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Evaluation of Oral Cancer Risk and Common Knowledge Levels of the People Living in and Eastern Anatolia

Doğu Anadolu'da Yaşayan Halkın Ağız Kanseri Risk ve Bilgi Düzeylerinin Değerlendirilmesi

ABSTRACT

Aim:

It was aimed to determine whether individuals from a sample consisting of both the public and healthcare professionals have predisposing factors for oral cancer and to learn about their thoughts on oral cancer.

Material and Methods:

Seven hundred eighty four individuals aged 18-70 years living in Van city and neighboring provinces who did not have any physical or mental disability to fill out the online questionnaire were included in the study. For the comparison of categorical variables between groups, the Chi-Square test was utilized. A significance level of $P < 0.05$ was considered.

Results:

Out of 784 participants, 45.5% (356) were female, 54.1% (424) were male, and 0.4% (4) chose not to specify their gender. Regarding age distribution, 85.7% (672) of participants were aged of <40, 14.3% (112) were aged >40. Out of the participants in the questionnaire, 297 individuals (37.9%) are employed as healthcare professionals, while 487 individuals (62.1%) belong to other occupational groups. Additionally, among the participants, 28 participants (3.6%) who are elementary school graduates, 112 participants (14.3%) who are high school graduates, 587 participants (74.9%) who hold a university degree, and 51 individuals (6.5%) who have completed postgraduate or doctoral-level education.

Conclusion:

Efforts to raise awareness among the public through various mass communication tools, social media, and the dedication of healthcare professionals will have a positive impact on the prognosis of oral cancers, which can cause various defects in terms of function, aesthetics, and functionality.

Key Words:

Dentist, Oral cancer, Public health

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ÖZ

Amaç:

Hem halktan hem de sağlık çalışanlarından oluşan bir örneklemden bireylerin ağız kanseri için predispozan faktörlere sahip olup olmadıklarını belirlemek ve ağız kanseri hakkındaki düşüncelerini öğrenmek amaçlanmıştır.

Gereç ve Yöntemler:

Van şehri ve çevre illerde yaşayan, online anketi dolduracak fiziksel veya zihinsel engeli bulunmayan 18-70 yaş arası 784 birey çalışmaya dahil edildi. Gruplar arasında kategorik değişkenlerin karşılaştırılması için Ki-Kare testi kullanılmıştır. Anlamlılık düzeyi $P < 0.05$ olarak kabul edilmiştir.

Bulgular:

Yedi yüz seksen dört katılımcının %45.5'i (356) kadın, %54.1'i (424) erkek ve %0.4'ü (4) cinsiyetini belirtmemeyi tercih etmiştir. Yaş dağılımına bakıldığında, katılımcıların %85.7'si (672) <40 yaş, %14.3'ü (112) >40 yaş aralığındadır. Ankete katılanların 297'si (%37.9) sağlık çalışanı olarak istihdam edilirken, 487 kişi (%62.1) diğer meslek gruplarına mensuptur. Ayrıca, katılımcılar arasında ilkokul mezunu 28 kişi (%3.6), lise mezunu 112 kişi (%14.3), üniversite mezunu 587 kişi (%74.9) ve yüksek lisans veya doktora düzeyinde eğitim almış 51 kişi (%6.5) bulunmaktadır.

Sonuç:

Çeşitli kitle iletişim araçları, sosyal medya ve sağlık çalışanlarının özverili çalışmaları ile halk arasında farkındalık yaratma çabaları, ağız kanserlerinin prognozu üzerinde olumlu bir etkiye sahip olacaktır.

Anahtar Sözcükler:

Diş Hekimi, Oral kanser, Halk sağlığı

INTRODUCTION

Oral cancer, a subtype of head and neck cancer, is a significant global health concern. It primarily affects the oral cavity, which includes the lips, tongue, mouth, and oropharynx (the part of the throat at the back of the mouth). The most common type of oral cancer is squamous cell carcinoma, accounting for about 90% of all oral cancers (1).

Oral cancer typically initiates as a small, imperceptible white or red lesion or sore in the oral cavity, or less commonly, as alterations in dental occlusion and alignment. Symptoms can range from pain and difficulty swallowing to altered taste and voice changes (2). Risk factors include tobacco use, heavy alcohol consumption, human papillomavirus (HPV) infection, and chronic sun exposure on the lips. Oral cancer is also twice more common in males than females (3).

