

## Assessment of Oral Cancer Awareness Among Medical Professionals Working in Bergama District of Izmir Province, Turkey

### Abstract

**Introduction:** The aim of this study is to assess awareness of oral cancer in a group of medical professionals working in Bergama district of Izmir province, Turkey. **Materials and Methods:** The study group consisted of 90 medical doctors and a questionnaire was submitted to the study group consisting of 25 questions related to risk factors and screening methods, attitude toward oral cancer, control of oral cancer care, and knowledge on oral cancer. **Results:** All participants regard the use of cigarettes and viral diseases as a risk factor and 95.6% of them consider the use of alcohol as a risk factor. 15.6% of all participants reported erythroplakia and Morbus Bowen as two lesions with the greatest cancerous tendency, while 47.8% of participants reported leukoplakia and erythroplakia. Among age groups, rates of assessment of alcohol usage as a risk factor ( $P = 0.002$ ), rates of assessment of high age as a risk factor ( $P = 0.007$ ), rates of distribution of the most prevalent oral cancer regions ( $P = 0.001$ ), rates of distribution of the two lesion groups with the greatest sensitivity to cancer ( $P = 0.0021$ ), and rates of assessment of prior alcohol use of the patient when taking medical history ( $P = 0.008$ ) were statistically significant. **Conclusion:** The ability of medical professionals to recognize and diagnose oral cancer as early as possible concerning diagnostic and treatment progress is a very crucial point. This study suggests that medical doctors show a sensitive attitude toward oral cancers. However, it also reveals that there is a need for improvement of the undergraduate curriculum in oral cancer in medical schools and for the provision of postgraduate and continuing education on this topic.

**Keywords:** Awareness, medical professionals, oral cancer

### Introduction

Oral cancers are the ninth deadliest cancer site in the world, according to the World Cancer Report 2014, and they account for about 2%–10% of all new cases of cancers in the body worldwide, with squamous cell carcinoma responsible for about 85 percent–90 percent of these cancers.<sup>[1-7]</sup> The leading risk factors for the development of oral cancer are the use of tobacco and alcohol.<sup>[5-8]</sup> Individuals that use both tobacco and alcohol are at a higher risk of developing malignancy.<sup>[8]</sup> Immunodeficiency, exposure to the sun, socioeconomic status, infection with human papilloma virus, and low consumption of fruits and vegetables are some of the other risk factors for oral cancers.<sup>[9,10]</sup>

By allowing the greatest chance of cure, early detection of oral cancers makes

them more responsive to treatment. While denial of early symptoms is potentially the most relevant, the most important factor in delaying referral and treatment of oral cancer has been stated in the past to be a lack of public knowledge.<sup>[11-13]</sup> As reported in previous reports, delayed referrals to the right specialist are due to the insufficient awareness of general medical practitioners/physicians about the risk factors for oral cancer.<sup>[14]</sup> In literature, it is reported that the individuals at greatest risk for oral cancer rarely visit a dentist but do consult general medical practitioner which emphasizes the crucial role of the professionals.<sup>[3]</sup>

A study was conducted using a questionnaire to assess the knowledge of risk factors and the ability to correctly identify the oral lesions most commonly associated with oral cancer in Jordan. A total of 112 individuals completed the questionnaire and the results revealed that

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there was a significant difference in the level of knowledge about oral cancer between the medical and dental graduates, with the dental graduates showing a much better command of the relevant information.<sup>[15]</sup>

Tanriover *et al.*<sup>[16]</sup> evaluated attitudes against oral cancer among 200 family doctors who were answered a questionnaire consisting of 50 questions in a district of Istanbul, Turkey. One-third of the physicians (29.9%,  $n = 49$ ) stated that they did not inquire about the amount of tobacco use in their study. In terms of alcohol use, 45.7% ( $n = 75$ ) and 56.7% ( $n = 93$ ) of the participants did not ask about past alcohol consumption or the amount of alcohol consumed, respectively. When we look at the literature, there were limited studies on this issue; therefore, the aim of our study is to assess awareness of oral cancer in a group of medical professionals working in Bergama district of Izmir, Turkey.

