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Evaluation of the Awareness of Patients Applying to the Periodontology Clinic on Oral Hygiene Habits According to Periodontal Status

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ABSTRACT

Aim: The aim of this study is to examine the awareness of patients applying to the periodontology clinic about oral hygiene habits (OHH) according to their periodontal status through a survey.

Material and Methods: 400 volunteer patients who applied to the periodontology clinic and were diagnosed with periodontitis (n=200) and gingivitis (n=200)) after clinical and radiographic examination were included in the study. Questionnaires including demographic data and oral hygiene habits were directed to the patients in the form of mutual question-answer.

Results: In the gingivitis group, the incidence rate in female individuals between the ages of 18-39, university graduates, non-smokers were found to be statistically higher than in the periodontitis group ($p<0.05$). In the gingivitis group, the rate of knowing what the bleeding in the gingiva is a symptom of, the rate of brushing teeth twice or more a day, the rate of using electric toothbrushes were found to be statistically higher than the periodontitis group ($p<0.05$). The rate of using toothpicks in the periodontitis group was statistically significantly higher than the gingivitis group ($p<0.05$). No statistical difference was found between the two groups in terms of other findings ($p>0.05$).

Conclusion: In line with the results of this study, it has been shown that patients have insufficient knowledge about the use of auxiliary oral hygiene tools other than toothbrushes. It was determined that oral hygiene education and motivation of patients should be provided.

Periodontoloji Kliniğine Başvuran Hastaların Periodontal Duruma Göre Ağız Hijyeni Alışkanlıkları Konusundaki Farkındalıklarının Değerlendirilmesi

Makale Bilgisi

Makale Geçmişi

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Anahtar Kelimeler:
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Periodontitis,
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Ağız sağlığı.

ÖZET

Amaç: Bu çalışmanın amacı, periodontoloji kliniğine başvuran hastaların periodontal durumlarına göre oral hijyen alışkanlıkları (OHH) konusundaki farkındalıklarını bir anket aracılığıyla incelemektir.

Gereç ve Yöntem: Çalışmaya, periodontoloji kliniğine başvuran, klinik ve radyografik muayene sonucu periodontitis (n=200) ve gingivitis (n=200) teşhisi konulan 400 gönüllü hasta dahil edildi. Hastalara demografik veriler ve oral hijyen alışkanlıklarını içeren anket soruları karşılıklı soru-cevap şeklinde yönlendirildi.

Bulgular: Gingivitis grubunda kadın olgu oranı, 18-39 yaş arası olgu oranı, üniversite mezunu olgu oranı ve sigara kullanmama oranı periodontitis grubuna göre istatistiksel olarak yüksek bulundu ($p<0.05$). Gingivitis grubunda diş etindeki kanamanın neyin belirtisi olduğunu bilme oranları, günde iki veya daha fazla diş fırçalama oranı, elektrikli fırça kullanma oranı periodontitis grubuna göre istatistiksel olarak yüksek bulundu ($p<0.05$). Periodontitis grubunda kürdan kullanma oranı gingivitis grubuna göre istatistiksel olarak anlamlı düzeyde yüksek bulundu ($p<0.05$). Her iki grup arasında diğer bulgular açısından istatistiksel olarak anlamlı bir farklılık bulunamadı ($p>0.05$).

Sonuç: Bu çalışmanın sonuçları doğrultusunda, hastaların diş fırçası dışındaki yardımcı ağız hijyeni araçlarının kullanımı konusunda yeterli bilgiye sahip olmadığı gösterilmiştir. Hastaların oral hijyen eğitimi ve motivasyonunun sağlanması gerektiği belirlendi.

