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ORIGINAL ARTICLE

Analysis of oral health habits in students of the "17 de Abril" Educational Unit

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ABSTRACT

Introduction: dental caries constitute one of the most prevalent pathologies among adolescents, with adequate oral hygiene being a key factor for its prevention and control. **Objective:** to analyze the level of knowledge and oral hygiene practices among high school students.
Methods: an observational, descriptive, cross-sectional study was conducted in Quero during 2024. A survey on oral hygiene habits was administered to a simple random probabilistic sample of 123 first- and second-year high school students from the "17 de Abril" Educational Unit. Descriptive statistical methods were used for data processing, adhering to medical ethics.
Results: 70 % of students attributed caries to sugar consumption, while only 23 % associated it with microorganisms. 82 % reported brushing after every meal, and 97 % indicated they learned the technique from their parents. 85 % recognized the importance of dental floss, and 67 % identified fluoride as a beneficial substance. However, only 38 % use fluoride rinses, and 39 % visit the dentist only when experiencing problems. 80 % replace their toothbrush every three months, reflecting an appropriate habit. The overall level of knowledge was rated as moderate in 60,6 % of participants.
Conclusions: adolescents exhibit acceptable oral hygiene practices; however, conceptual gaps persist regarding the etiology of caries and the importance of periodic dental check-ups. Strengthening preventive dental education is recommended to consolidate healthy habits and reduce the risk of oral disease.

Keywords: Adolescent; Dental Caries; Health Knowledge, Attitudes, Practice; Oral Hygiene.

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INTRODUCTION

Oral conditions are considered a major public health problem due to their high prevalence, public demand, and significant societal impact. They affect between 60 % and 90 % of the global population, with dental caries regarded as the pandemic of the 21st century and the primary pathology that begins after tooth eruption, leading to softening of the tooth's hard tissue and progressing toward cavity formation.[1]

The two most prevalent diseases in dentistry are dental caries and periodontal disease.[2] These conditions are known to emerge early in life, with evidence showing that during adolescence, periodontal inflammation increases three- to five-fold, often resulting in gingivitis. Therefore, prevention is a critical factor for dentists, as it helps reduce the incidence of these pathologies. Both are infectious and transmissible processes that cause damage and destruction of dental structures.[3]

Adolescence is the transitional stage from childhood to adulthood in human life. Human development encompasses physical, social, and psychological dimensions that unfold throughout life.[4] The World Health Organization (WHO) defines adolescence as a developmental period occurring after childhood and before adulthood, spanning from 10 to 19 years of age.[2]

These dominant oral diseases can be prevented through self-care and specific measures. Consequently, adolescents' basic knowledge about maintaining healthy teeth and gums is significantly associated with their parents' level of knowledge, as parental guidance on oral health education typically begins in early childhood.[5] It can be stated that children with insufficient knowledge of oral health are at higher risk of developing caries.

Dental lesions are associated with lower socioeconomic status and poorer oral health among adolescents.[6] They can be prevented and controlled through simple procedures such as toothbrushing, limiting the frequency of sugar consumption, appropriate use of fluoride, and regular dental visits. Toothbrushing is considered one of the most efficient habits for delivering fluoride into the oral cavity, making it one of the most effective methods for preventing dental caries.[7,8] The above considerations led to the development of this research, which aimed to analyze the level of knowledge and oral hygiene practices among high school students.

METHODS

An observational, descriptive, cross-sectional study was carried out at the "17 de Abril" Educational Unit, Quero Canton, Ecuador, during 2024. The population consisted of first- and second-year high school students.

Selection criteria used:
• Inclusion criteria: Students enrolled in the aforementioned grades who voluntarily agreed to participate and signed informed consent.

• Exclusion criteria: Students who did not complete the survey or declined to participate. The total population was 132 students; after applying exclusion criteria, the final sample included 123 participants selected through simple random probabilistic sampling.

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Procedures and techniques

Data collection was performed using a previously validated survey titled "Oral Health in the Adolescent's Perception." The questionnaire included 13 closed-ended multiple-choice questions organized into two sections: sociodemographic identification and oral hygiene habits. This instrument enabled the collection of information on the following variables: level of knowledge about oral health, brushing frequency, use of toothpaste, dental floss usage, fluoride rinses, dental visits, and toothbrush replacement frequency.

Statistical analysis

Descriptive statistical techniques were applied, including frequency distributions and percentages. Knowledge level was categorized into three groups (low, moderate, high) according to the measurement scale established in the questionnaire. Microsoft Excel software was used for data analysis. Missing data were handled by excluding incomplete cases, and bias was minimized through standardized instrument administration and random sampling.

