

PREVALENCE OF TOOTH DECAY IN STUDENTS FROM TWELVE MUNICIPAL PUBLIC SCHOOLS IN CAMAÇARI - BA, FROM 2015 TO 2019

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Abstract: Objective: To understand and describe the experience of tooth decay in students from 12 public schools in Camaçari - Bahia, aged between 5 and 15 years, from 2015 to 2019, through an oral health survey using the dmft and CPO indices -D in accordance with the parameters established by the World Health Organization. Results: The prevalence of dental caries in the dmft and DMFT index of this population varied between 72.40% and 87.63%. The mean dmft for the age groups of 5 to 7 years and 8 to 9 years were 5.97 (± 2.59) and 7.92 (± 2.58), respectively. For the DMFT of the age groups 10 to 12 years old and 13 to 15 years old, they were respectively 2.02 (± 1.13) and 3.90 (± 1.31). Only 46.38% of students were caries-free (n=1167). Conclusion: The high prevalence of decayed teeth in children and adolescents who participated in this study may be related to their low socioeconomic and cultural level, in addition to the resulting lack of access to health services. This justifies the need to implement educational and oral health promotion actions, as well as carrying out curative actions, through the oral health program implemented following the oral health survey carried out in each school.

Keywords: Dental caries, school health, oral health, epidemiology, DMFT index, dmft index.

INTRODUCTION

According to the World Health Organization (W.H.O.), tooth decay is a serious public health problem, being one of the most prevalent diseases in the world, in addition to affecting people of different age groups (Costa et al, 2020). According to the latest study by the Ministry of Health, the disease affects more than 50% of children aged up to 5 years, approximately 80% of adolescents and almost the entire Brazilian adult population (Brasil, 2012).

Despite this, the distribution of dental caries is uneven, with a higher prevalence in the most socioeconomically vulnerable populations (Baldani et al, 2004). In this sense, epidemiological knowledge highlights the effect of social inequalities on tooth decay, especially in childhood, thus highlighting the role of epidemiology as a fundamental instrument for oral health surveillance (Cabral et al, 2017).

Oral health conditions are factors that greatly interfere with people's quality of life, psychological development and social interactions (Barbosa et al, 2013), and can affect daily activities such as brushing teeth, speaking and eating well, due to pain or discomfort (Peres et al, 2013). Children and adolescents suffer more from the negative impacts of these conditions as they are more sensitive to the perception of pain, in addition to adolescents being more concerned about their physical appearance (Barbosa et al, 2013).

With this, we can see the importance of incorporating oral health strategies aimed at groups with greater vulnerability to the disease to enable the quality of coverage and the consequent improvement of the oral health situation in Brazil (Cangussu et al, 2016). For children and adolescents, school is one of the best strategic spaces for stimulating and developing healthier skills, behaviors and lifestyles (Busch et al, 2017).

The objective of this study is to understand and describe the experience of tooth decay in students from public schools in Camaçari - Bahia, aged between 5 and 15 years, from 2015 to 2019, through an epidemiological survey to support the planning and organization of an oral health program implemented in the school environment shortly after this first stage.

METHODOLOGY

This is a descriptive cross-sectional study carried out in twelve municipal schools in the metropolitan region of Salvador with students aged 5 to 15 who participated in the epidemiological survey carried out before the implementation of an oral health program in these schools, from 2015 to 2019.

The program was part of the social responsibility actions of an industrial company in the region, in partnership with SESI Bahia, and included individual and collective preventive actions, as well as individual curative actions in a mobile health unit within the school itself, with the aim of to improve the quality of life of children and adolescents, in addition to contributing to improving the lifestyle of this population and interrupting their illness process. The program remained in each school long enough to carry out the proposed collective actions, as well as complete the treatments for all students authorized by those responsible, through the signing of the free and informed consent form. Children in need of specialized dental care were referred to public health units (CEOs), due to the partnership with the city hall.

This study respected the ethical and legal aspects that regulate research involving human beings (CNS Resolution 466/2012) and was approved by the research ethics committee of the UFBA Faculty of Dentistry (CAAE: 56260321.8.0000.5024).

SAMPLE

The sample includes all students from the 12 municipal schools covered by the program, aged between 5 and 15 years at the time of the exam and who agreed to participate in the epidemiological survey. Children without a registered age, children under 5 years old and those over 15 years old were excluded from the sample, in addition to students who refused to participate in the survey or did not

have ceo-d or CPO-D data according to their age. The final sample was 2516 students.

