

# Evaluation of the knowledge, attitudes, and behaviors of school-age children on oral and dental health

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## ABSTRACT

**Aims:** It is essential to teach children behaviors about oral and dental health in the early period. This study aimed to evaluate school-age children's knowledge, attitudes, and behaviors about oral and dental health.

**Methods:** The population of this research consists of 782 school-age literate individuals who applied to the Fırat University Faculty of Dentistry Department of Pedodontics. A questionnaire consisting of 20 questions was administered to the participants.

**Results:** 45.5% of the participants were boys, and 54.5% were girls. The mean age of the participants was  $10.53 \pm 1.95$ . While 42.7% of the participants answered in the morning and before going to bed, 24.7% stated that they did not brush regularly. The rate of those who indicated that they touched only in the morning was 11.6%, and those who said that they brushed only in the evening was 21.6%. Also, "When do you brush your teeth?" there is a significant difference in the answers given among the participants based on their gender ( $p < 0.05$ ). The female participants answered that they brush their teeth in the morning and before bed at a higher rate than the male participants. In addition, 77.9% of the female and 70.5% of the male participants think that routine dental check-ups should be done before our teeth hurt.

**Conclusion:** As a result of this study, it was seen that the individual's knowledge, attitudes, and behaviors on oral and dental health were similar to other studies in the literature. We think the behaviors taught to school-age children about oral and dental health can be effective throughout an individual's life.

**Keywords:** Oral and dental health, school-age child, knowledge and behavior

## INTRODUCTION

While oral and dental health constitutes an important part of general health, it also plays an important role in maintaining general health. Problems related to oral and dental health are among the common public health problems globally. These problems can affect individuals not only physically but also spiritually and socially, due to pain and school absences due to pain, learning difficulties, discomfort and negative effects on aesthetic appearance. A healthy mouth enables the individual to speak, eat and socialize without experiencing illness, discomfort or embarrassment. In addition, poor oral and dental health affects the growth and development of the child. For this reason, problems related to oral and dental health negatively affect the quality of life of individuals.<sup>1-5</sup>

In developing countries, including ours, problems related to oral and dental health bring economic and social issues.<sup>6</sup> Considering the effects on public health, studies on oral and dental health should be intensified from early life. It is seen that the school-age period constitutes an essential

part of the studies in this field due to the population it covers and the broad age range. Many studies have been conducted on oral and dental health in school-age children in our country and the world. The nature of these studies conducted in our country is similar to those undertaken in other countries. The results of the studies on the subject will guide health professionals in terms of target setting and planning preventive interventions in the field of oral and dental health within school health services.<sup>7,8</sup>

In recent years, there has been a decrease in the severity and prevalence of oral diseases in developed countries. Dental care is organized systematically to improve dental health attitudes among children and young people.<sup>9-11</sup>

As a result of these developments, it has been observed that there is an improvement in children's dental health and the forms of dental caries that affect the teeth.<sup>12</sup>

In addition, gaining these habits will help the individual to continue his dental health in adulthood.<sup>13</sup>

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This study aims to evaluate the knowledge, attitudes, and behaviors of school-aged individuals who apply to Firat University, Faculty of Dentistry, Department of Pedodontics, and to raise awareness of oral and dental health in children indirectly.

## METHODS

The study was carried out with the permission of the Firat University Non-invasive Research Ethics Committee (Date: 25.05.2023, Decision No: 2023/ 07-06). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

In our study, a questionnaire consisting of 20 questions was applied to evaluate the knowledge, attitudes, and behaviors of 782 school-age literate individuals who used the Pedodontics Department of the Faculty of Dentistry of Firat University. The participants, Al-Omiri et al.<sup>14</sup> were asked to answer all the questionnaire questions created using his work.

### Analysis of Data

The data collected from 782 participants were evaluated within the scope of the research. Statistical analyzes were performed with SPSS 26.0 (SPSS Inc, Chicago, IL, USA) statistical program. Basic descriptive statistics are presented as frequency percentages. The chi-square test was used to compare the participants' knowledge, attitudes, and oral and dental health behaviors according to their gender. The statistical significance level in the study was determined as  $p < 0.05$ .

