

Oral hygiene practices, dental service use and oral health self-perception of schoolchildren from a rural zone in the Brazilian Northeast region

Práticas de higiene bucal, uso de serviço odontológico e autopercepção de saúde bucal de escolares da zona rural de Caruaru, PE, Brasil

Abstract

Purpose: To evaluate the oral hygiene practices, use of dental services and self-perception of oral health of school children from the rural areas of the city of Caruaru, PE, in the Northeast region of Brazil.

Methods: An exploratory cross-sectional study was carried out using interviews with structured questionnaires aimed at students aged between 6 and 12 years (n=150). Demographic and socio-economic data on oral hygiene practices, the use of dental services and self-perception of oral health were collected and analyzed using descriptive and inferential statistics (chi-square and Fisher's exact tests).

Results: Most of the students cleaned their teeth (82.0%) with toothpaste (98.0%), a toothbrush available at the market (93.2%) and dental floss (26.4%). All students (150) had a toothbrush, the majority (86.7%) for individual use, and performed three or more daily brushings (56.4%). A significant portion had visited the dentist (72.7%) due to the need for treatment (57.8%) and toothache (33.0%). Among those who had never been to the dentist, fear (36.6%) was the main reason. The majority (56.0%) considered their teeth to be in good condition.

Conclusion: Despite the low socio-economic status of the evaluated population, changes in oral hygiene practices and the demand for dental care were observed.

Key words: Oral health, oral hygiene, schoolchildren, rural population

Resumo

Objetivo: Avaliar as práticas de higiene bucal, o uso de serviços odontológico e a autopercepção de saúde bucal de escolares da zona rural de Caruaru, PE, Brasil.

Metodologia: Através de estudo transversal exploratório usando entrevistas com formulário estruturado dirigidas a escolares na faixa etária de seis a 12 anos (n=150), foram coletados dados demográficos e sócio-econômicos relativos as práticas de higiene bucal, uso de serviços odontológico e autopercepção de saúde bucal, analisados por meio de estatística descritiva e inferencial (Qui-quadrado e Exato de Fisher).

Resultados: A maioria dos escolares limpava os dentes (82,0%) com dentífrico (98,0%), escova dentária disponível no mercado (93,2%) e fio dental (26,4%). Todos os escolares (150) tinham escova, a maioria (86,7%) de uso individual, e realizavam três ou mais escovações diárias (56,4%). Uma parcela significativa visitou o dentista (72,7%) devido à necessidade de tratamento (57,8%) e de dor de dente (33,0%). Dentre os que nunca foram ao dentista, o medo (36,6%) foi o principal motivo. A maioria (56,0%) avaliou que os seus dentes estão em bom estado.

Conclusão: A maior parte dos escolares possuía boas práticas de higiene bucal, já fez uso do serviço odontológico para necessidades curativas e relatou boa percepção sobre sua saúde bucal.

Palavras-chave: Saúde bucal; higiene bucal; criança; zona rural

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Introduction

Dental caries and periodontal disease still represent the largest oral health problem in Brazil. Figures from the latest epidemiological survey (1) show that at five and 12 years, high percentages of children (59.3% and 68.9%, respectively) have experienced dental caries, and around 2.5 million (13% of the population) adolescents, the stage at which there is a significant percentage increase in dental caries and periodontal disease (2), have never been to the dentist.

In addition, socio-cultural, economic, political and educational factors influence the biological factors that interact in the etiology of such diseases (3). The methods of preventing or controlling these diseases through the application of relatively simple strategies, such as tooth brushing in order to disrupt the plaque, diet control, fluoride use and access to dental care, showed improvement in children's oral health (4-5).

A significant portion of the population has no access to dental care, and often rural areas have worse indicators of income, sanitation and education levels than urban areas, constituting an important factor for worsening health problems (6-8). Considering the importance of these aspects, the aim of this study was to evaluate the oral hygiene habits (tooth brushing, flossing and alternative methods), the use of dental services and self-perception of oral health in schoolchildren between 6 and 12 years in the rural area of Caruaru, state of Pernambuco, in the Northeast region of Brazil.

