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Evaluation of Periodontal Awareness, Attitudes and Behaviors Toward Oral and Dental Health of Patients Presenting to Bursa Oral and Dental Health Training and Research Hospital

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ABSTRACT

Periodontal diseases are inflammatory conditions that concern a large part of society and affect the hard and soft tissues around the teeth. These diseases can be treated easily and successfully when diagnosed at an early stage. The present research aimed to determine whether some sociodemographic factors affect periodontal health, reveal the factors that affect it, if any, and conduct studies to reduce the effects of these factors. To this end, a survey was conducted on 300 patients at Bursa Oral and Dental Health Training and Research Hospital to assess their periodontal health and awareness. This survey included questions about patients' oral and dental health, sociodemographic status, periodontal awareness, and examination frequency. The results obtained from the surveys were evaluated using the IBM SPSS Statistics program for statistical analysis.

As a result of the statistical analysis, a significant relationship was found between gender, age, frequency of going to the dentist, educational status, frequency of tooth brushing, systemic diseases and smoking, and oral and dental health and periodontal awareness.

Keywords: Periodontal Awareness, Periodontal Health, Oral And Dental Health, Examination Frequency

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Introduction

Periodontal disease is a chronic infectious condition that adversely affects oral and systemic health, causes irreversible damage, which may result in the loss of hard and soft tissues of the tooth, and has a high prevalence in society.[1] Periodontal disease may also affect individuals' quality of life by causing gingival bleeding, bad breath, sensitive teeth, tooth mobility, and even the loss of teeth.[2]

Although periodontal diseases that affect 50-90% of the adult population worldwide are not life-threatening, they usually affect the patient's quality of life adversely.[3] Gingival bleeding is the first symptom of periodontal disease. Therefore, it is crucial to increase the awareness of periodontal diseases so that patients are treated at the early stages of symptoms and the necessary periodontal treatment is provided.

Maintaining periodontal health requires an informed and conscious society. Knowing the differences between periodontal health and diseases increases the success of periodontal treatment. Public awareness of periodontal problems and their evaluation by dentists affect periodontal health levels.[4] Many people do not know the symptoms of periodontal diseases or do not associate existing symptoms with the disease. Patients' awareness of symptoms depends on their sociocultural level and the health knowledge they have acquired. When the relevant training programs designed by considering individuals' knowledge and anxiety levels are activated, the level of awareness of these diseases increases further.[5] Knowing the differences between periodontal health and diseases increases the success of periodontal treatments and thus ensures that diseases are detected at an early stage and treatment becomes easier and less costly.[6]

This descriptive research aimed to determine whether some sociodemographic factors affect periodontal health, reveal the factors that affect it, if any, and conduct studies to reduce the effects of these factors.

The present study also aimed to determine the periodontal disease awareness of patients presenting to Bursa Oral and Dental Health Training and Research Center and evaluate their attitudes toward their own oral health and oral health habits.

Materials and Methods

Three hundred patients, consisting of 124 (41.3%) males and 176 (58.7%) females, aged 18 years and above, who presented to Bursa Oral and Dental Health Training and Research Hospital between 01/07/2022 and 31/08/2022 were included in the study. A survey was used as a data collection tool in the study. The study protocol was approved by Bursa Uludağ University Faculty of Medicine Clinical Research Ethics Committee (Decision

numbered 2011-KAEK-26/413, dated May 2022, and numbered 2022-10/46). With the written permission obtained for the study from Bursa Uludağ University Faculty of Medicine Dean's Office, consent was obtained from individuals who agreed to participate in the study on a voluntary basis.

The survey form, including a total of 18 multiple-choice questions, consists of five sections. While 3 questions (age, gender, and educational status of the participants) were asked to determine the participants' sociodemographic characteristics in the first section, 4 questions about the attention the participants paid to their oral and dental health (frequency of tooth brushing, frequency of going to the dentist, last dentist visit, smoking status) were asked in the second section. Eight questions about the participants' awareness of periodontal diseases they had (reason for complaint, how they detected gingival disease, presence of bleeding during brushing, presence of bad breath, presence of gingival recession, mobility, loss of teeth, gingival health) were asked in the third section, 2 questions about the participant's post-treatment condition (implementation of post-treatment routines, whether there was improvement) were asked in the fourth section, and whether the participant had a systemic disease or not was asked in the fifth section.