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INTRODUCTION

Periodontal disease is a pathological inflammatory condition that starts with the bacterial infection of the gingival and supporting tissues surrounding the teeth and can progress to the destruction of the tissues. The major factor effective in the formation of periodontal diseases is microbial dental plaque. Microbial dental plaque, which is attached to the surface of teeth and dentures, is an organized structure consisting of salivary glycoproteins and extracellular microbial products. They are adherent, soft consistency, yellow-white colored matrix structures that cannot be removed by rinsing the mouth with water.[1] The regular removal of dental plaque accumulated on the tooth and denture surface is called plaque control and is of great importance in terms of maintaining the health of periodontal tissues. In addition, applications for the removal of dental plaque appear as one of the most effective methods for the protection of tooth and gingival health, as well as the treatment of existing periodontal disease and the maintenance of the obtained health.[2]

Plaque control is achieved in two ways using mechanical and chemical applications. The toothbrush is the most common mechanical cleaning tool that individuals use in their daily routine in order to control plaque. The adequacy of oral hygiene provided by tooth brushing varies depending on the design of the brush, the degree of softness, brushing technique, brushing frequency and duration. Careful use of manual or electric toothbrushes, which are preferred with medium hardness, helps to remove plaque without causing any trauma to the mucosa.[3] In order to mechanically remove plaque, other auxiliary oral hygiene tools such as dental floss, interdental brush, mouthwash, toothpick, waterjet and tongue brush are also used. Toothpastes and mouthwashes, on the other hand, are materials that prevent plaque formation, remove or neutralize plaque, and provide chemical plaque control, aiding mechanical cleaning.[4-6]

In addition to the microbial dental plaque being the main etiological factor in periodontal diseases, in epidemiological studies on this subject; It has been concluded that periodontal health levels can change according to the OHH, systemic diseases, socio-economic and demographic conditions of individuals.[7,8] Smoking is also an important risk factor for periodontal health. It has been determined that smokers give less importance to oral care than non-smokers, have more plaque accumulation, and are more prone to periodontal disease due to these reasons.[9]

Patient education and motivation are essential to achieving good plaque control and OHH. The biggest task in this regard falls on dentists and especially periodontologists. Dentists need to choose the appropriate oral hygiene tools for the patient and explain the way of use to the patient in an appropriate language. This situation constitutes the most critical step to achieve success in the patient's education on oral hygiene. It is also of great importance to examine the awareness of the society to use oral hygiene tools to protect gingival health and the awareness of gingival disease in order for dentists to inform their patients about this issue.[10]

In this study, our aim is to examine the demographic data, OHH and periodontal status of the patients with the questionnaire questions directed to the patients who applied to the periodontology clinic. In the light of these data, it is to measure the awareness of patients about oral hygiene and to consider the points that the dentist should pay attention to in patient education. The null hypothesis of this study is that gingivitis patients are more conscious about the use of oral hygiene tools than periodontitis patients.

MATERIAL AND METHODS

This study involved 400 systemically healthy volunteers who applied to the Department of Periodontology at Alanya Alaaddin Keykubat University Faculty of Dentistry. After undergoing a clinical and radiographic examination by a skilled periodontologist (K.S.), 200 of the volunteers were diagnosed with gingivitis and 200 with periodontitis. The Alanya Alaaddin Keykubat University Clinical Research Ethics Committee approved the research protocol with the number 14-02 on 14.12.2022 and the individuals who agreed to participate in the study signed an informed consent form. The study was performed in accordance with the guidelines of the 1964 Helsinki Declaration. The questionnaire questions of the study were prepared similarly to previous studies.[11,12] Questionnaires were asked to the patients included in the study in the form of questions and answers, and the answers were recorded in the questionnaire form. In the first step of the questionnaire, the demographic data of the patient (gender, age, education level and financial income level) and smoking status of the patient was recorded, and in the last step, OHH (last dentist check, gum disease awareness, frequency of brushing, type of brush used, degree of softness, brush replacement frequency), other oral hygiene tools (dental floss, interdental brush, mouthwash, toothpick, waterjet and tongue brush) used other than toothbrushes, and questions to measure the awareness of the time left between brushing and mouthwash use were recorded. Only one of the questions (auxiliary oral hygiene tools other than toothbrushes) had more than one choice, while the other questions had only one answer.

Exclusion criteria in the study were determined as follows;

- Patients under the age of 18 and over the age of 70
- Edentulous patients
- Patients with a systemic disease
- Patients unable to use oral hygiene tools
- Disabled patients who cannot allow hand manipulation
- Patients who did not accept the informed consent form

Statistical Analysis

The IBM SPSS Statistics 22 application was utilized for statistical analysis in assessing the study's findings. The Chi-Square test, Continuity (Yates) Correction and Fisher Freeman Halton Exact Chi-square test were utilized to evaluate qualitative data between groups when analyzing the study data. Significance was evaluated at the $p<0.05$ level.

