

# CARIES PREVALENCE AND NEED OF STUDENT'S TREATMENT

## ABSTRACT

**AIM:** Investigating dental caries prevalence and the need of student's treatment in a small municipality. **MATERIAL AND METHODS:** A population composed by 217 students was studied, 161 (74.2%) from the urban zone and 56 (25.8%) from the rural zone, resident in Independência, Rio Grande do Sul. The indexes DMFT and dmft for dental caries were used, and the need of dentistry treatment was evaluated according to codes and criteria from Projeto SB Brasil, 2010. **RESULTS:** Regarding to the presence of dental caries, it was observed that 83.8% (93) of the students presented caries at 06 years old, and 94.3% (100) at 12 years old. The dmft at 6 years was 4.17 and DMFT at 12 years was 3.53. Regarding to the need of treatment, 71.8% (156) of students needed some type of attention, and the surface restoration was the most prevalent. **CONCLUSION:** High prevalence of dental caries was found, both at 6 and 12 years old (4.17 and 3.53) respectively, and 71.8% needed some type of treatment. The most prevalent treatments were dental surface restoration, dental extraction and sealing pits and fissures.

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## KEYWORDS

Dental caries. Epidemiology. Child.

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## INTRODUCTION

In the childhood, dental caries represents the most prevalent chronicle disease, reaching from 40 to 50% of British and American children<sup>1,2,3</sup>, and it can affects around 60 to 90% of children between 2 and 11 years old in the world<sup>4,5,6</sup>. According to a national base study performed in Brazil, at 05 years old a child has a medium of 2.43 teeth with caries experience, and at 12 years old, 2.07, and caries component represents about 80% of this index<sup>7</sup>.

The research carried out by the Department of Health and Human Services<sup>8</sup>, entitled *Oral Health in America*, points the caries treatment as harm, further than expensive and painful, damage the nutrition and mastication<sup>9</sup>. Its effects can be expanded to the emotional aspects and of relationship, physical and cognitive developments, and can have negative repercussions along life.

Caries prevalence has been decreased worldwide last decades<sup>10</sup>, probably due to the improvement in the access to the services, further the decrease in the sugar consumption and the social inequalities<sup>11,12,13</sup>, among other indicators. Despite this context, there is still a blank to be filled regarding to the prevalence and severity, in Brazilian municipalities, both in diagnose and the problem approach.

The aim of this work was investigating dental caries prevalence and the need of treatment of students at 6 and at 12 years old,

in small municipality in Rio Grande do Sul, in order to provide subsidies for planning and organization of dentistry services provided by the village administration.

## MATERIAL AND METHODS

Localized in the macro region of Missions, in Rio Grande do Sul northwest, the small municipality called *Independência* has a population of approximately 6,618 inhabitants, 2,461 from them living in the rural zone and 4,157 in the urban zone. The local economy is based on the services providing and on the agriculture and livestock<sup>14</sup>. Water fluoridation in the municipality by the *Companhia Riograndense de Saneamento*<sup>15</sup> started in June 2006. In the Rural Area, water provision occurs through artesian well. To verification of Fluor level in the urban and rural areas, a sample was collected in each school visited, and posteriorly taken to analysis at the *Central Analítica da Universidade de Santa Cruz do Sul - UNISC*. In order to prevent dental caries in students, in October 2010, actions for prevention were implemented in municipal and state schools, covering supervised tooth brushing and fluoridated mouthwash.

In this research, 217 students were included, at 6 and at 12 years old regularly enrolled in municipal and state schools in 2011, whose parents or responsible ones have signed the Statement of Informed Consent.

The Project was submitted and approved by the Ethics Committee of the University of Santa Cruz do Sul – RS under the protocol number 2842/11.

To evaluate the dental condition related to the caries, the indexes DMFT (number of permanent teeth with caries, lost and obtured) and dmft (number of deciduous teeth with caries, indicated for extraction and obtured), following the recommendations, code and criteria of *Projeto SB Brasil 2010*<sup>16</sup>.

The tests were carried out by an examiner previously trained and calibrated (Kappa 0.9), under natural light with help of a buccal mirror and a probe ball-point type.

All the parents or responsible ones received a communication about the buccal health situation of their children. The students who presented some dentistry treatment need were addressed to the health center nearest their homes.

We searched discuss the results obtained only with municipality, small size considered by IBGE (2010) with population until 20,000 inhabitants and that included only the age group from 6 to 12 years old.

The data obtained with this research were written down in standardized files and posteriorly typed in the program *Statistical Package for the Social Sciences (SPSS 19.0)*, presenting absolute and relative frequencies.

