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Oral care practices of adults in Turkey

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Abstract

Background: Information on oral health practices can play a key role in improving a community's oral health status. The aim of this study was to determine oral healthcare practices of Turkish individuals. **Methods:** A questionnaire was randomly given to 351 individuals, all of them older than 18 years. This cross-sectional study data were analyzed using descriptive statistical methods and chi-square test. Statistical significance was evaluated at $p < 0.05$. **Results:** According this study, 62.1% of individuals visited the dentist only when they needed to. Furthermore, 58% of individuals brushed their teeth twice a day; 12.5% of them used miswak; 50.4% used dental floss, toothpicks, or mouthwash; and 86.6% stated that they didn't use any other herbal/traditional tooth cleaning method. Additionally, 39.8% of the individuals reported that they ate sweetened foods 1–2 times a day, and 33.6% of them drank acidic beverages 1–2 times a month. Although the frequency of visiting a dentist and using herbal/traditional practices did not differ among individuals ($p > 0.05$), frequency of consuming sweetened food did differ ($p = 0.032$). **Conclusions:** Toothbrushing and interdental cleaning habits differed among individuals, while frequency of dentist visits and alternative methods of cleaning teeth did not differ.

Keywords: adult, dental plaque, oral hygiene, periodontal disease

Introduction

Dental plaque is the main reason for both caries and periodontal disease. The main method to prevent caries and periodontal disease is to mechanically remove microbial dental plaque from the teeth. The most important oral care habit is tooth brushing. Brushing the teeth using a fluoride-containing paste twice a day is recommended, and it is important to brush for the proper amount of time to achieve ideal plaque reduction. The recommended duration of brushing is 2 min.^{1,2}

Besides the toothbrush, the other instruments used in oral care are dental floss, an interdental brush, mouthwash, toothpicks, and an oral shower.^{3,4} In addition to these, the World Health Organization also recommends and promotes chewing sticks as an effective instrument for oral hygiene.⁵ The miswak, which is obtained from a plant called *Arak*, is a chewing stick used in oral care.⁶

In addition to improper mechanical cleaning of teeth, the consumption of sugary foods and beverages also increases the frequency of caries. Daily consumption of these items, more than four times a day, increases the risk of caries.⁷

Similar to home remedies employed for general health problems, alternative methods are also employed for oral health problems, although there is no scientific support as to their diagnostic, therapeutic, or preventive capabilities.⁸⁻¹¹ Complementary and alternative medical techniques can be used for dental problems.¹² Acupuncture has been used in the management of selected dental problems for years,¹³ and herbal products can be used for the treatment of periodontal disease.¹⁴ Previous study reported that extracts from medical herbs modulate host immune responses and promote tissue healing.¹⁵ Another study concluded that herbal-based mouth rinse reduces gingival inflammation.¹⁶

Studies have been carried out to measure how often traditional methods are used in oral healthcare in our country and other countries.¹⁷⁻³⁶ According to another study, 82.5% of Turkish adults aged 18–65 years needed dental treatment.³⁷ However, 96.2% of adults aged 65–74 years did not need dental treatment.

Knowledge about oral care practices of adults might help clinicians in their daily practice. However, there has not been any recent study comparing the traditional and alternative oral care methods used by Turkish

people. The primary objective of this study was to determine the traditional and modern methods of oral healthcare among Turkish adults. The secondary objective was to find out if there were any differences, based on demographic characteristics, in oral healthcare practices among Turkish adults.

Methods

The present study was a cross-sectional study aiming to determine individuals’ traditional and alternative oral health practices. Ethics committee approval was obtained from the Medical Faculty of Sakarya University (Approval Nr. 7152473/050.01.04/335). The survey study was conducted between November and December 2018 using 351 participants from all over Turkey. Before answering the questionnaire, informed consent was obtained from the participants.

The inclusion criteria were no neurological dysfunction and no handicap with respect to motor abilities, and the participant had to be older than 18 years. Participants were not dentists or hygienists and had no dental education. This study was community-based research, and there weren’t any criteria for education status, so that all segments of society were represented.