RESULTS

Demographic Data

Table 1 displays the distribution of the study participants by gender, age, education level, and monthly income.

There was a statistically significant variation in the distribution of genders among the groups (p:0.004; $p<0.05$). While the rate of female cases (55%) is higher in the gingivitis group, the rate of male cases (59.5%) is higher in the periodontitis group. There was a statistically significant variation in age distribution among the groups (p:0.001; $p<0.05$). While the rate of cases between the ages of 18-39 were higher in the gingivitis group (73%), the rate of cases between the ages of 40-59 were higher in the periodontitis group (60%) (Table 1).

There was a statistically significant variation in the distribution of educational attainment among the groups (p:0.001; $p<0.05$). While the rate of university graduates was higher in the gingivitis group (48%), the rate of primary school graduates in the periodontitis group was higher (46.5%). There was no statistically significant variation in the distribution of monthly income levels among the groups (p:0.490; $p>0.05$) (Table 1).

Table 1: Comparison of demographic data of patients according to groups

		Gingivitis (n=200)	Periodontitis (n=200)	Total (n=400)	
		n (%)	n (%)	n (%)	p-Value
Gender	Female	110 (55%)	81 (40.5%)	191 (47.8%)	**0.004***
	Male	90 (45%)	119 (59.5%)	209 (52.3%)	
Age	18-39	146 (73%)	50 (25%)	196 (49%)	**0.001***
	40-59	46 (23%)	120 (60%)	166 (41.5%)	
	60 and over	8 (4%)	30 (15%)	38 (9.5%)	
Education Level	Primary	47 (23.5%)	93 (46.5%)	140 (35%)	**0.001***
	High school	51 (25.5%)	66 (33%)	117 (29.3%)	
	University	96 (48%)	37 (18.5%)	133 (33.3%)	
	Graduate Education	6 (3%)	4 (2%)	10 (2.5%)	
Monthly Income	0-10.000TL	152 (76%)	160 (80%)	312 (78%)	0.49
	10.000-20.000TL	38 (19%)	34 (17%)	72 (18%)	
	Over 20.000TL	10 (5%)	6 (3%)	16 (4%)	
Smoking Habit	Smoker	62 (31%)	85 (42.5%)	147 (36.8%)	**0.019***
	Non-smoker	123 (61.5%)	95 (47.5%)	218 (54.5%)	
	Quitter	15 (7.5%)	20 (10%)	35 (8.8%)	

Chi-square test | *The significance level was set as $p < 0.05$.

There was a statistically significant variation in the distribution of smoking habits among the groups (p:0.019; p<0.05). While the rate of non-smokers was higher in the gingivitis group (61.5%), the rate of smokers was higher in the periodontitis group (42.5%) (Table 1).

Oral Hygeine Habits and Gum Disease Awareness

In the questionnaire, the patients included in the study were asked questions about their OHH and gum disease awareness. Table 2 displays data on OHH and awareness of gum disease among the study participants.

There was no statistically significant variation among the groups on the frequency of going to the dentist in the last year (p:0.597; p>0.05) (Table 2).

There was a statistically significant variation in terms of knowing what the bleeding in the gums is a symptom of across the groups (p:0.001; p<0.05). The rate of saying gum disease in the gingivitis group (70%) was significantly higher than in the periodontitis group (52.5%) (Table 2).

There was a statistically significant variation in tooth brushing frequency among the groups (p:0.002; p<0.05). The rate of brushing twice or more times a day in the gingivitis group (47.5%) was significantly higher than in the periodontitis group (33.5%) (Table 2).

There was a statistically significant variation in the brush types used among the groups (p:0.003; p<0.05). The rate of using electric toothbrushes in the gingivitis group (13%) was significantly higher than in the periodontitis group (4.5%) (Table 2).

There was no statistically significant variation in the hardness of the bristles among the groups (p:0.337; p>0.05) (Table 2).

There was no statistically significant variation in brush change frequencies among the groups (p:0.107; p>0.05) (Table 2).

