



## ORAL HEALTH STATUS AND ASSOCIATED FACTORS IN A SUBPOPULATION OF TURKISH PATIENTS

### ABSTRACT




**Objectives:** Understanding the oral health behavior and knowing oral health status of a community in order to facilitate the development of satisfactory dental public health preventive program. In this context, the purpose of this study is to investigate oral health behaviour of Turkish community who live in Usak province besides and to evaluate CPITN and DMFT index scores according to age, gender and education level.

**Materials and Methods:** A face to face questionnaire was conducted for 2412 subjects who were divided into six age groups to understand their oral health behavior. Periodontal measurements, and dental caries were applied by three calibrated expert researchers for all teeth except the third molar.

**Results:** Healthy periodontal tissue only existed in 153 (10.05%) individuals of 1521 dentate participants. The mean DMFT value observed was  $16.98 \pm 6.62$ . By aging, being male and having low education level, mean DMFT and CPITN scores showed an upward trend. 10.26% of the participants informed that they did not brush their teeth and 92.55% of them stated that they did not floss their teeth. Most of the participants (83.25%) informed that they visited a dental clinic only in emergency and pain.

**Conclusions:** The mean DMFT and CPITN scores increase in accordance with aging, low education and being male. Low flossing frequency, low prevalence of tooth brushing and low frequency of going to the dentist regularly were observed at the end of the study.

**Keywords:** Age groups, oral health, toothbrushing, dental floss, education.

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## **INTRODUCTION**

Oral health is a critical factor in general wellness and has an extensive impact on a person's well-being and quality of life. Poor oral health can lead to difficulties in speaking, chewing and swallowing.<sup>1</sup> Furthermore, oral diseases can have an influence on some systemic diseases and health conditions.<sup>2</sup> The main basis of oral health evaluation is the examination of incidence and frequency of dental caries and periodontal status.<sup>3</sup>

Dental caries and periodontal diseases can affect all the population throughout the lifespan which are multifactorial diseases with many risk factors contributing to their initiation and progression.<sup>4</sup> Periodontal diseases and dental caries are associated with socio-demographic factors such as age, sex, education, stress, smoking and oral hygiene practices.<sup>5</sup>

Periodontal diseases, one of the most widespread illnesses of humanity, destroy supporting tissues around the teeth.<sup>6</sup> The prevalence of the periodontal disease varies in different regions of the world, and this disease affects more than 537 million people worldwide.<sup>7</sup> The Community Periodontal Index of Treatment Needs (CPITN) is used to record population periodontal status and treatment needs.<sup>8</sup> The primary clinical argument for the diagnosis of the periodontal diseases through the CPITN is probing depth which is the most rational definition for the operational features ascertained in epidemiologic periodontal studies.<sup>9</sup>

Dental caries is a localized destruction of dental hard tissues by acidic output from bacterial fermentation.<sup>10</sup> Dental caries is a process of disease that ranges from subclinical changes to damage with obvious cavitation.<sup>11</sup> Epidemiological studies of caries utilize the decayed, missing and filled teeth (DMFT) index as a sign of the cumulative outcome of caries on permanent teeth.<sup>12</sup>

Understanding of regional behavior and care conformity can lead local public health practitioners to plan and support oral health programs. Thus, this study seeks to determine the oral hygiene habits, frequency of visiting dentist

and epidemiological profile of the oral health as well as to observe demographic and other indicators associated with oral disease of the general public in a Turkish city with the aim of developing satisfactory dental public health preventive programs.

## **MATERIALS AND METHODS**

This study was carried out at the Faculty of Dentistry in Usak University. The participants were informed about the purpose of the investigation and they signed the consent form. 2412 patients who were over 18 years-old were included in the study. The research was conducted according to Helsinki Declaration and ethical permission was procured from the Local Ethical Committee of Usak University For Non-invasive Clinical Trials (Registration No: 104-06-13).

Before the clinical examination subjects filled out a questionnaire that was designed by an experienced research team. Personal data from each subject was collected through individual interviews and included demographic information, behavior and personal habits to oral health.

All study subjects were examined clinically to evaluate periodontal and dental status for all teeth except the third molar. Edentulous subjects were not included in the periodontal status analysis.