A 16-item questionnaire was prepared using past study information.¹⁶⁻²⁴ The questionnaire included open-ended questions, such as asking about the participant’s herbal/traditional methods used for oral care. The individuals were selected randomly and were asked to personally and voluntarily answer the questions. This study was conducted in a shopping mall.

Sample size calculations were performed with $\alpha = 0.05$ and a 50% response rate. It was determined that 385 participants were necessary for this community-based

study.^{38,39} The sample size in this study was 351, similar to other studies.^{17,19-21,24-26,35} Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) 23.0 (SPSS Inc., Chicago, IL). The descriptive statistics were expressed as number and percentage, and the chi-square test was used to compare the intergroup differences. The level of statistical significance was set to $p < 0.05$.

Results

From the questionnaire results, it was determined that the majority of the participants (65.8%) were aged between 18 and 25 years. There were more female participants (68%). According to education status, 81.7% of the sample was university educated. Occupationally, most participants were students (58.1%) (Table 1).

Fifty-eight percent of the sample brushed their teeth twice a day, and only 38.2% brushed for 2 min. In addition to toothbrushing, 50.4% of the sample used other oral care instruments such as toothpicks, dental floss, and mouthwash (Table 2).

Table 1. Sociodemographic characteristics of participants

| Variables | N (%) |
|------------------|------------|
| Age | |
| 18–25 | 227 (65.8) |
| 26–55 | 118 (34.2) |
| Gender | |
| Female | 232 (68) |
| Male | 109 (32) |
| Education status | |
| High school | 63 (18.3) |
| University | 282 (81.7) |
| Profession | |
| Student | 200 (58.1) |
| Worker/other | 144 (41.9) |

Table 2. Subjects’ frequency of oral care practices

| | Number (%) | <i>p</i> | | | |
|-------------------------------|------------|----------|--------|------------------|------------|
| | | Age | Gender | Education Status | Profession |
| Frequency of visiting dentist | | | | | |
| 1–2 times a year | 88 (25.1) | 0.122 | 0.213 | 0.074 | 0.098 |
| Every 1–2 years | 16 (4.3) | 0.089 | 0.094 | 0.117 | 0.321 |
| Every 3–5 years | 19 (5.5) | 0.126 | 0.179 | 0.209 | 0.232 |
| When need it | 218 (62.1) | 0.321 | 0.246 | 0.174 | 0.235 |
| Never | 10 (3) | 0.087 | 0.124 | 0.342 | 0.201 |
| Frequency of brushing teeth | | | | | |
| Once a day | 116 (33) | 0.067 | 0.075 | 0.124 | 0.215 |
| Twice a day | 204 (58) | 0.023* | 0.031* | 0.017* | 0.076 |
| 1–2 times a week | 16 (4.7) | 0.124 | 0.323 | 0.216 | 0.189 |
| Rarely | 15 (4.3) | 0.098 | 0.256 | 0.231 | 0.328 |
| Toothbrushing time | | | | | |
| 1 min | 132 (37.6) | 0.647 | 0.521 | 0.369 | 0.213 |
| 2 min | 134 (38.2) | 0.027* | 0.013* | 0.039* | 0.074 |
| 3 min | 66 (18.7) | 0.122 | 0.159 | 0.222 | 0.341 |
| 4 min+ | 19 (5.5) | 0.237 | 0.168 | 0.223 | 0.354 |

Table 2. Subjects' frequency of oral care practices (*Continue*)