There was no statistically significant variation in using anything other than a toothbrush, such as dental floss, interdental brushes, gargles and mouthwash, water jets, and tongue brushing, among the groups (p>0.05). The rate of using toothpicks (33.5%) excluding toothbrushes in the periodontitis group was statistically significantly higher than the gingivitis group (19%) (p:0.001; p<0.05) (Table 2).

Table 2: Evaluation of questions about oral hygiene habits according to groups

		Gingivitis (n=200)	Periodontitis (n=200)	Total (n=400)	
		n (%)	n (%)	n (%)	p-Value
Visited a dentist in the last year	Yes	135 (67.5%)	130 (65%)	265 (66.3%)	0.597
	No	65 (32.5%)	70 (35%)	135 (33.8%)	
Signs of bleeding in gums	Tooth decay	13 (6.5%)	10 (5%)	23 (5.8%)	**0.001***
	Gum disease	140 (70%)	105 (52.5%)	245 (61.3%)	
	Unknown	47 (23.5%)	85 (42.5%)	132 (33%)	
Tooth brushing frequency	Does not brush	1 (0.5%)	9 (4.5%)	10 (2.5%)	**0.002***
	A few times a week	21 (10.5%)	36 (18%)	57 (14.2%)	
	Once a day	83 (41.5%)	88 (44%)	171 (42.8%)	
	Twice or more in a day	95 (47.5%)	67 (33.5%)	162 (40.5%)	
Brush type	Manuel toothbrush	174 (87%)	191 (95.5%)	365 (91.3%)	**0.003***
	Electric toothbrush	26 (13%)	9 (4.5%)	35 (8.8%)	
Hardness of brush bristles	Hard	14 (7%)	21 (10.5%)	35 (8.8%)	$^{+}$0.337
	Medium	129 (64.5%)	135 (67.5%)	264 (66%)	
	Soft	55 (27.5%)	43 (21.5%)	98 (24.5%)	
	Extra soft	2 (1%)	1 (0.5%)	3 (0.8%)	
Brush change frequency	2-3 months	103 (51.5%)	96 (48%)	199 (49.8%)	0.107
	6 months	80 (40%)	76 (38%)	156 (39%)	
	1 year	9 (4.5%)	22 (11%)	31 (7.8%)	
	More than a year	8 (4%)	6 (3%)	14 (3.5%)	
Tools used for oral hygiene, excluding toothbrushes	Floss	47 (23.5%)	39 (19.5%)	86 (21.5%)	0.330
	Interdental brush	6 (3%)	5 (2.5%)	11 (2.8%)	$^{++}$1.000
	Toothpick	38 (19%)	67 (33.5%)	105 (26.3%)	**0.001***
	Gargles and mouthwashes	57 (28.5%)	42 (21%)	99 (24.8%)	0.082
	Waterjet	10 (5%)	5 (2.5%)	15 (3.8%)	$^{++}$0.292
	Tongue brush	15 (7.5%)	7 (3.5%)	22 (5.5%)	$^{++}$0.125
	Doesn't use any	75 (37.5%)	77 (38.5%)	152 (38%)	0.837
Time between tooth brushing and mouthwash	Should be brushed right away	118 (59%)	127 (63.5%)	245 (61.3%)	0.356
	Should be brushed after half an hour	82 (41%)	73 (36.5%)	155 (38.8%)	

Chi-Square Test | $^{+}$Fisher Freeman Halton Exact Test | $^{++}$Continuity (yates) corrections | *The significance level was set as $p < 0.05$.

There was no statistically significant variation in the time between tooth brushing and mouthwash among the groups (p:0.356; p>0.05) (Table 2).

DISCUSSION

In order to protect and maintain periodontal health, patients should consult a dentist regularly. Dentists have the greatest responsibility in providing oral hygiene training to their patients and supervising their correct and effective use during these control sessions. Predicting OHH and public awareness according to the periodontal status of the patients during the oral hygiene education of the physicians will enable them to focus on the missing or insufficient points in the education. Therefore, in this study, it was aimed to examine the demographic data and OHH of the patients who applied to Alanya Alaaddin Keykubat University, Faculty of Dentistry, Department of Periodontology, according to their periodontal status, through a questionnaire.