## Materials and Methods

The study protocol of this study was approved by Marmara University School of Medicine Non-Interventional Clinical Research Ethics Committee on 24/07/2020 with protocol number 09.2020.734. The research group consists of 90 medical doctors from all branches serving in hospitals, family health centers, and polyclinics in Izmir province's Bergama district. The research group was subjected to a questionnaire consisting of 25 questions relating to risk factors and diagnostic methods, attitude toward oral cancer, management of oral cancer care, and oral cancer knowledge.

### Statistical analysis

IBM SPSS Statistics 22.0 (IBM SPSS, Turkey) program was used for statistical analysis. While evaluating the study data, the suitability of the parameters to the normal distribution was evaluated with the Shapiro–Wilk test. Besides descriptive statistical methods (mean, standard deviation, and frequency), one-way ANOVA test was used for comparing normally distributed parameters between groups and Student *t*-test was used for comparing normally distributed parameters between two groups. In comparison of qualitative data, Chi-square test, Fisher's exact test, Fisher–Freeman–Halton test, and continuity (Yates) correction were used, and statistical significance was assessed at  $P < 0.05$  level.

## Results

The study was conducted with a total of 90 physicians, 64 (71.1%) males and 26 (28.9%) females, whose ages ranged between 27 and 72. The average age of physicians is  $47.28 \pm 9.61$ . Of the 90 respondents, 28.9% are family physicians, 14.4% are general practitioners, and 56.7% are experts. The distribution of specialty branches is shown in Table 1.

Tobacco use and viral infections are considered a risk factor by all physicians and 95.6% of them regard alcohol use as a risk factor, while 4.4% do not. Of all participants, 91.1% consider

the consumption of low amounts of vegetables and fruits, while 93.3% consider chewing tobacco such as Maras powder and 91.1% consider high age as a risk factor [Table 2].

Among all participants, 3.4% of the physicians admitted that oral cancer is the most common in all regions and 31.5% of the physicians stated that oral cancer is mostly seen on the floor of the mouth and sublingual region, 33.7% on the buccal/lip/gingival mucosa and tongue, 7.9% on hard and the soft palate and the floor of the mouth, 21.3% on the dorsum of the tongue and buccal/lip/gingival mucosa, and 2.2% on sublingual region and hard and soft palate [Table 2].

Moreover, 90% of the physicians considered primary oral cancer lesions as a risk factor and 6.7% of them do not have an idea. Regarding clinical features of primary oral cancer lesion, 18% of the physicians described the lesion

**Table 1: Distribution of age, gender, and specialty**

	<i>n</i> (%)
Age, minimum-maximum (mean±SD)	27-72 (47.28±9.61)
Gender	
Male	64 (71.1)
Woman	26 (28.9)
Age group (years)	
27-30	24 (26.7)
40-59-year old	55 (61.1)
≥60	11 (12.2)
Specialty	
Family doctor	26 (28.9)
Algology	1 (1.1)
Neurosurgery	2 (2.2)
Biochemistry	2 (2.2)
Pediatry	4 (4.4)
Internal medicine	3 (3.3)
Skin and venereal diseases	2 (2.2)
Physical therapy and rehabilitation	2 (2.2)
Gastroenterology	1 (1.1)
General surgery	2 (2.2)
Chest diseases	3 (3.3)
Ophthalmology	2 (2.2)
Public health	1 (1.1)
Infectious diseases	2 (2.2)
Obstetrics and gynaecology	5 (5.6)
Cardiology	4 (4.4)
ENT	2 (2.2)
Neurology	1 (1.1)
Orthopedics and traumatology	4 (4.4)
General practitioner	13 (14.4)
Radiology	3 (3.3)
Psychiatry	2 (2.2)
Urology	3 (3.3)
Specialty	
Family doctor	26 (28.9)
General practioner	13 (14.4)
Specialist	51 (56.7)

ENT: Ear, nose and throat, SD: Standard deviation

as small, painful, white area and 48.3% of them as small, painless, white area. Among all participants, 15.6% stated erythroplakia and Morbus Bowen as two lesions with the highest cancerous tendency, while 47.8% of the participants affirmed as leukoplakia and erythroplakia [Table 2].

While 68.9% of the physicians definitely agreed with the statement “I inform my patients with suspicious oral lesions,” 14.4% of the same physicians definitely agreed with the item “I have enough training to perform oral cancer examination” as seen in Figure 1.