Early detection is paramount as oral cancer is highly treatable if diagnosed early. Regular dental check-ups are essential in early detection as dentists can often spot precancerous changes in the mouth. The treatment strategy for oral cancer generally involves a multi-disciplinary approach, including surgical resection, radiation therapy, chemotherapy, or a combination of these treatments, depending on the cancer's stage, location, and the patient's overall health (4). Dentists play a crucial role in the early detection and prevention of oral cancer, as they are often the first healthcare professionals to notice signs of the disease during routine check-ups. Dentists are trained to perform comprehensive intraoral and extraoral head and neck examinations, which are vital for early detection of oral cancer. These examinations involve the systematic visual inspection and palpation of the oral cavity and related structures to identify any abnormalities (5).

In addition to this, dentists can provide advice and information on risk factors associated with oral cancer, such as tobacco use, alcohol consumption, and human papillomavirus (HPV) infection. Brocklehurst *et al.* (6) underlines the need for more high-quality research to conclusively determine the effectiveness of such screenings, but it doesn't dispute the fact that dentists are in a prime position to identify early signs of oral cancer in their patients.

Dentists also contribute to oral cancer management by providing pre-cancer treatment dental care to improve patients' oral health, reducing the risk of post-treatment complications, and enhancing the effectiveness of cancer therapy (7). Furthermore, in collaboration with oncologists, they participate in the planning and provision of rehabilitative services after cancer treatment, including dental implants and prostheses, to help patients restore oral function and aesthetics (8).

The importance of awareness about oral cancer among individuals constituting society is paramount. Several studies underscore the significance of raising awareness about oral cancer for early detection and prevention. For instance, research by Warnakulasuriya *et al.* (9) emphasized that increased awareness leads to early diagnosis, which in turn enhances treatment outcomes and reduces mortality rates.

The aim of this study was to have information about the susceptibility and perspective of the people living around Van city province to oral cancers and to emphasize that dentists have primary importance in the diagnosis of oral cancers.

MATERIAL and METHODS

Approval for this study was obtained from Van Yuzuncu Yil University Non-Interventional Clinical Research Ethics Committee (2023/07-13). This questionnare study was conducted in accordance with the provisions of the Declaration of Helsinki and informed consent was obtained from the individuals included in the study. 784 individuals between the ages of 18-70 were included in the questionnaire. The online questionnaire was created on Google Forms (Alphabet, Mountain View, CA, USA) and was delivered to volunteer participants via WhatsApp (WhatsApp Inc, USA) between 14 August 2023 and 14 October 2023. Individuals living in and around Van province who had the capacity to complete the online survey were included in the questionnaire. Individuals who were illiterate or had a disability that prevented them from filling out the online questionnaire were not included in the questionnaire those with physical or mechanical disabilities to answer the online questionnare. Part 1. Four questions about demographic characteristics; Part 2. Nine questions of predisposition to oral cancer; Part 3. Four questions of common opinion about oral cancer (Fig. 1).

QUESTIONNAIRE ABOUT ORAL CANCER

1-Gender
- Female
- Male
- Unknown

2-Age
- <40
- >40 3-Job
- Health Care Professions
- Other

4-Education
- I didn't go to school, I'm only literate
- Primary education
- High school
- University
- Master's degree. exper. doctorate

5-How much do you know about oral cancer?
- Less
- Moderate
- Very much

6-Have any of your family members had oral cancer?
- Yes
- No

7-Do you smoke?
- Yes
- No

8-Do you consume alcohol? • Yes
- No

9-Do you have tooth and gingival problems?
- Yes
- No

10-How often do you visit the dentist?
- Every 6 months
- Every 1 Year
- When I'm in pain

11-Are you frequently exposed to sun rays?
- Yes Frequent
- Moderate
- Not Very Often

12-Do you pay attention to oral hygiene?
- Yes Very Much
- Moderate
- I don't care much

13-Do you have aphts or lesions in your mouth?
- Yes
- Sometimes
- No

14-Have you had hpv vaccination?
- Yes
- No

15-What precautions can you take to prevent oral cancer?
- Quitting smoking and limiting alcohol consumption
- Visiting your dentist regularly
- Adopting a healthy diet
- All Above

16-How long do your oral aphts stay in the mouth?
- Less than 1 Week
- 1 Week to 2 Weeks
- Longer than 2 Weeks

17-What kind of a lesion in your mouth will make you panic and need to go for a check-up? (You can tick more than one)
- White lesions in the mouth
- Red lesions in the mouth
- Swelling in my lymph nodes
- Lesions that do not heal for a long time
- Discolouration of the tongue and lips
- Painful Lesions
- Painless Lesions

The data were analyzed using IBM SPSS Version 23. For the comparison of categorical variables between groups, the Chi-Square test was utilized. Analysis results were presented for quantitative variables as mean ± standard deviation and median (minimum - maximum), while categorical data were presented as frequencies (percentages). A significance level of $P < 0.05$ was considered.