Su et al. [13] showed in their study that the prevalence and severity of periodontal disease is higher in male individuals, and they reported that this situation is proportional to the fact that male individuals visit the dentist less, pay less

attention to dental and gingival health, and inability to use auxiliary oral hygiene tools. In the present study, the statistically high rate of female individuals in the gingivitis group and male individuals in the periodontitis group is similar to this study.

In a study evaluating the prevalence of periodontal disease in young, middle-aged and elderly individuals by Nazir et al. [14], it was reported that the incidence and severity of periodontitis increased with age. Curtis et al. [15] showed that age is the most important factor affecting attachment loss in cases where patients' demographic data, oral hygiene and health are similar. In the present study, gingivitis in the young patient (18-39 years old) population and the high incidence of periodontitis in the middle-aged population (40-59 years old) supports these studies. The low number of participants in the elderly population may have caused the rate of periodontitis to be higher in the middle-aged population.

Baskaradoss et al. [16] reported in their study that education level and literacy level are very important due to factors such as understanding the information that physicians give to their patients, applying them correctly, and easily accessing information about oral health. Walther et al. [17] argued that individuals with low education levels have a three times higher risk of periodontitis than individuals with higher education. Bui et al. [18] reported that individuals with low education levels do not pay enough attention to their oral health, which may cause exacerbation of periodontitis by risking their general health status. The high rate of university graduate cases in the gingivitis group and the high rate of primary school graduates in the periodontitis group in the present study supports these studies.

Celeste et al. [19] reported in their study that the socio-economic status of patients affects the frequency of visiting the dentist, since dentistry service is paid for in many countries. On the other hand, Hussein et al. [20] stated that the number of physicians is insufficient in regions with low socio-economic status, and all these conditions carry a risk for the protection of oral health due to low socio-economic income. In contrast, Walther et al. [17] argued that the monthly income of individuals is not a risk factor for periodontal disease. The fact that there was no statistically significant difference between the groups in terms of monthly income levels in the present study supports the study of Walther et al. We think that this is due to the fact that patients in our country can receive free service in the state institution.

Smoking is an important risk factor that increases the tendency to periodontal disease in proportion to the amount of daily use, accelerates the course of the disease and negatively affects the success of the treatment.[21] As a result of their study, Tomar et al. [22] stated that individuals who smoke and have used before are more likely to develop periodontitis than individuals who have never smoked. More et al. [23] argued that smokers do not pay enough attention to their oral hygiene and this situation increases the susceptibility to periodontal disease. The statistically high rate of smokers in the periodontitis group in the present study supports these literatures.

In their study, Dannewitz et al. [24] reported that periodontitis patients should go to the dentist 1-4 times a year, taking into account the individual risks. They stated that these control sessions are important in terms of evaluating the need for periodontal phase I treatment, the early treatment of pathological pockets affected by the disease, and the repetition of oral hygiene motivation. As a result of their study, Samorodnitzky et al. [25] reported that tooth loss would be higher in individuals who had irregular check-ups with the dentist. It was observed that approximately 65% of the patients participating in the present study had applied to the dentist in the last 1 year. We think that this is due to the fact that individuals living in Alanya are conscious about going to the dentist for regular check-ups.

In their study, Deng et al. [26] stated that it is important for the society to be aware of gingival bleeding, because periodontal disease is diagnosed early and its progression is stopped with treatment. In their survey study, Eren et al. [11] showed that 66.3% of the individuals participating in the study did not have knowledge about gingival disease. In a study by Beşiroğlu et al. [27], while the number of those who gave the answer 'gum disease' to the question "What is the sign of gingival bleeding when brushing?" was similar in the gingivitis and periodontitis groups they found that the number of those who could not give the correct answer was statistically high in the periodontitis group. The higher rate (66.3%) of those who gave the answer to the question "What is the symptom of gingival disease?" in the present study contradicts the study of Eren et al. We think that this situation is due to the information given by the departments that referred to the periodontology clinic. The gingival disease response rate (70%) in the gingivitis group was found to be significantly higher than the Periodontitis group (52.5%), which is similar to the study of Beşiroğlu et al.