## RESULTS

From 225 students enrolled, only 08 (3.55%) were not examined. The exam was not performed because of 02 (25%) transferences, 03 (37.5%) students were using orthodontic braces, 02 (25%) absents in the evaluation day and 01 (12.5%) refuse his/her participation in the research, even with the Statement of Informed Consent signed by parents. In this way, 217 students were examined (96.45%), 111 (51.15%) at 6 years old and 106 (48.85%) at 12 years old.

Regarding to the presence of dental caries, it was observed that 83.8% (93) of students presented caries at 6 years old and at 12 years old 94.3% (100) (Table 1).

In the figure 1 is possible observe the results referent to the dmft and DMFT indexes. At 6 years old, the dmft presents as mean 4.17 and the DMFT at 12 years old presents as mean 3.53.

Both at 6 years old and at 12 years old, the greater need of treatment observed was restoration of dental surface, corresponding to 43.1% and 38.6%, respectively. However, at 6 years old, the second need was tooth extraction (28.9%) and at 12 years old, the application of sealing in pits and fissures (81.1%) (Table 2). Regarding to the population resident in the Rural and Urban zones, it were not observed differences of treatment needs in both ages evaluated.

Some students examined and who need any type of dentistry treatment received communication for their parents or

responsible about this need; total 156 children were addressed (71.8%).

Table 1. Distribution of population regarding to the presence of dental caries, Independência/RS, 2011.

Age	Caries free		Presence of Caries	
	N	(%)	N	(%)
06 years old	18	16.2	93	83.8
12 years old	06	5.7	100	94.3
<b>Total</b>	<b>24</b>	<b>100.0</b>	<b>193</b>	<b>100.0</b>

Figure 1. Distribution of population according to the indexes dmft and DMFT, Independência/RS, 2011.

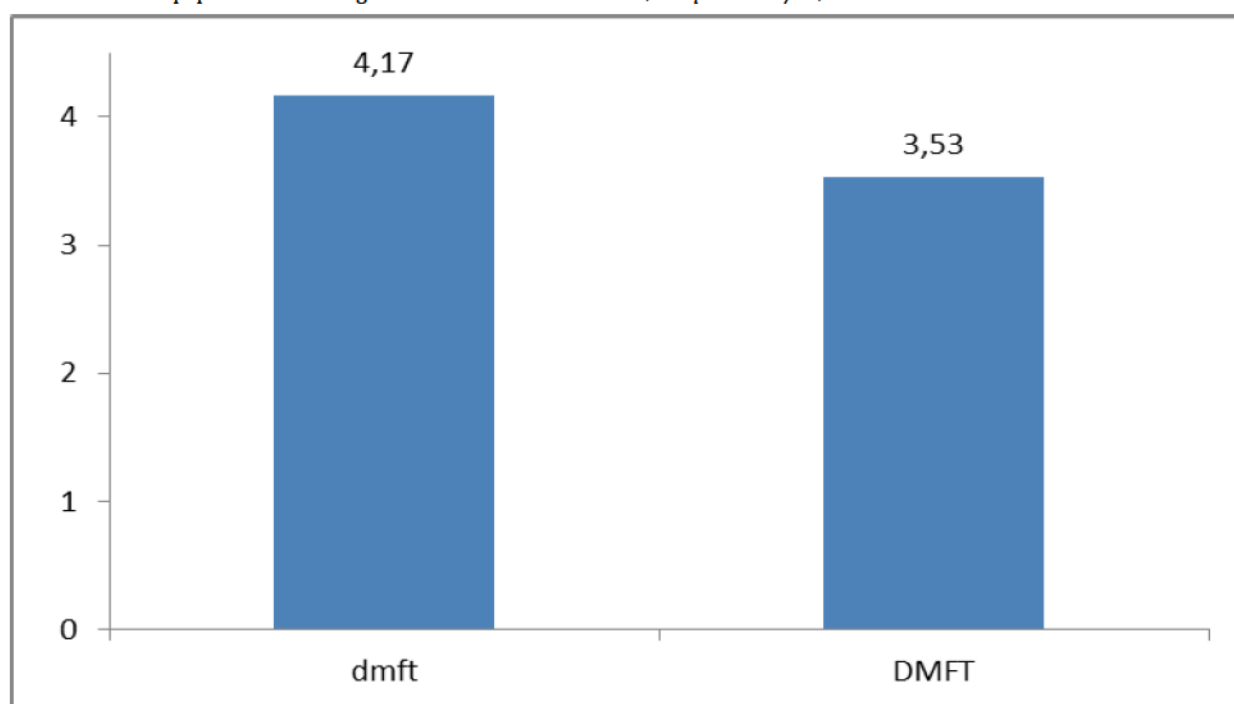


Table 2. Number and percentage of teeth with necessity of treatment, Independência/RS, 2011.