Periodontal examination was carried out according to recommendation of the World Health Organization (WHO) periodontal probe for using the CPITN.<sup>13</sup> The index teeth (17, 16, 11, 26, 27, 47, 46, 31, 36 and 37) were evaluated for each individual. In the presence of fewer than two functional teeth, the subjects were classified as edentulous and not included in the study. Subjects with no teeth, or teeth that could not be examined for various reasons were excluded. All teeth in the subjects were examined according to the absence of index teeth and the highest score was recorded as the sequencer score. According to which tooth showed the worst condition, each subject was given a grade and registered according to the highest recording. Each subject was entitled as either healthy (score 0), bleeding (score1), calculus detected (score 2), pockets of 4-6 mm

(score 3) and 6 mm or deeper pockets (score 4) according to the highest score at the index teeth.<sup>17</sup> The epidemiological profile of dental caries was evaluated according to the norm advised by the WHO using DMFT index.<sup>14</sup> Caries at cavitation level is a current WHO standard for detecting caries and it was used for determining the permanent tooth decay.<sup>15</sup>

Periodontal measurements and registrations were applied by three expert researchers. Calibration between the researchers and self-calibration of the researchers ensured for the standardization of measurements in equal clinical conditions. Intra-examiner reproducibility was evaluated on four subjects. Intraclass correlation coefficient (ICC) was 0.93 for the first researcher, 0.94 for the second researcher and 0.91 for the third researcher. The calibration of inter-examiner reproducibility was performed on ten subjects. The first and the second measurements on subjects were compared with each other to evaluate the compatibility of three researchers. The compliance level of the researchers in the first

measurement was 91.8% and the compliance level in the second measurement was 92.2%.

Data analysis was performed by using the software Statistical Package version 17.0 (SPSS Inc., Chicago, IL, USA). Kolmogorov-Smirnov and Shapiro Wilks tests were used to investigate for checking the normality of data. Nonparametric Mann Whitney U and Kruskal Wallis-H Tests were used because the assumption of normality was violated. The Chi Square test was used to evaluate the relationships between the parameters. The statistical significance level for all tests was set at 0.05.

## RESULTS

The distribution of individuals according to age, gender and education are shown in Table 1. A total of 2412 subjects, 816 (33.80%) male and 1596 (66.20%) female, were included in the study. The majority of the participants had the primary-school education level (50.5%). Participants were divided into six age groups and the distribution shows that the most common age group was 55-64 years (18%) followed by  $\geq 74$  year-old (17.70%).

**Table 1.** Demographic information (age, gender, education level)

		n	%
Age Groups	18-34	415	17.2
	35-44	422	17.5
	45-54	320	13.3
	55-64	434	18.0
	65-74	392	16.3
	$\geq 74$	429	17.7
Education	Primary school	1219	50.5
	High school	804	33.3
	Universty	389	16.2
Gender	Male	816	33.8
	Female	1596	66.2

n Number of the patients % Percentage

The incidences of CPITN scores of individuals according to age, gender and education are displayed in Table 2. Healthy periodontal tissue only existed in 153 (10.05%) individuals of 1521 dentate participants. The prevalence of

periodontal disease (Codes 3+4) was 54.83%. The proportion of excluded sextants (fewer than 2 teeth) were importantly higher in subjects aged  $\geq 74$  years (58.74%) followed by aged 65-74 year old (58.41%).

**Table 2.** CPITN scores of individuals according to age, gender and education (n/%)

		n	0	1	2	3	4	c	p value
Age Groups	18-34	360	41/11.4	57/15.83	76/21.11	87/24.16	99/27.5	31.21	0.001*
	35-44	305	33/10.81	49/16.06	59/19.34	81/26.55	83/27.21		
	45-54	251	31/12.35	43/17.13	49/19.52	57/22.72	71/28.28		
	55-64	265	28/10.59	47/17.73	57/21.50	64/24.15	69/26.03		
	65-74	163	11/6.76	19/11.65	23/14.11	41/25.15	69/42.33		
	≥74	177	9/5.11	21/11.86	34/19.20	51/28.81	62/35.02		
	Total	1521	153/10.05	236/15.51	298/19.59	381/25.04	453/29.81		
Education	Primary school	617	17/2.75	97/15.72	132/21.39	165/26.74	206/33.4	141.75	0.001*
	High school	558	46/8.24	87/15.59	107/19.17	139/24.91	179/32.09		
	University	346	90/26.01	52/15.02	59/17.05	77/22.25	68/19.67		
	Total	1521	153/10.05	236/15.51	298/19.59	381/25.04	453/29.81		
Gender	Male	380	31/8.15	33/8.68	82/21.57	105/27.63	129/33.97	22.38	0.001*
	Female	1141	122/10.69	203/17.79	216/18.93	276/24.18	324/28.41		
	Total	1521	153/10.05	236/15.51	298/19.59	381/25.04	453/29.81		

