

# ORAL HEALTH AND SELF-CARE IN ADOLESCENTS FROM DIFFERENT BRAZILIAN REGIONS

Daniel Neto Campos<sup>1</sup>, Laysla Martins Pereira de Freitas<sup>1</sup>, Mariana Coutinho Sancas<sup>1</sup>, Andréa Vaz Braga Pintor<sup>2</sup>, Cláudia Tavares<sup>3</sup>, Laura Guimarães Primo<sup>4</sup>

<sup>1</sup> Undergraduate student, School of Dentistry, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.

<sup>2</sup> PhD, Substitute Professor, Department of Pediatric Dentistry and Orthodontics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.

<sup>3</sup> PhD, Researcher, Department of Pediatric Dentistry and Orthodontics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.

<sup>4</sup> PhD, Associate Professor, Department of Pediatric Dentistry and Orthodontics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.

**Palavras-chave:** Adolescentes. Autocuidado. Saúde Bucal. Cárie Dentária. Prevalência.

## RESUMO

**Introdução:** Adolescentes apresentam potencial risco para o desenvolvimento das doenças cárie e periodontal. **Objetivo:** O objetivo do presente estudo foi revisar, na literatura, dados acerca da saúde oral de adolescentes brasileiros através da prevalência ou presença de cárie e sangramento gengival, como indicadores indiretos (consequências), e frequências de escovação dentária, uso de fio dental e visita odontológica como indicadores diretos de autocuidado oral. **Fontes dos dados:** Utilizou-se a estratégia de busca ((adolescent AND oral health) AND Brazil\*) nas bases de dados PubMed e LILACS. Os artigos publicados entre setembro 2012-2017 que apresentaram dados de ao menos um dos indicadores de saúde oral e autocuidado em adolescentes brasileiros, foram incluídos nesta revisão. As características dos estudos e os dados obtidos foram apresentados de forma descritiva. **Síntese dos dados:** Foram recuperados nas bases de dados PubMed e LILACS 837 e 1375 artigos, respectivamente. Após a aplicação dos critérios de inclusão e exclusão, 10 artigos foram incluídos. A maioria dos estudos incluiu adolescentes entre 15 e 19 anos, com relato de atendimento odontológico realizado em menos de 1 ano antes da entrevista, sendo a cárie a alteração bucal mais prevalente. **Conclusão:** Dentro das limitações do presente estudo, de acordo com os dados obtidos através dos indicadores de autocuidado pesquisados, os adolescentes brasileiros mostraram cárie como o agravo observado mais prevalente; as frequências de escovação e uso de fio dental variaram na região Sul; e relataram atendimento odontológico no período inferior a um ano da entrevista.

**Keywords:** Adolescents. Self-care. Oral Health. Dental Caries. Prevalence.

## ABSTRACT

**Introduction:** Adolescents present a potential risk for the development of caries and periodontal diseases. **Objective:** The objective of the study was to conduct a literature review on the oral health of Brazilian adolescents through the prevalence or presence of caries and gingival bleeding, as indirect indicators (consequences), and frequency of toothbrushing, flossing, and dental visits as direct indicators of oral self-care. **Sources of data:** A search strategy (adolescent AND oral health) AND Brazil\* was used in the PubMed and LILACS databases. Articles published between September 2012 and September 2017 that presented at least one of the indicators on oral health and self-care of Brazilian adolescents were included in this review. **Synthesis of data:** A total of 837 and 1,375 articles were retrieved from the PubMed and LILACS databases, respectively. After applying the inclusion and exclusion criteria, 10 papers were included. The characteristics of the studies and the data regarding self-care and oral health of the adolescents were presented descriptively. Most of the studies included adolescents between the ages of 15 and 19 years, and caries was the most prevalent oral alteration, with reporting of dental care performed less than one year before the interview. **Conclusion:** Within the limitation of the present study, according to data obtained by the indicators of self-care, Brazilian adolescents showed caries as the most prevalent alteration observed and the frequency of toothbrushing and flossing varied within the southern region; reports showed that dental care had been received less than one year before the interview.