IBM SPSS Statistics program was used to evaluate the obtained data. The number and percentage distributions were shown in descriptive statistics. The chi-square test was performed to compare categorical variables. The level of statistical significance was determined as $p < 0.05$.

The analyses investigated whether there was an association between gender, age, frequency of going to the dentist, educational status, frequency of tooth brushing, systemic diseases and smoking, and oral and dental health and periodontal awareness.

Results

Three hundred participants filled out these surveys. Of the participants, 41.3% were male (n=124), and 58.7% were female (n=176). While 26.3% (n=79) of the participants were aged between 18-29 years, 41% (n=123) were aged between 30-44 years, and 32.7% (n=98) were aged between 45-64 years.

It was found that while the vast majority of the participants (51.89%) aged 18-29 years brushed their teeth at least twice a day, most participants aged between 30-44 (36.58%) brushed their teeth once a day, and most participants aged between 45-64 (28.57%) brushed their teeth once every 2 days (Table 1).

Of the participants, 27.7% (n=83) gave the answer “gingival complaint” to the question "With what complaint did you present to this hospital?", while 72.3% (n=217) gave the answer “other complaints.” The vast majority of the patients with gingival complaints presented with gingival bleeding.

Most patients (53.3%) gave the answer "bleeding while brushing" to the question "If you have gingival disease, how did you first notice it?". Figure 3 presents those who gave other answers.

When the participants were asked the question, "Do your gums bleed while brushing? If so, is this normal for you?”, while 57 individuals (19%) answered, "Yes, they bleed. I think it's very normal.", 132 individuals (44%) answered, "Yes, they bleed. I feel uncomfortable with it. I think this is a problem", 80 individuals (26.7%) answered, "No, they do not bleed", and 31 individuals (10.3%) answered, "I have never noticed."

Table 3 presents answers to the questions "Do you have bad breath?", “Do you think you have gingival recession?”, "Do you have mobility (loosening) in your teeth?”, and "Have you ever lost a tooth due to spontaneous loosening without any trauma?”.

Whereas 74.68% of the participants aged between 18-29 thought that they had no gingival recession, 58.53% of the participants aged between 30-44 thought that they had no gingival recession, and 53.06%of the participants aged between 45-64 thought that they had no gingival recession (Table 4).

The participants were asked the question, "How do you evaluate your gingival health in general?". Of them, 12.3% (n=37) gave the answer “very good,” 53.7% (n=161) gave the answer “good,” and 34% (n=102) gave the answer “poor.”

To the question "Do you regularly implement the routines (mouthwash, etc.) prescribed by your doctor after your treatment?", 196 individuals (65.3%) answered as "Yes," while 104 individuals (34.7%) answered as "No, I sometimes fail."

The majority (82.7%) answered "Yes, I was satisfied with my treatment process" to the question "Did your complaint improve after the treatment?”.

While 32% of the participants (n=96) answered the question "What is your educational status?" as primary school, 38.3% (n=115) answered it as high school, 25.7% (n=77) answered it as university, and 4% (n=12) answered it as master's degree. It was observed that the participants with primary school education had worse oral and dental health and lower periodontal awareness compared to the participants with higher education levels. Sufficient data could not be obtained to find a significant difference in the participants with a master's or doctorate level of education. Among the study participants, the education level of male individuals was higher than that of female individuals.

Whereas 88 individuals (29.3%) answered the question “How often do you brush your teeth?” as at least twice a day, 103 individuals (34.3%) answered it as once a day, 69 individuals (23%) answered it as once every two days, 28 individuals (9.3%) answered it as once a week, 7 individuals (2.3%) answered it as once a month, and 5 individuals (1.7%) answered it as never. Female participants brushed their teeth more frequently, and the frequency of tooth brushing increased as the age decreased. Furthermore, there was a significant correlation between education level and the frequency of

tooth brushing. The frequency of tooth brushing was found to be higher in female participants (Table 5).