As a result of their study, Chapple et al. [28] reported that regardless of the toothbrush bristle design, daily routine brushing reduces gingivitis by removing plaque. Joshi et al. [29] showed that brushing twice or more times per day significantly reduces the prevalence of periodontitis and the risk of periodontal pathological pocket formation. It has been shown that the vast majority of individuals participating in the present study brush their teeth daily. The fact that the frequency of brushing twice or more times a day was statistically higher in the gingivitis group than in the periodontitis group in the present study supports this literature.

In their study in which they compared electric and manual toothbrushes, Petker-Jung et al. [30] reported that both methods did not differ in terms of oral hygiene if the patients showed appropriate time and care. A Ramseier et al. [31] reported that the use of electric toothbrushes showed a significant decrease in plaque index and gingival index levels compared to the use of manual toothbrushes. Al-Omiri et al. [32] argued that the reason for these conflicting results is that the use of electric toothbrushes is not as common as manual toothbrushes in some societies or that the difference in toothbrushes used in the research. The fact that 91.3% of the individuals participating in the present study were using a manual toothbrush supports the study by Al-Omiri et al. The fact that the rate of using electric toothbrushes in the present study was significantly higher in the gingivitis group than in the periodontitis group suggests that the electric toothbrush may be more effective in removing plaque than a manual toothbrush.

As a result of their study, Ranzan et al. [33] reported that toothbrushes with a hard bristle structure, although they are more effective in removing plaque compared to toothbrushes with medium and soft hardness, cause gingival abrasions, traumatic lesions in the gingiva and gingival recession. Langa et al. [34] showed in their study that medium-hard toothbrushes removed plaque more effectively than soft brushes, resulting in more positive results in periodontal parameters. Extra soft brushes are mostly recommended after periodontal soft tissue surgeries to remove plaque without trauma to the surgical area.[35] In this study, no difference was found between the gingivitis and periodontitis groups in terms of the hardness of the bristles. It was observed that the individuals who participated in the study preferred the medium hard (66%) and soft hardness (24.5%) toothbrushes, which remove plaque most effectively without causing trauma to the gums.

This may be due to the fact that the individuals participating in the study were conscious and aware of oral hygiene.

As a result of their systematic review, Silva et al. [36] reported that no difference was observed in plaque removal between the new

toothbrush and the 3-month-old toothbrush, although the vast majority of dentists recommend their patients to change their toothbrushes at 3-4 monthly intervals. As a result of their study, Schmickler et al. [37] reported that the plaque removal efficiency of the toothbrush decreased after 6 months of use and the incidence of gingivitis increased. Romesa et al. [38] on the other hand, associated the change time of the toothbrush with the deterioration of the structure of the bristles rather than the duration of use. In this study, the majority of the individuals participating in the study answered the question of brush change frequency as 2-3 months (49.8%) and 6 months (39%). There is no statistically significant difference between the groups in terms of brush change frequencies. This suggests that patients who applied to the Department of Periodontology were informed during their previous dental check-ups.

Insufficient use of the toothbrush alone in removing the plaque accumulated on the interproximal tooth surface poses a risk in terms of periodontal disease. For this reason, the American dental association recommends the use of auxiliary oral hygiene tools such as dental floss, interdental brushes, toothpicks, antiseptic agents, and waterjet in addition to toothbrushes.[39] In a study in which they compared dental floss, interdental brush and waterjet, Worthington et al. [40] reported that after 1 month of use, interdental brushes and waterjet had better results in plaque and bleeding scores compared to dental floss. In this study, it was determined that 38% of the participants did not use any oral hygiene tool in addition to the toothbrush in providing oral hygiene. In addition, it was found that the use of dental floss (21.5%) in interproximal surface cleaning was higher than the use of interdental brushes (2.8%) and waterjet (3.8%). This situation suggests that physicians are incomplete in recommending the use of auxiliary oral hygiene tools such as interdental brushes and waterjetes, especially to their patients with periodontitis who have open interdental contact. In their study, Sun et al. [41] showed that the use of toothpicks in interproximal surface cleaning is quite common and argued that toothpicks cause periodontal damage due to their pointed ends and pose a risk for periodontal disease. The fact that the toothpick (26.3%) was the most commonly used auxillary hygiene tool, other than the toothbrush, in the present study supports this literature. The rate of using toothpicks (33.5%) excluding toothbrushes in the periodontitis group was statistically significantly higher than the gingivitis group (19%) ($p<0.05$). This may be due to the accumulation of food in the areas of attachment loss after meals in individuals with periodontitis and the need to remove it. It also suggests that the use of toothpicks causes trauma to the periodontal tissues. In their study, Rickenbacher et al. [42] recommended the use of a tongue brush by stating that microorganisms on the tongue surface cause periodontitis, periimplantitis, tooth decay and bad breath. On the other hand, in their study on patients with periodontitis, Laleman et al. [43] reported that tongue cleaning did not cause a decrease in the number of microorganisms in the saliva and oral cavity. There is no consensus in the literature on tongue cleaning. In this study, only 5.5% of the participants use a tongue brush. The necessity of informing the patients about the tongue cleaning practice was shown.