According to the results of the power analysis performed through the G\*Power (G \* Power 3.1 software; Heinrich Heine University, Düsseldorf, Germany) program, In the study where  $\chi^2$ : goodness of fit test, contingency tables analysis will be performed, it was decided that a total of 847 samples were suitable with  $\alpha$  (error margin) = 0.05, 0.15 effect (w) 0.95 power (1- $\beta$ ).

## RESULTS

45.5% of the participants are boys, and 54.5% are girls. The mean age of the participants was  $10.53 \pm 1.95$  (Table 1).

No statistically significant difference was found in terms of the average age of the participants according to their gender ( $p > 0.05$ ). The mean age of male participants was  $10.56 \pm 2.02$ , and that of female participants was  $10.50 \pm 1.89$  (Table 2).

Which oral hygiene method do you use? It was stated that they could give multiple answers to the question. While the most frequent response was a toothbrush and

paste provided by 95.4% of the participants, 5.9% used mouthwash, 4.9% used toothpicks, and 2% floss. There was no significant difference in the answers among the participants based on gender ( $p > 0.05$ ). The answer given by female and male participants with the highest rate is toothbrush and paste.

**Table 1.** Demographic characteristics of the participants

	F	%
Gender		
Male	356	45.5
Female	426	54.5
Age		
6	2	0.3
7	23	2.9
8	68	8.7
9	174	22.3
10	196	25.1
11	80	10.2
12	97	12.4
13	67	8.6
14	50	6.4
15	25	3.2

**Table 2.** Age distribution of the participants by gender

	N	Ort.	S.S.	P
Age				0.686
Male	356	10.56	2.02	
Female	426	10.50	1.89	
General (Total)	782	10.53	1.95	

When do you brush your teeth? Multiple answers can be given to the question. While 42.7% of the participants answered in the morning and before going to bed, 24.7% stated that they did not brush regularly. The rate of those who indicated that they brushed only in the morning was 11.6%, and those who said that they brushed only in the evening was 21.6%.

What does bleeding gums mean? It was stated that the participants could give multiple answers to the question. The participants' most common response was gum disease with 42.3%, while 40.7% indicated that they did not know. There is a significant difference in the answers given among the participants based on gender ( $p < 0.05$ ). Female participants gave a higher rate of gum disease response than male participants.

Which one protects our gum health? Participants were able to give multiple answers to the question. The most frequent response by the participants was brushing, with 62% participation; 10.2% gave soft foods, 14.5% gave vitamin C responses, and 18.3% stated that they did not know. (Table 3)

**Table 3.** Knowledge, attitudes, and behaviors on oral and dental health - multiple answer questions

	Answers		Percentage of people
	N	%	
Which oral hygiene method do you use?			
Toothbrush and paste	746	88.2%	95.4%
Floss	16	1.9%	2.0%
Toothpick	38	4.5%	4.9%
Mouthwashes	46	5.4%	5.9%
Total	846	100.0%	108.2%
When do you brush your teeth?			
Morning	91	11.6%	11.6%
Before bed	169	21.5%	21.6%
In the morning and before bed	334	42.4%	42.7%
I do not brush regularly	193	24.5%	24.7%
Total	787	100.0%	100.6%
What does bleeding gums mean?			
Gum disease	331	42.1%	42.3%
Healthy gums	29	3.7%	3.7%
Receding gums	109	13.9%	13.9%
I don't know	318	40.4%	40.7%
Total	787	100.0%	100.6%
Which one protects our gum health?			
Brushing	484	59.0%	62.0%
Soft foods	80	9.8%	10.2%
Vitamin C	113	13.8%	14.5%
I don't know	143	17.4%	18.3%
Total	820	100.0%	105.0%