Methodology

This study was approved by the Ethics in Research Committee of the Caruaruense Association of Higher Education under the No. 065/07. The study design was cross-sectional, with clinical-epidemiological and exploratory characteristics.

This research was conducted at a municipal school in the rural area of Lajes village, located along the BR 104, 27 km from the capital, Recife, in the transition range from the wild-*Caatinga* to the interior of Pernambuco State (PE), where the population is estimated to be 2,798 inhabitants. The main area of local employment is in clothing manufacturing. In addition, there are also casual workers and a few rural workers. Data were collected from interviews with local school children of the Manoel Limeira Municipal School. They were of both sexes, aged between six and twelve years of age. The Manoel Limeira Municipal School was selected from one of four schools in Lajes (PE) because it had the highest number of students of that age group and was more easily accessible than the other three candidate schools.

We excluded students who did not want to participate in the study or whose parents did not allow them to participate. The reference population consisted of 230 students from the rural village, aged between six and 12 years. The sample size calculation was 125 children, to which 20% was added to compensate for possible drop-outs, resulting in 150 children. Students who enrolled received a number that had been

selected by simple random sampling using the statistical program EPI-INFO. The informed consent form was signed by the parents of the students taking part in the sample when they came to pick up their children at the end of the day.

The data collection was performed using a research instrument consisting of a structured form containing 20 questions on demographic and socioeconomic factors related to oral hygiene habits (frequency, methods and materials used), visits to the dentist and oral health self-perception. The students were interviewed individually in a private room on the school grounds, and the answers were noted during the interview.

Concerning the reliability of the responses, the test used the method of face validation in 10% of respondents. With this method, the researcher asks the teenagers to make clear in their own words what they read about each question (9).

The data were analyzed using descriptive statistics through absolute and percentage distributions and the chi-square or Fisher's exact test. The level of significance was 5%. Odds ratio values (OR) and confidence intervals for this measure were obtained.

Results

Table 1 shows that the highest percentage of students was female (55.3%), and ages ranged from 6 to 8 years (56.7%). Most mothers had incomplete primary education (42.0%) and were working, and more than half (57.3%) were employed.

Table 1. Distribution of respondents according to the characterization variables.

Variable	n	%
• Sex		
Male	67	44.7
Female	83	55.3
TOTAL	150	100.0
• Age range (in years)		
6 to 8	85	56.7
9 to 12	65	43.3
TOTAL	150	100.0
• Mother's schooling		
Cannot read	44	29.3
Incomplete elementary	63	42.0
Complete elementary	2	1.3
Incomplete high school	7	4.7
Complete high school	2	1.3
No answer	32	21.3
TOTAL	150	100.0

Table 2 shows that the majority of respondents always clean their teeth (82.0%) the highest percentage being that among school children between 6 and 8 years old (88.2%; $P < 0.05$). All students (100%) reported that their toothbrush was available at the market and was for individual use (86.7%),

and they carried out three or more daily brushings (56.4%; $P>0.05$), especially after lunch (70.3%). The materials most frequently cited to clean the teeth were toothpaste (98.0%), tooth brushes available at the market (93.2%) and dental floss (26.4%). Of the alternative methods, the sponge was the only item that showed significant association with age ($P<0.05$).

Table 3 shows that the majority (66.7%) had received an explanation on how to brush their teeth, with the highest percentage among students in the group of six to 8 years (75.3% vs. 55.4%), a difference that reveals the significant association of the variable with age ($P<0.05$ and an OR

interval that excludes the value 1.00). The percentage of those who had received guidance from the dentist about the type of brush to use was highest in the group of 6 to 8 years (50.6%; $P<0.05$). Forty-three percent of students affirmed that they did not have a specific condition that caused them to start brushing.

