disponível em: http://www.redalyc.org/pdf/1693/169320536011.pdf. Acesso em: 13 nov. 2013.

2.Merigui LBM. Características miofuncionais orofaciais e vocais das crianças do município de Monte Negro/RO [dissertação]. Bauru (SP): Universidade de São Paulo; 2006. Disponível em: http://www.teses.usp.br/teses/disponiveis/25/25143/tde-27082007-154735/pt-br.php. Acesso em: 13 nov. 2013.

3.Maciel KRA, Albino RCM, Pinto MMA. A prevalência de distúrbio miofuncional orofacial nos pacientes atendidos no ambulatório de pediatria do Hospital São Luís de França. Rev Pediatr 2007;8(2): 81-90. Disponível em: http://www.socep.org.br/Rped/pdf/8.2%20Art%20Orig%2002%20-%20A%20preval%EAncia%20de%20dist%FArbio%20miofuncional%20orofacial%20nos%20pacientes%20atendidos%20no%20ambulat%F3rio%20de%20pediatria%20do%20Hospital%20Lu%EDs%20de%20Fran%E7a.pdf Acesso em: 13 nov. 2013.

4.Sociedade Brasileira de Fonoaudiologia. Comitê de Motricidade Orofacial. Vocabulário técnico-científico em motricidade orofacial. São Paulo: SBFa.; 2007.

5.Baldrighi SEZM, Rocha AL. Ocorrência das alterações miofuncionais em pacientes odontopediátricos. Dental Science 2008; 2(5): 5-10.

6.Verrastro AP, Tashima AY, Ideriha PN, Stefani FM, Rodrigues CRMD, Wanderley MT. Características oclusais e miofuncionais orais das crianças atendidas na Clínica de Odontopediatria da Faculdade de Odontologia da USP. Rev Inst. Ciênc Saúde 2009; 27(4): 394-9. Disponível em: http://files.bvs.br/upload/S/0104-1894/2009/v27n4/a1640.pdf. Disponível em: 13 nov. 2013.

7.Sulliano AA, Rodrigues MJ, Caldas Júnior AF, Fonte PP, Porto-Carreiro CF. Prevalência de maloclusão e sua associação com alterações funcionais do sistema estomatognático entre escolares. Cad. Saúde Pública 2007; 23(8): 1913-23. Disponível em: http://www.scielo.br/pdf/csp/v23n8/18.pdf. Acesso em: 12 abr. 2014.

8.Berwig LC, Silva AMI, Busanello AR, Almeida FL, Bolzan GP, Hennig TR. Alterações do modo respiratório, na oclusão e na fala de escolares: ocorrências e relações. Rev Cefac 2010; 12(5): 795-802. Disponível em: http://www.scielo.br/scielo.php?pid=S1516-18462010000500011&script=sci_abstract&tlng=pt. Acesso em: 12 abr. 2014.

9.Cavassani VGS, Ribeiro SG, Nemr NK, Greco AM, Köhle J, Lehn CN. Hábitos orais de sucção: estudo piloto em população de baixa renda. Rev Bras. Otorrinolaringol. 2003; 69(1):106-10. Disponível em: http://www.scielo.br/pdf/rboto/v69n1/a17v69n1.pdf. Acesso em: 13 nov. 2013.

10. Rabelo ATV. Prevalência de alterações fonoaudiológicas em crianças de 1ª a 4ª série de escolas públicas da área de abrangência de um centro de saúde de Belo Horizonte [dissertação]. Minas Gerais: Universidade Federal de Minas Gerais. Mestrado em Saúde da Criança e do Adolescente. Faculdade de Medicina; 2010.

11. Iguma KE, Tavano O, Carvalho IMM. Comparative analysis of pubertal growth spurt predictors: Martins and Sakima method and grave and Brown. J appl. Oral. Sci. 2005; 13(1):58-61. Disponível em: http://www.scielo.br/scielo.php?pid=S1678--77572005000100012&script=sci_arttext. Acesso em: 12 abr. 2014.

12. Tuma CESN, Oliveira Júnior WN, Tuma GSN, Garbui IU, Silva NP, Nouer PRA. Avaliação da idade óssea em crianças de 9 a 12 anos de idade na cidade de Manaus-AM. Dental Press JOrthod. 2011; 16(3): 63-9. Disponível em: http://www.scielo.br/pdf/dpjo/v16n3/a08v16n3.pdf. Acesso em: 12 abr. 2014.

13. Castro MSJ, Toro AADC, Sakano E, Ribeiro JD. Avaliação das funções orofaciais do sistema estomatognático nos níveis da gravidade da asma. J.Soc.Bras. Fonoaudiol. 2001;24(2):119-24. Disponível em: http://www.scielo.br/scielo.php?pid=S2179--64912012000200005&script=sci_arttext&tlng=pt. Acesso em: 12 abr. 2014.

14. Genaro KF, Berretin-Félix G, Rehder MIBC, Marchesan IQ. Avaliação miofuncional orofacial: protocolo MBGR. Rev Cefac 2009; 11(2): 237-55. Disponível em: http://www.scielo.br/pdf/rcefac/v11n2/v11n2a09. Acesso: 03 set. 2009.