There is no statistically significant difference between men and women in terms of considering alcohol use as a risk factor ( $P = 0.673$ ) [Table 3]. Participation rate of men (76.6%) for the statement “I inform my patients with suspected oral lesions” was found to be statistically significantly higher than women (50%) ( $P = 0.029$ ) [Table 4].

There was a statistically significant difference in the rate of assessment of alcohol use as a risk factor across age groups ( $P = 0.002$ ). As a result of the paired comparisons made to detect the difference, the rate of perception of alcohol consumption as a concern (72.7%) was found to be statistically slightly lower for the 60-year-old and older group than for the 40–59-year-old group (100%) ( $P = 0.004$ ). There was no statistically significant difference among other age groups in terms of the perception of alcohol use as a risk [Table 5].

There was a statistically significant difference between the age groups in terms of the distribution rates of the most common oral cancer regions ( $P = 0.001$ ). As a result of the paired comparisons made to detect the difference, the most common oral cancer incidence in buccal/lip/gingival mucosa and dorsum of the tongue in the 60-year-old group (18.2%) was found to be statistically significantly lower than the group aged 40–59 (38.2%) ( $P = 0.005$ ). In terms of distribution patterns of the most common oral cancer sites, there was no statistically important difference between the other age groups [Table 5].

Moreover, the rate of blue nevus and leukoplakia lesions with the highest cancer tendency (9.1%) was found to be

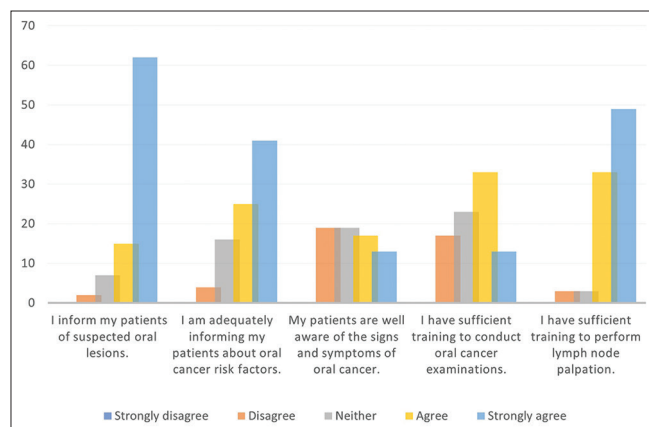


Figure 1: Distribution of attitudes toward oral cancer

Table 2: Distribution of parameters of risk factors and diagnostic procedures

Risk factors and diagnosis procedures	n (%)
Tobacco use as a risk factor	
No	-
Yes	90 (100)
Alcohol use as a risk factor	
No	4 (4.4)
Yes	86 (95.6)
Low consumption of vegetables and fruits as a risk factor	
No	7 (7.8)
Yes	82 (91.1)
I do not know	1 (1.1)
Chewing tobacco such as Maras powder as a risk factor	
Yes	84 (93.3)
I do not know	6 (6.7)
Exposure to ultraviolet rays as a risk factor	
No	2 (2.2)
Yes	86 (95.6)
I do not know	2 (2.2)
Viral infections as risk factors	
No	-
Yes	90 (100)
high age as a risk factor	
No	6 (6.7)
Yes	82 (91.1)
I do not know	2 (2.2)
The most common oral cancer sites	
Equally often in all regions	3 (3.4)
Floor of the mouth and sublingual region	28 (31.5)
Buccal/lip/gingival mucosa and dorsum of the tongue	30 (33.7)
Floor of the mouth with hard and soft palate	7 (7.9)
Dorsum of the tongue and buccal/lip/gingival mucosa	19 (21.3)
Sublingual region and hard and soft palate	2 (2.2)
Age range most frequently diagnosed with oral cancer (years old)	
20-40	5 (5.6)
40-60	56 (62.2)
60-80	29 (32.2)
Evaluation of primary oral cancer lesion as a risk factor	
No	3 (3.3)
Yes	81 (90)
I do not know	6 (6.7)
Clinical features of primary oral lesion	
Small, painful, white area	16 (18)
Small, painless, white area	43 (48.3)
Small, painful, red area	15 (16.9)
Small, painless, red area	15 (16.9)
Two lesions with the highest cancerous tendency	
Erythroplakia and Morbus Bowen	14 (15.6)
Leukoplakia and erythroplakia	43 (47.8)
Blue nevus and leukoplakia	22 (24.4)
Morbus Bowen and blue nevus	11 (12.2)
The most common form of oral cancer	
Squamous cell carcinoma	67 (74.4)
Large-cell carcinoma	3 (3.3)
Small-cell carcinoma	2 (2.2)
Adenosquamous carcinoma	18 (20)

