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Oral health education in school: parents' attitudes and prevalence of caries in children

Educação em saúde bucal na escola: atitude dos pais e prevalência de cárie em crianças

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Resumo

Introdução: Promoção de saúde bucal para as crianças é de grande importância, além da motivação dos pais para adoção de atitudes necessárias à manutenção da saúde dos seus filhos. **Objetivo**: Avaliar atitude dos pais e sobre a saúde bucal dos seus filhos e verificar a prevalência de cárie dentária das crianças. **Material e método:** Estudo transversal, analítico, realizado com pais e pré-escolares das Escolas de Educação Básica de Araçatuba. Para coleta de dados foi utilizado um instrumento com questões para avaliar a atitude dos pais em relação à saúde bucal dos seus filhos. Foi realizado exame clínico bucal das crianças, para verificar do índice de ceo-d e IHOS. Os dados coletados foram analisados no software SPSS 21.0. **Resultado:** A condição de saúde bucal das crianças era boa, média do ceo-d 0,68 (Desvio padrão= 1,70). A maioria das crianças apresentou um índice de higiene oral médio (1,51 IHOS, dp=0,48). A atitude dos pais relacionada à saúde bucal não foram muito adequadas, já que muitos não utilizavam fio dental na higienização dos seus filhos, as crianças faziam uso de mamadeira e não realizavam escovação após a alimentação. O consumo de açúcar esteve associado à presença de placa dentária nas crianças (p=0,05). No entanto, a prática de escovação dentária era realizada na maioria dos casos pelos pais e esteve associada ao bom índice de ceo-d das crianças (p=0,04). **Conclusão:** A condição de saúde bucal das crianças no estudo era boa, porém as atitudes relacionadas à saúde bucal realizadas pelos pais não foram adequadas.

Descritores: Saúde bucal; atitude; pré-escolar, educação em saúde.

ABSTRACT

Introduction: The promotion of oral health in children is highly important, as well as parents' motivation to adopt the attitudes necessary for the maintenance of the health of their children. **Objective:** To evaluate parents' attitudes about their children's oral health and to determine the prevalence of dental caries. **Material and method:** A cross-sectional analytical study, conducted with parents and preschoolers from the elementary schools in Araçatuba. A formal instrument was used to collect data, in order to evaluate parents' attitudes regarding their children's oral health. A clinical oral exam was performed in order to determine the decayed, missing and filled teeth (dmft) and Index of Oral Health–Simplified (IOH–S). The collected data were analyzed using the SPSS 21.0 software. **Result:** The state of the children's oral health was good; the mean of the decayed, missing and filled teeth (dmft) was 0.68 (Standard deviation = 1.70). Most of the children presented a mean index of oral hygiene (IOHS = 1.51, Standard deviation = 0.48). The parents' attitudes related to oral health were not very good. Many of them did not floss their children's teeth; the bottle-fed children did not brush after feeding. The consumption of sugar was associated with the presence of dental plaque in the children (p=0.05). Nevertheless, in most cases, tooth brushing was performed by the parents and was associated with a good dmft index in the children (p=0.04). **Conclusion:** The state of children's oral health in the present study was good. However, the parents' attitudes in relation to oral health were not good.

Descriptors: Oral health; attitudes; preschooler; health education.

INTRODUCTION

Oral diseases are among the most common and widespread problems throughout the world. Poor oral health may have a significant impact on children's quality of life, which leads to general deterioration of health[1]. Children with poor oral health are more likely to miss school than are those with good oral health. Pain, discomfort, sleepless nights and time missed from school or work are common problems for many children and adults around the world[2].

Even though dental caries and periodontal diseases, the most common diseases in dentistry, are preventable or easily controlled using simple procedures such as tooth brushing, controlling the

frequency of sugar consumption, appropriate use of fluoride and periodic visits to the dentist, good oral health has not yet reached the population at large. One of the possible explanations for the high prevalence and incidence of these pathologies is their association with social, economic, political and educational conditions, and not only biological determining factors that interact in the etiology of these diseases[3].

Among the many different approaches to the prevention of dental diseases, the most cost-effective method is health education[4]. Educational and motivational programs in oral health have been implemented so that most of the population can have access to information related to problems in the oral cavity and guidelines for hygiene, as well as motivation to pay special attention to oral health[3].

The World Health Organization (WHO) recommends integrating oral health promotion into curricular activities in the schools. Moreover, educational practices should consider other issues such as healthy eating, smoking, sexual health, cardiac diseases and obesity. It seems, however, that the success of programs promoting oral health in the schools depends largely on reinforcement at home, especially by the parents[5].

