



Awareness, comprehension, and sentiments of dentists in Najaf City on oral cancer screening: a questioner-based study

Karrar N. Shareef , Ali Falah Rfysh , Abdulsahib S. Jubran ✉

University of Al-Kafeel, Najaf, Iraq

✉ abdalsahebsaad@alkafeel.edu.iq

Abstract

INTRODUCTION. Oral cancer screening during dental consultations is a simple and non-invasive method for identifying pre-malignant lesions and early-stage malignancies. This research aimed to examine the knowledge, behaviours, and attitudes related to oral cancer screening among dentists in Najaf City.

MATERIALS AND METHODS. Data were gathered using a structured questionnaire and self-reported interviews with 250 dentists, performed from October 15, 2023, to December 20, 2024, at the Martyr Nasser specialised Centre and the specialised centre in the Maysan area. Each dentist required around 5 to 10 minutes to complete the self-report questionnaire and participate in the interview on their knowledge of screening.

RESULTS. 250 dentists were asked to participate in the research, and all of them filled out the survey, yielding a 100% response rate. The dentists' knowledge of oral cancer in this study was not very good overall. Most dentists in this survey (87.6%) regularly check their patients' oral mucosa, but only a small number (49.2%) say they are sure they can diagnose and find oral cancer. About 49% of dentists lack confidence in diagnosing and detecting oral cancer.

CONCLUSIONS. Dentists have a good understanding of oral cancer, but they need more training on how to prevent it and find it early. They should also keep learning and going to seminars.

Keywords: oral cancer, oral squamous cell carcinoma screening, oral cancer diagnosis.

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Осведомленность, понимание и отношение стоматологов г. Наджаф к скринингу рака полости рта: исследование-анкетирование

К.Н. Шариф , А.Ф. Рфиш , А.С. Джубран ✉

Университет Аль-Кафил, Наджаф, Ирак

✉ abdalsahebsaad@alkafeel.edu.iq

Резюме

ВВЕДЕНИЕ. Скрининг рака полости рта во время стоматологического приема является простым и неинвазивным методом выявления предраковых поражений и злокачественных новообразований на ранних стадиях. Целью данного исследования было изучить уровень знаний, практические навыки и отношение стоматологов города Наджаф к скринингу рака полости рта.

МАТЕРИАЛЫ И МЕТОДЫ. Сбор данных проводился с использованием структурированной анкеты и самоотчетных интервью с участием 250 стоматологов в период с 15 октября 2023 г. по 20 декабря 2024 г. в специализированном центре имени Шахида Насера и специализированном центре района Майсан. Каждому стоматологу требовалось около 5–10 минут для заполнения анкеты и участия в интервью, посвященном их знаниям в области скрининга.

РЕЗУЛЬТАТЫ. В исследовании приняли участие 250 стоматологов, все они заполнили анкету, что обеспечило 100% уровень отклика. В целом уровень знаний стоматологов о раке полости рта оказался недостаточным. Большинство респондентов (87,6 %) регулярно осматривают слизистую оболочку полости рта пациентов, однако лишь небольшая часть (49,2 %) уверены в своей способности диагностировать и выявлять рак полости рта. Около 49 % стоматологов испытывают недостаток уверенности при диагностике и обнаружении рака полости рта.

ВЫВОДЫ. Стоматологи обладают общим пониманием проблемы рака полости рта, однако нуждаются в дополнительной подготовке по вопросам профилактики и раннего выявления заболевания. Также рекомендуется непрерывное профессиональное обучение и участие в профильных семинарах.

Ключевые слова: рак полости рта, скрининг плоскоклеточного рака полости рта, диагностика рака полости рта

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INTRODUCTION

Oral cancer is one of the most common cancers in the world. It is the sixth most common cancer overall. In 2020, there were 377,713 new cases and 177,757 reported deaths. This is a big jump from 2018, when there were 354,864 new cases and 177,384 deaths [1; 2]. Squamous cell carcinoma (SCC) is the most common type of mouth cancer, making up most cases. In 2020, SCC accounted for a substantial percentage of global cases of oral squamous cell carcinoma [3].