**Table 3: Assessment of risk factors and diagnostic procedures by gender**

Risk factors and diagnosis procedures	Gender		P
	Man, n (%)	Woman, n (%)	
Alcohol use as a risk factor			
No	3 (4.7)	1 (3.8)	0.667 <sup>a</sup>
Yes	61 (95.3)	25 (96.2)	
Low consumption of vegetables and fruits as a risk factor			
No	5 (7.8)	2 (7.7)	1.000 <sup>b</sup>
Yes	58 (90.6)	24 (92.3)	
I do not know	1 (1.6)	0 (0)	
Chewing tobacco such as Maras powder as a risk factor			
Yes	60 (93.8)	24 (92.3)	0.561 <sup>a</sup>
I do not know	4 (6.3)	2 (7.7)	
Exposure to ultraviolet rays as a risk factor			
No	2 (3.1)	0 (0)	0.751 <sup>b</sup>
Yes	61 (95.3)	25 (96.2)	
I do not know	1 (1.6)	1 (3.8)	
Viral infections as risk factors high age as a risk factor			
No	5 (7.8)	1 (3.8)	0.133 <sup>b</sup>
Yes	59 (92.2)	23 (88.5)	
I do not know	0 (0)	2 (7.7)	
The most common oral cancer sites			
Equally often in all regions	3 (4.8)	0 (0)	0.239 <sup>b</sup>
Floor of the mouth and sublingual region	18 (28.6)	10 (38.5)	
Buccal/lip/gingival mucosa and dorsum of the tongue	22 (34.9)	8 (30.8)	
Floor of the mouth with hard and soft palate	3 (4.8)	4 (15.4)	
Dorsum of the tongue and buccal/lip/gingival mucosa	16 (25.4)	3 (11.5)	
Sublingual region and hard and soft palate	1 (1.6)	1 (3.8)	
Age range most frequently diagnosed with oral cancer (years old)			
20-40	3 (4.7)	2 (7.7)	0.856 <sup>b</sup>
40-60	40 (62.5)	16 (61.5)	
60-80	21 (32.8)	8 (30.8)	
Evaluation of primary oral cancer lesion as a risk factor			
No	1 (1.6)	2 (7.7)	0.280 <sup>b</sup>
Yes	59 (92.2)	22 (84.6)	
I do not know	4 (6.3)	2 (7.7)	
Clinical features of primary oral lesion			
Small, painful, white area	10 (15.9)	6 (23.1)	0.346 <sup>b</sup>
Small, painless, white area	31 (49.2)	12 (46.2)	
Small, painful, red area	9 (14.3)	6 (23.1)	
Small, painless, red area	13 (20.6)	2 (7.7)	
Two lesions with the highest cancerous tendency			
Erythroplakia and Morbus Bowen	8 (12.5)	6 (23.1)	0.071 <sup>b</sup>
Leukoplakia and erythroplakia	35 (54.7)	8 (30.8)	
Blue nevus and leukoplakia	12 (18.8)	10 (38.5)	
Morbus Bowen and blue nevus	9 (14.1)	2 (7.7)	
The most common form of oral cancer			
Squamous cell carcinoma	47 (73.4)	20 (76.9)	0.743 <sup>b</sup>
Large-cell carcinoma	2 (3.1)	1 (3.8)	
Small-cell carcinoma	1 (1.6)	1 (3.8)	
Adenosquamous carcinoma	14 (21.9)	4 (15.4)	

<sup>a</sup>Fisher's exact test, <sup>b</sup>Fisher-Freeman-Halton test

statistically significantly lower than the group between the ages of 27–30 (45.8%) ( $P = 0.023$ ) in terms of distribution rates of the two lesion groups with the highest cancer susceptibility.