n Number of the patients 0 Healty 1 Bleeding 2 Calculus 3 Pocket depth 4-6 mm 4 Pocket depth >6 mm c chi-square test  
\* p=0.001

In the 18-34 year-aged group, 41(11.4%) individuals had no periodontal disease. However, in the subjects aged ≥ 74 year old, only 9 (5.11%) individuals were healthy. The proportion of shallow pockets (pockets depth 4-6mm) and deep pockets (pockets depth>6mm) in the subjects aged ≥ 74 year old was 63.83%. There was a statistically significant relationship between age groups and CPITN (Chi-square test, p<0.05). CPITN index increased as the ages of the participants increased.

There was a prominent association between CPITN and schooling (Chi-square test, p<0.005). The outcome indicated that individuals with university education had less bleeding (Code 1), less calculus (Code 2), less shallow and deeper pockets (Codes 3+4) than individuals with primary and high education level.

There was a significant difference between CPITN and gender. More females (10.69%) than males (8.15%) were periodontally healthy (Code 0), and the prevalence of periodontal disease

(Codes 3+4) was significantly higher in males (61.6%) than in females (52.59%), and these differences were significant (Chi-square test, p<0.05).

DMFT score according to age, gender and education is shown in Table 3 and 4. The mean DMFT value observed was 16.98±6.62. With aging, the mean DMFT showed an upward trend and increased from 11.97 in 18-34 year-olds to 23.60 in ≥74 year-olds. The differences in mean DMFT between the age categories were statistically significant (Kruskal-Wallis test, p<0.05). The mean DMFT value was importantly higher in males (19.16) than in females (15.86) and these differences were significant (Mann-Whitney test, p<0.05). The mean DMFT value was 10.69 in subjects with university education level, was 14.83% in subjects with high school education level and 20.40 in subjects with primary school education level. All these differences were statistically significant (Kruskal-Wallis test, p<0.05).

**Table 3.** DMFT score according to age, gender and education

		n	Mean±sd	C	p value
Age groups	18-34	415	11.97±4.84	1038.967	0.001*
	35-44	422	13.30±4.75		
	45-54	320	13.99±4.62		
	55-64	434	16.59±5.39		
	65-74	392	21.85±5.17		
	≥74	429	23.60±4.72		
	Total	2412	16.98±6.62		
Education	Primary school	1219	20.40±5.95	786.312	0.001*
	High school	804	14.83±5.38		
	University	389	10.69±3.97		
	Total	2412	16.98±6.62		
Gender	Male	816	19.16±6.41	-11.967	0.001*
	Female	1596	15.86±6.45		
	Total	2412	16.98±6.62		

n Number of the patients sd Standard deviation c Chi-square test \* p=0.001 z Mann-Whitney test

**Table 4.** Proportion and number of decay, missing, filling teeth according to age, gender and education

		<b>D</b>	<b>M</b>	<b>F</b>	<b>Total</b>	<b>DMFT index</b>
<b>Age Groups</b>	<b>18-34</b>	521(30.61%)	1776(35.74%)	1671(33.65%)	4968	11.97
	<b>35-44</b>	1463(26.06%)	2563(45.66%)	1587(28.28%)	5613	13.30
	<b>45-54</b>	1204(26.88%)	2141(47.81%)	1133(25.31%)	4478	13.99
	<b>55-64</b>	1463(20.31%)	4319(59.97%)	1419(19.72%)	7201	16.59
	<b>65-74</b>	1603(18.70%)	5587(65.20%)	1378(16.1%)	8568	21.85
	<b>≥74</b>	2566(25.32%)	6474(63.89%)	1092(10.79%)	10132	23.61
	<b>Total</b>	<b>9820(23.97%)</b>	<b>2860(55.8%)</b>	<b>8280(20.22%)</b>	<b>40960</b>	<b>16.98</b>
<b>Education</b>	<b>Primary school</b>	4783(19.22%)	15872(63.8%)	4219(16.98%)	24874	20.40
	<b>High school</b>	3318(27.81%)	5769(48.36%)	2840(23.83%)	11927	14.83
	<b>Universty</b>	1719(41.33%)	1219(29.30%)	1221(29.37%)	4159	10.69
	<b>Total</b>	<b>9820</b>	<b>22860</b>	<b>8280</b>	<b>40960</b>	
<b>Gender</b>	<b>Male</b>	4057(25.94%)	7863(50.27%)	3719(23.79%)	15639	19.16
	<b>Female</b>	5763(22.75%)	14997(59.22%)	4561(18.03%)	25321	15.86
	<b>Total</b>	<b>9820</b>	<b>22860</b>	<b>8280</b>	<b>40960</b>	