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### \* Correspondence to:

Dr. Laura Guimarães Primo  
Rua Professor Rodolpho Paulo Rocco, 325,  
Ilha do Fundão, Departamento de  
Odontopediatria e Ortodontia, Universidade  
Federal do Rio de Janeiro, Rio de Janeiro/RJ,  
CEP: 21941-913, Brazil; tel: (55) 2139382727, (55)  
21-39382098, fax: (55) 2139382771, email:  
lprimo@pobox.com

## INTRODUCTION

Changes. Impulses. Personal maturation. Adolescence encompasses a series of transformations that make the individuals living in this period unique. According to the World Health Organization (WHO),<sup>1</sup> the period of adolescence ranges from 10 to 24 years, with three 5-year subdivisions. However, there are other age group definitions, such as those from the United Nations (UN),<sup>2</sup> as individuals 15 to 24 years, and from Brazil; according to the ECA (Estatuto da Criança e do Adolescente),<sup>3</sup> adolescents include individuals between 12 and 18 years of age.

Due to their unique behavior, adolescents present a potential risk for the development of caries and periodontal diseases.<sup>4</sup> Considering the oral health of adolescents in Brazil, the last national epidemiological survey (SB Brasil 2010, Ministério da Saúde, Brasil, 2012)<sup>5</sup> revealed a worsening in dental conditions in the period of adolescence, compared to childhood. At 5 years of age, 46.6% of children were caries free; at 12 years, 43.5%; while with those 15–19 only 23.9% were free from the disease.

In attempting to reduce caries prevalence, oral health promotion encourages the establishment of healthy habits, such as brushing with fluoride toothpaste twice daily.<sup>6</sup> Self-care is considered as the performance of activities or tasks usually performed by health professionals, including the care of oneself or one's family or friends. Based on this concept, we considered indexes of caries prevalence and periodontal alterations as indirect indicators of oral self-care, while the frequency of toothbrushing, dental flossing, and dental visits were considered as direct indicators of self-care. We hypothesized that Brazilian adolescents had low frequencies of toothbrushing, flossing, and dental visits.

Therefore, the objective of the study was to review data on the oral health of Brazilian adolescents through the prevalence or presence of caries and gingival bleeding, as indirect indicators (consequences), and the frequency of toothbrushing, flossing, and dental visits as direct indicators of oral self-care.

### Study design

Electronic searches up to September 2017 were conducted using the PubMed and LILACS electronic bibliography databases. The searched terms were “adolescent,” “oral health,” and “Brazil,” limited to the title and abstract fields. The search strategy used was ((adolescent AND oral health) AND Brazil\*). A 5-year publication filter was applied. Titles and abstracts and, when needed, results and full text of the retrieved papers were read and evaluated independently by the two review authors (DCN, LF) for the identification of eligible studies. According to the inclusion criteria, the selected

papers were published between September 2012 and September 2017 and presented data concerning at least one of the direct or indirect indicators of oral health and self-care in adolescents with ages ranging from 10 to 19 years in Brazil. The indicators were: frequency of toothbrushing, use of dental floss, and dental visits; gingival bleeding, prevalence of dental caries (DMFT), or presence of caries. The exclusion criteria were: theses, dissertations, and studies that did not separate age groups and included individuals younger than 10 or older than 19 years, as well as those that considered pregnant adolescents, patients with special need care, and systemic diseases or syndromes.

The characteristics of the selected studies and the reported data are presented descriptively.

### Synthesis of data

Initially, 837 and 1,375 references were retrieved from PubMed and LILACS, respectively. After the application of a 5-year post-publication limit, 380 and 193 papers remained, and based on the inclusion and exclusion criteria, eight studies from PubMed and six studies from LILACS were selected. Following a full reading of the papers, 10 were included in this study. Four papers were excluded: a study that evaluated children from 2 years of age together with adolescents, a study that used the same sample as that of another selected paper, and two studies that showed data from the National Survey in different periods of time.

The majority of the studies included individuals between 15 and 19 years of age.<sup>7-11</sup>

Geographically, considering the distribution of the selected studies among the different regions of the country, half of the studies were conducted in the southern region (n = 5), while in the southeast all three studies were carried out in the state of São Paulo, and in the northeast region only two studies were conducted. There were no studies performed in the north and central west regions with the desired characteristics.