There was no statistically significant difference between the other age groups in terms of distribution rates of the two lesion groups with the highest cancer susceptibility [Table 5].

**Table 4: Distribution of attitudes toward oral cancer by gender**

Attitude toward oral cancer	Gender		P
	Man, n (%)	Woman, n (%)	
I inform my patients of suspected oral lesions			
Strongly disagree	2 (3.1)	2 (7.7)	0.029 <sup>a,*</sup>
Disagree	0	2 (7.7)	
Neither	5 (7.8)	2 (7.7)	
Agree	8 (12.5)	7 (26.9)	
Strongly agree	49 (76.6)	13 (50)	
I am adequately informing my patients about oral cancer risk factors			
Strongly disagree	3 (4.7)	1 (3.8)	0.327 <sup>a</sup>
Disagree	1 (1.6)	3 (11.5)	
Neither	12 (18.8)	4 (15.4)	
Agree	17 (26.6)	8 (30.8)	
Strongly agree	31 (48.4)	10 (38.5)	
My patients are well aware of the signs and symptoms of oral cancer			
Strongly disagree	18 (28.1)	4 (15.4)	0.117 <sup>b</sup>
Disagree	11 (17.2)	8 (30.8)	
Neither	16 (25)	3 (11.5)	
Agree	9 (14.1)	8 (30.8)	
Strongly agree	10 (15.6)	3 (11.5)	
I have sufficient training to conduct oral cancer examinations			
Strongly disagree	2 (3.1)	2 (7.7)	0.901 <sup>a</sup>
Disagree	12 (18.8)	5 (19.2)	
Neither	16 (25)	7 (26.9)	
Agree	24 (37.5)	9 (34.6)	
Strongly agree	10 (15.6)	3 (11.5)	
I have sufficient training to perform lymph node palpation			
Strongly disagree	1 (1.6)	1 (3.8)	0.393 <sup>a</sup>
Disagree	2 (3.1)	1 (3.8)	
Neither	1 (1.6)	2 (7.7)	
Agree	23 (35.9)	10 (38.5)	
Strongly agree	37 (57.8)	12 (46.2)	

<sup>a</sup>Fisher-Freeman-Halton test, <sup>b</sup>Chi-square test \* $P < 0.05$

In terms of the rate of determining prior alcohol consumption of the patient when taking the medical history, there was a statistically significant difference between the age ranges ( $P = 0.008$ ). As a result of the paired comparisons made to detect the difference, the rate of evaluating past alcohol use of the patients aged 60 and over (72.7%) was found to be statistically significantly lower than the group aged 40–59-year old (98.2%) ( $P = 0.013$ ). There was no statistically significant difference between the other age groups in terms of the evaluation rates of the patient's past alcohol use while taking the medical history [Figure 2].

There was no statistically significant difference in the distribution rates of the most common oral cancer regions, age ranges frequently diagnosed with oral cancer, evaluation of primary oral cancer lesion as a risk factor and clinical characteristics of primary oral lesion among the specialty groups ( $P = 0.076$ ; ( $P = 0.271$ ); ( $P = 0.707$ ) [Table 6].

There was a statistically significant difference between the specialty groups in terms of the rate of evaluating high

age as a risk factor ( $P = 0.036$ ). As a result of the paired comparisons made to detect the difference, the rate of family physicians considering high age as a risk (100%) was found to be statistically significantly higher than the general practitioners (69.2%) ( $P = 0.009$ ). There was no statistically significant difference between the other specialty groups in terms of the perception of high age as a risk [Table 6].

Regarding the distribution rates of the two lesion groups with the greatest cancer susceptibility, there was a statistically significant difference between the specialization groups ( $P = 0.016$ ). As a result of the paired comparisons made to detect the difference, the rate of leukoplakia and erythroplakia lesions with the highest tendency to cancer in the 60-year-old group (49%) was found to be statistically significantly higher than the group between the ages of 27–30 (30.8%) ( $P = 0.028$ ) [Table 6].