Educational strategies focused on parents of preschoolers are highly valuable, since their behavior regarding oral health has a direct influence on the number of dental caries of their children[6]. Parents' attitudes have a positive impact on the state of children's oral health; because the parents control tooth brushing and sugar consumption, the children develop positive oral health habits[7]. The parents are primarily responsible for almost all their children's health problems. Therefore, their role is fundamental in raising children to practice preventive oral health throughout their lives[8]. Considering this fact, the aim of the present study is to evaluate parents' and/or responsible adults' attitudes toward their children's oral health and to determine the prevalence of dental caries in children enrolled in the municipal elementary schools in the city of Araçatuba.

MATERIAL AND METHOD

This is a quantitative, exploratory, cross-sectional, analytical study, conducted in three municipal elementary schools (MES) in Araçatuba city. Participation in the extension project of oral health education was conducted by Social and Preventive Dentistry Program.

There were 147 parents or responsible adults and their respective children from 0 to 6 years of age, who studied in the MES, that consented to participate in the present study. Data collection was conducted for six months, following a pilot study in which all variables were tested.

Data were collected using a self-applied, semi-structured questionnaire with closed questions, especially designed for research. The proposed questions addressed sociodemographic and parents' attitudinal data regarding oral health.

The sociodemographic variables for the parents include: age, gender, ethnicity, marital status, level of schooling, employment and family income. The questions related to attitudes regarding the oral health of their children include: who performs oral hygiene, what is used for oral cleaning, the frequency of tooth brushing, replacement of the toothbrush, the use of dental floss, consumption of sugar, if the child is breast-feeding or using a bottle before bedtime, if cleaning is done after breast-feeding, if the child has already visited the dentist and for what reason.

An oral health exam was performed on the preschoolers, conducted by the researcher, in their own school. Probes and oral mirrors recommended by the World Health Organization (WHO) were used to perform the exams. The condition of the teeth was evaluated according to the codes and criteria of the WHO[9] for epidemiological investigation. The mean number of decayed, missing or filled teeth (dmft) was used for the condition of the teeth. Children's oral hygiene was also determined according to the Index of Oral Hygiene–Simplified, (IOH-S), described by Greene, Vermillion[10].

Descriptive analyses were performed for the sociodemographic characterization of the population and the parents' attitudes, using measures of central tendency (simple frequencies, means and medians) and measures of dispersion (standard deviation). The region for rejecting or not rejecting any hypothesis was considered at the 0.05 level of significance. Bivariate analyses were conducted for the condition of children's oral health (dependent variables) using the Chi-squared (x^2) test and Fisher's exact test (for 2x2 tables) was used where expected results were less than five, or, the ratio of maximum likelihood for questions admitting more than two categories. All statistical analyses were performed using the SPSS, version 21.0 program.

This study was approved by the Committee for Ethics in Research involving humans of the Paulista State University – College of Dentistry, of Araçatuba Dental School. It was conducted with the understanding and written consent of each participant.

RESULT

Among those interviewed, the majority were female (60.5%), aged from 20 to 29 years (40.1%), white (45.6%), married (46.3%) and had completed high school (43.5%) (Table 1). Most claimed to be private employed (40.8%), but there were 23 parents who were unemployed or who had never worked. The mean income was between 1 and 2 minimum wages (51%) and with no assistance from the *Bolsa Familia* (77.6%) (Table 1).

The state of the children's oral health was good, with a mean dmft of 0.68 (Standard deviation=1.7) (0.52 decayed teeth, sd=1.41 and 0.16 filled teeth, sd=0.56). Most of the children showed a mean Index of Oral Hygiene (1.51 IOHS, sd=0.48) (Table 2).

As for the parents' attitudes in relation to the oral health of their children, cleaning of the children's teeth is done in most cases by the parents (70.1%), using a tooth brush (97.3%) and tooth paste (93.2%). Frequency of brushing was twice a day (39.5%) and they rarely used dental floss (33.3%). The consumption of sugar is low, consuming less than once a day (44.2%) (Table 3).

Most of the mothers do not clean their children's mouths (46.1%) after breast-feeding or using bottles, which many use to put the child to bed (61.9%). Most declared that their children had been to the dentist (64.6%) as prevention/routine (74.7%). The mothers

Table 1. Socio-demographic characteristics of the parents participating in the study, Araçatuba, 2014