According to Table 4, the majority of students had attended the clinic, 71.8% and 73.8% in the age range of 6 to 8 years and 9 to 12 years, respectively ($P>0.05$). The most frequent justification was the need for treatment (57.8%), followed by toothache (33.0%). The majority (56.0%) considered their teeth to be in good condition.

Table 2. Assessment of variables related to oral hygiene habits according to age.

Study variables	Age range (in years)				Total group		P-value	OR (IC – 95.0%)
	6 to 8		9 to 12					
	N	%	N	%	N	%		
• Do you clean your teeth?								
Yes	75	88.2	48	73.8	123	82.0	(1) 0.035*	**
No	-	-	2	3.1	2	1.3		
Sometimes	10	11.8	15	23.1	25	16.7		
TOTAL	85	100.0	65	100.0	150	100.0		
• What do you use to clean your teeth?								
Brush, purpose-made	77	90.6	61	96.8	138	93.2	(1) 0.190	
Brush, homemade	9	10.6	2	3.2	11	7.4	(1) 0.117	
Toothpaste	82	96.5	63	100.0	145	98.0	(1) 0.262	
Toothpick	17	20.0	18	28.6	35	23.6	(2) 0.225	
Dental Floss/tape	18	21.2	21	33.3	39	26.4	(2) 0.097	
Juá	9	10.6	6	9.5	15	10.1	(2) 0.832	
Sponge	11	12.9	2	3.2	13	8.8	(2) 0.038*	
Cloth	11	12.9	6	9.5	17	11.5	(2) 0.519	
Liquids to rinse	3	3.5	3	4.8	6	4.1	(1) 0.700	
Others	-	-	1	1.6	1	0.7	(1) 0.426	
BASE (3)	85	-	63	-	148	-		
• Do you have a toothbrush?								
Yes	85	100.0	65	100.0	150	100.0	**	**
No	-	-	-	-	-	-		
TOTAL	85	100.0	65	100.0	150	100.0		
• If so, the brush used is?								
Only yours	71	83.5	59	90.8	130	86.7	(2) 0.196	1.00
Several people	14	16.5	6	9.2	20	13.3		1.94 (0.70 a 5.36)
TOTAL	85	100.0	65	100.0	150	100.0		
• How often do you brush your teeth?								
Do not brush	-	-	2	3.2	2	1.4	(1) 0.341	**
Once a day	10	12.8	5	8.1	15	10.7		
Twice a day	26	33.3	18	29.0	44	31.4		
Three times or more	42	53.9	37	59.7	79	56.4		
TOTAL (4)	78	100.0	62	100.0	140	100.0		
• When do you clean your teeth?								
Upon waking	49	57.6	44	69.8	93	62.8	(2) 0.129	
After breakfast	37	43.5	22	34.9	59	39.9	(2) 0.290	
After lunch	52	61.2	52	82.5	104	70.3	(2) 0.005*	
After dinner	28	32.9	20	31.7	48	32.4	(2) 0.878	
Before sleep	43	50.6	28	44.4	71	48.0	(2) 0.459	
After snack	6	7.1	4	6.3	10	6.8	(1) 1.000	
BASE (3)	85	-	63	-	148	-		

* Significant difference at 5.0%; ** Not determined due to the occurrence frequency of zero or very low.

(1) Using the Fisher Exact test; (2) Using the chi-square test; (3) When an individual cited more than one alternative, it was recorded only in the basis for the calculation of percentages and not the total; (4) For ten respondents, we did not have this information.

Table 3. Assessment of knowledge, habits and availability of complementary methods for oral hygiene, according to age.