The majority of the participants reported that they had gone to a dental appointment less than a year before the interview.<sup>12-15</sup>

When interviewed regarding the frequency of brushing, most participants reported brushing their teeth at least three times a day in a city in the state of Rio Grande do Sul, in the southern region.<sup>8</sup> On the other hand, in another city in the same region, a lower toothbrushing frequency of less than two times a day was reported.<sup>9</sup> Similarly, positive answers for regular flossing were obtained for the majority of the participants who reported brushing three times daily,<sup>6</sup> and negative answers were obtained for those with lower brushing frequency.<sup>9</sup>

The presence or prevalence of caries was reported in

Table 1: Characteristics of the selected studies

Reference	Geographic Location	Sample size	Oral health evaluation tools	Gender M: male F: female	Age (years)	Dental care frequency	Toothbrushing frequency	Gingival bleeding Y: yes N: no	Tooth loss (%)	DMFT / Presence of caries lesions	Flossing
Cunha et al., 2017	São Paulo (SP)	5,402	DMFT CPI	M: 43.7% F: 56.3%	15-19	-	-	Y: 1,668 (30.8%) N: 3,734 (69.2%)	None: 4,694 More than 1: 708	None: 3.149 At least 1: 2,253 (41.7%)	-
Colussi et al., 2017*	Passo Fundo (RS)	736	Questionnaire (OHIP-14) + Exams/number of teeth	M: 43.9% F: 56.1%	15-19	-	3x a day: 59.2% <3x a day: 15.6% >3x a day: 25.2%	-	1 tooth lost: 21.1%	-	Y: 53% N: 47%
Ely et al., 2016	Rio Grande do Sul (RS)	3,531	Questionnaire + Intraoral exam	M: 46.1% F: 53.9%	12-19	Never: 4.9% <1 year: 67.4% 1-2 years: 14.7% >3 years: 5.2%	-	Y: 46.5% N: 53.5%	-	DMF = ±2.80	-
Marin et al., 2016	Maringá (PR)	144	Questionnaire	M: 45% F: 55%	Mean 14.6	<1 year: 82%	-	-	-	12.15% Pain/Caries	-
Lyra et al., 2015	Recife (PE)	100	Questionnaire	-	11-15	-	-	-	-	-	2.23 ±1.90
Leão et al., 2015	Pontal do Paranapanema (SP)	180	DMFT CPI + Questionnaire (WHOQOL-Bref) (OIDP) (GSHS-WHO)	-	10-19	<1 year: 59% 1-2 years: 32% ≥3 years: 9%	-	Y: 37.2%	-	None: 6.7% DMFT = 5.49 ±3.33	-
Morosini et al., 2014	Curitiba (PR)	102	Intraoral exams	-	15-19	-	-	-	-	Decayed teeth: 282 Missed Teeth by caries: 50 Filled teeth with recurrent caries: 18	-
Davoglio et al., 2013*	Gravatá (RS)	1,170	Questionnaire (GSHS-WHO)	M: 47.5% F: 52.5%	15-19	47.9%	>2x a day: 30.16% <2x a day: 54.35%	-	-	-	Y: 31.9% N: 68.1%
Batista et al., 2012	São Paulo (SP)	1,824	Interview	M: 40.8% F: 59.2%	15-19	-	-	-	-	No caries: 9.5% DMFT: 6.5	-
Corrêa et al., 2012	Guaiúba (CE)	743	ICSB	M: 41.7% F: 58.3%	10-19	51.8% at the last year	93.4% reported brushing but not the frequency	N = 74 (10%)	-	Presence of caries: (1-2) 301; 40% (≥3) 223; 30%	-

CPI - Community Periodontal Index (evaluation of periodontal conditions: bleeding, dental calculus, and depth of gingival sulcus); DMFT - index Decayed, Missing, and Filled Teeth (evaluation of caries and tooth loss); GSHS - WHO Global School-based Health Survey (evaluation of health access); ICSB - Indicador Comunitário de Saúde Bucal (oral exam executed by a community oral health agent); OHIP-14 Oral Health Impact Profile - resumed version (self-perception of health, self-reported oral morbidity, use of dental services, socioeconomic, and demographic issues); ODP - Oral Impact Performance - (evaluation of quality of life); WHOQOL-Bref - World Health Organization Quality of Life shorter version - (evaluation of quality of life); (\*) data not reported; \* value calculated from reported data

eight studies.<sup>7,10-16</sup> It was observed that 70% of the sample participants in a city in the northeast region showed one or more lesions of caries<sup>15</sup>, while in the southeast, 41.7% presented one caries lesion<sup>7</sup> and the mean DMFT in Pontal do Paranapanema (SP) was  $5.49 \pm 3.33$ .<sup>14</sup>

Regarding the presence of gingival bleeding, this periodontal alteration was observed in few of the participants.<sup>7,12,14,15</sup>

The characteristics of the included studies and pertinent data reported are described in Table I.