EPIDEMIOLOGICAL SURVEY

Before carrying out the epidemiological survey, professionals were calibrated to apply the dental caries diagnostic indexes. The exams were carried out on the school premises by professionals who worked in pairs, with a dental surgeon examiner and an oral health assistant (ASB) as a note-taker, where the examiner sat in a chair facing the individual being examined, in an environment under natural light. The collected data was recorded on individual records.

All indices used complied with the diagnostic criteria recommended by the World Health Organization (WHO). To measure the experience of caries, the DMFT (decayed, lost and filled by caries index) was used for permanent dentition and dmft for primary dentition, depending on the age group.

An Excel spreadsheet specially designed for this purpose was used to compute the data.

RESULTS

2516 students from public schools in the metropolitan region of Salvador, aged between 5 and 15, participated in this study. Of these, 711 (28.26%) were in the age group of 5 to 7 years, 563 (22.38%) in the age group of 8 to 9 years, 819 (32.55%) aged between 10 and 12 years and 423 (16.81%) aged between 13 and 15 years old. The sample was homogeneous in terms of gender, with 51.63% male and 48.37% female (Table 1).

Regarding the experience of caries, the dmft was carried out for children between 5 and 9 years old and the DMFT-D for those between 10 and 15 years old. The dmft for children aged 5 to 7 years was 5.97 (± 2.59), of which 88.10% corresponded to decayed teeth and it was noted that the students had up to 17 teeth with experience of caries. In the

Age range	Number of individuals	%	Feminine	%	Masculine	%
5 to 7 years	711	28.26	348	13.83	363	14.43
8 to 9 years	563	22.38	270	10.73	293	11.65
10 to 12 years	819	32.55	393	15.62	426	16.93
13 to 15 years old	423	16.81	206	8.19	217	8.62
Total	2516	100.00	1217	48.37	1299	51.63

Table 1: Distribution of students who participated in the epidemiological survey according to age group and sex

Age range	n	ceo-d/ CPO-D=0	%	w (%)	It is (%)	O (%)	ceo-d	DP	W (%)	P(%)	O(%)	CPO-D	DP
5 to 7 years	711	206	28.97	88.10	7.66	4.24	5.97	2.59	-	-	-	-	-
8 to 9 years	563	174	30.91	87.63	8.14	4.23	7.92	2.58	-	-	-	-	-
10 to 12 years	819	566	69.11	-	-	-	-	-	72.40	4.10	23.50	2.02	1.31
13 to 15 years old	423	221	52.25	-	-	-	-	-	72.50	4.00	23.50	3.90	1.31
Total	2516	1167	46.38				6.83					2.66	

Table 2: Distribution of caries experience according to age group and dmft and DMFT indices

Age range	n	No need for treatment	%	In need of treatment	%
5 to 7 years	711	229	32.21	482	67.79
8 to 9 years	563	206	36.59	357	63.41
10 to 12 years	819	601	73.38	218	26.62
13 to 15 years old	423	265	62.65	158	37.35
Total	2516	1301	51.71	1215	48.29

Table 3 - Distribution of students according to age group and need for dental treatment

age group of 8 and 9 years, the dmft was 7.92 (± 2.58) with 87.63% of the decay rate at the time of the examination, presenting children with up to 11 teeth with experience of cavities (Table 2).

The DMFT for children aged 10 to 12 years was 2.02 (± 1.31), with a percentage of 72.40% of decayed teeth and up to 7 teeth with decay. For the age group of 13 to 15 years, the DMFT was 3.90 (± 1.31), with the majority of the index, 72.50%, also from decayed teeth at the time of the examination. It was noted that these students had up to 12 teeth with cavities (Table 2).

The analysis of the ceo-d and CPO-D components highlights access to health services. In this study, it was noted that the percentage of decayed teeth varied between 72.4% and 88.10% of the index, which suggests the absence or difficulty of access to oral health services for this population. However, all

students were evaluated and it was noticed that 46.38% (1167) had no experience of cavities, that is, they did not have any decayed teeth, lost teeth due to decay or fillings (Table 2).

The students' need for treatment was also assessed. Whether or not they had any decayed teeth in the epidemiological survey. It can be noted that the majority of students aged 5 to 7 (97.79%) and aged 8 and 9 (63.41%) needed treatment for their primary teeth (Table 3).

It was noticed that in the 10 to 12-year-old age group the percentage of children needing treatment for permanent teeth was much lower (26.62%) when compared to the needs of younger age groups. This probably occurred due to the exchange of deciduous teeth for permanent ones. It was possible to notice, however, an increase in the percentage of students in need of treatment in the age group of 13 to 15 years (37.35%) (Table 3).