Study variable	Age range (in years)				Total group		P-value	OR (IC - 95.0%)
	6 to 8		9 to 12		N %			
	N	%	N	%	N	%		
• Has a dentist explained to you how to brush your teeth?								
Yes	64	75.3	36	55.4	100	66.7	(¹) 0.010*	2.45 (1.23 a 4.92)
No	21	24.7	29	44.6	50	33.3		1.00
TOTAL	85	100.0	65	100.0	150	100.0		
• Has a dentist explained to you about what type of toothbrush to use?								
Yes	43	50.6	20	30.8	63	42.0	(¹) 0.015*	2.30 (1.17 a 4.53)
No	42	49.4	45	69.2	87	58.0		1.00
TOTAL	85	100.0	65	100.0	150	100.0		
• In which situations do you take long in brushing?								
Before going out	19	22.4	14	21.5	33	22.0	(¹) 0.905	
When eating sweet and sticky food	10	11.8	10	15.4	20	13.3	(¹) 0.518	
When you feel dirty mouth/bad breath	18	21.2	12	18.5	30	20.0	(¹) 0.680	
Other	6	7.1	2	3.1	8	5.3	(²) 0.467	
No situation	37	43.5	28	43.1	65	43.3	(¹) 0.956	
BASE (³)	85	-	65	-	150	-		
• Do you have toothpaste at home?								
Yes	82	97.6	65	100.0	147	98.7	(²) 0.505	**
No	2	2.4	-	-	2	1.3		
TOTAL	84	100.0	65	100.0	149	100.0		
• Do you have dental floss at home?								
Yes	34	40.0	33	50.8	67	44.7	(¹) 0.189	1.00
No	51	60.0	32	49.2	83	55.3		1.54 (0.81 a 2.97)
TOTAL	85	100.0	65	100.0	150	100.0		
• Has a dentist explained how to use the dental floss?								
Yes	51	60.7	36	55.4	87	58.4	(¹) 0.513	1.24 (0.65 a 2.40)
No	33	39.3	29	44.6	62	41.6		1.00
TOTAL (⁴)	84	100.0	65	100.0	149	100.0		

* Significant difference at 5.0%; ** Not determined due to the occurrence frequency of zero or very low.

(¹) Using the Fisher Exact test; (²) Using the chi-square test; (³) When an individual cited more than one alternative, it was recorded only in the basis for the calculation of percentages and not the total; (⁴) For ten respondents, we did not have this information.

Table 4. Assessment of access to dental services, reasons for consultation and frequency according to age.

(Continue)

Study variable	Age range (in years)				Total group		P-value	OR (IC - 95.0%)
	6 to 8		9 to 12		n %			
	n	%	N	%	n	%		
• Have you ever gone to the dentist (post)								
yes	61	71.8	48	73.8	109	72.7	(¹) 0.777	1.11 (0.54 a 2.30)
no	24	28.2	17	26.2	41	27.3		1.00
TOTAL	85	100.0	65	100.0	150	100.0		
• If not, why?								
Fear	7	29.2	8	47.1	15	36.6	(²) 0.620	**
Not needed	6	25.0	2	11.8	8	19.5		
There is no way to go	5	20.8	4	23.5	9	22.0		
Not known	6	25.0	3	17.6	9	22.0		
TOTAL	24	100.0	17	100.0	41	100.0		
• If so, why are going to the dentist?								
Review/control	2	3.3	-	-	2	1.8	(²) 0.503	
Toothache	20	32.8	16	33.3	36	33.0	(¹) 0.952	
Dental trauma	2	3.3	-	-	2	1.8	(²) 0.503	
Bleeding gum/tooth	34	55.7	29	60.4	63	57.8	(¹) 0.623	
Other	9	14.8	10	20.8	19	17.4	(¹) 0.406	
BASE (³)	61	-	48	-	109	-		

Table 4. Assessment of access to dental services, reasons for consultation and frequency according to age.