Figures 1 and 2 present answers to the questions “How often do you go to the dentist?” and “When was the last time you had a dental examination?”. The vast majority of the participants (73%) gave the answer "when I have a complaint." These participants did not routinely go to the dentist unless necessary. It was determined that female participants had more frequent dental examinations, and their last dentist visit was more recent (Table 5).

Table 2 contains answers to the questions "Do you have bad breath?", “Do you think you have gingival recession?”, "Do you have mobility (loosening) in your teeth?”, and "Have you ever lost a tooth due to spontaneous loosening without any trauma?”. It was observed that male participants lost their teeth due to trauma more frequently, had more mobility in their teeth, and had a higher incidence of bad breath compared to females. It was revealed that gingival recession was more common in female participants (Table 5).

One hundred twenty-three individuals (41%) and 177 individuals (59%) gave answers "yes" and "no", respectively, to the question "Do you have a systemic disease?”. It was found that male participants had a higher rate of systemic diseases than females (Table 5).

Considering the participants' answers to the question "Do you smoke?", it was seen that while 41.3% were non-smokers, 19% were mild (1-5 cigarettes per day), 20.3% were moderate (5-10 cigarettes per day), and 19.3% were severe (more than 10 cigarettes per day) smokers. It was determined that male participants smoked more than females (Table 5).

Discussion and Conclusion

The main aim of this study was to determine patients' awareness of periodontal diseases, and the other was to identify about which symptoms and signs that may indicate periodontal disease patients complained most, and to investigate the relationship between patients' periodontal awareness and age, gender, educational status, and periodontal status. A total of 300 individuals (176 females, 124 males) were evaluated within the scope of this study. As a result of the study based on the prepared survey questions, it was determined that factors such as sociodemographic factors, frequency of examination, frequency of tooth brushing, systemic diseases, and smoking status affected periodontal awareness and oral and dental health.

It was observed that the hygiene levels of male and female participants differed, and periodontal awareness was higher among female participants. It was found that the participants who visited a dentist regularly had a healthier mouth and higher periodontal awareness.

There was a significant correlation between the participants' education level and their level of self-care and awareness. It was found that the younger population had better oral care. The majority of the patients who presented to the hospital with gingival complaints had gingival bleeding. Patients with poor oral care were observed to have higher rates of mobility, gingival bleeding, and bad breath. It was revealed that systemic diseases also adversely affected the same factors, and periodontal health was inversely proportional to the severity of smoking. Furthermore, it was observed that smoking disturbed the post-treatment recovery.

It was found that especially the sociodemographic factors of the patients who presented to Bursa Oral and Dental Health Training and Research Hospital affected their periodontal awareness. The participants with higher brushing and examination frequency had higher awareness and healthier gums. It was seen that the majority of the patients presenting to the hospital did not have sufficient dental care knowledge. Therefore, periodontal awareness was lower than expected. Advanced periodontal treatment may lead to high expenses for both the patient and society. Insufficient awareness of periodontal diseases and its consequences have been shown to be the most common reasons for periodontal treatment failure in society.[7] The lack of awareness may lead to severe attachment loss in patients until advanced periodontal treatment is required, which reinforces the fact that the loss of teeth is inevitable in patients of advanced ages.[8-10] The early recognition of periodontal disease and the initiation of treatment allow individuals to use their own teeth for a longer time and prevent tooth loss caused by periodontitis.

Among the patients who presented to Bursa Oral and Dental Health Training and Research Hospital, gingival recession was more common among patients in the 30-44 age group.

Of the patients who presented to Bursa Oral and Dental Health Training and Research Hospital, 82.66% indicated that they saw improvement in their periodontal diseases as a result of the treatment recommended by their physicians.

Of the patients who presented to Bursa Oral and Dental Health Training and Research Hospital, 53.33% became aware of their existing periodontal disease due to gingival bleeding.

In their study, Genco *et al.* found that age was an important risk factor for periodontal disease. This may be associated with the increasing severity of periodontal disease with age since it reflects the characteristics of periodontal disease, the duration of exposure of periodontal tissues to bacterial plaque, and the cumulative oral history of the patient.[11]

The relationship between the lack of regular dental checkups and the development of periodontal disease is important. Kocher *et al.* reported that increased education level and regular dental visits protected against periodontal disease. They stated that regular dental checkups affected individuals' ability to recognize their dental condition.[12] Our study also obtained similar results.