Ethical considerations

The study was approved by the Ethics Committee of the Autonomous Regional University of the Andes and received institutional authorization via official letter. Student participation was voluntary following informed consent. The principles of the Declaration of Helsinki and national ethical guidelines were respected, ensuring confidentiality and anonymity of all data.

RESULTS

As shown in Table 1, the sample comprised 123 adolescents with a relatively balanced sex distribution: 67 males (54,5 %) and 56 females (45,5 %). Participants aged 15–16 years predominated, representing 57,7 % of the total, while those aged 17–18 years constituted 42,3 %.

Table 1. Demographic characteristics of the sample.

Age	Sex				Total	
	Male		Female			
	No.	%	No.	%	No.	%
15–16 years	40	32,5	31	25,2	71	57,7
17–18 years	27	22,0	25	20,3	52	42,3
Total	67	54,5	56	45,5	123	100

Table 2 shows that the majority of adolescents attributed caries to sugar consumption (70 %), while only 23 % recognized microorganisms as the primary cause. Regarding recommended brushing duration, nearly all respondents were divided between those who believed three minutes (46 %) and five minutes (45 %) were appropriate, indicating adequate perception of brushing time. Fluoride was identified as the most beneficial substance for teeth (67 %), although 22 % incorrectly mentioned bromide. Dental floss was considered important by 85 % of respondents, and 82 % reported brushing after every meal. The habit was primarily taught by parents (97 %), and the most common motivation for brushing was hygiene (71 %). All participants reported using toothpaste, yet only 38 % use fluoride rinses. Regarding dental visits, 39 % attend only when experiencing problems, while 38 % go two or more times per year. The majority (76 %) believe dental visits should occur every six months. Finally, 82 % replace their toothbrush every three months, reflecting appropriate hygiene tool renewal practices.

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Table 2. Knowledge and practices regarding oral hygiene in the sample.

Indicator		No.	%
What do you think causes cavities?	Microorganism	28	23
	Sugar	86	70
	Lack of vitamins	9	7
How long do you think toothbrushing should take?	1 minute	12	9
	3 minutes	56	46
	5 minutes	55	45
Which substance is beneficial for teeth?	Bromide	27	22
	Fluoride	83	67
	Chromium	13	11
Do you think dental floss is important?	Yes	105	85
	No	2	2
	Maybe	16	13
How often do you brush your teeth?	When you wake up	18	15
	Before bed	2	2
	After every meal	101	82
	Occasionally	2	2
Who taught you how to brush your teeth?	Your parents	119	97
	At school	2	2
	Television	2	2
Why do you brush your teeth?	Out of obligation	2	2
	For hygiene	87	71
	Because it's healthy	34	28
How long do you spend brushing your teeth?	1 minute	11	9
	3 minutes	66	54
	5 minutes	46	37
Do you use toothpaste?	Yes	123	100
	No	0	0
Do you use fluoride rinses?	Yes	47	38
	No	28	23
	Maybe	48	39
How often do you visit the dentist?	2 or more times per year	47	38
	Once a year	28	23
	Only if I have a problem	48	39
How often do you think it is advisable to visit the dentist?	Every 6 months	93	76
	Once a year	15	12
	When my tooth hurts	15	12
How often do you change your toothbrush?	Every 3 months	99	82
	Every 6 months	12	10
	Every year	2	2
	When it breaks	10	8

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Regarding the level of knowledge about oral hygiene (Fig. 1), a moderate level was predominant, observed in 61 % of adolescents. A high level was achieved by 29,3 %, while only 9,8 % showed a low level. These results indicate that, although most participants possess acceptable knowledge, there remains significant room to strengthen oral health education and promote more effective preventive practices.