15. Altmann EBC, Khoury RBF, Ramos ALNF. Avaliação fonoaudiológica. In: Altmann EBC. Fissuras labiopalatinas. 4a ed. Carapicuiba: Pró-Fono; 1997. p. 325-66.

16. Bassi IB, Franco LP, Motta AR. Eficácia do emprego do espelho de Glatzel na avaliação da permeabilidade nasal. Rev Soc Bras Fonoaudiol. 2009; 14(3): 367-71. Disponível em: http://www.scielo.br/pdf/rsbf/v14n3/v14n3a13.pdf. Acesso em: 12 abr. 2014.

17. Andrada e Silva MA, Marchesan IQ, Ferreira LP, Schmidt R, Ramires RR. Posture, lips and tongue tone and mobility of mouth breathing children. Rev. Cefac 2012; 14(5): 853-60. Disponível em: http://www.scielo.br/pdf/rcefac/v14n5/61-11.pdf. Acesso em: 12 abr. 2014.

18. Marchesan IQ. Avaliação e terapia dos processos de respiração. In: Marchesan IQ, organização. Fundamentos em fonoaudiologia: aspectos clínicos da motricidade oral. 2ª ed. rev. e ampl. Rio de Janeiro: Guanabara Koogan; 2005. p. 28-43.

19. Saconato M, Guedes ZC. Estudo da mastigação e da deglutição em crianças e adolescentes com Sequência de Möebius. Rev Soc Bras Fonoaudiol. 2009; 14(2): 165-71. Disponível em: http://www.scielo.br/pdf/rsbf/v14n2/05.pdf. Acesso em: 12 abr. 2014.

20. Parolo AMF, Bianchini EMG. Pacientes portadores de respiração bucal: uma abordagem fonoaudiológica. Rev Dental Press Ortod Ortop Facial 2000; 5(2): 72-81.

21. Pizolato RA, Freitas-Fernandes FS, Gavião MBD. Deglutition and temporomandibular disorders in children. Minerva Stomatol 2009; 58(11-12): 567-76.

22. Ribas JR, Vieira PRC. Análise multivariada com o uso do SPSS. Rio de Janeiro: Ciência Moderna; 2011.

23. Oliveira CF, Busanello AR, Silva AMT. Ocorrência de má oclusão e distúrbio articulatório em crianças respiradoras orais de escolas públicas de Santa Maria, Rio Grande do Sul. RGO 2008; 56(2): 169-74. Disponível em: http://www.revistargo.com.br/viewarticle.php?id=556&layout=abstract. Acesso em: 12 abr. 2014.

24. Cattoni DM, Fernandes FD, Di Francesco RC, Latorre MDO. Características do sistema estoma¬tognático de crianças respiradoras orais: enfoque antroposcópico. Pró-Fono Rev Atualiz Cient. 2007; 19 (4): 347-51. Disponível em: http://www.scielo.br/pdf/pfono/v19n4/a04v19n4.pdf. Acesso em: 12 abr. 2014.

25. Felcar JM, Bueno IR, Massan ACS, Torezan RP, Cardoso JR. Prevalência de respiradores bucais em crianças em idade escolar. Ciência & Saúde Coletiva 2010; 15 (2): 437-44. Disponível em: http://www.redalyc.org/articulo.oa?id=63012321016. Acesso em 13 nov. 2013.

26. Gomes SGF, Custódio W, Jufer JSM, Cury AADB, Garcia RCMR. Correlation of mastication and masticatory movements and effect of chewing side preference. Braz. Dent. J. 2010; 21(4): 351-5. Disponível em: http://www.scielo.br/pdf/bdj/v21n4/v21n04a11.pdf. Acesso em: 12 abr. 2014.

27. César AM, Maksud SS. Caracterização da demanda de fonoaudiologia no serviço público municipal de Ribeirão das Neves - MG. Rev. Cefac 2007; 9(1): 133-8. Disponível em: http://www.scielo.br/pdf/rcefac/v9n1/v9n1a15.pdf. Acesso em: 12 abr. 2014.

28. Bolzan GP, Silva AMT, Boton LM, Corrêa ECR. Estudo das medidas antropométricas e das proporções orofaciais em crianças respiradoras nasais e orais nas diferentes etiologias. Rev. Soc. Bras Fonoaudiol. 2011; 16(1): 85-91. Disponível em: http://www.scielo.br/pdf/rsbf/v16n1/16.pdf. Acesso: 12 abr. 2014.

29. Borges CS, Vedovello Filho M, Tubel CAM, Miyamoto ZY, Carvalho AS. Incidência da deglutição atípica com pressionamento anormal de língua. RGO 2004; 52(4): 301-4. Disponível em: http://www.revistargo.com.br/ojs/index.php/revista/article/viewArticle/390. Acesso em: 13 nov. 2013.

30. Monteiro VR, Brescovici SM, Delgado SE. A ocorrência de ceceio em crianças de oito a 11 anos em escolas municipais. Rev Soc Bras Fonoaudiol. 2009; 14(2): 213-8. Disponível em: http://www.scielo.br/scielo.php?pid=S1516-80342009000200012&script=sci_abstract&tlng=pt. Acesso em: 12 abr. 2014.