Gilbert and Litaker indicated that the self-report of gingival disease increased with increasing severity of periodontitis.[13] Likewise, a study by Başer *et al.*[6] found

that patients' awareness rates increased as the severity of periodontitis increased.

It seems that this view is not very common in underdeveloped societies where there is awareness of periodontal disease symptoms. Poor periodontal health and disease awareness in society also adversely affects daily oral hygiene practices. Studies on old age have revealed that individuals' inadequate knowledge and attitudes regarding oral and dental health prevent effective preventive studies.[14]

There was a significant correlation between the participants' education level and their level of self-care and awareness. It was observed that the younger population had better oral care. The majority of the patients who presented to the hospital with gingival complaints had gingival bleeding. The factors such as educational status, age, and gender that might affect awareness were also compared in this study. Contrary to studies that did not find a correlation between awareness and gender[15], it was determined that females had higher awareness than males in this study. Schneider *et al.*[16] demonstrated that women had more dental checkups compared to men and that the use of dental floss and toothpicks was higher among women. Similar to these results, the researchers found that women had better oral care and benefited more from preventive oral care services in Finland, Greece, and Japan.[17-19] The results of these studies support our results. Considering age, while Luo *et al.*[20] found that periodontal disease awareness rates decreased with age, our study showed that age did not affect awareness. These differences may be due to differences in the sizes and types of the populations studied. According to the results of both our study and the study by Luo *et al.*, it can be said that academic education does not change patients' awareness of periodontal disease and that low awareness of the disease is a problem for the whole society, regardless of educational status. The researchers stated that patients' decisions to consult a physician for any problem and, therefore, their awareness of their illness were closely related to their level of knowledge about the disease.[21] Within the limits of the present study, the following conclusions were reached: 1. More than half of the study population was unaware of periodontal disease. 2. Awareness of periodontal disease was higher in females compared to males. Individuals who presented to ODHCs (oral and dental health centers) for various reasons participated in this study. Since the awareness level of periodontal disease in this study may not fully reflect the awareness level of the general population, this should be considered when interpreting the results of the current study. We believe that research that will be conducted in larger societies and will also include patients' knowledge levels about periodontal disease may guide studies to increase awareness of periodontal disease. It was revealed that systemic diseases also adversely affected the same factors.

It was found that especially the sociodemographic factors of the patients who presented to Bursa Oral and Dental Health Training and Research Hospital affected their periodontal awareness. The participants with higher brushing and examination frequency had higher awareness and healthier gums. It was observed that the majority of the patients presenting to the hospital did not have sufficient dental care knowledge. Hence periodontal awareness was lower than expected.

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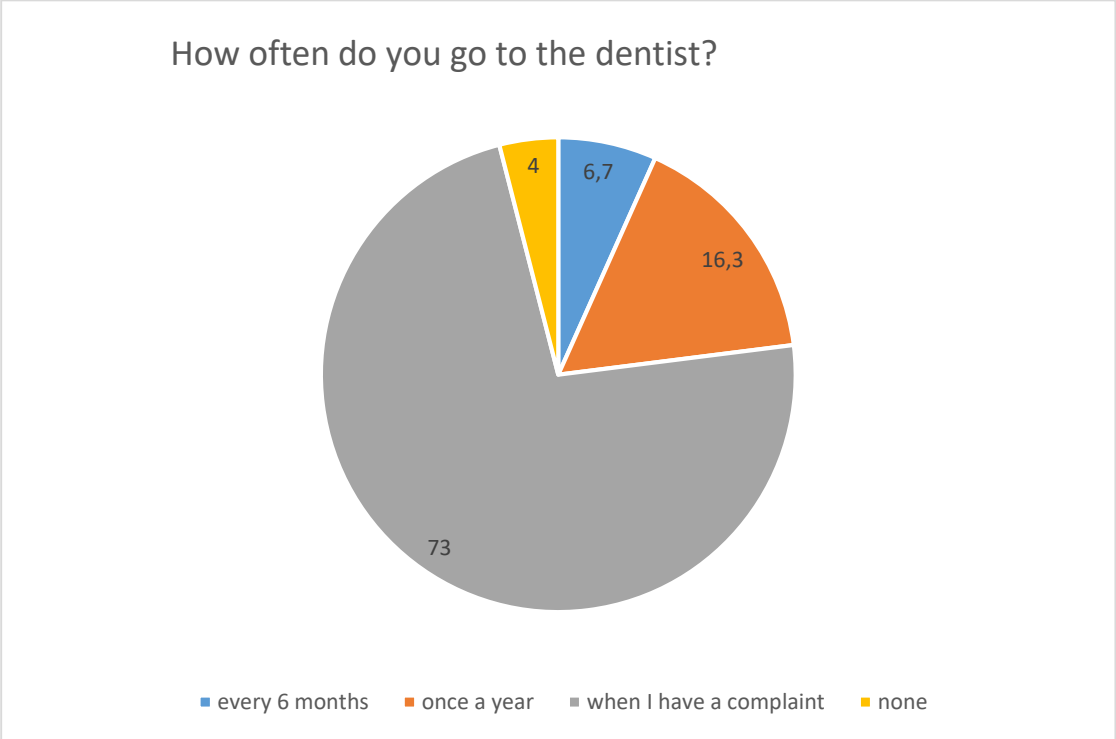