Squamous cell carcinoma arises from squamous epithelial cells in the oral mucosa and is marked by an aggressive clinical progression, significant infiltration of local neck tissues, and a high incidence of regional lymphatic and distant organ metastasis [4]. The aggressive nature of squamous cell carcinoma necessitates a focus on disease prevention and its complications via early detection and intervention [5; 6].

There are some well-known risk factors that are closely related to the rise of SCC. Among these, the consumption of tobacco products and the misuse of alcoholic beverages are the primary factors, and these risk factors exacerbate the SCC's multiplicative effects. Also, the infection with some oncogenic strains of the human papillomavirus (HPV), especially HPV-16 and HPV-18, has been found to be a major risk in this population, particularly in younger and non-smoking individuals [7]. Due to the multifactorial nature of SCC, a holistic risk assessment and preventive approach are required.

In a clinic setting, squamous cell carcinoma (SCC) may be seen as non-healing ulcers, achandratizing red or white patches (such as ethroplakia or leukoplakia) or palpable painless lumpy or indurated nodules within the oral cavity. These signs and symptoms may be regarded as harmless conditions and may hinder the initial diagnosis. Therefore, patient's treating physicians should be more vigilant and perform more in depth deviated examinations in order to preserve patient health [8].

Oral cancer counts among the diseases of public health significance and therefore, there is a need to objectively assess the knowledge and the attitudes of dental practitioners regarding oral cancer screening. Understanding the beliefs of dental professionals is critical in enhancing and improving screening techniques and increasing detection at early stage so as

to decrease the associated oral cancer morbidity and mortality.

Many studies have addressed the knowledge and attitudes of dentists toward oral cancer screening. Al-Maweri et al. conducted a kw survey that was aimed to determine the awareness, attitude and practices of dentists after an oral cancer awareness campaign [9]. The study assessed the knowledge of the risk factors, the methods of screening and the frequency of the screening both prior to and during the campaign. Reddy & Nalliah [10] carried out a study among general dentists in Midwestern USA to assess their practices in oral cancer screening and lesion detection. Of the respondents assessed the frequency of screens, the confidence of dentists' audiences in lesion assessment and factors that restricted screening practices.

In this research, the study was intended to Examine the Knowledge and Attitudes of Dentists in Al-Najaf City, Iraq regarding Oral Cancer Screening. The study will assess dentists' understanding concerning the screening procedures adopted in oral cancer, its risk factors, and Clinical presentation. The study aims to target the opinions of dentists about oral cancer screening using a well-crafted survey.

MATERIALS AND METHODS

Collection of samples

Subsequent an examination of related literature and previous studies, the investigators established and articulated the questionnaire used in this study, which was modified from an earlier survey with many alterations [1–3]. The questionnaire underwent pre-testing for clarity and consistency, and its reliability was validated in pilot research with a reduced sample of dentists. The questionnaire Consists three primary components: Part (1) Evaluation of Knowledge Concerning Oral Cancer (OC) Screening Among Dentists in Al-Najaf City, Iraq. Section (2) Evaluates Their Disposition, Section (3) Incorporate Targeted Enquiries Regarding Oral Cancer (OC), including 19 items composed as multiple-choice enquiries. The scoring system has two components. One right answer and many erroneous responses. Subsequently, the degree of knowledge is assessed. Based on the average score and threshold (1.5).

To determine the interval length, we used the following equation (Pimentel, 2010).

$$\begin{aligned} \text{Interval length} &= \\ &= \frac{\text{Range of maximum} - \text{Minimum value}}{\text{Number of intervals}} = \\ &= \frac{3 - 2}{3} = 0.667. \end{aligned}$$

Table 1. Calculation of intervals based on a 3-point Likert scale

Таблица 1. Расчет интервалов на основе 3-балльной шкалы Лайкерта

Scale	Disagree	Neutral	Agree
Degree	1	2	3
Interval length	0.667	0.667	0.667
Range	1–1.67	1.68–2.33	2.34–3
Assessment	low	Moderate	High

Data were gathered using a designed questionnaire and self-reporting via interviews with 250 dentists from October 15, 2023, to December 20, 2024, at the Martyr Nasser Specialized Centre and the specialized center in the Maysan area. The self-report from the questionnaire and interview required roughly 5 to 10 minutes for each dentist.

