Knowledge of adults about the symptoms and risk factors of oral cancer in Zanjan city

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Objectives Oral cancer includes a wide range of malignant neoplasms and is one of the ten main causes of morbidity and mortality worldwide. This study aimed to assess the level of knowledge of adults about the symptoms and risk factors of oral cancer in Zanjan city.
Methods This descriptive, cross-sectional study was conducted on 345 adults presenting to a teaching hospital in Zanjan in 2014. The data were collected using a questionnaire, which comprised of four main sections regarding symptoms and risk factors of cancer. The data were analysed using independent *t*-test and ANOVA.
Results The mean score of knowledge of adults was 4.88 about the risk factors and 2.86 about the symptoms of cancer out of 12. No significant differences were noted in this regard between males and females or different age groups ($P > 0.05$). Level of knowledge was significantly correlated with the level of education ($P < 0.05$).
Conclusion The score of knowledge of adults in Zanjan about the symptoms and risk factors of cancer was lower than the average required value in the community. It is absolutely necessary to enhance the public knowledge about oral cancer via the media.
Keywords oral cancer, symptoms, risk factors, adults, knowledge

Introduction

Oral cancer is among the most common cancers and one of the ten main causes of morbidity and mortality worldwide.[1] It comprises of 2–3% of all cancers and is the 6th most common cancer in males and 12th most common cancer in females with a male to female ratio of 3:1.[2,3] In some cases, the oral cancer occurs following the appearance of precancerous oral mucosal lesions. Leukoplakia and erythroplakia are among the most important precancerous lesions.[4] Major risk factors for oral cancer include tobacco use, alcohol consumption, sunlight exposure, nutritional factors and human papilloma virus.[5]

Oral cancer clinically manifests as a chronic wound, white plaque or red patch, which does not respond to anti-inflammatory treatments.[6] Studies have reported variable levels of knowledge of adults about oral cancer risk factors. Level of knowledge has reported to be 63.3% by Monteiro et al. (2012),[7] 70% by Devadiga et al. (2010),[8] 27.6% by Tomar et al. (2005)[9] and 6.04 out of 15 by Kakoei et al. (2009).[10] Oral cancer is often detected and diagnosed in advanced stages, which may be due to the lack of public knowledge about its risk factors and symptoms.[11] Considering the high prevalence of oral cancer in Iran and lack of information regarding the level of public knowledge about its symptoms and risk factors in Zanjan city, this study aimed to assess the level of knowledge of adults about the symptoms and risk factors of oral cancer in Zanjan city.

Materials and Methods

This descriptive cross-sectional analytical study was conducted on 345 adults, presenting to a teaching hospital in Zanjan. The subjects were randomly selected. First, a pilot study was carried out on 30 randomly selected subjects. The sequence method was used to calculate the sample size. According to the pilot study, the percentage of positive responses (P) was estimated and final sample size was calculated using the formula. A questionnaire with four main parts was used for data collection.[12–14] The first part asked for the demographic information of subjects (age, sex and level of education). The second part included 12 questions regarding the risk factors. The third part included ten questions about the symptoms and the fourth part included two questions about the sources of information and the need for further education and information in this regard. The reliability and validity of the questionnaire were assessed using Cronbach's alpha, which was found to be 0.85 for knowledge about risk factors and 0.87 for knowledge about symptoms. In terms of scoring, each correct answer was allocated one positive score, and zero score was given to incorrect or no answers.

Statistical Analysis

The data were coded and entered into SPSS version 18 software (Microsoft, IL, USA). The frequency percentages were presented in tables and diagrams. Independent *t*-test was used for pairwise comparisons and ANOVA was applied for multiple comparisons. If the ANOVA yielded significant differences, Tukey's post hoc test was applied. The level of significance was set at $P = 0.05$.

Results

A total of 345 adults presenting to a teaching hospital in Zanjan city participated in this study; out of which, 4 were excluded due to incomplete information. Of 341 participants, 237 (69.1%) were males and 104 (30.3%) were females. In terms of level of education, 42.6% had a level of education below high school diploma, 53.1% had university education and 3.8% had

doctorate or higher degrees. The mean age of participants was 37.7 ± 13.2 years (range of 18–87 years). The frequency of correct answers to questions about the risk factors and symptoms of oral cancer is shown in Tables 1 and 2. The highest level of knowledge of individuals was about tobacco use (79%) and alcohol consumption (69%) as risk factors of oral cancer. No significant difference was found in the mean knowledge score of different age groups (P = 0.615). No significant difference was noted in this regard between males and females either (P = 0.668). A significant difference was found in the mean knowledge score of individuals with different levels of education, and the score of knowledge about the risk factors increased with higher level of education (P = 0.000).

Level of knowledge of adults in Zanjan city about oral cancer symptoms is shown in Tables 3 and 4. The results showed that the level of knowledge of males in this regard was significantly higher than that of females (P = 0.000). Also, a significant difference was found in the mean score of knowledge of individuals based on their level of education (P = 0.000). No significant difference was detected among different age groups (P = 0.307). The most commonly reported sources of acquiring information were the media (radio and television) (38.1%) followed by the internet (34%) and books (12%).