## DISCUSSION

Adolescents require different oral health instructions and dental care, compared to the child and adult population. These developing individuals show increased susceptibility to caries, increased risk for orofacial trauma and periodontal disease, a tendency toward inadequate nutritional habits, greater potential for developing eating disorders, a potential for tobacco/alcohol and drug use, and psychosocial needs specific to age.<sup>4</sup>

Regarding the frequency of dental visits, many adolescents reported that they had dental care less than one year before the interview.<sup>12-15</sup> Based on this result, the hypothesis that Brazilian adolescents would report a low frequency of dental visits was rejected. However, the authors understand that this review included few studies, and none of them provided information on all of the parameters. The authors selected a 5-year post-publication limit for papers to be included in the review, aiming to review the most recent literature about the issue since the results of the National Survey (SB Brasil 2010).<sup>5</sup>

In observing the data for oral health self-care indicators, the authors recommend a standardized data collection methodology for future studies in order to contribute to comparisons of study results. Additionally, the authors observed a lack of studies regarding the oral health of adolescents in the north and central west regions of Brazil, reinforcing the idea of a scarcity of resources and low investment in oral research in these regions. The issue is even more relevant considering the data presented in SBBrazil 2010,<sup>5</sup> because the mean DMFT ranged from 4.02 to 6.76 among different cities of the north and from 3.46 (Federal District) to 6.91 for the cities of the central west regions.<sup>13</sup>

Regarding the prevalence of caries, a decrease was observed in Brazil in recent years.<sup>17</sup> However, it is worth mentioning that adolescents between 15 and 19 years from a rural settlement in Pontal do Paranapanema, SP,<sup>14</sup> showed a higher prevalence of caries (5.49) compared to the national mean of 4.25 and to that observed for adolescents in the city of São Paulo (4.21).<sup>5</sup> The poorer oral conditions could be

explained by the fact that adolescents from the settlement faced unequal access to dental health, with the majority reporting that the last dental consultation occurred more than 12 months prior to the interview, carried out by public services, and due to toothache.<sup>14</sup>

Equally, lower-income regions presented lower quality of life related to oral conditions.<sup>6</sup> Oral disorders may negatively affect the quality of life of individuals, or in another words cause concern or modifications for individuals' attitudes. Some of the included studies evaluated the impact of the oral alterations on the quality of life of Brazilian adolescents.<sup>7,8,11,14</sup> Caries,<sup>7,14</sup> periodontal alterations,<sup>7</sup> increased overjet,<sup>7</sup> and halitosis<sup>8</sup> were the oral health factors that caused the most embarrassment among the adolescents and compromised their quality of life. Furthermore, adolescents perceived their quality of oral health mainly through pain and aesthetic conditions of teeth and gingiva.<sup>11</sup>

Although caries has been considered as the most important and prevalent oral health problem, this condition could be preventable by lower consumption of sugar and effective oral hygiene.<sup>6</sup> When asked about the receipt of oral hygiene instructions, 90% of the participants from one study reported that they received such instructions through dentists.<sup>13</sup> However, it is worth to mention that lower reported frequency of toothbrushing and flossing was significantly associated with a higher prevalence of self-reported halitosis among Brazilian adolescents.<sup>8</sup>

There is a consensus in the literature that strategies to promote oral health among adolescents should include instructions on oral self-care through guidance regarding satisfactory dietary habits, toothbrushing with fluoridated toothpaste,<sup>6</sup> and individualized oral hygiene frequency, according to a risk assessment for caries and periodontal diseases.<sup>4,7</sup> Likewise, adolescents should be instructed to use protective equipment in activities of potential risk for trauma. Such guidelines should further strengthen adolescents' autonomy and responsibility for their own oral health.<sup>4,7</sup>

## CONCLUSION

Within the limitation of the present study, according to the indirect indicators of self-care in the searched publication databases, it was concluded that Brazilian adolescents showed caries as the most prevalent alteration observed, compared to gingival bleeding. Considering the directed indicators, frequency of toothbrushing and flossing varied within the southern region, while most adolescents reported having received dental care less than one year before the interview.

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