Table 2. Knowledge of oral cancer screening among dentists

Таблица 2. Уровень знаний стоматологов о скрининге рака полости рта

Variable	Agree (%)	Disagree (%)	Not Sure (%)	Mean ± SE	p-value	Assessment
Oral cancer is contagious	18.8	66	15.2	1.53±0.05	0.0	Low
Observed a case of oral cancer	19.2	80.8	0	1.38±0.05	0.0	Low
Smoking is the greatest risk factor	48	44	8	2.04±0.06	0.0001	Moderate
Most prevalent age group is over 40	76.4	13.2	10.4	2.63±0.05	0.0	High
Ulcer/erythematous patches as clinical signs	79.2	16	4.8	2.63±0.05	0.0	High
Males have a higher incidence of oral cancer	80	12.4	7.6	2.68±0.04	0.0	High
Total Knowledge Score	–	–	–	2.15±0.03	–	Moderate

Table 3. Attitudes toward oral cancer screening among dentists

Таблица 3. Отношение стоматологов к скринингу рака полости рта

Variable	Agree (%)	Disagree (%)	Not Sure (%)	Mean ± SE	p-value	Assessment
Regularly examine patients' oral mucosa	87.6	12.4	0	2.75±0.04	0.0	High
Confident in diagnosing oral cancer	49.2	49.2	1.6	2.00±0.06	0.0	Moderate
Early detection improves outcomes	96.8	2.4	0.8	2.94±0.02	0.0	High
Refer to a specialist if malignancy suspected	96	2	2	2.94±0.02	0.0	High
Total Attitude Score	–	–	–	2.66±0.03	–	High

Statistical examination

The data were inputted and analyzed by Microsoft 365 Excel 2024 and version 26 of the Statistical Package for the Social Sciences (SPSS, IBM) software. The findings are shown in tables and/or graphs. A T-test and ANOVA were used for the statistical analysis of the variables. In all statistical studies, the significance threshold (p-value) was established at 0.05.

RESULTS

Table 2 delineates the awareness of dentists in Najaf on oral cancer screening, risk factors, and symptoms. Most of the people who answered correctly identified major risk factors (like smoking and being over 40) and symptoms (like ulcers). Unfortunately, some people believed oral cancer was contagious. Overall awareness was low, indicating that more education is needed, especially on oral cancer early detection and frequent misconceptions.

Table 3 illustrates dentists' perceptions concerning oral cancer screening. Numerous dentists demonstrated a favourable disposition regarding routine oral cancer screenings and highlighted the importance of early detection. Only 50% of dentists expressed confidence in their ability to diagnose oral cancer, indicating a need for additional training. The dentists' elevated overall attitude score indicates their awareness of the significance of their role in oral cancer prevention; however, there may be a need for additional resources and enhanced confidence.

Table 4. Specific questions about oral cancer**Таблица 4.** Специфические вопросы по раку полости рта

Variable	Agree (%)	Disagree (%)	Not Sure (%)	Mean $\pm$ SE	p-value	Assessment
Squamous cell carcinoma as most common type	80	12.4	7.6	2.68 $\pm$ 0.04	0.0	High
Oral cancer most common on floor of mouth	80	12.4	7.6	2.68 $\pm$ 0.04	0.0	High
Recognized precancerous lesions like leukoplakia	79.2	16	4.8	2.63 $\pm$ 0.05	0.0	High
Non-healing ulcers as common presentation	76.4	13.2	10.4	2.63 $\pm$ 0.05	0.0	High
Confident in staging diagnosed oral cancer	49.2	49.2	1.6	2.00 $\pm$ 0.06	0.0	Moderate
Total Specific Question Score	–	–	–	2.43 $\pm$ 0.03	0.0	High