The participants were asked how many primary teeth there are in the mouth; 14.3% answered 20, while 85.7% answered I don't know. When asked how many permanent teeth there are in the mouth, 42.5% answered 32, while 57.5% answered I don't know. While 12.3% of the participants defined dental plaque as a soft attachment on the teeth, 18.5% as a rigid attachment on the teeth, 4.2% as the coloration of the teeth, and 64.9% answered I do not know. While 66.6% of the participants stated that caries would affect the aesthetics of the teeth, 9.8% indicated that it would not, and 23.6% said that they did not know. Does frequent sugar and junk food intake affect dental health? 94% of the participants answered yes, 4% no, 2% did not know. Do carbonated drinks affect dental health? To the question, 79.2% of the participants answered yes, 11.6% answered no, 9.2% did not know. Does our oral health affect our body health? 58.1% of the participants answered yes, 21.4% no, and 20.5% did not know. Is the treatment of toothache as crucial as our other organs? To the question, 66% of the participants answered yes, 11.6% no, 22.4% did not know. Should we go to the dentist for routine check-ups before our teeth hurt? To the question, 74.6% of the participants answered yes, 12.4% no, and 13% did not know. While 95.1% of the participants replied to the suggestion that the dentist examines their patients and takes care of them, 4.5% answered no, and 0.4% did not know. Does brushing teeth prevent tooth decay? 93% of the participants answered yes to the question, and 7%

answered no. Is it necessary to go to the dentist regularly? 87% of the participants answered yes to the question, and 13% answered no. Are you afraid of going to the dentist? 30.7% of the participants answered yes, and 69.3% answered no. We were wondering if you have rot in your mouth. 70.3% of the participants answered yes, and 29.7% answered no. (Table 4)

**Table 4.** Knowledge, attitudes, and behaviors on oral and dental health

	F	%
How many primary teeth do we have in our mouth?		
20	112	14.3
I don't know	670	85.7
How many permanent teeth do we have in our mouth?		
32	332	42.5
I don't know	450	57.5
What does dental plaque mean?		
Soft attachment on teeth	96	12.3
Hard attachment on teeth	145	18.5
Teeth discoloration	33	4.2
I don't know	508	64.9
Do caries affect our dental aesthetics?		
Yes	521	66.6
No	77	9.8
I don't know	184	23.6
Does frequent sugar and junk food intake affect our dental health?		
Yes	735	94.0
No	31	4.0
I don't know	16	2.0
Do carbonated drinks affect our dental health?		
Yes	619	79.2
No	91	11.6
I don't know	72	9.2
Does our oral health affect our body health?		
Yes	454	58.1
No	167	21.4
I don't know	161	20.5
Is the treatment of the dental network as important as our other organs?		
Yes	516	66.0
No	91	11.6
I don't know	175	22.4
Should we visit the dentist for routine check-ups before our teeth hurt?		
Yes	583	74.6
No	97	12.4
I don't know	102	13.0
Does brushing prevent tooth decay?		
Yes	727	93.0
No	55	7.0
Is it necessary to go to the dentist regularly?		
Yes	680	87.0
No	102	13.0
Are you afraid of going to the dentist?		
Yes	240	30.7
No	542	69.3
Do you wonder if he has rot in his mouth?		
Yes	550	70.3
No	232	29.7

Among the participants, "Does caries affect our dental aesthetics?" In terms of the answers given to the question, there is a significant difference based on their gender ( $p < 0.05$ ). 70% of the female and 62.6% of the male participants answered yes.

Among the participants, "Is the treatment of toothache as important as our other organs?" In terms of the answers given to the question, there is a significant difference based on their gender ( $p < 0.05$ ). 70.2% of the female and 61% of the male participants answered yes.

Among the participants, "Should we go to the dentist for routine check-ups before our teeth hurt?" Regarding the answers to the question, there was no significant difference based on their gender ( $p > 0.05$ ). However, 77.9% of the female and 70.5% of the male participants answered yes. The rate of responding yes to female participants is higher than that of males.