Discussion

Oral squamous cell carcinoma (SCC) is among the most common oral cancers and is one of the ten most prevalent cancers worldwide.[15] SCC accounts for 94% of all oral malignancies. The major risk factors for oral cancer include tobacco use, alcohol consumption and exposure to UV radiation (sunlight).[16] Oral cancer clinically manifests in the form of a chronic wound, prominent lesion, white plaque or red patch. Early diagnosis significantly increases the survival rate of patients. However, due to inadequate knowledge of individuals about the symptoms and risk factors of oral cancer, it is commonly detected in advanced stages.[17]

In our study, the mean knowledge score of participants about oral cancer was 4.88 out of 12, which indicates very low knowledge. Kakoei et al. (2009) reported a mean knowledge score of 6 out of 15.[10] Tomar et al. (2005) reported a low level of knowledge of individuals in Florida about cancer.[9] Devadiga et al. (2010) assessed the level of knowledge of subjects presenting to hospitals in India about oral cancer and found that 70% of the people considered tobacco to be a risk factor for oral cancer.[8] The evidence shows that public knowledge about oral cancer is low and attempts must be made to enhance the public knowledge in this regard and encourage the people to quit their unhealthy behaviours and risky habits.[18]

In our study, the mean knowledge score of individuals about the risk factors of oral cancer was 2.86 out of 12. Ariyawardana et al. (2005) stated that <50% of people were aware of the symptoms of cancer.[19] Horowitz et al. (2000) announced that 44% of the individuals could not even name one of the symptoms of oral cancer.[20] Tomar et al. (2005) found that only 27.6% of individuals had adequate knowledge about the symptoms of cancer.[9] Another study showed that people did not have adequate knowledge about the symptoms of oral cancer.[21]

Table 1. **The frequency of correct answers of adults in Zanjan to knowledge questions about the risk factors of oral cancer**

Number	Questions	Correct answers	
		Frequency	Percentage
1	Long-term use of antibiotics	111	32.4
2	Tobacco use	272	79.3
3	Allergy to foods and drugs	115	33.5
4	Alcohol consumption	206	60.1
5	Old age	185	53.9
6	Male gender	71	20.7
7	Mouthwashes	191	55.7
8	Dentures	149	43.4
9	Continuous exposure to sunlight	78	22.7
10	Viral infections	165	48.1
11	Low fruit and vegetable intake	125	36.4
12	History of cancer in a family member	124	36.2

Table 3. **The frequency of correct answers of adults in Zanjan to knowledge questions about the symptoms of oral cancer**

Number	Questions	Correct answers	
		Frequency	Percentage
1	White or red patch on the floor of the mouth or tongue	86	25.1
2	White spot on the cheeks that fades with pulling	125	36.4
3	Presence of bilateral bony swellings in the palate	75	21.9
4	Paresthesia of the tongue or other parts of the oral cavity	77	22.4
5	Chronic earache	68	19.8
6	Chronic wound with an indurated margin	120	35
7	Any wart-like lesion	82	23.9
8	Mobility of the teeth	96	28
9	Problem in deglutition	98	28.6
10	Feeling of a mass in the neck	107	31.2

Table 2. **The mean, standard deviation, minimum and maximum score of knowledge about the risk factors of oral cancer**

	Number	Mean	Standard deviation	Minimum	Maximum	Value	Degree of freedom	*P* value
Knowledge	341	4.88	1.807	0.00	10.00	11.38	340	0.000

One sample *t*-test; mean = 6.

Table 4. **The mean, standard deviation, minimum and maximum score of knowledge about the symptoms of oral cancer**

	Number	Mean	Standard deviation	Minimum	Maximum	Value	Degree of freedom	*P* value
Knowledge	341	2.8622	1.176	0	8	18.139	340	0.000

One sample *t*-test; mean = 5

Having no knowledge about the first signs and symptoms of disease may result in negligence, not seeking medical care and subsequent serious consequences. Information about the risk factors and early signs and the symptoms of oral cancer may not result in behavioural change (for instance quitting smoking) but can help patients make an informed decision.[22]

In our study, the participants with higher level of education had greater knowledge about the risk factors of cancer. The mean knowledge score about the risk factors of cancer was not significantly different between males and females or among different age groups. Powe et al. (2004) found no association between the level of knowledge and age group or gender of subjects.[23] Kakoei et al. (2009) found no significant association between knowledge and age group of subjects either.[10] A direct correlation between the level of knowledge and level of education was mentioned by Kakoei et al. (2009),[10] Devadiga et al. (2010),[8] Croucher et al. (2011)[24] and Powe et al. (2004).[23] In this study, 79 and 69% of participants mentioned tobacco use and consumption of alcoholic beverages, respectively as the risk factors of cancer.

In a study by Ariyawardana et al. (2005), 80.7% of the individuals were not aware of the correlation of tobacco chewing and oral cancer.[19] In a study by Ashe et al. (2005), the participants believed that cigarette smoking and alcohol consumption were the two important risk factors for the occurrence of pharyngeal carcinoma.[25] In a study by Huang et al. (2003), only 13% of subjects were aware of the fact that consumption of alcohol increases the risk of oral carcinoma.[26] In our study among the risk factors, male gender and exposure to sunlight had the lowest frequency of correct answers. Our findings regarding sunlight are in line with the results of Powe et al. (2004),[23] Kakoei et al. (2009)[10] and Horowitz et al. (2000).[20]

In general, this study showed that the level of knowledge of adults in Zanjan was low about the symptoms and risk factors of oral cancer. Also, males had a significantly higher level of knowledge about the symptoms of oral cancer than females. This difference between males and females and higher familiarity of males with the symptoms of oral cancer may be due to the higher prevalence of oral cancer among males.[27]

In this study, the most commonly reported sources of acquiring information were the media (radio and television) followed by the internet. This finding indicates the role of the media in enhancing the public knowledge about the risk factors and symptoms of oral carcinomas.[16] Croucher et al. (2011) showed that distribution of brochures significantly promoted the level of knowledge of individuals.[24]

Conclusion

The level of knowledge of adults in Zanjan about the risk factors and symptoms of oral cancer was lower than the average required value in general population. The knowledge of individuals about the role of cigarette smoking and tobacco consumption in occurrence of oral cancer was greater than about other factors. Moreover, the participants expressed the need for broadcasting of informative programs regarding oral and dental health in the media. ■

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