**Table 5: Evaluation of risk factors and diagnostic procedures by age groups**

	Age group			P
	27-30, n (%)	40-59, n (%)	≥60, n (%)	
Alcohol use as a risk factor				
No	1 (4.2)	0	3 (27.3)	0.002 <sup>a,*</sup>
Yes	23 (95.8)	55 (100)	8 (72.7)	
Low consumption of vegetables and fruits as a risk factor				
No	3 (12.5)	2 (3.6)	2 (18.2)	0.370 <sup>b</sup>
Yes	21 (87.5)	52 (94.5)	9 (81.8)	
I do not know	0	1 (1.8)	0	
Chewing tobacco such as Maras powder as a risk factor				
Yes	23 (95.8)	52 (94.5)	9 (81.8)	0.295 <sup>a</sup>
I do not know	1 (4.2)	3 (5.5)	2 (18.2)	
Exposure to ultraviolet rays as a risk factor				
No	1 (4.2)	0	1 (9.1)	0.261 <sup>b</sup>
Yes	23 (95.8)	53 (96.4)	10 (90.9)	
I do not know	0	2 (3.6)	0	
Viral infections as risk factors high age as a risk factor				
No	1 (4.2)	2 (3.6)	3 (27.3)	0.007 <sup>b,*</sup>
Yes	21 (87.5)	53 (96.4)	8 (72.7)	
I do not know	2 (8.3)	0	0	
The most common oral cancer sites				
Equally often in all regions	0	0	3 (27.3)	0.001 <sup>b,*</sup>
Floor of the mouth and sublingual region	9 (39.1)	17 (30.9)	2 (18.2)	
Buccal/lip/gingival mucosa and dorsum of the tongue	7 (30.4)	21 (38.2)	2 (18.2)	
Floor of the mouth with hard and soft palate	3 (13)	2 (3.6)	2 (18.2)	
Dorsum of the tongue and buccal/lip/gingival mucosa	4 (17.4)	13 (23.6)	2 (18.2)	
Sublingual region and hard and soft palate	0	2 (3.6)	0	
Age range most frequently diagnosed with oral cancer (years old)				
20-40	3 (12.5)	2 (3.6)	0	0.266 <sup>b</sup>
40-60	12 (50)	35 (63, 6)	9 (81.8)	
60-80	9 (37.5)	18 (32.7)	2 (18.2)	
Evaluation of primary oral cancer lesion as a risk factor				
No	0	2 (3.6)	1 (9.1)	0.297 <sup>b</sup>
Yes	23 (95.8)	50 (90.9)	8 (72.7)	
I do not know	1 (4.2)	3 (5.5)	2 (18.2)	
Clinical features of primary oral lesion				
Small, painful, white area	4 (17.4)	12 (21.8)	0	0.148 <sup>b</sup>
Small, painless, white area	13 (56.5)	27 (49.1)	3 (27.3)	
Small, painful, red area	3 (13)	8 (14.5)	4 (36.4)	
Small, painless, red area	3 (13)	8 (14.5)	4 (36.4)	
Two lesions with the highest cancerous tendency				
Erythroplakia and Morbus Bowen	2 (8.3)	10 (18.2)	2 (18.2)	0.021 <sup>b,*</sup>
Leukoplakia and erythroplakia	10 (41.7)	29 (52.7)	4 (36.4)	
Blue nevus and leukoplakia	11 (45.8)	10 (18.2)	1 (9.1)	
Morbus Bowen and blue nevus	1 (4.2)	6 (10.9)	4 (36.4)	
The most common form of oral cancer				
Squamous cell carcinoma	20 (83.3)	41 (74.5)	6 (54.5)	0.387 <sup>b</sup>
Large-cell carcinoma	1 (4.2)	2 (3.6)	0	
Small-cell carcinoma	0	1 (1.8)	1 (9.1)	
Adenosquamous carcinoma	3 (12.5)	11 (20)	4 (36.4)	

<sup>a</sup>Fisher-Freeman-Halton test, <sup>b</sup>Chi-square test \* $P < 0.05$

## Discussion

It is of great importance for dentists and medical practitioners to successfully identify oral cancer and to have sufficient

knowledge and equipment for initial diagnosis in terms of prognosis and effective treatment. Primary care physicians should be aware of the possibility of oral cancer and to