RESULTS

Out of 784 participants, 45.5% (356) were female, 54.1% (424) were male, and 0.4% (4) chose not to specify their gender. Regarding age distribution, 85.7% (672) of participants were aged of <40, 14.3% (112) were aged >40. Out of the participants in the survey, 297 individuals (37.9%) are employed as healthcare professionals, while 487 individuals (62.1%) belong to other occupational groups. Additionally, among the participants, 6 individuals (0.8%) have never attended school, but they are literate individuals. There are 28 participants (3.6%) who are elementary school graduates, 112 participants (14.3%) who are high school graduates, 587 participants (74.9%) who hold a university degree, and 51 individuals (6.5%) who have completed postgraduate or doctorate-level education (Tab. 1).

Table 1. Distribution of demographic datas.

		n	%
Gender	Female	356	%45.4
	Male	424	%54.1
	Unknown	4	%0.5
Age	<40	672	%85.7
	>40	112	%14.3
Job	Healthcare Professions	297	%37.9
	Other	487	%62.1
Education	I didn't go to school, I'm only literate	6	%0.8
	primary education	28	%3.6
	high school	112	%14.3
	university	587	%74.9
	master's degree. exper. doctorate	51	%6.5

n:number of sample size.

The participants' responses to the questions are detailed in Tab. 2.

Table 2. Response rates of patients.

Questions	Responses	*n*	%
5. How much do you know about oral cancer?	Less	522	%66.6
	Moderate	229	%29.2
	Very much	33	%4.2
6. Have any of your family members had oral cancer?	Yes	13	%1.7
	No	771	%98.3
7. Do you smoke?	Yes	264	%33.7
	No	520	%66.3
8. Do you consume alcohol?	Yes	175	%22.3
	No	609	%77.7
9. Do you have tooth and gingival problems?	Yes	365	%46.6
	No	419	%53.4
10. How often do you visit the dentist?	Every 6 months	173	%22.1
	Every 1 Year	110	%14
	When I'm in pain	501	%63.9
11. Are you frequently exposed to sun rays?	Yes Frequent	194	%24.7
	Moderate	472	%60.2
	Not Very Often	118	%15.1
12. Do you pay attention to oral hygiene?	Yes Very Much	313	%39.9
	Moderate	437	%55.7
	I don't care much	34	%4.3
13. Do you have aphts or lesions in your mouth?	Yes	72	%4.2
	Sometimes	382	%4.2
	No alcohol consumption	330	%4.2
	Visiting your dentist regularly	96	%12.2
	Adopting a healthy diet	83	%0.6
	All Above	558	%71.2
15. How long do your oral aphts stay in the mouth?	Less than 1 Week	594	%75.8
	1 Week to 2 Weeks	152	%19.4
	Longer than 2 Weeks	38	%4.8
16. What kind of a lesion in your mouth will make you panic and need to go for a check-up? (You can tick more than one)	White lesions in the mouth	312	
	Red lesions in the mouth	258	
	Swelling in my lymph nodes	331	
	Lesions that do not heal for a long time	370	
	Discolouration of the tongue and lips	175	
	Painful Lesions	205	
	Painless Lesions	40	

n: Number

These questions were analyzed for differences based on gender, age, job and level of education using the Chi-Square test (Tab.3).

Table 3. Comparison of the distribution of answers to interpretative questions according to demographic groups.

	Question 5			Question 6			Question 7		
Age	***n***	**χ^2**	**p**	***n***	**χ^2**	**p**	***n***	**χ^2**	**p**
<40	672	5.2	0.065	672	0.8	0.28	672	13.9	**<0.001**
>40	112			112			112		
Gender									
Females	356	6.8	0.31	356	13.5	0.139	356	57.4	**<0.001**
Males	424			424			424		
Unknown	4			4			4		
Job									
Healthcare Professions	297	94.9	**<0.001**	297	0.4	0.363	297	11.7	**<0.001**
Other	487			487			487		
Education									
I didn't go to school, I'm only literate	6	35.2	**0.001**	6	23.3	**0.013**	6	10.4	**0.039**
primary education	28			28			28		
high school	112			112			112		
university	587			587			587		
master's degree. exper. doctorate	51			51			51		