Table 5. Suggested methods for early detection of oral cancer**Таблица 5.** Рекомендуемые методы раннего выявления рака полости рта

Detection Method	Responses (%)
Routine check-up	32.0
Biopsy	26.8
Clinical examination	25.6
Educational initiatives	15.6

Table 4 shows how dentists answered specific questions about the signs of oral cancer and how to diagnose it. Most dentists correctly named the most common types of oral cancer, such as squamous cell carcinoma and persistent ulcers, which are both important signs. Still, people only had a moderate level of trust in the illness stage. Dentists did very well on these questions, but they still have trouble recognising less common signs and stages.

Table 5 demarcates the dentists' views for the most efficacious approaches of early oral cancer detection. The most common procedure was a regular check-up (32%), followed by a biopsy (26.8%) and a clinical exam (25.6%). Dentists rarely chose educational programs, which shows that they prefer practical, hands-on screening methods to teaching people how to avoid problems.

DISCUSSION

Oral cancer is still a major public health problem around the world, especially for dentists. It is one of the ten most common cancers in the world. Despite significant advancements in research and treatment, the overall survival rate for oral cancer has not substantially increased in the past decade, posing a continuous challenge for biomedical sciences [10]. Due to the fact that dentists play a significant role in the early diagnosis of oral cancer via screening and preventative measures, it is very important to evaluate their knowledge and practices in order to enhance the results for patients [11].

The purpose of this study is to investigate the knowledge, attitudes, and behaviours of dentists in Al-Najaf City, Iraq, in relation to oral cancer screening. The results provide important insights into the information that dental practitioners in this area already possess about oral cancer awareness and the procedures that they use to treat patients. An assumption that dentists in Al-Najaf City are not aware of oral cancer screening is referred to as the null hypothesis. However, this assertion is refuted by information that indicates that these dentists have some understanding of the screening technology.

A response rate of one hundred percent was achieved in this research, which is a significant improvement above the previous rates that were observed in Malaysia (41.7%) and Sri Lanka (38%) [12]. Our research has a response rate that is much higher than that of a study that was performed in Yemen that was quite comparable to ours and showed a response rate of 27.6% [13]. The increasing response rate may indicate that dentists in Al-Najaf City are more concerned about or aware of the need of oral cancer screening.

It is important for dentists to know a lot about the risk factors, signs, and symptoms of oral cancer because they play an important role in screening for oral mucosal cancer and preventing it [14]. Our survey indicated that most respondents had a modest understanding of oral cancer and its related risk factors. This assumption encounters other wide-reaching studies that indicated a lack of oral cancer awareness between dental expert [15; 16]. However, approximately risk aspects, particularly smoking, were widely recognized, with 94.6% of contributors ($n = 35$) identifying smoking as a substantial risk factor for oral cancer, consistent with the results of research directed at the University of Toronto [17].

In existing study, only 29.9% of respondents thought that they regularly screen patients for mucosal lesions as part of clinical measures for oral cancer anticipation. Compared to the findings of previous studies conducted in Saudi Arabia, where only 13% of dentists demonstrated frequent testing [18], this number is much higher. On the other hand, higher rates of frequent screenings were seen in further investigations that were carried out in Kuwait, Sudan, and Aus-

tralia [19; 20]. The observed disparities point to a large amount of variety in the techniques of routine screening that are used in different locations. This variation is most likely linked to differences in healthcare policies, education, and awareness levels.

The evaluation of specific research on oral cancer revealed that the dentists who were polled have various degrees of expertise about the subject. On the other hand, some of the respondents shown a full awareness of the essential characteristics of oral cancer, while others displayed inadequacies in crucial areas such as early diagnosis and the most prevalent locations of incidence. According to the results, there

is a pressing need for improved programs of ongoing education and training in order to develop the capabilities of dentists in the areas of oral cancer screening and prevention [21].

