



Oral health and feeding frequency of preschool children in a city in northern Brazil

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ABSTRACT. Oral health and healthy eating habits are related to socioeconomic and cultural conditions of the population and imply the biopsychosocial health of the individual. This study investigated the oral health and feeding frequency of children attending a daycare in the municipality of Ananindeua, Pará State, northern Brazil. This was a cross-sectional study, quantitative and qualitative, descriptive, involving the examination of the oral cavity of children and questionnaires to parents, caregivers and those responsible for the daycare. Forty-seven children aged one to six years participated in this study; most were girls (57.5%). The daycare had no specific place for tooth brushing that was performed only once daily, without flossing. It was reported by parents that 48.94% of children have never visited a dentist. On examination of the oral cavity we observed carious lesion (51.10%), dental calculus (42.55%), fluorosis (10.64%) and gingivitis (2.13%). It was found that the children had 3 or more meals and had the habit of consuming cariogenic foods such as soft drinks, candy and/or gum, even not being provided by the daycare. Most of the children had at least one decayed tooth, and the daycare offered a healthy diet, but the children had the habit of eating cariogenic foods.

Keywords: feeding frequency, oral health, preschool, feeding.

Perfil da saúde bucal e frequência alimentar de crianças na fase pré-escolar em um município do Norte do Brasil

RESUMO. A saúde bucal e os hábitos alimentares saudáveis estão relacionados às condições socioeconômicas e culturais da população e implicam na saúde biopsicossocial do indivíduo. Este estudo buscou analisar as condições de saúde bucal e frequência alimentar de crianças matriculadas em uma creche no município de Ananindeua-PA, Norte do Brasil. Foi um estudo transversal, quanti-qualitativo, descritivo, envolvendo o exame da cavidade bucal das crianças e aplicação de questionários para os genitores, cuidadores e responsáveis da creche. Participaram 47 crianças na faixa etária de um a seis anos de idade, sendo a maioria meninas (57,5%). Foi verificado que a creche não possuía escovódromo e que a escovação dos dentes era realizada, apenas, uma vez ao dia, sem o uso do fio dental. Foi relatado pelos pais que 48,94% das crianças nunca foram ao dentista. No exame da cavidade oral foram observadas lesão cariada (51,10%), cálculo dental (42,55%), fluorose (10,64%) e gengivite (2,13%). Foi verificado que as crianças realizavam três ou mais refeições e tinham o hábito de consumir alimentos cariogênicos como refrigerantes, balas e/ou chicletes, mesmo não sendo oferecidos pela creche. Foi observado que a maioria das crianças apresentou pelo menos um dente cariado e que a creche oferecia alimentação saudável.

Palavras-chave: hábitos alimentares, higiene bucal, creche, alimentação.

Introduction

Oral health is directly related to general health. Teeth are fundamental structures for the body, being responsible for the pronunciation of words, chewing food, besides being a factor in aesthetics. Poorly positioned teeth or crooked may cause difficulty in swallowing and chewing food, speech and diction change, becoming more susceptible to decay and compromising self-esteem and oral aesthetic of the patient (MOURA; CAVALCANTI, 2007; PAULETO et al., 2004; BRANCO et al., 2007).

The lack of knowledge about oral hygiene care is a factor to be questioned, since the information does not reach all social classes. The importance of dental educational that raise and interpret the needs of populations with less access to dental health services should be recognized (PAULETO et al., 2004).

The main etiological factor for both dental caries and periodontal disease is the bacterial plaque. Mechanical removal of plaque by proper tooth brushing associated with flossing is yet considered the main, most effective, accessible and widespread

means of prevention of oral diseases (GARCIA et al., 2004). Periodontal disease like gingivitis is characterized as an inflammation and infection process that affects periodontal tissues and is considered one of the two most important risk diseases for oral health (JUIZ et al., 2010).

The early loss of primary teeth can cause a lack of space for the correct alignment of successor teeth, increased overbite, dental alignment, midline shift and change in the sequence of eruption (MAINARDI et al., 2001). These changes may cause future orthodontic problems, so the importance of maintaining primary teeth by the time of exfoliation (KELES, 2002; ALMEIDA et al., 2003).