Figure 1. Patients' Frequency of Going to the Dentist

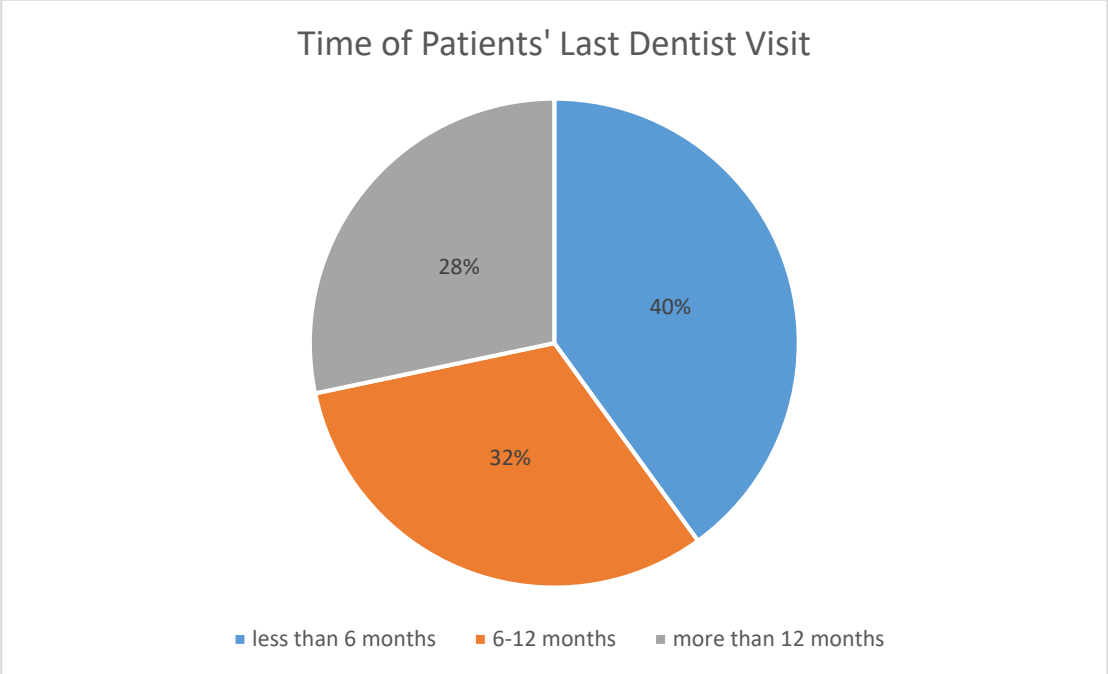

Figure 2. Time of Patients' Last Dentist Visit

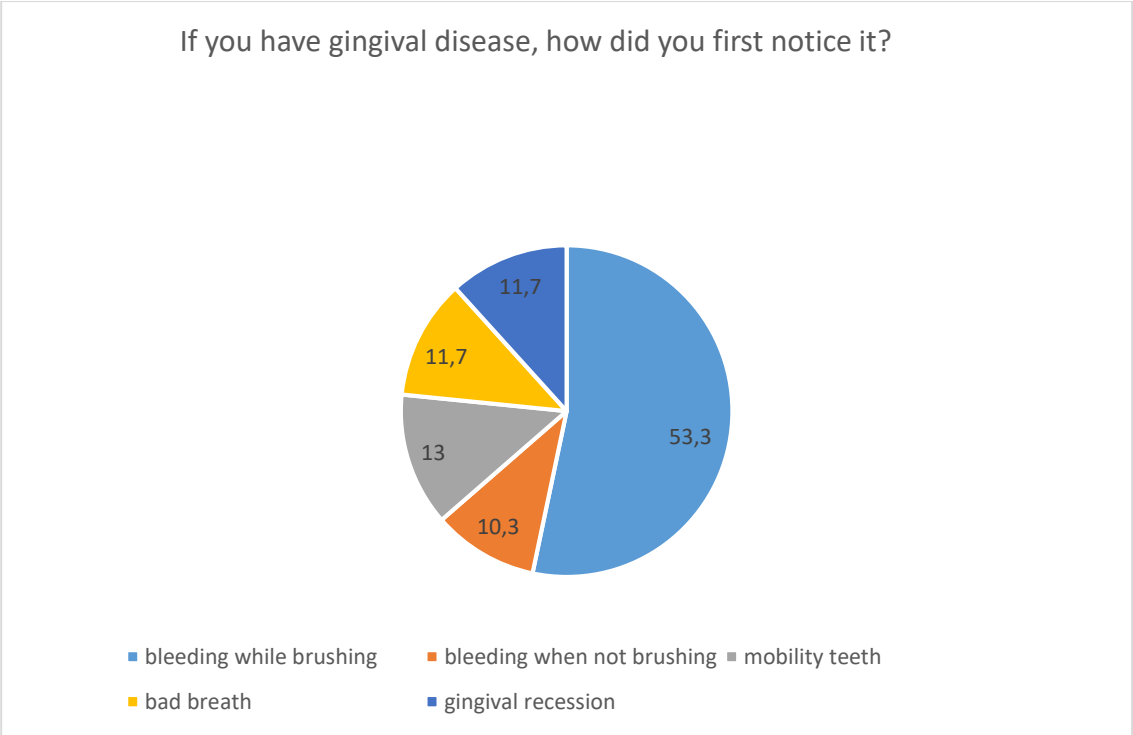

Figure 3. Patients' Reason for Going to the Dentist

Table 1: Comparison of patients' oral hygiene habits by their age

		At least twice a day	Once a day	Every other day	Once a week
How old are you?	18-29	41	31	5	2
	30-44	30	45	36	10
	45-64	17	27	28	16

Table 2: Patients' complaints during dentist visits

Do you have mobility (loosening) in your teeth?	Yes	86	28.7
	No	214	71.3
Have you ever lost a tooth due to spontaneous loosening without any trauma?	Yes	51	17.0
	No	249	83.0

Table 3. Presence of bad breath and gingival recession in patients

		N	%
Do you have bad breath?	Yes	114	38.0
	No	186	62.0
Do you think you have gingival recession?	Yes	117	39.0
	No	183	61.0

Table 4. Patients complain of gingival recession depending on their age

		Yes	No
Age	18-29	20	59
	30-44	51	72
	45-64	46	52

Table 5: Patients' answers to the self-report survey form

		Female	Male	P
What is your educational status?	Primary school	62	34	.001
	High school	64	51	
	Bachelor's degree	44	33	
	Master's degree	6	6	
What is your frequency of tooth brushing?	At least twice a day	62	26	.004
	Once a day	57	46	
	Every other day	44	25	
	Once a week	6	22	
	Once a month	4	3	
	Never	3	2	
How often do you go to the dentist?	Every six months	14	6	.097
	Once a year	32	17	
	When I have a complaint	124	95	
	Never	6	6	
When was the last time you had a dentist examination?	Less than 6 months	80	40	.054
	6-12 months	50	45	
	More than 12 months	46	39	
Do you have bad breath?	Yes	54	60	.001
	No	122	64	
Do you have gingival recession?	Yes	77	40	