Necessity of Treatment	Age			
	06 years old		12 years old	
	Deciduous N (%)	Permanents N (%)	Deciduous N (%)	Permanents N (%)
Rest. 1 surface	191 (43.1)	31 (15.8)	01 (7.7)	81 (38.6)
Rest. 1 or + surface	94 (21.2)	03 (1.5)	02 (15.4)	49 (23.3)
Pulp + rest.	30 (6.8)	01 (0.5)	0 (0)	0 (0)
Extraction	128 (28.9)	01 (0.5)	10 (76.9)	30 (14.3)
Pulp + rest.	0 (0)	0 (0)	0 (0)	26 (12.4)
Sealing	0 (0)	159 (81.1)	0 (0)	02 (1.0)
Crown by any reason	0 (0)	0 (0)	0 (0)	22 (10.5)

## DISCUSSION

In this study, high prevalence of caries was found, both at 6 and at 12 years old. It is also highlighted the high percentage of students who needs treatment (71.89%), what reinforces the aim of this study, investigating dental caries prevalence and the need of treatment in order to provide subsidies for planning and organization of services provided.

In order to explain the motives which could lead this high caries prevalence, the collection of water sample from school supplying were evaluated, which were submitted to the analysis of fluor concentration. In all the samples the fluor level was considered optimum, even when from the artesian wells. Then, this variable did not have influence on the caries indexes observed.

The dmft (4.17) and DMFT (3.53) indexes found in this study is higher than the average found in the last national survey (2.43 and 2.07)<sup>7</sup>. When compared the data from *Independência* with the Southern region, it is possible notice that in Porto Alegre, the means are lower for dmft (1.71) and DMFT (1.49), as well as in the countryside region of Rio Grande do Sul (2.56; 2.17)<sup>7</sup>.

In a study<sup>17</sup> carried out in *Santa Rita do Pardo* (MS), the dmft at 6 years old had as mean 2.75, and the DMFT at 12 years old had as mean 2.64. In that study is highlighted that authors reported that most population part

used artesian wells as water fountain, and to decrease the caries prevalence would be necessary alternative sources of fluor for the population.

As previously commented, in the *Independência* municipality the water is fluoridated, and even they were from artesian wells, they achieved the ideal concentration. A possible method to control the injuries and provide an adequacy to the buccal environment would be the implementation of programs and actions that work about the health and buccal diseases theme with students and parents. The family and their buccal hygiene habits and life style influence the children and adolescent's health, what can be reaffirmed through a systematic revision performed by Castilho et al (2013)<sup>18</sup>. In this way, there is the need to reorder dentistry services provided in order to act on the disease (existing caries injuries) with all the family members.

Regarding to the need of treatment, it was verified that 71.89% of total students examined in *Independência/RS* needed some type of treatment. In relation to the main needs found in deciduous teeth at 06 years old concentrate, above all, in restorations of one surface (43.1%), followed by tooth extraction (28.9%) and restoration of one or more surfaces (21.2%).

Amaral et al (2006)<sup>19</sup> found the restoration need of one surface in deciduous

dentition of 65.94%, followed by restoration of two or more surfaces in 22.46%, and indication of extraction in 10.87%.

In the group of 12 years old, Amaral et al (2006)<sup>19</sup> found, in 43.48% of students examined, the need of restoration on one face, followed by 39.13% with restoration on one or more surfaces and 17.39% of extractions. These data show similarities with those found in Independência/RS, where 38.6% of restorations on one surface, 23.2% restorations on one or more surfaces and 14.3% of extractions were found. Rihs et al (2010)<sup>20</sup> and Gushi et al (2008)<sup>21</sup> also found in their studies that greater needs of treatment were restorations on one surface followed by one or more.

Among the most prevalent needs of treatment in this study was found a special concern with pulp treatment plus restoration, because it is not offered by the basic health service, and it is a treatment from medium to high complexity. Before this, it is possible think that some of these treatments will be addressed, in the future, for tooth extractions.

### CONCLUSION

It was found high caries prevalence both at 6 and 12 years old (4.17 and 3.53) respectively, and 71.8% needed some type of treatment. The most prevalent treatments were the restoration on one tooth surface, tooth extraction and sealing pits and fissures.

Despite the significant number of studies on the caries prevalence available in the national literature, there are few studies regarding to the municipality, especially when it is about the rural area.

This study elucidates information that offers subsidies for strategic and normative planning of actions in buccal health in the local health system, in order to assure improvement on the quality of life for the population.

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