In accordance with the principles of healthy eating, foods from all groups should be part of the daily diet. A complete diet should provide the body with water, glycide, protein, lipid, vitamin, mineral and fiber, nutrients that are irreplaceable and indispensable to the proper functioning of the body (BRASIL, 2005). One should avoid providing soft drinks, juices with lots of sugar, candies, chocolates, biscuits and sweets, snacks and other goodies to children on the day-to-day. These foods can be eaten no more than twice a week in small amounts. A diet rich in sugar and sweets can increase the risk of obesity and dental caries in children (BRASIL, 2005).

Given this context, this study aimed to outline the profile of oral health and feeding frequency of children attending a day care located in the municipality of Ananindeua, Pará State, northern Brazil.

Material and methods

This was a cross-sectional, quantitative, qualitative, descriptive study that evaluated 47 preschool children attending the Casulo daycare, in the municipality of Ananindeua, Pará State, Brazil.

The inclusion criteria used in the study were: children of both sexes, aged 01-06 years enrolled in daycare and living in the area of the Samambaia Unit in the city of Ananindeua, not suffering from any chronic degenerative disease, and authorized by the parents and/or guardians through signing the consent form.

As an instrument for data collection, we used two forms, and a dental chart, previously tested in a pilot study, which lasted about three days.

1) The first form contained questions directed to parents or guardians about the material conditions of oral hygiene of the family, information about oral health and hygiene habits of the child and data on

the frequency and eating habits of the child at home;

2) The second form was directed to caregivers (teachers) of the daycare in order to obtain information on the structural and material conditions of the daycare and the frequency and habits of oral hygiene and feeding of children during the working hours of the daycare.

3) Finally, we built a dental chart that clinically evaluated the dental health of each child.

The oral examination was performed by two dental students previously trained by an experienced teacher, who used tongue depressor to evaluate the elements of dental and oral tissues. For the consolidation of the data obtained in the tests, we used the dental chart. Children were positioned sitting on chairs, facing the examiner in the open, and which allowed the use of natural light. We used personal protective equipment (PPE) required.

Data collection took place in December 2010 with date scheduled and agreed with the interviewees. To meet the scientific and ethical requirements of the Resolution 196/96 (Standards for Research on Humans) of the Brazilian National Health Council, the project was subjected to the Research Ethics Committee of the Federal University of Pará (UFPA), number 4003.0.73.000-10, and approved according to the opinion number 117/10 – CEP-ICS/UFPA.

Results and discussion

The researched institution is philanthropic in nature, non-profit. The study included a total of 47 children aged 1-6 years, and most were girls (57.5%).

According to the teachers, the daycare had no specific place for tooth brushing. Each child had their own toothbrush using kid's toothpaste, but did not have dental floss. Caregivers have reported the practice of teaching and encouraging children to brush their teeth. However, children did not brush teeth after each meal because the daycare had a small amount of teachers to monitor this activity.

As for the habit of toothbrushing at home, parents reported that children did not share toothbrushes, and they all had their own toothbrush. However, most only used the toothpaste and toothbrush for cleaning the oral cavity (68.09%), and only, 31.91% had the practice of flossing. It was also reported the practice of dental and tongue hygiene twice or more times per day after meals (87.23%, 82.98%, respectively) (Table 1).

Table 1. Frequency of daily oral hygiene at home of children from the linked area of the Samambaia Unit in the municipality of Ananindeua, Pará State.

Daily frequency	Dental hygiene	%	Tongue hygiene	%
None	2	4.26	0	0.00
Once	4	8.51	4	8.51
Twice	9	19.15	12	25.53
3 or more	32	68.08	27	57.45
Do not know	0	0.00	4	8.51
Total	47	100	47	100

Parents reported that 48.94% of children never received any type of dental care and that 68.09% of them never had any dental disease. Only one-third of parents reported that their children had any dental disease such as caries (14.89%) (Table 2).

Table 2. Oral diseases presented by children since birth, according to guardians, of the linked area of the Samambaia Unit in the municipality of Ananindeua, Pará State.