D Decay M Missing F Filling

Oral health attitudes are shown in Table 5. 10.26% of the participants informed that they did not brush their teeth. However, 24.25% of them indicated that they brushed their teeth twice a day or more. Of all the participants, 92.55 % stated that they did not floss their teeth. Most of the participants (83.25%) informed that they visited a dental clinic only in emergency and pain. Almost

half of the participants (46.64 %) indicated that they were changing their tooth brushes at every 3 months. Among individuals 53.78% of them stated that they had no periodontal treatment before. The prevalence of self reported halitosis was 58.74%. 56.26% of all participants reported themselves as being non-smokers or occasional smokers.

**Table 5.** Oral health behavior of participants

		<b>n</b>	<b>%</b>
<b>Tooth brushing</b>	<b>Twice or more daily</b>	585	24.25
	<b>Once Daily</b>	990	41.04
	<b>Once every three or four days</b>	385	15.96
	<b>Once a week</b>	205	8.49
	<b>No Brushing</b>	247	10.26
	<b>Twice or more daily</b>	15	0.62
<b>Flossing</b>	<b>Once Daily</b>	22	0.91
	<b>Once every three or four days</b>	51	2.11
	<b>Once a week</b>	92	3.81
	<b>No Flossing</b>	2232	92.55
<b>Dental visit frequency</b>	<b>Every 6 months</b>	123	5.09
	<b>Every year</b>	93	3.85
	<b>Emergency</b>	2088	83.25
	<b>Never visit before</b>	108	7.81
<b>Tooth brush changing frequency</b>	<b>Every 3 months</b>	1125	46.64
	<b>Every 6 months</b>	510	21.14
	<b>Every year</b>	525	21.76
	<b>Using the same brush for years</b>	252	10.46
<b>Periodontal therapy</b>	<b>At least one periodontal treatment before</b>	1115	46.22
	<b>No periodontal treatment before</b>	1297	53.78
<b>Self reported halitosis</b>	<b>Patients reported halitosis</b>	1417	58.74
	<b>Patients reported no halitosis</b>	995	41.26
	<b>Non-smoking or occasional smoking</b>	1357	56.26
<b>Smoking</b>	<b>&lt; 1 cigarette/day</b>	113	4.68
	<b>1-15 cigarettes/day</b>	243	10.74
	<b>16-24 cigarettes/day</b>	301	12.47
	<b>≥ 25 cigarettes/day</b>	398	15.85

n Number of the patients

% percentage

## DISCUSSION

In the current study, the proportion of individuals with periodontal pocket with probing depth of 4-6

mm was 26.55% for the age cohort 35-44 and 25.15% in 65-74 year-old. Probing depth >6 was 27.21% in 35-44 year-old and 42.33% in 65-74

year-old, which is higher than what was reported from other developing countries and the majority of European countries.<sup>16</sup> In a study, the lowest probing depth of  $\geq 4$  mm for the 35-44 age group is found in Sweden and Spain (26%) while the highest probing depth is detected in Lithuania and Germany (62.9%). This rate rises to 42.7% individuals with 65-74 age group in Sweden and Spain while it rises to 68% in Germany and Lithuania with the same age group.<sup>17</sup> In this study, the lowest probing depth of  $\geq 4$  mm for the 35-44 age group was 53.76% and 67.48% for 65-74 age group. These results are the same as Lithuania and Germany but worse than Sweden and Spain. It was revealed that the lowest score of periodontal health (score 4) was limited to between 10% and 15% of the adult population worldwide<sup>18</sup>, whereas in Turkey, as many as 29.81% of the adult population had score 4. The result of the current study unearthed that periodontal status in the Turkish population is worse than other developing countries.