| | Number (%) | <i>p</i> | | | |
|---|------------|----------|--------|------------------|------------|
| | | Age | Gender | Education Status | Profession |
| Using dental floss, toothpick, mouthwash in oral care in addition to toothbrush | | | | | |
| Yes | 177 (50.4) | 0.019* | 0.007* | 0.032* | 0.059 |
| No | 174 (49.6) | 0.056 | 0.067 | 0.071 | 0.082 |
| Using dental floss, toothpick, mouthwash | | | | | |
| Toothpick | 68 (38.1) | 0.236 | 0.419 | 0.197 | 0.285 |
| Dental floss | 55 (31.2) | 0.027* | 0.032* | 0.019* | 0.328 |
| Mouthwash | 54 (30.7) | 0.243 | 0.448 | 0.163 | 0.145 |
| Frequency of dental flossing | | | | | |
| 1–2 times a day | 20 (5.5) | 0.028* | 0.032* | 0.016* | 0.243 |
| 1–2 times a week | 38 (10.7) | 0.076 | 0.098 | 0.103 | 0.112 |
| Rarely | 64 (18.3) | 0.094 | 0.287 | 0.343 | 0.459 |
| Never | 229 (65.5) | 0.275 | 0.168 | 0.298 | 0.313 |
| Using miswak | | | | | |
| Yes | 44 (12.5) | 0.028* | 0.016* | 0.024* | 0.377 |
| No | 307 (87.5) | 0.273 | 0.432 | 0.351 | 0.089 |
| Having a different herbal/traditional method for the oral care | | | | | |
| Yes | 47 (13.4) | 0.077 | 0.085 | 0.098 | 0.067 |
| No | 304 (86.6) | 0.179 | 0.344 | 0.541 | 0.663 |
| Which herbal/traditional method for the oral care | | | | | |
| Carbonate | 42 (89.4) | 0.228 | 0.145 | 0.246 | 0.332 |
| Walnut juice | 2 (4.3) | 0.889 | 0.743 | 0.865 | 0.079 |
| Banana, apple peel | 1 (2.1) | 0.679 | 0.824 | 0.581 | 0.087 |
| Strawberry | 1 (2.1) | 0.584 | 0.665 | 0.645 | 0.073 |
| Sage tea | 1 (2.1) | 0.642 | 0.347 | 0.768 | 0.089 |

p* < 0.05Table 3.** Subjects' frequency of consuming sugared and acidic foods

| | Number (%) | <i>p</i> | | | |
|--------------------------------------|------------|----------|--------|------------------|------------|
| | | Age | Gender | Education Status | Profession |
| Frequency of consuming sugared foods | | | | | |
| 1–2 times a day | 140 (39.8) | 0.047* | 0.032* | 0.068 | 0.098 |
| 1–2 times a week | 120 (34.3) | 0.356 | 0.145 | 0.254 | 0.179 |
| 1–2 times a month | 56 (16.0) | 0.265 | 0.188 | 0.194 | 0.398 |
| Never | 35 (9.9) | 0.221 | 0.447 | 0.233 | 0.156 |
| Frequency of consuming acidic foods | | | | | |
| 1–2 times a day | 39 (11) | 0.018* | 0.023* | 0.064 | 0.341 |
| 1–2 times a week | 115 (32.8) | 0.249 | 0.347 | 0.158 | 0.383 |
| 1–2 times a month | 118 (33.6) | 0.158 | 0.229 | 0.119 | 0.295 |
| Never | 79 (22.6) | 0.246 | 0.174 | 0.336 | 0.189 |

*Differences were statistically significant

The majority of the participants stated that they visit a dentist whenever they need to (62.1%), and no significant difference in sociodemographic characteristics was found between the individuals in terms of the frequency of dentist visits ($p > 0.05$) (Table 2).

The vast majority of the questionnaire responders (86.6%) stated that they did not use alternate methods for oral cleaning and care. Out of those who did have an

alternate herbal method, 89.4% used carbonate, and a few of them used miswak (12.5%) (Table 2).

The majority of the study participants stated that they consumed sweets and sugar-containing beverages once or twice a day (39.8%) and acidic drinks once or twice a month (33.6%). Women consumed sugary foods and beverages more frequently than men ($p = 0.032$) (Table 3).

Discussion

Visiting the dentist on a regular basis is very important for the early diagnosis of caries and periodontal disease.²⁴ It was reported that 64.8% of the Turkish population visited a dentist on a regular basis, and 28.7% visited a dentist rarely/when needed/when they had to.¹⁹ Other research determined that 69% of subjects never visited a dentist, 11.7% visited once a year, 12% visited twice a year, and 7.4% visited three times a year.¹⁷ A study found that 28.3% of dental students in Turkey visited a dentist regularly in 2017.²⁴ Another study reported that 6.6% of medical students at Pamukkale University, Turkey, had never visited a dentist before, and 57% of them visited a dentist in 2014.²⁵ In contrast to these studies,^{17,19,24,25} it was determined in the present study that 25.1% of the participants visited a dentist once or twice a year, 5.5% visited once every 3–5 years, 62.1% visited whenever they needed to, and 3% had never visited a dentist. It was concluded that most of the individuals in this study visited dentists whenever they needed to. The differences between our study and the others are derived from study populations and the date of the studies.