(Conclusion)

Study variable	Age range (in years)				Total group		P-value	OR (IC - 95.0%)
	6 to 8		9 to 12		N	%		
	N	%	N	%				
• <i>When was your last time at the dentist?</i>								
Up to 6 months	17	21.5	18	25.7	35	23.5	⁽²⁾ 0.424	**
7 months to 1 year	1	1.2	2	3.1	3	2.0		
From 1 to 2 years	6	7.1	1	1.6	7	4.7		
Over 2 years	1	1.2	2	3.1	3	2.0		
Do not remember	36	42.4	25	39.1	61	40.9		
Never	24	28.2	16	25.0	40	26.8		
• <i>How often do you go to the dentist?</i>								
Once in 6 months	7	8.2	8	12.5	15	10.1	⁽²⁾ 0.530	**
Once a year	9	10.6	3	4.7	12	8.1		
Every 2 years	1	1.2	-	-	1	0.7		
Only when is necessary	43	50.6	36	56.3	79	53.0		
Never	25	29.4	17	26.6	42	28.2		
• <i>In what condition do you think your teeth are?</i>								
Very good	15	17.6	9	13.8	24	16.0	⁽¹⁾ 0.732	1.48 (0.42 a 5.23)
Good	49	57.6	35	53.8	84	56.0		1.24 (0.44 a 3.54)
Regular	12	14.1	13	20.0	25	16.7		0.82 (0.24 a 2.82)
Bad	9	10.6	8	12.3	17	11.3		1.00
TOTAL	85	100.0	65	100.0	150	100.0		

* Significant difference at 5.0%; ** Not determined due to the occurrence frequency of zero or very low.

⁽¹⁾ Using the Fisher Exact test; ⁽²⁾ Using the chi-square test; ⁽³⁾ When an individual cited more than one alternative, it was recorded only in the basis for the calculation of percentages and not the total; ⁽⁴⁾ For ten respondents, we did not have this information.

Discussion

Epidemiological surveys on oral health conducted in Brazil show that people living in rural areas have the worst indicators of the prevalence, severity and need for dental treatment (6,7). Rural areas usually have less access to technology and vocational qualifications (8). However, despite the expansion of health services, there is an excessive demand for these services, and their distribution and accessibility are not homogeneous, which are factors that increase the inequality (10).

Thus, adequate practices of oral hygiene and regular use of dental services have great importance in the prevention of oral diseases (11,12). In general, students had good oral hygiene habits. Although the form has been validated, the information was provided by the children themselves so the results should be interpreted with some caution (13). It is worth emphasizing the importance of studies on the oral clinical conditions of children participating in the study for future correlations with the study variables.

Most said they regularly cleaned their teeth (82%), although the percentage was higher (88.2%) at the age of 6 to 8 years. Although this study was conducted in rural areas where the population is less favored, this situation does not appear to have influenced schoolchildren's habits. This result concurs with those of another study in which all teenagers in the urban area of Goiânia city (GO) reported that they always cleaned their teeth, regardless of socioeconomic status (12).

Among the mechanical and/or chemical methods used to control biofilm, the use of a toothbrush is the best known. The brush is used as a strategic resource to remove, or at least disrupt, the biofilm. It is also important to make fluoride available in the oral cavity. Currently, a large number of manual and electric toothbrushes are available commercially, the ideal being one that meets the individual needs, efficiently cleaning all surfaces of the teeth without traumatizing the muscles of the cheek and tongue and having easy access to all mouth areas (11). All the interviewees reported having a toothbrush and, although the majority (86.7%) reported individual use, 13.3% reported collective use. Although common among low-income populations, this practice may be associated with lack of information and/or financial conditions to purchase individual brushes. This indicates the need for clarification on this issue because the toothbrush can be an object of transmission of various infections (15). This situation can be further aggravated in rural areas where there are generally poor living conditions and by the low level of maternal education that prevails, as seen in this study, where most mothers, according to those interviewed, have incomplete primary education (42%) or cannot read (29.3%).