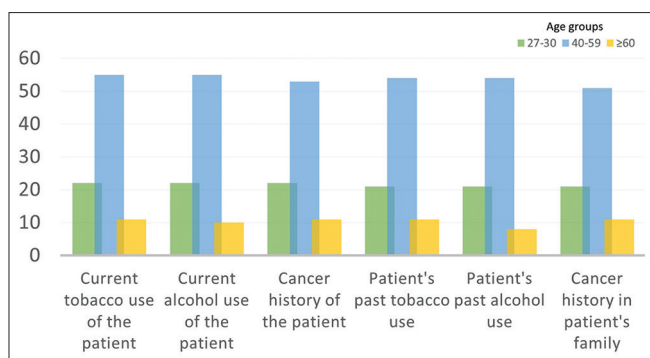
**Table 6: Evaluation of risk factors and diagnostic procedures by specialty groups**

Risk factors and diagnosis procedures	Specialization group			P
	Family doctor, n (%)	General practitioner, n (%)	Expert, n (%)	
Alcohol use as a risk factor				
No	1 (3.8)	0	3 (5.9)	1.000 <sup>a</sup>
Yes	25 (96.2)	13 (100)	48 (94.1)	
Low consumption of vegetables and fruits as a risk factor				
No	1 (3.8)	2 (15.4)	4 (7.8)	0.100 <sup>b</sup>
Yes	25 (96.2)	10 (76.9)	47 (92.2)	
I do not know	0	1 (7.7)	0	
Chewing tobacco such as Maras powder as a risk factor				
Yes	24 (92.3)	12 (92.3)	48 (94.1)	1.000 <sup>a</sup>
I do not know	2 (7.7)	1 (7.7)	3 (5.9)	
Exposure to ultraviolet rays as a risk factor				
No	0	0	2 (3.9)	0.412 <sup>b</sup>
Yes	26 (100)	12 (92.3)	48 (94.1)	
I do not know	0	1 (7.7)	1 (2)	
Viral infections as risk factors high age as a risk factor				
No	0	3 (23.1)	3 (5.9)	0.036 <sup>b,*</sup>
Yes	26 (100)	9 (69.2)	47 (92.2)	
I do not know	0	1 (7.7)	1 (2)	
The most common oral cancer sites				
Equally often in all regions	2 (7.7)	1 (7.7)	0 (0)	0.076 <sup>b</sup>
Floor of the mouth and sublingual region	7 (26.9)	3 (23.1)	18 (36)	
Buccal/lip/gingival mucosa and dorsum of the tongue	9 (34.6)	7 (53.8)	14 (28)	
Floor of the mouth with hard and soft palate	5 (19.2)	0	2 (4)	
Dorsum of the tongue and buccal/lip/gingival mucosa	3 (11.5)	2 (15.4)	14 (28)	
Sublingual region and hard and soft palate	0	0	2 (4)	
Age range most frequently diagnosed with oral cancer (years old)				
20-40	1 (3.8)	2 (15.4)	2 (3.9)	0.271 <sup>b</sup>
40-60	19 (73.1)	8 (61.5)	29 (56.9)	
60-80	6 (23.1)	3 (23.1)	20 (39.2)	
Evaluation of primary oral cancer lesion as a risk factor				
No	1 (3.8)	0	2 (3.9)	0.097 <sup>b</sup>
Yes	23 (88.5)	10 (76.9)	48 (94.1)	
I do not know	2 (7.7)	3 (23.1)	1 (2)	
Clinical features of primary oral lesion				
Small, painful, white area	3 (11.5)	3 (23.1)	10 (20)	0.707 <sup>b</sup>
Small, painless, white area	12 (46.2)	6 (46.2)	25 (50)	
Small, painful, red area	7 (26.9)	1 (7.7)	7 (14)	
Small, painless, red area	4 (15.4)	3 (23.1)	8 (16)	
Two lesions with the highest cancerous tendency				
Erythroplakia and Morbus Bowen	2 (7.7)	0	12 (23.5)	0.016 <sup>b,*</sup>
Leukoplakia and erythroplakia	8 (30.8)	10 (76.9)	25 (49)	
Blue nevus and leukoplakia	10 (38.5)	2 (15.4)	10 (19.6)	
Morbus Bowen and blue nevus	6 (23.1)	1 (7.7)	4 (7.8)	
The most common form of oral cancer				
Squamous cell carcinoma	16 (61.5)	9 (69.2)	42 (82.4)	0.344 <sup>b</sup>
Large-cell carcinoma	2 (7.7)	1 (7.7)	0	
Small-cell carcinoma	1 (3.8)	0	1 (2)	
Adenosquamous carcinoma	7 (26.9)	3 (23.1)	8 (15.7)	