Oral disease	Number of children	%
None	32	68.09
Caries	7	14.89
Abcess	1	2.13
Outras	7	14.89
Total	47	100

When parents were asked to assess the oral health of children in accordance with the levels: excellent, good, regular, poor and very poor, the result showed that 48.90% evaluated the oral health of their children as good, 29.70% considered it as regular, 12.77% as excellent, 8.51% considered it as poor, and none considered it as very poor. Among the parents who participated in the study 97.80% said they guide children about the importance of oral hygiene and teach brushing technique the way they know.

In relation to the oral health examination we analyzed 4,136 dental surfaces, (considering the absence of some teeth), most of the surfaces were healthy, among them, the healthiest were buccal, mesial and distal, with about 62.20%. The most carious was the occlusal (about 1.28%), followed by buccal, mesial, and distal in the frequency of 2.30%.

Among the surfaces that had tooth restoration without caries (primary restoration), the study indicated that the occlusal and mesial surfaces were those presenting more primary restorations, together with a total of 0.36%, while the surfaces that had tooth restoration with the presence of caries (secondary restoration), all achieved the same result: 0.05%. Of the surfaces lost due to caries, occlusal, mesial, distal and buccal presented the same percentage: 0.12%. Whereas surfaces lost for other reasons, e.g. fractures, buccal and distal surfaces showed 0.22% each (Table 3).

Table 3. Dental health conditions, by dental surfaces, presented by children from the linked area of the Samambaia Unit in the municipality of Ananindeua, Pará State.

Conditions	Surfaces	%
Primary restoration	occlusal and mesial	0.36
Secondary restoration	All faces	0.05
Lost due to caries	occlusal, mesial, distal and buccal	0.12
Lost for other reasons	buccal, mesial and distal	0.22

Regarding the conditions of oral health examination, in the oral cavity it was observed carious lesions in 51.10% children, dental calculus in 42.55%, 10.64% with fluorosis and 2.13% with gingivitis.

Considering the feeding we observed that the children had 3 meals (17.02%), 4 meals (36.17%), and 5 meals per day (46.81%) in the daycare and/or at home.

In relation to foods consumed at breakfast it was observed that the most reported was the coffee with milk (78.72%), and of these 70.21% children added sugar, followed by milk chocolate (27.66%), porridge with sugar (19.1%) and sweet biscuits (12.77%).

As regards the frequency of food intake in the daycare, it was offered to children: beef and fish once a week, chicken twice a week, vegetables, fruit and cookies daily. Candy, gum, soft drinks and jellies were not part of the menu of the daycare.

With regard to the consumption of cariogenic foods, 93.62% consumed soft drinks and 76.60% consumed candy and/or gum. The consumption of these foods occurred when the children were out of the daycare because the daycare did not offer that kind of food.

On the use of bottles and pacifiers by children, it was observed that only 4.2% used a pacifier and 12.76% used bottle with addition of sugar and/or honey (50%).

The habit of brushing their teeth began to stand out especially in the last 20 years, being one of the most efficient alternatives to take fluoride to the mouth, making it one of the most effective ways to prevent dental caries. Another method for dental cleaning is flossing, instrument best suited to the interproximal spaces (LISBÔA; ABEGG; 2006). Professional dentists recommend a dental brushing at least three times a day (FREDDO et al., 2008). However it was observed the need for special attention in oral hygiene, because the children performed brushing with unsatisfactory frequency, and do not use dental floss for proper cleaning of the oral cavity.

As for the search for dental services, the present study observed that almost half of the children never received any dental care, which shows the lack of initiative by parents in caring for oral health of their

children, being in agreement with the study of Antunes et al. (2008), which revealed that most children of a Childhood Education Unit in Niterói, Rio de Janeiro State, have never visited a dentist.

It was observed that the lack of parental knowledge and limited options for a cleaning of the oral cavity led to a poor quality teaching on brushing, resulting in a large number of children with decayed tooth, especially in the occlusal surface, a result analogous to Coser et al. (2005) who developed a study in the region of Araras, São Paulo State, and found that among decayed and restored teeth, the surface most impaired was the occlusal.