Variables	n	%
Gender		
Female	89	60.5
Male	56	38.1
Age		
18 to 29 years	61	41.5
30 to 39 years	58	39.5
40 to 59 years	12	8.1
60 plus	4	2.7
Race		
White	67	45.6
Black	17	11.6
"Pardo	50	34.0
Indians	6	4.1
Marital Status		
Single	55	37.4
Married	68	46.3
Consensual Union	15	10.2
Divorced	3	2.0
Education		
Illiterate	2	1.4
Elementary incomplete	13	8.8
Elementary complete	16	10.9
High School incomplete	19	12.9
High School complete	64	43.5
College incomplete	9	6.1
College complete	16	10.9
Link to employment		
Self-employed	27	18.4
Public employment	8	5.4
Private employment	60	40.8
Unemployed	23	14.9
Personal Income		
Less than 1 MS	13	8.8
1 to 2 MS	75	51.0
3 to 4 MS	41	27.9
5 to 6 MS	6	4.1
More than 10 MS	2	1.4
Receive "Bolsa Família"		
Yes	27	18.4
No	114	77.6

Table 2. Oral health characteristics of school children at the study, Araçatuba, 2014

Variables	Lower value	Higher value	Median	Average	Standard deviation
Number of teeth	8	24	20.00	17.99	3.99
Decayed teeth	0	9	0	0.52	1.41
Missing teeth	0	0	-	-	-
Filled teeth	0	3	0	0.16	0.56
dmft	0	10	0	0.68	1.70
IOHS	0.33	2.66	1.50	1.51	0.48

Table 3. Parents' attitudes in relation to oral health of their children, Araçatuba, 2014

Variables	n	%
Who brush the teeth of your children?		
The children	32	21.8
Father/Mother	103	70.1
Other	8	5.4
What do you use to clean your children's teeth?		
Thoothbrush	143	97.3
Tooth paste	137	93.2
Dental floss	60	40.8
Oral rising	29	19.7
Wooden toothpick	16	10.9
How often do you brush your teeth per day?		
One time	14	9.5
Twice	58	39.5
3 times	46	31.3
4 times	4	2.7
After all the meals	21	14.3
How often do you change your toothbrush? do seu filho?		
Every month	33	22.4
Every 6 months	78	53.1
Every year	2	1.4
Old and worn	29	19.7
How often do you use dental floss?		
After brush the teeth	19	12.9
Once a day	27	18.4

Table 3. Continued...

Variables	n	%
How often do you use dental floss?		
Once a week	12	8.2
Rarely	49	33.3
Never	34	23.1
How often do you consume sugar during the day?		
Higher, 3 times or more	14	9.5
Media, twice a day	54	36.7
Lower, once a day	65	44.2
No consume	7	4.8
Do you breastfeed or give bottle to put the child to bed?		
Yes	91	61.9
No	47	32.0
I don't know	2	1.4
If yes, do you clean their mouth after?		
Yes	37	40.6
No	42	46.1
I don't know	5	5.5
Have your children ever been in a dentist?		
Yes	95	64.6
No	51	34.7
If yes, what the reason?		
Prevention / Routine	71	74.7
Toothache	8	8.4
Broken tooth	6	6.3
No information	10	10.5

responded that educational and preventive activities done at school were important for their child (96%) (Table 3).

Few statistically significant associations were found, in the bivariate analysis, between parents' attitudes and the state of their children's oral health. Using the dmft as the dependent variable, the person who does the children's oral cleaning has an association of $p<0.05$. Using IOH-S as the dependent variable, the frequency of sugar consumption had statistical association (Table 4).

DISCUSSION

Oral health plays an important role in the general well-being of individuals, and parents' behaviors/attitudes may affect the oral health of their children. The adoption of good oral health habits in childhood often leads to positive results in the quality of the health and life of the children[11]. Parents and responsible adults are the principle actors in the children's development in the first years of life. Thus, the interventions directed at parents' beliefs and attitudes about oral health may be beneficial in the prevention of oral problems such as dental caries[12].

The state of the oral health of the children who participated in the present study was good, with a mean dmft lower than the results found in the 2010 SB Brazil project[13], and 79.6% of the sample was free of caries. These results are similar to other recent studies conducted in Brazil, with the minority of children having experience with caries[14].

The participants in the present study were mainly female, who completed high school education and had a low socioeconomic level. Low purchasing power is a condition that hinders the search for a healthy life; thus, people living in situations of risk cannot satisfy their basic needs, one example is oral hygiene. In this sense, there is greater predisposition for the occurrence of dental caries in the children of low-income mothers[15]. The results of the present study confirmed the fact that parents living with low incomes and who have not had higher education show less chance of having higher levels of positive dental attitudes, as found in other studies[16,17].

Even with the majority of children being free of caries, some unsuitable behaviors regarding oral care were found in the results of this study. Less than half the parents reported using dental floss in cleaning their children's teeth and, when they do use it, the frequency is low. Auxiliary methods of cleaning, like dental flossing, should be used when adjacent teeth are touching, as recommended by the American Association for Pediatric Dentistry[18]. In the study by Chhabra, Chhabra[19], the non-use of dental floss and rinses was also observed, due to the lack of knowledge about oral health and the cost of such auxiliaries.