CONCLUSION

In a nutshell, dentists in Al-Najaf City have a good understanding of the elements that might lead to oral cancer as well as the causes of the disease. It is very vital to broaden the scope of continuous education programs and improve screening procedures in order to improve the results for patients and the accuracy of early diagnosis.

REFERENCES / СПИСОК ЛИТЕРАТУРЫ

1. Sung H., Ferlay J., Siegel R.L., Laversanne M., Soerjomataram I., Jemal A., Bray F. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2021;71(3):209–249. <https://doi.org/10.3322/caac.21660>
2. Bray F., Ferlay J., Soerjomataram I., Siegel R.L., Torre L.A., Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2018;68(6):394–424. <https://doi.org/10.3322/caac.21492> (Erratum in: *CA Cancer J Clin.* 2020;70(4):313. <https://doi.org/10.3322/caac.21609>).
3. Tan Y., Wang Z., Xu M., Li B., Huang Z., Qin S. et al. Oral squamous cell carcinomas: state of the field and emerging directions. *Int J Oral Sci.* 2023;15(1):44. <https://doi.org/10.1038/s41368-023-00249-w>
4. Warnakulasuriya S. Global epidemiology of oral and oropharyngeal cancer. *Oral Oncol.* 2009;45(4-5):309–316. <https://doi.org/10.1016/j.oraloncology.2008.06.002>
5. Neville B.W., Day T.A. Oral cancer and precancerous lesions. *CA Cancer J Clin.* 2002;52(4):195–215. <https://doi.org/10.3322/canjclin.52.4.195>
6. Brocklehurst P., Kujan O., Glennly A.M., Oliver R., Sloan P., Ogden G., Shepherd S. Screening programmes for the early detection and prevention of oral cancer. *Cochrane Database Syst Rev.* 2010;(11):CD004150. <https://doi.org/10.1002/14651858.CD004150.pub3>
7. Gillison M.L., Koch W.M., Capone R.B., Spafford M., Westra W.H., Wu L. et al. Evidence for a causal association between human papillomavirus and a subset of head and neck cancers. *J Natl Cancer Inst.* 2000;92(9):709–720. <https://doi.org/10.1093/jnci/92.9.709>
8. London S.D., Chamut S., Fontelo P., Iafolla T., Dye B.A. Assessment of the quality of current American Dental Association clinical practice guidelines. *JDR Clin Trans Res.* 2023;8(2):178–187. <https://doi.org/10.1177/23800844221083563>
9. Al-Maweri S.A., Halboub E., Shamala A., Al-Maweri A.A., Daud A., Almurisi E. et al. Oral cancer knowledge and screening practices among dental professionals in Yemen: a web-based survey. *Int Dent J.* 2025;75(3):2034–2041. <https://doi.org/10.1016/j.identj.2024.12.034>
10. Reddy M.S., Nalliah R.P. Leading the way in oral cancer screening. *J Dent Educ.* 2024;88(6):753–754. <https://doi.org/10.1002/jdd.13620>
11. Gómez I., Seoane J., Varela-Centelles P., Diz P., Takouché B. Is diagnostic delay related to advanced-stage oral cancer? A meta-analysis. *Eur J Oral Sci.* 2009;117(5):541–546. <https://doi.org/10.1111/j.1600-0722.2009.00672.x>
12. Chan Z.-W., Phuan Y.-F., Ooi P.-Y., Azmi N.N., Patel D.G.S., Yap H.-Y.Y., Gunjal S. An assessment of oral cancer knowledge, attitudes, and practices among undergraduate students in Malaysian dental schools. *BMC Oral Health.* 2023;23(1):317. <https://doi.org/10.1186/s12903-023-03354-8>
13. Alaizari N.A., Al-Maweri S.A. Oral cancer: knowledge, practices and opinions of dentists in Yemen. *Asian Pac J Cancer Prev.* 2014;15(14):5627–5631. <https://doi.org/10.7314/apjcp.2014.15.14.5627>
14. Johnson N.W., Jayasekara P., Amarasinghe A.A. Squamous cell carcinoma and precursor lesions of the oral cavity: epidemiology and aetiology. *Periodontol* 2000. 2011;57(1):19–37. <https://doi.org/10.1111/j.1600-0757.2011.00401.x>
15. Yakin M., Gavid R.O., Cox B., Rich A. Oral cancer risk factors in New Zealand. *NZ Med J.* 2017;130(1451):30–38.
16. Negri E., Franceschi S., Bosetti C., Levi F., Conti E., Parpinel M., La Vecchia C. Selected micronutrients and oral and pharyngeal cancer. *Int J Cancer.* 2000;86(1):122–127. [https://doi.org/10.1002/\(sici\)1097-0215\(20000401\)86:1<122::aid-ijc19>3.0.co;2-2](https://doi.org/10.1002/(sici)1097-0215(20000401)86:1<122::aid-ijc19>3.0.co;2-2)
17. Sankaranarayanan R., Ramadas K., Amarasinghe H., Subramanian S., Johnson N. Oral cancer: Prevention, early detection, and treatment. In: Gelband H., Jha P., Sankaranarayanan R., Horton S. (eds). *Cancer: Disease control priorities*. 3rd ed. (Volume 3). Washington (DC): The International Bank for Reconstruction and Development / The World Bank; 2015. Chapter 5, pp. 85–99.
18. Rajeh M., Khayat W. Level of evidence of dental research in Saudi Arabia (2000–2020). *Int J Dent.* 2021;2021:3463434. <https://doi.org/10.1155/2021/3463434>
19. Ramamurthy P., Sharma D., Thomson P. Oral cancer awareness in patients attending university dental clinics: A scoping review of Australian studies. *Aust Dent J.* 2022;67(1):5–11. <https://doi.org/10.1111/adj.12877>
20. Ahmed N.H.M., Naidoo S. Oral cancer knowledge, attitudes, and practices among dentists in Khartoum State, Sudan. *J Cancer Educ.* 2019;34(2):291–296. <https://doi.org/10.1007/s13187-017-1300-x>
21. Saleh A., Kong Y.H., Vengu N., Badrudeen H., Zain R.B., Cheong S.C. Dentists' perception of the role they play in early detection of oral cancer. *Asian Pac J Cancer Prev.* 2014;15(1):229–237. <https://doi.org/10.7314/apjcp.2014.15.1.229>

