

# Oral cancer knowledge among Turkish dental patients

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## ABSTRACT

**Aims:** To determine the level of oral cancer awareness and knowledge among patients referred to the Department of Oral and Maxillofacial Radiology in Central Anatolia. **Settings and Design:** The study was conducted with 1,125 patients who applied to the school of dentistry for routine dental examinations. The authors collect information with a 20-item written questionnaire from the participants about oral cancer risk factors, epidemiology, etiology, and signs and symptoms. **Statistical Analysis:** Descriptive statistics of demographic variables and other data were reported as means and percentages. Statistical analysis was performed by means of SPSS + 11.0 statistical package. **Results:** Overall, only 48.9% of all patients showed awareness of oral cancer, with awareness especially poor among lower socioeconomic groups. Awareness of oral cancer risk factors and signs and symptoms did not vary significantly between men and women ( $P > 0.5$ ); however, older participants (aged 40-64 years) were more familiar with oral cancer signs than younger participants. More than half of all participants (56.8%) were unaware of the common clinical presentations of oral cancer. **Conclusions:** The results of this survey showed knowledge regarding oral cancer to be quite low. Thus, educational programs are needed to increase public awareness about oral cancer, and dentists should request patients undergo examinations for oral cancer to ensure early detection.

**Key words:** Oral cancer, oral cancer knowledge, oral cancer awareness

## INTRODUCTION

Oral cancer is a global health problem with an increasing incidence and mortality rate and also has one of the lowest survival rates that remain unaffected despite recent therapeutic advances.<sup>[1]</sup> Dentists and dental hygienists have critical tasks in the early diagnosis of these tumors when they are asymptomatic. With the early diagnosis, morbidity and mortality from these cancers would be reduced. Oral cancers include tumors of the lip, tongue, floor of the mouth, and other sites of the mouth and pharynx.<sup>[2,3]</sup> According to one study, over 500,000 patients worldwide have been diagnosed with oral cancer, making the disease the fifth-most common type of cancer, accounting for 2-4% of all cancer diagnoses and causing 130,000 deaths

annually.<sup>[4,5]</sup> Another recent study reported that in 2006, approximately 31,000 new cases of oropharyngeal cancer were diagnosed.<sup>[6]</sup>

Most oropharyngeal cancers are oral squamous cell carcinomas (OSCCs), which account for 90-94% of all oral cancers (including malignancies such as salivary gland malignancies, soft and hard-tissue carcinomas, and metastatic cancers).<sup>[4,6]</sup> Although oral and pharyngeal cancers are curable when diagnosed and treated in early stages, unfortunately, in the United States, more than half of all oral and pharyngeal cancers are not diagnosed until the final stages.<sup>[7]</sup> Due to mainly to late presentation and delays in diagnosis, with a lapse in time between the first sign or symptom and the crucial diagnosis, the survival rate for oropharyngeal cancer in the United States is one of the lowest (52%) of all cancers.<sup>[1,8]</sup> Survival rates have been reported to be 81% at 1 year, 56% at 5 years, and 41% at 10 years following diagnosis.<sup>[4,9]</sup>

The primary risk factors for oral cancers include the use of alcohol and tobacco products, age, lack of fruits and vegetables in the diet, and exposure to sunlight.<sup>[4,8,10]</sup> However, some patients develop OSCCs without exposure

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#### Quick Response Code:



#### Website:

www.cci-j-online.org

#### DOI:

10.4103/2278-0513.113639

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to these risk factors, which suggests that additional factors, such as genetic predisposition or oncogenic viruses, may help cells escape the physiological mechanisms of proliferation control.<sup>[11-13]</sup> According to this presence of human papilloma viruses (HPVs) in variable proportions in the oral or oropharyngeal squamous cell carcinoma tissues, especially those genotypes with known high oncogenic potential (such as HPV 16 and 18), has been demonstrated by several worldwide studies.<sup>[14-16]</sup>

Oral cancer is often preceded by particular lesions and conditions described as precancerous.<sup>[17]</sup> OSCCs are known to develop mainly from premalignant lesions, making early diagnosis of these lesions an important step toward reducing cancer mortality. In a study of 236 patients with asymptomatic oral carcinomas, 64% of the lesions were red, 12% were predominantly white, and 23% were red and white in equal proportion.<sup>[4]</sup>

A study by Delilbaş *et al.*, (2003) examining 2,000 Turkish participants reported that 4.0% of observed lesions had the potential to transform into cancer, with leukoplakia and lichen planus considered the most common precancerous lesions; therefore, the authors recommended bi-annual monitoring of patients with oral lichenoid lesions.