As for using the bottle, 61.9% of the children do use it, and 46.1% of the parents do not clean the child's mouth after using the bottle. These findings corroborate a study conducted with parents of school children in India, which showed that parents disagreed about the night-time use of the bottle as a cause of problems. This was due to the lack of knowledge about harmful habits that can cause oral diseases[20].

The results of the present study found that 70.8% of the children brushed their teeth two or three times per day. Some (21.8%) of the parents report that their children brush their own teeth, and it is recommended that the adults perform, or help, children less than five years of age with their brushing. These children are only partially capable of performing brushing, due to the lack of dexterity and knowledge necessary for proper cleaning[21]. This fact may have influenced the good state of oral health of the children in the present study, having few decayed, missing or filled teeth, since a statistically significant association was observed between the father/mother in the tooth brushing of the children having a low dmft index.

The rate of carious activity is higher in those patients who began tooth brushing without parental supervision, who began to consume sucrose before the first year of life and who eat between the main meals[15]. It was observed that the consumption of sugar by the children was associated with an average/poor dental plaque index. Childhood dietary habits constitute an important factor in the

Table 4. Bivariate analysis between oral health variables (dependent) and the attitude of parents (independent), Araçatuba, 2014

Variables	dmft			IOHS		
	0	1or >	pvalue	Bad/ Fair	Good	pvalue
Who brush the teeth of your children?						
The children	23	9	**0.046****	27	1	0.448**
Father/Mother	87	16		84	7	
How often do you brush your teeth per day?						
One time	10	4	0.552**	14	-	0.630**
Twice	48	10		47	4	
3 times	38	8		40	3	
4 times	2	2		4	-	
After all the meals	16	5		13	1	
How often do you change your toothbrush?						
Every month	25	8	0.542**	24	2	0.921**
Every 6 months	61	17		68	4	
Every year	2	-		2	-	
Old and worn	25	4		24	2	
How often do you use dental floss?						
After brush the teeth	17	2	0.634**	15	1	0.775**
Once a day	20	7		22	2	
Once a week	10	2		10	1	
Rarely	37	12		43	1	
Never	28	6		27	2	
How often do you consume sugar during the day?						
Higher, 3 times or more	11	3	0.946**	13	-	**0.050****
Media, twice a day	43	11		47	1	
Lower, once a day	50	15		48	7	
No consume	6	1		7	-	
Do you breastfeed or give bottle to put the child to bed?						
Yes	70	21	0.441**	75	7	0.367**
No	39	8		39	1	
I don't know	2	-		1	-	
If yes, do you clean their mouth after?						
Yes	26	11	0.272**	30	2	0.548**
No	35	7		36	3	
I don't know	3	2		3	1	
Have your children ever been in a dentist?						
Yes	74	21	0.525	78	7	0.717*
No	42	9		42	2	
If yes, what the reason?						
Prevention / Routine	6	2	0.885**	7	1	0.533**
Toothache	5	1		6	-	
Broken tooth	53	18		57	6	

*Fisher's exact test. **Likelihood ratio test. Numbers in bold represent p<0.05.

etiology and progression of the carious disease; and, discrimination as to the preference for flavors occurs in the developmental phase of the child. This makes guidance, not only in habits of oral hygiene but also in relation to the rational consumption of sugar, fundamental[22]. Thus, nutritional guidance should be included in planning of health education in a concrete way, emphasizing the importance of eating habits in the context of general and oral health. Childhood is the most important time for learning the principles that guide proper diet.

The results of the present study may provide a view of the relationship between parents' attitudes and their children's oral health; but, there are some limitations because the study is cross-sectional and the sample is not very large, with parents and children from three municipal schools. There are also problems related to understanding the questionnaire. For example, despite the majority of parents having completed high school, there are some who were illiterate or had very few years of study. Memory bias, in responding to the questions, may also have been a limitation.

However, the results revealed that parents perform a central role in the transference of information related to the health and to the healthy behavior of their children. Furthermore, mothers are considered as models to be followed because they transfer the values, norms and attitudes that are accepted for their children. Thus, interventions that are frequently concentrated only on children and in the school environment should be expanded to the parents and responsible adults in school meetings, in the community or the health services.

CONCLUSION

The state of children's oral health in the present study was good; however, not all the attitudes related to oral health performed by the parents were good. Many did not use dental floss in cleaning their children's teeth, they used the bottle and did not brush after feeding. The consumption of sugar was associated with the presence of dental plaque in the children. Nevertheless, the practice of tooth brushing was performed in the majority of cases by the parents and was associated with a good dmft index in the children.

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CONFLICTS OF INTERESTS

The authors declare no conflicts of interest.

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