Although it is recommended that teeth should be brushed twice days,^{1,2} previous studies showed that the frequency of brushing teeth varies among individuals. Other study reported that 86.3% of the Turkish population stated that they brushed their teeth.¹⁸ For the participants randomly selected from the adult Turkish population, another study reported that 15% of the participants brushed their teeth 2–3 times a day, 18% once a day, 31.5% 2–3 times a week, 26% once a week, and 9.5% brushed their teeth rarely.²⁰ Previous study¹⁷ determined that 18.7% of the adult Turkish population do not brush their teeth, whereas 37% brush their teeth once a day, 39% twice a day, and 5.3% three or more times a day. Another study stated that 71% of dental students in Turkey brushed their teeth twice a day.²⁴ In their German study, reported that 11.7% of individuals brushed their teeth once a day, 79.6% twice a day, and 8.7% more than twice a day.²⁶ A study reported that 68% of the Danish population brushed their teeth twice a day, while 32% brushed their teeth once a day or less frequently.²⁷ Some researchers²⁸ determined that 62% of subjects living in Kuwaitis used the toothbrush at least twice daily. Previous research reported that 34% of medical students at Pamukkale University, Turkey, brushed their teeth once a day, while 54% of them brushed their teeth twice a day.²⁵ Furthermore, it was concluded that German,²⁶ Danish,²⁷ and Kuwaitis¹⁵ populations more strictly applied toothbrushing habits than individuals in this study.

Contrary to the previous studies,^{17,18,20,24–28} it was found in the present study that 32.9% of individuals brush their

teeth once a day, 58% twice a day, 4.7% 1–2 times a week, and 4.4% stated that they rarely brush their teeth. The amount of time spent brushing teeth is also important.^{1,2} Other researchers²⁵ reported that there was no significant difference between the genders in terms of the duration of brushing teeth and that the mean durations among the German individuals were 97.9 s for women and 94.4 s for men. Others reported that 97% of adults aged between 18 and 22 years brush their teeth for less than 60 s (mean value of 33 s).²⁹

It was determined in the present study that 38.2% of individuals brush their teeth for 2 min, 37.6% for 1 min, 18.7% for 3 min, and 5.5% for 4 min or longer. However, it is recommended that teeth should be brushed for 2 min,^{1,2} and according to results of this study, only 38.2% of people brush their teeth for that long. According to studies on this subject,^{26,29} most people do not follow brushing time recommendations because they see brushing teeth as a waste of time.

In achieving oral hygiene, instruments other than the toothbrush are important. Especially, interdental cleaning is as important as cleaning the lingual, facial, and occlusal surfaces.³⁰ For the Turkish population, some researchers reported that 6.33% of the total population used dental floss and 10.3% used toothpicks.¹⁸ Another study reported for the adult Turkish population that 28% of individuals used dental floss, 6% used an interdental brush, 35% used mouthwash, and 31% used toothpicks.¹⁹ In their study carried out on adult Turkish population, A study reported that 16% of the population used mouthwash.¹⁹ Another study determined in their study on the adult Turkish population that 47.3% of individuals used toothpicks, 10.0% used dental floss, and 1.3% used an interdental brush.¹⁷ In their study in Turkey, some researchers reported that 9.8% of individuals used additional oral care tools besides the toothbrush.³¹ They specified that the most frequently used tools were mouthwash (42.7%) and toothpicks (30.7%). Other study stated that 56% of dental students in Turkey used dental floss or an interdental brush daily.²⁴ Previous study reported that 4.4% of medical students at Pamukkale University used dental floss regularly.²⁶ Other study reported that 28% of the Danish population used toothpicks, whereas 11% used dental floss daily.²⁷ other study determined that 11.8% of people living in Kuwaitis used dental floss at least once daily and 36.6% of them used mouth rinse daily.²⁸ According to results of a cross-sectional survey,³² 10.5% of a total of 7,630 Nigerian adults reported that they used dental floss or other oral hygiene aids such as mouthwash. In this study, frequency of interdental care was different from previous studies.^{17–19,27,28,31,32} This might be due to the differences in the populations social background.

