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Rethinking Dental Education; Gaps in Oral Cancer Awareness Among General Dentists: A Cross-sectional Study in Shahr-e-Babak, Iran

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Abstract

Background: Early detection of oral cancer is crucial, as it can significantly impact survival rates.

Objectives: This study focused on evaluating the awareness of general dentists in South-Eastern Iran regarding oral cancer and its risk factors. Dentists play a key role in the early detection of this serious public health issue.

Methods: This cross-sectional study surveyed 45 general dentists selected through census sampling. Their knowledge of oral cancer, risk factors, and demographic information was collected through a questionnaire. Data analysis was conducted using SPSS software with *t*-test, ANOVA, and chi-square tests ($P < 0.05$).

Results: Nearly half of the study participants were men, and the mean age was 37.21 ± 6.1. Around 60% correctly identified the age group most susceptible to cancer, while 84.4% recognized smoking as a major oral cancer risk factor. Only 15.6% knew that HPV infection also posed a risk. There were significant differences between participation in an oral cancer seminar and willingness to participate in an oral cancer training course with awareness about oral cancer.

Conclusions: According to this study, dentists in Shahr-e-Babak showed low awareness of oral cancer and moderate awareness of its risk factors. Therefore, strategies must be implemented to enhance dentists' knowledge on this important issue.

Keywords: Awareness, Oral Cancer, Dentists, Risk Factor, Oral Squamous Cell Carcinoma

1. Background

Oral squamous cell carcinoma (OSCC) constitutes around 90% of all oral malignancies and remains a significant global concern, with an estimated 377,713 new cases and 177,757 deaths annually as of 2023 (1, 2). Despite the accessible anatomy and the potential for routine visual screening (3), most OSCC cases are diagnosed at advanced stages, due in part to delays in diagnosis by healthcare providers as well as patients themselves (4). MicroRNA (miRNA) 146a expression has potential use as a biomarker for distinguishing OLP from OSCC (5). Patients with oral cancer often face significant side effects from both the disease and its treatments, such as tooth loss, speech difficulties, and changes in physical appearance.

2. Objectives

These challenges can profoundly affect their self-esteem (6). Dentists play a pivotal role in early detection, but growing evidence highlights a lack of adequate awareness among dental professionals, worldwide and especially in regions like South-Eastern Iran (7-11).

3. Methods

This cross-sectional study examined the awareness and knowledge of general dentists in Shahr-e-Babak,

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South-Eastern Iran, regarding oral cancer and its associated risk factors. The study population consisted of all 63 general dentists practicing in Shahr-e-Babak, of whom 45 agreed to participate, yielding a response rate of 71.42%. Data were collected via a validated researcher-made questionnaire (validity 0.91, reliability 0.89) covering demographics and awareness of oral cancer and its risk factors. The awareness section included seven multiple-choice questions scored 0 - 7 on topics such as types, locations, symptoms, and demographics of oral cancer. The risk factors section listed 11 items, including smoking, alcohol, family history, HPV infection, and others.

4. Results

Forty-five dentists participated in this study (86% response rate). Twenty-two (48.9%) were men, and 23 (51.1%) were women. The mean age of the participants was 37.21 ± 6.10 years. Regarding oral cancer awareness, the lowest correct answer was related to the question "occurrence of oral cancer in which gender", with 26.7% correct answers. The most correct answer about oral cancer risk factors was related to smoking as a risk factor for oral cancers (84.4%). Only 15.6% of dentists gave correct answers about HPV infection and oral cancer. The mean and standard deviation of oral cancer and oral cancer risk factors awareness were 2.68 ± 1.31 and 5.02 ± 1.33, respectively. There were no significant differences between gender and age with awareness about oral cancer and its risk factors. There were significant differences between participation in an oral cancer seminar and willingness to participate in the oral cancer training course with awareness about oral cancer (P = 0.033 and P = 0.021). Dentists who evaluated their knowledge about oral cancer as good had a higher mean score of awareness of oral cancer, although there was no significant difference.

5. Discussion

In the present study, 42.2% of dentists correctly identified the most common type of oral cancer, which is considerably lower than reported in other studies. Awareness of the most common precancerous lesion was also low at 28.9%, compared to much higher rates reported by Akbari et al. (66.7%) (9) and Nazar et al. (87.9%) (10), Kebabcioglu and Pekiner (95.3%) (12), and Wimardhani et al. (about 50%) (13). Correct identification of the most common anatomical site of oral cancer was 57.8%, compared to 35%, 88.9%, and 80.3% in other studies. For the most common site of metastasis, 64.4% answered correctly, which is lower than in Khattab et al. (76%) (14) and Akbari et al. (100%) (9). Knowledge of these sites is critical for early detection and improving prognosis.

Regarding risk factors, 84.4% recognized smoking and 82.2% alcohol as risk factors, which are lower than percentages reported in other studies. Notably, only 15.5% identified HPV infection as a risk factor, in contrast with 80% and 88.9% in other reports. Given the increasing incidence of HPV-positive oropharyngeal cancers, this low awareness highlights the need for targeted oral cancer education, particularly on HPV. Referral practices in this study were strong, with 97.8% referring suspicious lesions to specialists, consistent with previous reports. The overall knowledge score was low (2.68/7), aligning with other Iranian studies indicating insufficient awareness. Attendance at oral cancer seminars and willingness to participate in training significantly correlated with better knowledge, suggesting educational interventions improve awareness. Age and gender were not associated with knowledge differences, consistent with previous research.

5.1. Conclusions

Overall, the study indicates that general dentists in Shahr-e-Babak, Iran, may have limited awareness and knowledge regarding oral cancer. However, these findings are based on self-reported data, which may not fully reflect actual clinical practices. Despite this potential limitation, the results highlight the importance of improved and ongoing education to address knowledge gaps and support earlier diagnosis and better patient outcomes.

5.2. Limitations

A primary limitation of this commentary is the small sample size, which limits the ability to generalize the findings to the entire region or country. The results highlight a pressing need for ongoing professional education. Notably, those who had attended relevant seminars or expressed willingness to do so scored higher, reinforcing the value of continuing education. Existing curricula and continuing dental education programs may insufficiently emphasize the latest knowledge on risk factors such as HPV, which is increasingly associated with oropharyngeal malignancies. Encouragingly, nearly all dentists indicated that they refer suspicious lesions to specialists, aligning with good clinical practices.

5.3. Recommendations

- Education initiatives: Implement regular, targeted seminars and workshops on oral cancer, emphasizing under-recognized risk factors like HPV.

- Curricular updates: Dental school programs should be updated to incorporate recent advances and evidence in oral oncology.

- Routine screening: Routine oral cancer screening, especially for high-risk individuals, should become a standard part of dental care.

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Footnotes

Authors' Contribution: M. K. A.: Conceptualization, methodology, supervision, visualization, writing – original draft; M. K. A.: Methodology, supervision, writing – review & editing; M. A.: Data curation, Investigation; M. T. P.: Conceptualization, methodology, supervision, writing – original draft

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