The clinical examination also revealed that a significant amount of the children had dental calculus, which indicates a neglect of oral health and a worrisome data because it can result in severe periodontal diseases if the neglect persists. With regard to the dental fluorosis, few children manifested the disease, which explains thereof the lack of access to toothpastes and other oral hygiene methods. The high rate of caries, dental calculus and the low rate of dental fluorosis in children evaluated is the counterpart of Freire et al. (2010), where the study on schoolchildren with 12 years old in Goiânia, Goiás State, indicated that most students had high caries prevalence, a significant data of dental calculus and a low number of children with dental fluorosis.

Diet is one of the main determinants for the development of caries, especially in early childhood. This study found a high consumption, in quantity and frequency, of sugar rich-foods which are added early in the child's eating routine, data similar to those found by Souza Filho et al (2006). It is noteworthy that the risk factor for caries is not a simple exposure to cariogenic foods, but rather the frequent and prolonged contact of these sugars with the teeth (RIBEIRO; RIBEIRO, 2004).

Most children had less than 5 meals in the daycare and/or at home, disagreeing with Brasil (2005) that recommends that children older than 2 years should consume at least 5 meals a day as breakfast, lunch, dinner and two snacks in between. A properly balanced diet provides satisfactory nutritional status and oral health condition. Therefore, both the shortage and the ingestion of certain foods or food components may interfere with the process of tooth formation, eruption and caries development (BATISTA et al, 2007).

In the daycare menu there was a diversification in food offered to children daily, and in line with the food guide for the Brazilian population (2005) of the Ministry of Health, which recommends daily consumption of foods such as whole grains, beans,

fruit and vegetables, dairy products, lean meats, poultry or fish.

This study showed a relatively low use of pacifiers and bottles for children, in comparison with other studies such as Almeida et al (2007) and Souza and Fracasso (2010) in which the vast majority of children had these habits.

It is interesting to note that the daycare worked full time and offered a healthy diet and anyway the children had the habit of consuming foods rich in sugars, such as soft drinks, candy and/or gum, demonstrating the family and/or cultural habits. For this reason parents and/or guardians are critical for dental and nutrition monitoring of their children, so that the guideline is family-based and consequently extended to the child, permeating the healthy growth and development.

Conclusion

Most of the children were girls, aged 1-6 years. The nursery performs tooth brushing only once a day, without the use of dental floss. In addition, about half of the children had never received dental care. Upon examination of the oral cavity, there was caries (most children had at least one decayed tooth), dental calculus, gingivitis and fluorosis. Regarding food, the children had three or more meals and childcare offered a healthy diet, but the children had the habit of cariogenic foods such as soda, candy and / or gum, not even being offered by daycare.

References

- ALMEIDA, M. E. C.; MELO, N. S.; MAIA, S. A.; COSTA, A. M. M.; SOUZA, K. R. A influência do desmame precoce no desenvolvimento de hábitos bucais deletérios. **ConScientiae Saúde**, v. 6, n. 2, p. 227-234, 2007.
- ALMEIDA, R. R.; ALMEIDA-PEDRIN, R. R.; ALMEIDA, M. R. Mantenedores de espaço e sua aplicação clínica. **Jornal Brasileiro Ortodontia Ortopedia Facial**, v. 8, n. 44, p. 157-166, 2003.
- ANTUNES, L. S.; SORAGGI, M. B. S.; ANTUNES, L. A.; CORVINO, M. P. F. Conhecimentos, práticas e atitudes de responsáveis frente à saúde bucal do pré-escolar. **Odontologia Clínico-Científica**, v. 7, n. 3, p. 241-246, 2008.
- BATISTA, L. R. V.; MOREIRA, E. A. M.; CORSO, A. C. T. Alimentação, estado nutricional e condição bucal da criança. **Revista Nutrição**, v. 20, n. 2, p. 191-196, 2007.
- BRANCO, A.; FERRARI, G. F.; WEBER, S. A. T. Alterações orofaciais em doenças alérgicas de vias aéreas. **Revista Paulista de Pediatria**, v. 25, n. 3, p. 266-270, 2007.