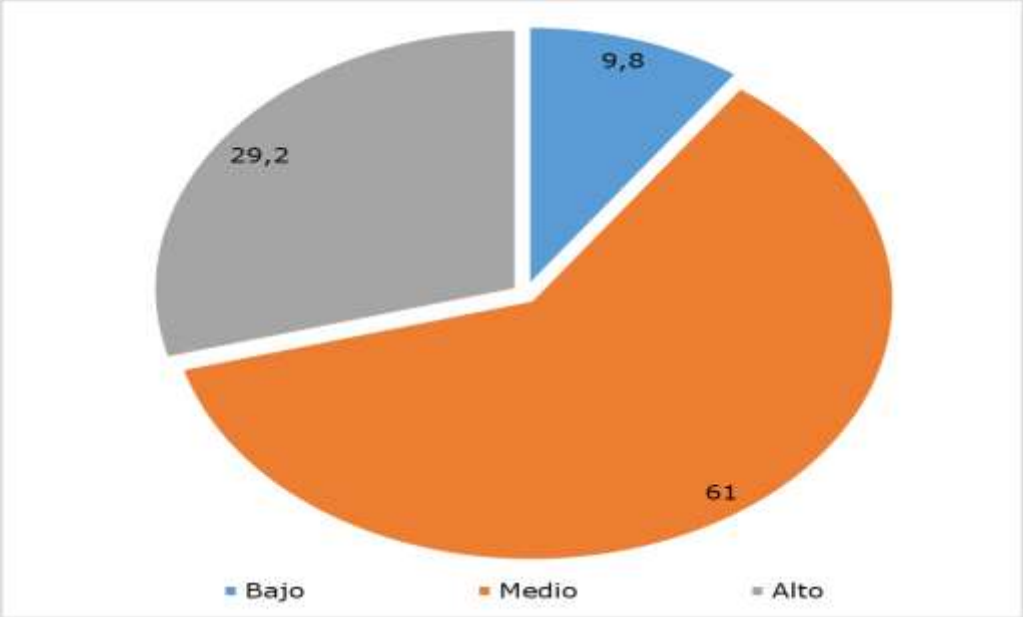

Fig. 1 Level of knowledge among study participants.

DISCUSSION

The finding that 70 % of students attribute caries to sugar consumption and only 23 % to microorganisms reflects partial understanding of its etiology. Previous studies in Latin America confirm that adolescents tend to associate caries with dietary factors rather than microbiological processes.[9] However, research in Ecuador has demonstrated that lack of understanding regarding the role of bacterial plaque and microorganisms increases caries prevalence in school populations (MDPI). This discrepancy highlights the need to reinforce education on the multifactorial nature of the disease.[10]

82 % of students reported brushing their teeth after every meal, a figure higher than that described in Peruvian and Brazilian studies, where the average frequency is twice daily. Brushing duration (3–5 minutes) also aligns with international recommendations, although some authors argue that the quality of technique is more decisive than time spent. These results suggest that, although brushing frequency is adequate, it would be pertinent to evaluate the actual effectiveness of the technique employed.[11]

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67 % identified fluoride as a beneficial substance, consistent with studies highlighting acceptable knowledge of its protective role. However, the low percentage of students who use fluoride rinses (38 %) reflects a gap between knowledge and practice, similar to that reported among European and Latin American adolescents. This gap may be linked to economic access barriers or limited availability of fluoridated products, raising implications for public health policies.[12,13]

85 % recognized the importance of dental floss—a figure higher than that reported among adolescents in Chile and Mexico, where less than 50 % consider it essential. Nevertheless, the literature indicates that acknowledging its importance does not always translate into regular use, suggesting that actual practice should be verified through clinical studies.[14,15]

The finding that 39 % of students visit the dentist only when experiencing problems reflects a reactive rather than preventive pattern. Regional research shows this behavior is common among adolescents and associated with economic and cultural barriers. Although 76 % consider it advisable to visit the dentist every six months, actual practice is lower—a discrepancy consistent with studies demonstrating a gap between knowledge and action. This underscores the need for school-based programs promoting preventive dental attendance.[16,17]

82 % replace their toothbrush every three months, aligning with international recommendations and with studies showing this habit is more common among adolescents than adults. This positive finding indicates that basic education on oral hygiene has been effective in this regard.[18,19]

Overall, the results suggest that adolescents exhibit acceptable habits but incomplete knowledge regarding the etiology and prevention of caries. The literature confirms that parental education strongly influences habit acquisition, yet also notes that the lack of sustained institutional programs limits the consolidation of preventive practices (laoha.org). Therefore, it is recommended to strengthen dental education in school and community settings, integrating content on microbial etiology, fluoride use, and the importance of periodic dental check-ups.[20,21]

CONCLUSION

According to the study conducted, students from the "17 de Abril" Educational Unit—enrolled in first and second year of high school, of both sexes, and aged 15 to 18 years—demonstrate a moderate level of knowledge regarding oral health. It was observed that the primary cause of dental caries is poorly understood, whereas oral hygiene habits—such as the use of toothbrushes, dental floss, toothpaste, and mouthwash—show a higher degree of awareness, suggesting these practices are acquired from an early age through parental instruction. However, a low level of understanding regarding the importance of periodic dental visits was evident, as most students attend only when experiencing oral discomfort. In summary, the findings reflect a moderate level of knowledge in oral hygiene habits; nonetheless, clinical evaluations would be advisable to determine whether this level is sufficient to ensure adequate oral health.

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