National studies conducted in the United States and Great Britain has suggested that adults are ill-informed about signs and risk factors for oral cancers.<sup>[8,18]</sup> Another study conducted in Florida by Tomar *et al.*, (2005) showed a widespread lack of awareness and knowledge regarding oral cancer as well as low levels of examination.<sup>[19]</sup> The present study sought to identify knowledge of risk factors for oral cancer, knowledge of signs and symptoms of oral cancers, and factors associated with oral cancer examination among a study population of 1,125 dental patients aged 18 years and older.

## MATERIALS AND METHODS

Study participants were comprised of 1,125 patients aged 18 years and over who applied to the Kirikkale University, Faculty of Dentistry, for routine dental treatment. The majority of participants were female (59.5%,  $n = 669$ ; male: 40.5%,  $n = 456$ ). The ages of participants ranged from 18 to 82 years (males: 22-58, mean age:  $40.54 \pm 13.43$ ; females: 18-67, mean age:  $45.14 \pm 17.43$ ). Written informed consent was received from all study participants, and the study was approved by the University's Institutional Review Board.

An interviewer-administered questionnaire was given to the participants. The first section of the questionnaire collected sociodemographic information, including age, sex, marital

status, education level, alcohol consumption, and smoking status (current, past, or non-smoker) of participants. Oral hygiene practices were also assessed through questions on frequency of tooth brushing, tongue cleaning, use of dental floss and use of mouth rinse, and dentition statuses as well as regularity of dental visits were noted. The second section of the questionnaire examined participants' knowledge of risk factors and signs and symptoms of oral cancer. Participants were asked whether specific clinical signs (white or red patches in the mouth, non-healing sores or lesions, bleeding) were possible indicators of oral cancer and whether or not certain behaviors (excessive exposure to sunlight, eating spicy foods, regular alcohol consumption, tobacco use in any form and frequent cheek or lip biting) or aging (+50) increased the risk of developing mouth or lip cancer. Participants were also asked whether they had heard of certain types of cancer (e.g., breast cancer, lung cancer, intestinal cancer), whether or not early detection of some cancers could improve the chance of successful treatment, and about their sources of information about oral cancer. Participants were also given a description of what an oral cancer examination entails and were then asked if they had ever received such an examination. Descriptive statistics of demographic variables and other data were reported as means and percentages. Statistical analysis was performed by means of SPSS +11.0 statistical package (SPSS, Inc., IL, US).

## RESULTS

Overall, 48.9% of participants had heard about oral cancer, whereas 96.2% had heard about lung cancer, 73.9% about prostate cancer and 71.0% about skin cancer. Awareness was especially poor among individuals with low socioeconomic status. Knowledge of oral cancer risk factors and signs was not found to differ between men and women ( $P > 0.5$ ); however, age was found to affect awareness, with older participants (aged 40-64) more likely to know of at least one sign of oral cancer than younger participants (aged 18-39). Demographic information is provided in Table 1.

Knowledge of different risk factors varied greatly. Whereas the majority of participants knew tobacco (86.5%,  $n = 973$ ) and alcohol (63.6%,  $n = 716$ ) to be risk factors for oral cancer, only 17.9% ( $n = 201$ ) knew excessive sunlight to be a risk factor for lip cancer, and only 36.8% ( $n = 414$ ) and 24% ( $n = 295$ ), respectively, knew frequent cheek-or lip-biting and consumption of spicy foods were not risk factors for oral cancer.

More than half (56.8%) of participants were unaware of common clinical presentations of oral cancer, although 25.2% identified non-healing sores or lesions as early signs of oral cancer. White lesions (7.3%) and red lesions (6.4%) were also mentioned as early signs of oral cancer. Despite

**Table 1: Sociodemographic data of survey subjects (n=1,125)**

Demographics	Number (n)	Percentage
Sex		
Male	456	40.5
Female	669	59.5
Age		
18-24	339	30.1
25-34	268	23.8
35-44	230	20.4
45-54	174	15.5
55-64	82	7.3
65+	32	2.8
Marital Status		
Married	666	59.2
Single	436	38.8
Widowed/divorced/separated	23	2.0
Education		
Up to Grade 5	245	21.8
Up to Grade 8	114	10.1
Up to Grade 11	357	31.7
University	375	33.3
Masters-PhD	34	3.0

the fact that 96.1% of participants agreed that early detection could improve treatment outcomes, only 3.5% had had an oral cancer examination.