- BRASIL. Ministério da Saúde. Secretaria de atenção à saúde. Coordenação-Geral da Política de Alimentação e Nutrição. **Guia alimentar para a população brasileira:** promovendo a alimentação saudável. Brasília: Ministério da Saúde, 2005. (Série A. Normas e Manuais Técnicos).
- COSER, M. C.; COSER, R. M.; CHIAVINI, P.; BOECK, E. M.; VEDOVELLO, S.; LUCATO, A. S. Frequência de cárie e perda dos primeiros molares permanentes: estudo em pacientes assistidos na clínica integrada infantil. **Revista Gaúcha de Odontologia**, v. 53, n. 1, p. 1-84, 2005.
- FREDDO, S. L.; AERTS, D. R. G. C.; ABEGG, C.; DAVOGLIO, R.; VIEIRA, P. C.; MONTEIRO, L. Hábitos de higiene bucal e utilização de serviços odontológicos em escolares de uma cidade da Região Sul do Brasil. **Caderno de Saúde Pública**, v. 24, n. 9, p. 1991-2000, 2008.
- FREIRE, M. C. M.; REIS, S. C. G. B; GONÇALVES, M. M.; BALBO, P. L.; LELES, C. R. Condição de saúde bucal em escolares de 12 anos de escolas públicas e privadas de Goiânia, Brasil. **Revista Panamericana de Salud Publica**, v. 28, n. 2, p. 86-91, 2010.
- GARCIA, P. P. N. S.; CAMPOS, F. P.; RODRIGUES, J. A.; SANTOS, P. A.; DOVIGO, L. N. Avaliação dos efeitos da educação e motivação sobre o conhecimento e comportamento de higiene bucal em adultos. **Ciência Odontológica Brasileira**, v. 7, n. 3, p. 30-39, 2004.
- JUIZ, P. J. L.; ALVEZ, R. J. C.; BARROS, T. F. Uso de produtos naturais como coadjuvante no tratamento da doença periodontal. **Revista Brasileira de Farmacognosia**, v. 20, n. 1, p. 134-139, 2010.
- KELES, A. Unilateral distalization of maxillary molar with sliding mechanics: a case report. **Journal of Orthodontics**, v. 29, n. 2, p. 97-100, 2002.
- LISBÔA, I. C.; ABEGG, C. Hábitos de higiene bucal e uso de serviços odontológicos por adolescentes e adultos do Município de Canoas, Estado do Rio Grande do Sul, Brasil. **Epidemiologia e Serviços de Saúde**, v. 15, n. 4, p. 29-39, 2006.
- MAINARDI, A. P. R.; COSTA, C. C.; PITHAN, S. A.; REISDORFER, A. S.; MAIXNER, A. O. Perda precoce de dentes decíduos: revisão de literatura e apresentação de caso clínico. **Revista da Faculdade de Odontologia da Universidade de Passo Fundo**, v. 6, n. 1, p. 33-37, 2001.
- MOURA, C.; CAVALCANTI, A. L. Maloclusões, cárie dentária e percepções de estética e funções mastigatória: um estudo de associação. **Revista Odonto Ciência**, v. 22, n. 57, p. 256-262, 2007.
- PAULETO, A. R. C.; PEREIRA, M. L. T. P.; CYRINO, E. G. Saúde bucal: uma revisão crítica sobre programações educativas para escolares. **Ciência e Saúde Coletiva**, v. 9, n.1, p.121-130, 2004.
- RIBEIRO, N. M. E.; RIBEIRO, A. S. Aleitamento materno e cárie do lactente e do pré-escolar: uma revisão crítica. **Jornal de Pediatria**, v. 80, n. 5, p. 199-210, 2004.
- SOUSA, J. M.; FRACASSO, M. L. C. Comportamento materno versus temperamento da criança: influência no padrão de saúde bucal. **Pesquisa Brasileira em Odontopediatria e Clínica Integrada**, v. 10, n. 1, p. 47-54, 2010.
- SOUZA FILHO, M. D.; MOREIRA-ARAÚJO, R. S. R.; ARAÚJO, M. A. M.; MOURA, M. S. Dieta e cárie em pré-escolares na faixa etária de 36 a 68 meses. **Nutrire: Revista da Sociedade Brasileira de Alimentação e Nutrição**, v. 31, n. 3, p. 47-60, 2006.

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