No schoolchildren reported using electric toothbrushes, which despite being used according to individual preference, are especially suitable for people with disabilities of motor dexterity, children, disabled and/or hospitalized patients and those with orthodontic appliances (16). The most-used

resources for performing teeth cleaning were toothpaste (98.0%), a toothbrush available at the market (93.2%) and dental floss (26.4%). These results are similar to other studies (11,15,16) where the percentage of dental floss use was always lower in relation to the use of toothpaste and toothbrushes. It was found that the majority (55.3%) of students did not have dental floss at home, and the lowest frequency of use was in the group of students from six to eight years old (21.2%), the age at which children are not able to use dental floss properly by themselves (17).

The frequency of brushing was relatively high, with results similar to the average observed by other authors (8,11). It is noteworthy that although the majority of students (56.4%) had three or more daily brushings (with the quality of cleaning being more important than its frequency), night-time tooth brushing was cited by fewer than half of respondents (48.0%). This is the most significant from the standpoint of preventing oral diseases (18), mainly because of decreased salivary flow during this period.

With regards to the timing of brushing, the options after lunch (70.3%) and upon waking (62.8%) were more frequent, with larger percentage differences observed in ages from nine to twelve years, corresponding to the following times: after lunch (82.5%) and upon waking (69.8%). The item "before going out" had the highest percentage (22%) among the reasons to brush, followed by "feeling dirty in the mouth or bad breath" (20%). For teenagers, frequent teeth cleaning is due to the fact that the brush is associated with good looks, the feeling of freshness in the mouth and prevention of bad breath (18). Other studies have shown that oral hygiene was related to health, especially concerning dental caries prevention (12,22).

Alternative methods of oral hygiene (nylon or plastic brushes, environmental solutions and plants used in mouthwash and/or toothpaste, such as propolis, green tea, rosemary, peppermint or chamomile tea) are a viable option when it is impossible to use conventional methods. In addition to having a lower cost, easy acquisition and consequent collective range (17,19), they are in accordance with the socio-economic status of most of the Brazilian population (23). However, the use of such means among schoolchildren was low.

The use of "green brush" and "Juá shaving" (18,23) was only mentioned by 7.4% and 10.1% of schoolchildren, respectively. The low rate observed may be due to the high percentage of children who already had conventional toothbrushes (93.2%) and toothpaste (98%). The juá is extracted from Juazeiro, a typical tree of the Brazilian Northeast, which has wide application as a natural product in

the pharmaceutical industry of cosmetics, such as shampoos and creams, in addition to toothpastes.

Despite dental cleaning representing one of the most important roles of primary care for the oral health of the population, it is essential to visit the dentist regularly. The parameters of healthcare coverage for the Brazilian Unified Health System (SUS) are for a consultation every two years to two dental visits per year starting at six months of age (1). This was possible for 30.2% of respondents, although this percentage may be higher because 40.9% of students did not recall the date of their last visit to the dentist.

The use of dental services varies with age, being higher among individuals between 10 and 14 years, women, the richest and those who reside in urban areas (24). Approximately 15% of the population has never been to the dentist, and only 33.2% consulted a dentist in the last year, with a gap among regions and population groups (25). Access difficulty (22%) and fear (36.6%) were the main factors that have hampered the demand for care.

Although differences in mouth needs might not be eliminated just with the use of health facilities, it is indisputable that access to quality services may improve population health. However, it is imperative that individuals understand their oral needs for seeking these services (26). For 56.6% of students, the self-evaluation of oral health was satisfactory, data similar to other studies (5). However, this result goes against the latest survey on oral health, which revealed that approximately half of Brazilian adolescents considered their oral health very bad, bad, or normal (1).

The most frequent justification for schoolchildren attending the dental clinic was the need for treatment (57.8%), followed by toothache (33.0%). Thus, despite the change in oral needs awareness, students are still far from a preventative vision; of the 109 who sought care, only 2 (1.8%) were for review or control, although most had received guidance on how to take care of teeth.

Conclusions

Most students said they always clean their teeth, have an individual-use toothbrush and had already been instructed on brushing by a dentist.

The use of dental services was high, with healing being the most frequent cause, highlighting little change in public awareness on the importance of prevention.

Most respondents perceived that their teeth were in good condition.

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