## DISCUSSION

Of the many diseases in which dental professionals play a role in diagnosis and management, oral cancer has some of the highest morbidity and mortality rates.<sup>[5]</sup> Over the course of the 20<sup>th</sup> century, oral cancer incidence rates in the United States and Europe have increased, especially among individuals less than 60 years of age.<sup>[20]</sup> Pakfetrat *et al.*, (2010) reported that most patients (89.4%) had a low knowledge regarding tobacco use (15.9%) and alcohol consumption (6.6%) as risk factors for oral cancer. Since 1915, increases have occurred in both the incidence of oral cancer and in behavior that exposes individuals to environmental carcinogens. The majority of oral cancer diagnosed in individuals above age 45 has been found to be largely related to alcohol and tobacco usage, and the current study found the majority of participants were aware of the carcinogenic effects of tobacco and alcohol (86.5% and 63.6%, respectively).<sup>[20]</sup>

Other risk factors for oral cancer include exposure to sunlight, increased age, sex (male), genetic factors, and various syndromes and viral infections. However, only 17.9% of participants knew excessive sunlight to be a risk factor for oral cancer.

Cruz *et al.*, (2002) reported members of the public-even those interested in participating in cancer screenings to be insufficiently aware of oral cancer risk factors, examinations and the importance of early detection. In our study, 56.8%

of subjects were unaware of common clinical presentations of oral carcinomas.

As stated by Reed *et al.*, (2002) in their report on a survey of South Carolina Medical Students, improved knowledge and experience is needed for oral cancer prevention and detection. Lack of public knowledge is a strong barrier to the early detection of oral cancer.<sup>[5]</sup> Even though this intervention is considered positive; for referral of patients with suspicious lesions, healthcare providers should continue with the educational efforts aimed at training clinical manifestations of oral cancer and precancer diagnosis additionally perform full mouth examination.<sup>[21]</sup> In order to reduce oral cavity tumor morbidity and mortality rates and improve the quality of life of patients with oral cancer, healthcare providers should perform oral cancer examinations as part of a standard examination regime.<sup>[6]</sup>

Awareness of oral cancer among participants in our study was lower than among participants in a similar study by Pakfetrat *et al.*, (2010). Moreover, awareness was especially low among individuals of low socioeconomic status. Awareness of oral cancer symptoms and risk factors did not vary significantly between men and women. Güneri *et al.*, (2005) has noted that since the 1990s, the social gradient for premalignant and malignant oropharynx lesions has been disappearing.<sup>[22]</sup>

A study by Horowitz *et al.*, (2002) reported that 85% of participants had had an oral cancer screening examination, whereas in our study, the examination rate was only 3.5%. The low rate may be due to the fact that during examinations, health providers fail to inform patients about oral cancer or warn them about high-risk behavior. Whereas Pakfetrat *et al.*, (2010) reported that 68.8% of participants in their study agreed that early detection could improve treatment outcomes, 96.1% of participants in the present study understood the importance of early detection.

Tomar *et al.*, (2005) reported that 50% of study participants were aware that red and white lesions could be cancerous lesions, and Ariyawardana *et al.*, (2005) found that 44.9% were knowledgeable regarding precancerous lesions in the oral cavity; unfortunately, in our study, very few participants were aware that red and white lesions could be cancerous (6.4% and 7.3%, respectively).

There is widespread agreement regarding the need for better knowledge and programs to screen for oral cancer as well as more awareness about the effects of early detection on survival rates. Knowledge of oral cancer and associated risk factors was poor among this study population, indicating an urgent need to implement public health education and prevention strategies, including TV, newspaper and radio

**Table 2: Sources of health education for 572 of the survey participants**

	Number (n)	Percentage
School	45	4.0
Newspapers	18	1.6
Television or radio	185	16.4
Other sources such as posters and banners	193	17.2
Various combinations of the above	131	11.6

advertisements as well as posters, booklets, or leaflets explaining the early signs, symptoms and etiology of oral cancer and the importance of regular oral examinations to diagnose these lesions at the earliest possible stage. More structured teaching programs are also necessary [Table 2].

Cancer is responsible for about 20% of all deaths in high-income countries and 10% in low-income countries. It is projected that by 2020, there will be 15 million new cancer cases and 10 million cancer deaths every year.<sup>[20]</sup> Lack of awareness about oral cancer, both among the general population and among some healthcare professionals, appears to be an important factor behind the high mortality rate. According to researchers, early diagnosis of oral carcinoma greatly increases cure and survival rates and minimizes impairments and deformities. However, less than 50% of oral cancer is diagnosed at an early, localized stage. Considering that at least two-thirds of all cases are a result of lifestyle factors such as tobacco and alcohol abuse, effective primary prevention programs to change behaviors are also needed.<sup>[23]</sup>

## CONCLUSIONS

The results of the present study showed knowledge regarding oral cancer to be quite low in Turkish population. Thus, continuing educational programs on the national level are needed to increase public knowledge and awareness about oral cancer. Additionally oral healthcare professionals should request patients undergo oral cancer examinations to ensure early detection.

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**Cite this article as:** Misirlioglu M, Nalcaci R, Yardimci SY, Adisen MZ. Oral cancer knowledge among Turkish dental patients. *Clin Cancer Investig J* 2013;2:149-52.

**Source of Support:** Nil, **Conflict of Interest:** No.