"When do you brush your teeth?" Multiple answers can be given to the question, and there is a significant difference in the answers given among the participants based on their gender ( $p < 0.05$ ). Female participants answered at a higher rate in the morning and at bedtime than male participants. (Table 5)

**Table 5.** When do you brush your teeth by gender? Comparison of the evaluation of the question

	Gender		P
	Male	Female	
<b>When do you brush your teeth?</b>			0,016
Morning	n %	33 9.3%	58 13.6%
Before bed	n %	82 23.0%	87 20.4%
In the morning and before bed	n %	136 38.2%	198 46.5%
I do not brush regularly.	n %	105 29.5%	88 20.7%

Among the participants, "Are you afraid of going to the dentist?" In terms of the answers given to the question, there is a significant difference based on their gender ( $p < 0.05$ ). 34.5% of the female and 26.1% of the male participants answered yes. The rate of those who stated they feared female participants was higher.

Among the participants, "Do you wonder if you have a bruise in your mouth?" Regarding the answers to the question, there was no significant difference based on their gender ( $p > 0.05$ ). However, 72.5% of the female and 67.7% of the male participants answered yes. The rate of responding yes to female participants is higher than that of males.

"Which oral hygiene method do you use?" Multiple answers can be given to the question, and there is no significant difference in the answers given among the participants based on their gender ( $p > 0.05$ ). The answer

given by female and male participants at the highest rate is toothbrush and paste.

Among the participants, "Should we go to the dentist for routine check-ups before our teeth hurt?" Regarding the answers to the question, there was no significant difference based on their gender ( $p > 0.05$ ). However, 77.9% of the female and 70.5% of the male participants answered yes. The rate of responding yes to female participants is higher than that of males. (Table 6)

**Table 6.** According to gender, should we go to the dentist for routine check-ups before our teeth hurt? Comparison of the evaluation of the question

	Gender		Total	P
	Male	Female		
<b>Should we visit the dentist for routine check-ups before our teeth hurt?</b>				0.064
Yes	n %	251 70.5%	332 77.9%	583 74.6%
No	n %	49 13.8%	48 11.3%	97 12.4%
I don't know	n %	56 15.7%	45 10.6%	102 13.0%
Total	n %	356 100.0%	426 100.0%	782 100.0%

"What does bleeding gums mean?" Multiple answers can be given to the question, and there is a significant difference in the answers given among the participants based on their gender ( $p < 0.05$ ). Female participants gave a higher rate of gum disease response than male participants.

## DISCUSSION

This study provides a comprehensive perspective on literate school-age children's oral and dental health behaviors, knowledge, and attitudes. The results of this study allow us to make comparisons with the studies carried out.<sup>14-17</sup>

Health and education institutions should work together to improve society's oral and dental health. Oral and dental health institutions should become more functional in providing only clinical and therapeutic services, as well as the implementation of preventive dentistry. In the 1978 Alma-Ata Declaration (Basic Health Services Declaration), which was approved by the member states of WHO, the duties of all world societies in the protection and improvement of human health and the units responsible for health and development were specified. The priority given to safety in the declaration was considered one of the most critical approaches. The ayes have it.<sup>18</sup> The services provided and the measures taken to protect and develop oral and dental health in our country are not at the desired level. In a study conducted on children in the 6-8 age group, it was found that body mass index decreased as the frequency of tooth decay increased in children with oral

and dental health problems.<sup>4</sup> This study emphasizes the importance of the subject for individuals who continue to grow and develop at school age.

Since the patients do not go to the dentist before their dental complaints begin, dentists cannot reach the group when they deem it necessary to perform preventive applications.<sup>19</sup> In this study, whether we should go to the dentist for routine check-ups before our teeth hurt was at least more promising, with 74.6% of the participants saying yes, 12.4% no, and 13% I don't know.