The average DMFT was found to be 13.30 for 35-44 age group in this survey and the factor that increases the value of DMFT was the missing (M) component. In 55-64 age group, the mean DMFT was 21.85 and the factor that increases the value of DMFT was the M component again. The prevalence of DMFT score in this present national study was 16.98. The DMFT values in European countries ranged between 14 and 20 in adults and 22 to 27 in the 65-74 age group.<sup>19</sup> The average DMFT value in China at the age group 35-44 was 2.1 while at the age group 65-74, this rate raises to 13.4.<sup>20</sup> The results of this study are in line with the results of other studies done in European countries but higher than reported in China.

In this research, the widespread presence and severity of periodontal disease increased with age as reported before.<sup>21</sup> With aging, the prevalence of periodontitis increased from 51.66% in the 18-34 year-olds to 63.88% in the  $\geq 74$  year-olds. The present study showed a positive correlation of the DMFT score with the age of the participants. The most prominent component of DMFT was the missing teeth (35.74%) in the 18-34 age group and this ratio dramatically increased to 63.89% in the  $\geq 74$  year-olds. This study has shown that

people living in Turkey are at a greater risk of having few remaining teeth. In our opinion, the main reason for high DMFT and CPITN scores are associated with a lack of awareness about oral health which includes smoking, poor oral hygiene, infrequent dental visits, absence of dental treatment, etc. In addition, cumulative tissue destruction and age-related intrinsic abnormality are also reasons for missing teeth.

In this study, the prevalence of periodontal disease and sextants with pockets  $> 6$  mm was significantly lower in highly educated people than less educated as it has been found.<sup>22-24</sup> There was also a significant relationship between the individual's education level and mean DMFT. The average DMFT was 20.40 in the primary school group, whereas it was 10.69 in the university group. The proportion of missing teeth was higher in low educated group, while the proportion of filling teeth was greater in the higher educated group. This study unearthed that there was a positive association between education and oral health status. Awareness about the prominence of oral health, socio-economic status, monthly income, insurance coverage and leading healthy lifestyle seem to be correlated with better health status in high education group.

In this epidemiological study, it was found that males had worse oral health than females according to CPITN and DMFT indexes. Periodontally healthy subjects were more frequently observed in females, while males were associated with CPITN scores 3 and 4. DMFT score was 15.86 among female individuals, while it was 19.16 in male individuals. It was concluded that men were at a bigger risk for periodontal disease and tooth loss when compared with women.<sup>25</sup> This might be explained by the fact that males have worse oral hygiene practices, higher smoking rate and less-frequent usage of oral health services.<sup>26</sup>

In this study, the prevalence of tooth brushing twice or more was 24.25% and daily once was 41.04%. 10.26% of the participants reported that they had no tooth brushing behaviour. The prevalence of tooth brushing was reported to be 44.4% in China<sup>27</sup> and 31% in Jordan<sup>28</sup>. This proportion varies between 80% and

89% in European countries, USA and Canada.<sup>29</sup> The prevalence of tooth brushing in this present study was lower than what was reported in the developed countries.

92.55% of the participants reported that they did not use dental floss in this survey. It was reported that 41% of Americans flossed their teeth at least once daily and 20% never flossed their teeth.<sup>30</sup> Higher flossing frequencies than our findings were reported in Denmark<sup>31</sup>, Canada<sup>32</sup> and similar inter-dental cleaning samples were reported from China<sup>33</sup> and Saudi Arabia.<sup>34</sup>

In this study, it was revealed that 83.25% of the participants go to the dentist in case of pain and emergency and that 7.81% of them never visited a dentist before. The percentage of who go to the dentist regularly was %8.94. In Canada<sup>32</sup>, 69% of the individuals visit the dentist regularly every year and 69.9% of the individuals visit the dentist regularly in the United States.<sup>35</sup> Only 26.4% of the participants visit the dentist regularly in Nigeria<sup>36</sup> and the frequency of dental visits in China<sup>33</sup> is reported as 28%. The frequency of going to the dentist in Turkey is lower than those of developed and developing countries. The reason for this has not been known but it can be speculated that dental fear, limited access to oral health services and lack of oral health knowledge might be the contributing factors.