DISCUSSION

The present study evaluated children aged 5 to 15 years from 12 public schools in the city of Camaçari – Bahia. These children were grouped into the age groups of 5 to 7 years, 8 to 9 years, 10 to 12 years and 13 to 15 years in order to compare them with data from other studies.

For the age group between 5 and 7 years old, it was noted that only 28.97% of children are free from cavities. When this result is compared with data from Brazil for children aged 5 years, it is clear that there is a much higher percentage of children free of cavities in the primary dentition in Brazil (46.6%) (Brasil, 2012).

At 5 years of age, a Brazilian child has an average of 2.43 teeth with cavities, with a predominance of the decayed component, which is responsible for more than 80% of the index. In the Northeast, the dmft increases to 2.89 and 88.2% of the index refers to decayed teeth. In Salvador, capital of Bahia, the dmft was 1.70, with 88.8% of the index made up of decayed teeth (Brasil, 2012).

In children from public schools in the city of Camaçari – Bahia, it was noted that the dmft for the age group of 5 to 7 years was 5.97 (± 2.59), showing a much greater severity of the disease when compared to Brazil (2.43), the Northeast (2.89) and Salvador (1.70). Regarding the percentage of dmft components, it was noted that the decay component is equivalent to 88.10% of the index, thus demonstrating the study population's lack of access to oral health services.

In a study carried out with 275 children aged 4 to 6 years old, enrolled in municipal early childhood education schools in Araçatuba-SP, the dmft was 1.88 and the decay component was the one that contributed most to the index, with a percentage of 78% (Garbin et al, 2011). When we compare these data with those found in the present study for children

aged 5 to 7 years, we see a higher dmft of 5.97 (± 2.59), that is, the severity of the disease is greater and the percentage of decayed teeth is also higher, contributing 88.8% of the index.

The WHO presented, as one of the oral health goals for the year 2000, that 50% of children aged between 5 and 6 years old must be free of cavities. For the year 2010, the target was increased to 90% (Hobdell et al, 2000). In the present study, only 28.97% of children between 5 and 7 years old are free of cavities, a much lower percentage than the targets for 2000 and 2010.

In a study carried out in Sarandi-PR with elementary school students, 48 children between 6 and 7 years old were analyzed, who had a dmft of 4.20; 50 children between 8 and 9 years old, with a dmft of 2.54 and 32 children between 10 and 14 years old, with a dmft of 2.31. It was noted that in all age groups, the decay component prevailed with a higher percentage of both the dmft and DMFT index (Lima et al, 2020). In the present study, the decay component was also the highest in all groups analyzed. The dmft for schoolchildren aged 5 to 7 (5.97) and aged 8 to 9 (7.92) was much higher when compared to data from the study of Sarandi, which is considered a vulnerable municipality. When comparing the data on children aged 10 to 14 years from the municipality of Sarandi with those from children aged 13 to 15 years from Camaçari, it is clear that the DMFT was also higher in the present study, with an average of 3.90 (± 1.31).

The presence of caries experience in permanent teeth among schoolchildren in Camaçari, for the age group of 10 to 12 years, was 2.02 (± 1.31). When comparing this data with that of SB - Brazil, 2010 for the Northeast, the CPO-D obtained an average of 2.63. In Salvador, children aged 12 had an average of 1.07 (Brazil, 2012), it is noted that the population studied has a greater severity of the disease when compared to Salvador.

Furthermore, the percentage of decayed teeth in the study was 72.40%, contributing more to the index when compared to the percentage for the Northeast which was 68.8% and Salvador, which was 59.8% (Brazil, 2012). However, it manages to meet the WHO target for the year 2000, at the age of 12, which stipulates a maximum DMFT of 3.0 (FDI, 1982).

For the age group of 13 to 15 years, the DMFT in the present study was 3.90 (± 1.31). When compared to SB Brasil, 2010 for the city of Salvador, a high value for this index can be seen, as adolescents aged 15 to 19 have a DMFT of 2.90 (Brasil, 2012). When the percentage of decayed teeth in the index was analyzed, it was clear that in SB Brasil, 2010, this percentage was 51.2% for Salvador and 47.9% for the Northeast region (Brazil, 2012),

while in the present study, the percentage of decayed teeth was 72.50%.

FINAL CONSIDERATIONS

The oral health epidemiological profile is an important tool for recognizing real oral health problems, a basic premise for developing preventive and curative strategies.

The high dmft and DMFT index, in addition to the severity of the disease with a high prevalence of decayed teeth in the children and adolescents who participated in this study, justify the need to implement education and oral health promotion actions, as well such as carrying out curative actions, through the oral health program implemented following the epidemiological survey carried out in each school.

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