In a study conducted by the Health Project Coordinator of the Ministry of Health in 1992, it was seen that the frequency of going to the dentist in developed countries was five times a year, while it was 0.7 in Türkiye.<sup>20</sup>

According to the data on the official website of the Turkish Dental Association, it has been determined that 47.11% of the population in our country has never been to a dentist in the last year, and 12.5% of them have never been to a dentist in their lifetime.<sup>21</sup> Likewise, in the research conducted by the Turkish Dental Association, the frequency of going to the dentist in developed countries is two or more per year, while this rate is approximately once every two years in our country. In addition, although the number of toothbrushes per capita has increased in recent years, annual toothbrush consumption is still below one.<sup>22</sup> According to studies in Türkiye, it has been reported that most parents take their children away when they have toothache complaints.<sup>23,24</sup>

However, in this study, 87% of the participants answered yes, and 13% said no to whether it is necessary to visit the dentist regularly. Thus, it was seen that he was aware of this information.

It has been observed that the prevalence of caries is lower in Western European countries than in Baltic and Eastern European countries because they attach more importance to oral health and state policies. Comprehensive oral health education programs aimed at professionals and the public were directed to raise this awareness in adults and youth. In addition, the government financially supported these programs by making necessary reforms.<sup>15,25</sup>

Karabekiroglu et al.<sup>26</sup> in their study, no relationship was found between gender at the dentist visit. However, it has been observed that girls visit the dentist by percentage compared to boys. In this study, 77.9% of the female participants and 70.5% of the males answered yes that a routine dental visit is required before our teeth hurt.

This study is similar to previous studies in that individuals do not have sufficient knowledge and awareness of periodontal problems.<sup>14,27-28</sup> In addition to brushing,

5.9% of the participants used mouthwash, 4.9% used toothpicks, and 2% used dental floss. This low rate may be due to insufficient information or the expense of these products. While 42.3% stated that they were aware of gingival bleeding as an indicator of periodontal disease, 40.7% of the participants indicated that they did not know. The fact that this rate is lower compared to previous studies is attributed to the small average age of our participants.<sup>14,27</sup>

"Most participants stated they were unafraid of going to the dentist. Compared to other studies, we think that the high rate in this study may be because we applied the treatment to a population that accepted or was convinced.<sup>14,27</sup>

In a study conducted with primary school students in Nevşehir city center, Yaramış et al.<sup>29</sup> found that 30.6% brushed their teeth 1-2 times daily. In another study, after oral hygiene education was given, 36% of the students brushed their teeth twice daily and 32% once daily. He was seen brushing once.<sup>30</sup> In addition, in the study conducted by Doğan et al.<sup>5</sup> on school-age children, it was seen that socio-demographic characteristics affected both eating habits and tooth brushing habits.

In this study, 42.7% of the participants answered in the morning and before bed, while 24.7% stated that they did not brush regularly. The rate of those who said they brushed only in the morning is 11.6%, and those who said that they brushed only in the evening is 21.6%.

It was observed that the participants' perspectives on dentistry and oral health were generally positive. They also stated that oral and dental health is as important as the rest of the body and affects aesthetics. This shows that positive attitudes can help support school-age children's oral health care and oral care practices.

## CONCLUSION

We think oral and dental health training to improve oral health practices in society is very important. We also suggest that this study can be applied to a larger population. In recent years, applications in oral and dental health and preventive dentistry have become widespread in our country. In parallel, we think that there is a need for comprehensive education programs to be implemented in society and that it can help evaluate the effectiveness of future public education programs.

## ETHICAL DECLARATIONS

### Ethics Committee Approval

The study was carried out with the permission of the Firat University Non-invasive Researches Ethics Committee (Date: 25.05.2023, Decision No: 2023/ 07- 06).

## Informed Consent

All patients signed the free and informed consent form.

## Referee Evaluation Process

Externally peer reviewed.

## Conflict of Interest Statement

The authors have no conflicts of interest to declare.

## Financial Disclosure

The authors declared that this study has received no financial support.

## Author Contributions

All the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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