In their study, Rajendiran et al. [44] showed the effectiveness of mouthwash and gargles in antiplaque, antigingivitis and antiperiodontitis. On the other hand, in their survey study, Górska et al. [45] showed that 33% of the participants do not use mouthwash, 25% of them use it regularly every day, and the rest use it weekly. The fact that only 24.8% of the participants in the present study used mouthwash and mouthwash contradicts this literature. This situation is actually due to the lack of information about individuals that mouthwash and gargles reduce plaque formation when used

in addition to tooth brushing. Mouthwashes and gargles are recommended in addition to tooth brushing as they provide plaque control in places where the toothbrush and other auxiliary oral hygiene tools cannot reach. When mouthwashes and gargles are used immediately after brushing, they cause the fluoride taken with toothpaste to be absorbed and removed from the mouth.[46] Additionally, sodium lauryl sulfate or anionic fluorides contained in toothpaste inactivate cationic chlorhexidine. Therefore, it is appropriate to use mouthwash approximately half an hour after brushing your teeth.[47] In this study, to the question "How long do you think you should leave between brushing and mouthwash?", 245 participants answered that it should be used immediately after brushing, and 155 participants answered it half an hour later. This shows that physicians are insufficient not only to recommend mouthwashes, but also to inform their patients about the use of mouthwashes.

As a result of their study, Fatima et al. [48] reported that most of the physicians did not perform periodontal examination and they were insufficient to diagnose periodontal disease. In addition, they emphasized that many physicians do not even pay enough attention to their own oral health and reported that they lacked oral hygiene education and motivation to their patients. In this survey study, it was shown that most of the patients neglected their dental check-ups, did not know about periodontal disease, and did not use or misused oral hygiene tools other than toothbrushes. It is thought that our physicians are also insufficient in informing their patients about oral health and care.

This study has several limitations. Firstly, the questionnaire study included patients from a single institution, potentially limiting the generalizability of the findings to a broader population. Secondly, patients can be informed about oral hygiene in other clinic departments before visiting the periodontology clinic. These limitations should be acknowledged and taken into account in future studies.

CONCLUSION

Based on the limited results of this study, it was concluded that gingivitis patients are more conscious about periodontal disease and pay more attention to tooth brushing. Despite this, it has been shown that both gingivitis and periodontitis patients are deficient in the use of auxiliary oral hygiene tools for interdental spaces cleaning. It has been revealed that dental check-ups should become more frequent and that physicians should provide motivation and education for their patients in these sessions. In order for the oral and dental health of the society to reach the desired level, it is necessary to increase the frequency of oral screenings and to provide education on oral hygiene from an early age. Dentists have the greatest responsibility for supervising patients' correct use of oral hygiene products and providing motivation for oral health. This study is limited to survey questions. There is a need for more comprehensive studies that will investigate the contribution of education to the oral hygiene status of patients and their reflection on clinical outcomes.

Ethical Approval

The necessary ethical approval for this study was received by Alanya Alaaddin Keykubat University Clinical Research Ethics Committee (2022/14-02).

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Conflict of Interest

The authors deny any conflicts of interest related to this study.

Author Contributions

Design: KS, Data collection and processing: KS, Analysis and interpretation: KS, Literature review: KS, Writing: KS.

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