In our study sample, the frequency of changing tooth brush within 3 months was 46.64% and 10.46% of the participants indicated that they used the same brush for years. The average usage of brushes per capita and year in Turkey is 0.3, while the average usage of brushes per capita and year in the UK is 2.4 and is 2.5 in Sweden.<sup>37</sup> Tooth brush changing frequency in Turkey is lower than developed countries. Lower socioeconomic status, lack of tooth brushing habits and unconsciousness about oral health could be some reasons for this.

In this study, the evaluation of malodour is based on the subject's own perception as reported before.<sup>38</sup> In the present study, the prevalence of self reported halitosis was 58.74% and it was higher than the findings reported in Brazil<sup>39</sup>, the USA<sup>38</sup> and France.<sup>40</sup> Halitosis is a problem which is perceived in different regions of the world but

the prevalence of it in Turkey is higher than developed countries. The lower frequency of tooth brushing, visiting a dentist only in case of pain and using a tooth brush more than three months can be related to the higher occurrence of halitosis.

The proportion of smoking in this study was 43.74%. This rate is identified as 19% in older individuals in the United States.<sup>41</sup> The rate of smoking between the ages of 30-39 is detected as 39%, between the ages of 50-59 and it is 45% in Thailand.<sup>42</sup> Although the awareness of the adverse effects of smoking on health has increased in developed countries, smoking prevalence is high and it continues to increase in Turkey.

Also, it was found in the present study that 53.78% of the participants have never had any periodontal treatment before. Bad oral self-care, irregular dentist visits, low level of education and income might be connected with this result.

One of the limitations of the current study is the information obtained according to the personal evaluations of the individuals and the small number of the subjects included in the population. Besides, self-reported information is the most commonly used method of collecting answers and positive correlations were identified even if the examined community was relatively small. A future targeted screening of periodontal disease which may be considered as a public health problem and associated risk indicators would clarify the implementation of preventive programs. Community-based prevention-oriented projects should be implemented by national health authorities to improve the oral health of people from all ages.

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#### CONFLICT OF INTEREST

The authors report no conflicts of interest related to this study.

#### *Türk Populasyonunun Bir Alt Grubunda Ağız Sağlığı ve İlişkili Faktörlerin Belirlenmesi*

#### ÖZ

*Amaç:* Tatmin edici bir koruyucu ağız sağlığı programının geliştirilmesi için, toplumun ağız sağlığı ile ilgili alışkanlıklarının ve ağız sağlığı durumunun

bilinmesi gereklidir. Bu bağlamda bu çalışmanın amacı; Uşak ilinde yaşayan Türk toplumunda ağız sağlığı tutum ve davranışlarının yanında CPITN ve DMFT indeks değerlerini yaş, cinsiyet ve eğitim durumuna göre değerlendirmektir. **Gereç ve Yöntemler:** Ağız sağlığı davranışlarını anlamak için altı yaş grubuna ayrılan 2412 bireye yüz yüze sorular yöneltildi. Periodontal klinik ölçümler ve diş çürüğü varlığının tespiti kalibre üç periodontolog tarafından yapıldı. **Bulgular:** Periodontal olarak sağlıklı birey sayısı sadece 153 kişi (%10,05) idi. Bireylerin ortalama DMFT değeri 16,98±6,62 idi. Yaşlılık, cinsiyetin erkek olması ve düşük eğitim seviyesine sahip olma gibi faktörler ortalama DMFT ve CPITN değerlerinde artışa neden olduğu gösterildi. Katılımcıların %10,26'sı dişlerini fırçalamadıklarını bildirdi ve %92,55'i diş ipi kullanmadıklarını belirtti. Katılımcıların çoğu (%83,25) yalnızca acil durumlarda ve ağrı varlığında diş hekimine gittiğini belirtti. **Sonuçlar:** Ortalama DMFT ve CPITN skorları yaşlanma, düşük eğitim düzeyi ve cinsiyetin erkek olması durumlarında arttığı saptandı. Düşük diş ipi kullanma sıklığı, diş fırçalama prevalansının düşük olması ve diş hekimine düzenli gidilme sıklığının yetersiz olduğu belirlendi.

**Anahtar Kelimeler:** Yaş grupları, ağız sağlığı, diş fırçalama, diş ipi, eğitim.

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