INFORMATION ABOUT THE AUTHORS

Karrar N. Shareef – PhD, Lecturer, College of Dentistry, University of Alkafeel, Al Nedaa Street, Najaf, Iraq; <https://orcid.org/0000-0003-1550-7990>

Ali Falah Rfysh – MSc, Assistant Lecturer, College of Dentistry, University of Alkafeel, Al Nedaa Street, Najaf, Iraq; <https://orcid.org/0000-0001-8055-3550>

Abdulsahib S. Jubran – PhD, Assistant Professor, College of Dentistry, University of Alkafeel, Al Nedaa Street, Najaf, Iraq; <https://orcid.org/0000-0001-9448-6707>

ИНФОРМАЦИЯ ОБ АВТОРАХ

Каррар Н. Шариф – PhD, преподаватель, стоматологический факультет, Университет Аль-Кафеель, ул. Аль-Нидаа, Наджаф, Ирак; <https://orcid.org/0000-0003-1550-7990>

Али Фалах Рфиш – магистр наук, ассистент преподавателя, стоматологический факультет, Университет Аль-Кафеель, ул. Аль-Нидаа, Наджаф, Ирак; <https://orcid.org/0000-0001-8055-3550>

Абдулсахиб С. Джубран – PhD, доцент, стоматологический факультет, Университет Аль-Кафеель, ул. Аль-Нидаа, Наджаф, Ирак; <https://orcid.org/0000-0001-9448-6707>

AUTHOR'S CONTRIBUTION

All the authors made equal contributions to the publication preparation in terms of the idea and design of the article; data collection; critical revision of the article in terms of significant intellectual content and final approval of the version of the article for publication.

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