Among chewing sticks, miswak has been widely used for oral hygiene in some countries for centuries, and it is still in use today.³³⁻³⁵ Other researchers³¹ determined that 6% of the Turkish population used miswak as an additional oral care tool. In their study on Jordanian adults, a study³⁵ reported that the majority (72%) used only the toothbrush in oral care, 20.5% used miswak in addition to the toothbrush, and 3% used only miswak. For the Pakistani population, some researchers³⁶ reported that 50% of the rural population and approximately 25% of the urban population used miswak and similar chewing sticks for oral and dental care purposes. A study determined that 33% of people living in Kuwaitis used miswak occasionally or daily.²⁸ In contrast with previous studies,^{28,31,35,36} in the present study, we found that 12.5% of individuals used miswak for oral care, while 87.5% did not. This showed that oral hygiene habits can differ in populations within the same country.

High sugar intake, along with poor oral hygiene, increases the risk of dental caries.²⁴ Other researchers investigated the eating and drinking habits of students at a school in Turkey, and determined that, between meals, first grade students frequently consume foods with high sugar content such as chocolate, biscuits, and fruit juice and acidic drinks such as Coke and fizzy drink.²² Five percent of first grade students and 17% of fifth grade students stated that they consumed no food between meals. Other study determined that 61% of adult Finnish women and 42% of adult Finnish men rarely or never consumed sugary food, whereas 24% of women and 26% of men consumed sugary food 1–2 times a day, and 14% of women and 32% of men consumed sweets and sugared drinks more than three times a day.²³ In contrast with previous studies,^{22,23} it was determined in the present study that 39.8% of individuals consumed sugary foods 1–2 times a day, 34.3% consumed sugary foods 1–2 times a week, and 16% consumed sugary foods 1–2 times a month, whereas 9.9% of individuals stated that they never consumed these foods. Moreover, 11% of the individuals reported that they consumed acidic drinks 1–2 times a day, 32.8% consumed them 1–2 times a week, and 33.6% consumed them 1–2 times a month, whereas 22.6% of the individuals stated that they never consumed these drinks. The differences among the studies might occurred due to differences in eating habits between students and adults.

Recently, there has been growing interest in complementary and alternative medicine and its relevance to dental and medical health. In dentistry, alternative and complementary dental practices such as consuming herbs might be implemented by a dentist and/or patient. In their study carried out on people applying to a dental school in Turkey. Other study reported that 41.9% of individuals employed a treatment other than what the dentist recommended or implemented

at any period of their lives, whereas 19% reported that they did so in the last year.²¹ Moreover, the most frequently used alternative medicine was reported to be topical acetylsalicylic acid, a medicine most frequently used for pain.

In the present study, 13.4% of individuals reported that they use different herbal/traditional methods for oral cleaning and care. Among the individuals using a different method, 89.4% of use carbonate for cleaning their teeth, whereas 4.3% use walnut water, 2.1% use banana and apple peel, 2.1% use strawberry, and 2.1% use sage. The differences among the studies might derive from different knowledge and beliefs about complementary and alternative medicine in different populations and in different regions of the country. A limitation of this study was that it only involved surveys and not examinations of the oral health of individuals.

Conclusions

Within the limitations of the present study, it was determined that the toothbrushing and interdental cleaning habits of the participants differed between the genders, ages, and educational statuses, whereas the frequency of consuming sugared foods and drinks differed statistically significantly only between the age groups. However, there was no significant difference in the frequency of visiting a dentist and the frequency of using alternative methods for oral care. Most of the participants did not use any complementary or alternative medical methods for oral care.

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Conflict of Interest Statement

The authors declare that there are no conflicts of interest.

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