	Question 8			Question 9			Question 10		
Age	***n***	**χ^2**	**p**	***n***	**χ^2**	**p**	***n***	**χ^2**	**P**
<40	672	0.2	0.351	672	4.1	**0.028**	672	4.9	0.073
>40	112			112			112		
Gender									
Females	356	12.4	**0.002**	356	.85	0.641	356	9,7	**<0.001**
Males	424			424			424		
Unknown	4			4			4		
Job									
Healthcare Professions	297	8,7	**0.002**	297	6.5	**0.07**	297	83.6	**<0.001**
Other	487			487			487		
Education									
I didn't go to school, I'm only literate	6	21.3	**<0.001**	6	7.6	0.105	6	21.3	**0.001**
primary education	28			28			28		
high school	112			112			112		
university	587			587			587		
master's degree. exper. doctorate	51			51			51		

	Question 11			Question 12			Question 13		
Age	***n***	**χ^2**	**p**	***n***	**χ^2**	**p**	***n***	**χ^2**	**P**
<40	672	2.6	0.287	672	19.3	**<0.001**	672	1.3	0.51
>40	112			112			112		
Gender									
Females	356	4.9	0.303	356	28,3	**<0.001**	356	1.3	0.808
Males	424			424			424		
Unknown	4			4			4		
Job									
Healthcare Professions	297	7	**0.026**	297	23.2	**<0.001**	297	2.7	0.254
Other	487			487			487		
Education									
I didn't go to school, I'm only literate	6	5.6	0.709	6	65.9	**<0.001**	6	6.1	0.609
primary education	28			28			28		
high school	112			112			112		
university	587			587			587		
master's degree. exper. doctorate	51			51			51		

	Question 14			Question 15		
Age	***n***	**χ^2**	**p**	***n***	**χ^2**	**p**
<40	672	0.6	0.897	672	1.3	0.513
>40	112			112		
Gender						
Females	356	11	0.064	356	6,7	0.128
Males	424			424		
Unknown	4			4		
Job						
Healthcare Professions	297	6.7	0.08	297	0.3	0.880
Other	487			487		
Education						
I didn't go to school, I'm only literate	6	12.7	0.272	6	20.3	0.072
primary education	28			28		
high school	112			112		
university	587			587		
master's degree. exper. doctorate	51			51		

N: Number, χ^2: Ki-Kare Test,$p<0.05$.

DISCUSSION

The prevalence of oral cancer increases significantly with advancing time. In this regard, the level of awareness of health personnel and the public and exposure to predisposing factors that cause oral cancers are of great importance. Ersoy *et al.* (10) conducted a questionnaire study to evaluate the awareness, knowledge and thoughts about oral cancers in a group of 578 people in Ankara. In their study, they stated that a great majority of the participants had never heard of oral cancers before. In this study, 66.6% of the people in the eastern region of Turkey, whose socio-cultural level can be considered lower than Ankara, the capital of Turkey, stated that they did not have much knowledge about oral cancers. However, unlike Ersoy *et al.* in this study, various health service providers were also included in the survey. It has been shown that health personnel are more sensitive and have a higher level of knowledge about oral cancer compared to other occupational groups. This suggests that although the general public in this region may not have much knowledge about oral cancer, health personnel may be effective in early diagnosis.

Efeoğlu & Şahin (11) conducted a survey study involving 1197 registered dentists within the Turkish Dental Association to assess their awareness, knowledge, and attitudes towards oral cancer symptoms and oral cancer. Their study revealed that many oral cancer symptoms were not adequately known by dentists, and even though some of these symptoms were not recognized as actual risk factors, dentists still perceived them as such. In comparison to the study by Ersoy *et al.* which had a more nationwide scope, our study represents a comprehensive examination of the awareness of oral cancer among dentists, who constitute the primary professional group involved in oral cancer diagnosis in Turkey. Nevertheless, despite differences in study populations, both our study and Ersoy *et al.* 's work indicate a lack of knowledge among both dentists and the general public concerning oral cancer diagnosis and knowledge levels. In our study, we sought to determine whether there is a disparity in oral cancer awareness between healthcare professionals and the general population and identified statistically predisposing factors indicating higher levels of knowledge in the context of oral cancer.