<sup>a</sup>Fisher-Freeman-Halton test, <sup>b</sup>Chi-square test, \* $P < 0.05$

improve survival; all patients should be screened routinely and carefully for oral mucosal lesions.<sup>[17]</sup>

Kazmi *et al.*<sup>[18]</sup> evaluated oral squamous cell carcinoma information awareness and reported that 10.5% of



**Figure 2: Information evaluated while taking medical anamnesis among age groups**

medical doctors stated that only tobacco and alcohol were responsible for oral cancers, while only 57.1% had information about oral cancer symptoms and 31.3% believed that OSCC cannot be diagnosed at early stage.

In another study by Carter and Ogden,<sup>[3]</sup> 20.17% of medical physicians stated that they routinely examine the oral mucosa, while this rate was found to be 95.49% for dentists. Only 43.3% of medical practitioners identified alcohol as a risk factor, whereas smoking as a risk factor for oral cancer was defined at higher rate among both medical doctors and dentists. In the same study, knowledge of other risk factors was found to be poor in both physicians and dentists. In our study, all physicians considered tobacco use and viral infections as a risk factor and 95.6% of them stated alcohol use as a risk factor, while 4.4% do not. Of all participants, 91.1% considered the consumption of low amounts of vegetables and fruits, while 93.3% consider chewing tobacco such as Maras powder and 91.1% consider high age as a risk factor.

Canto *et al.*<sup>[19]</sup> conducted their study among Maryland family physicians, and it was found that physicians were aware of the main risk factors for oral cancers but had incorrect information about nonrisk factors. In addition, approximately 77% stated that they asked their patients about risk factors for oral cancer while taking a medical history, while less than 24% provided oral cancer examination to patients aged 40 and over. Approximately 64% reported that they are interested in a continuing education course on oral cancer. In another study investigating the oral cancer knowledge and practices of South Carolina physicians, 13% of the physicians reported that they had examined at least half for oral cancer in the past 12 months, and 83% helped patients to quit smoking. 53% of the physicians were aware of tobacco cessation sources and 37% were interested in training for tobacco cessation counseling and 49% for oral cancer screening.<sup>[20]</sup> Tanriover *et al.*<sup>[16]</sup> reported that, 29.9% of physicians did not ask questions to patients about the amount of tobacco use, in their conducted in Turkey. In our present study, as a result of the paired comparisons made to detect the difference, the rate of evaluating past alcohol use

of the patients aged 60 and over (72.7%) was found to be statistically significantly lower than the group aged 40–59 (98.2%) ( $P = 0.013$ ).

In a survey conducted by Gelažius *et al.*,<sup>[21]</sup> 26.3%, 78.9%, and 61.4% of medical doctors replied accurately to questions about where oral cancer is most commonly diagnosed, the age group diagnosed with oral cancer, and the most prevalent lesion of oral cancer. Moreover, in another study conducted by Gelažius *et al.*<sup>[22]</sup> in 2018, 81% of the physicians did not consider themselves sufficient for the diagnosis of primary oral cancer.

In a survey of physicians in Massachusetts, more than 96% of physicians stated that they asked patients about their smoking and alcohol use; however, only 9% of physicians and 39% of dentists were able to identify the two most common sites of oral cancer.<sup>[23]</sup> Yet about 25.7 percent identified the floor of the mouth as one of the most prevalent regions for oral cancers in another study.<sup>[24]</sup> In the present study, among all participants 15.6% stated erythroplakia and Morbus Bowen as two lesions with the highest cancerous tendency, while 47.8% of the participants affirmed as leukoplakia and erythroplakia.

## Conclusion

The ability of medical professionals to recognize and diagnose oral cancer as early as possible concerning diagnostic and treatment progress is a very crucial point. This study suggests that medical doctors show a sensitive attitude toward oral cancers. However, it also reveals that there is a need for improvement of the undergraduate curriculum in oral cancer in medical schools and for the provision of postgraduate and continuing education on this topic.

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## Conflicts of interest

There are no conflicts of interest.

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