Koca *et al.* (12) conducted a survey among 55 dental students, focusing on the topic of oral cancer. The survey aimed to elicit responses from students regarding predisposing factors for oral cancer development and various questions related to its diagnosis. The findings of the study suggested that students' abilities and knowledge levels in the diagnosis of oral cancer could be enhanced through adequate practical, model-based, and theoretical education in this field.

Esen *et al.* (13) conducted a survey study on 839 voluntary participants from Konya and its surrounding regions, focusing on the topic of oral cancer. The study's findings indicated that the general public's level of knowledge about oral cancers was insufficient. Moreover, it was noted that when seeking information about oral cancer, individuals predominantly preferred mass media sources, with obtaining information from dentists being the least favored alternative.

In our selected sample group, which was comparable in terms of sample size to the study conducted by Esen *et al.*, our survey results pertaining to oral cancer predisposing factors and perceptions yielded statistically significant distinctions concerning individuals' educational backgrounds. Specifically, individuals holding university degrees were found to perceive themselves as more knowledgeable about oral cancer in comparison to those with doctoral, master's, or specialized education. Conversely, individuals who had achieved literacy without formal education statistically regarded themselves as less informed on this subject. Furthermore, a statistically significant disparity in responses was observed between individuals below the age of 40 and those aged 40 and above when inquired about their level of knowledge regarding oral cancer. The reason behind individuals aged 40 and above perceiving themselves as less informed about the subject compared to those below the age of 40 is believed to be influenced by mass media channels, evolving and iterative education system and social media platforms, which are considered to play a significant role in shaping the knowledge of these individuals. Furthermore, an evaluation of healthcare professionals and individuals from other occupational groups was conducted in terms of predisposing factors for oral cancer development, such as tobacco and alcohol usage, and exposure to sunlight. It was observed that tobacco use was statistically significantly higher among healthcare professionals compared to individuals in other occupational groups. However, it was also noted that healthcare professionals had a statistically significantly higher rate of dental check-ups compared to individuals in other occupational groups. This observation is thought to be attributed to easier access to healthcare services and higher awareness levels among healthcare professionals.

Yılmaztürk *et al.* (14) conducted a survey study involving 500 patients who had sought dental care, focusing on the topic of oral cancer. It was noted that a significant proportion of these patients were university graduates; however, a substantial portion of them reported hearing the term *"oral cancer"* for the first time during the survey. In this study, as well, university graduates constituted a larger portion of the sample when compared to individuals with other educational backgrounds. These university-educated individuals perceived themselves as more knowledgeable about oral cancer compared to those with lower levels of education. This discrepancy may be attributed to the fact that this study included healthcare professionals, unlike some previous research. Nevertheless, the study did not reveal statistically significant differences in knowledge about oral cancer based on gender, suggesting that both men and women do not possess specific perceptions regarding oral cancers.

Yarbaşı *et al.* (15) conducted a survey study involving a sample group comprised of 70 medical doctors, which included general practitioners, dermatologists, and otolaryngologists, focusing on the topic of oral cancer. The study revealed that family physicians, in particular, were found to have limited knowledge about oral cancer symptoms, whereas otolaryngologists were identified as the primary referral specialists when a suspicious lesion was detected in the oral cavity.

As a result of this study, it was concluded that in our country, the branch of family medicine, responsible for monitoring the health status of each individual, perceives themselves as less proficient in diagnosing oral cancer. It is believed that through the integration of family dental care practices, early and accurate diagnosis of oral cancer can significantly improve disease prognosis.

CONCLUSION

A study addressing the perspectives of the public in the Eastern Anatolia region of our country regarding oral cancer does not currently exist. This study aimed to investigate the presence of oral cancer predisposing factors and the thoughts of a sample composed of both the public and healthcare professionals. In this context, efforts through various mass media channels, social media platforms, and the dedication of healthcare workers to raise awareness among the public can positively influence the prognosis of oral cancers, which can cause multiple defects in terms of function, aesthetics, and overall well-being.

Ethics Committee Approval:
The study was approved by the relevant institution administration.

Author contribution statement:
Concept - K.S.; Design - K.S.; Supervision - K.S.; Resources - K.S.; Materials - K.S.; Data Collection and/or Processing - K.S.; Analysis and/ or Interpretation - K.S.; Literature Search - K.S.; Writing Manuscript - K.S.; Critical Review - K.S.

Informed Consent:
Written informed consent was obtained from participants who participated in this study.

Conflict of Interest:
The author declare that they have no conflict of interest.

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