RESEARCH ARTICLE

Confidence in Oral Cancer Awareness among Undergraduate Health Profession University Students at Al-Quds University

Nour Qawasmeh[1], Mohammad Assaf [2*], Deniz Noyun[3]

[1]*Faculty of Dentistry, Al-Quds University, Palestine.*
[2]*Faculty of Dentistry, Al-Quds University, Palestine.*
[3]*Dentplus Dental Clinic, Bursa, Turkiye.*

Received: 19th March, 2023; Revised: 02nd April, 2023; Accepted: 13th August, 2023; Available Online: 25th September, 2023

ABSTRACT

Background: Oral cancer is the sixth most commonly diagnosed cancer in the world. Still, awareness of this disease among undergraduate health profession university students is insufficient. Many students lack an understanding of risk factors and early signs of oral cancer. Therefore rises a need to increase awareness of oral cancer among health profession graduates so that they may be trained to recognize, diagnose, and properly manage this potentially deadly disease.

Method: This study aimed to assess the current awareness and knowledge in oral cancer, focusing on prevention, early detection and adequate referral amongst undergraduate students studying a healthcare profession at Al-Quds University. This was a qualitative survey conducted among 64 senior students at various health profession undergraduate programs. The survey was distributed online and included questions about prevention, early detection, adequate referral, and overall confidence.

Results: The results of the survey indicate that dental students had a higher confidence level in the subject of oral cancer than non-dental students, with the highest levels of confidence in prevention and lower levels of confidence in adequate referral. Additionally, the results suggest that a larger proportion of non-dental students showed lower confidence in the survey, and a higher proportion of dental students showed higher confidence.

Conclusion: In conclusion, this survey revealed that dental students had a higher level of confidence in the areas of prevention, early detection, and overall confidence than non-dental students. Additionally, more emphasis on these aspects is recommended for all health profession students in necessary.

Keywords: Oral Cancer, Prevention, Awareness, Dental Students, Health Profession, Al-Quds University

International Journal of Pharmaceutical Quality Assurance (2023); DOI: 10.25258/ijpqa.14.3.44

How to cite this article: Qawasmeh N, Assaf M, Noyun D. Confidence in Oral Cancer Awareness among Undergraduate Health Profession University Students at Al-Quds University. International Journal of Pharmaceutical Quality Assurance. 2023;14(3):724-729.

Source of support: Nil.

Conflict of interest: None

INTRODUCTION

Oral cancers affect more than 350,000 individuals globally. The disease disproportionately affects developing countries where it ranks as the fourth most common cancer, as reported by Human Development Index-HDI, GLOBOCAN.[1] In 2018, the worldwide estimate was 177,384 deaths and 354,864 new cases of lip and oral cavity cancers.[2] Oral cancers are squamous cell carcinomas in more than 90% of cases; the incidence of oral cancer increases with age and is highest over 60 years, even though cases in people younger than 40 years are increasing.[3] Squamous cell carcinoma is the most common histology and the main etiological factors are tobacco and alcohol use.[4]

Oral cancer has poor prognosis, with overall 5-year survival rates as low as 40%, although, if diagnosed in the early stages (I and II), survival rates can exceed 80%.[5] Up to 50% of oral cancers are diagnosed at an advanced stage (stage III and IV), as most patients are not symptomatic in the early stages and do not seek medical help until they show clear symptoms such as pain, bleeding, or a mass in the mouth or neck if lymphatic spread is already present.[6] For health professions, knowledge about oral cancer awareness and early detection is crucial for the early detection and increased successful management of the disease.[7,8] Whenever signs of such a lesion are suspected, observation is held for up to two weeks to detect clinical changes before a biopsy is obtained to get a definite diagnosis or exclude malignancy. Surgical resection is the treatment of choice for Squamous Cell Carcinoma in the oral cavity. Adjuvant radiotherapy with or without chemotherapy, is used for specific indications in localized tumors.[9]

**Author for Correspondence: mohammad.assaf@staff.alquds.edu*

The state of oral cancer awareness among undergraduate health profession students is essential for the promotion of the health system, yet insufficient data about the efficiency of health education in this field is present. Studies about oral cancer awareness among health profession university students are limited; however, most studies concluded that the level of knowledge about oral cancer among health profession university students should be improved.[10,11]

A study conducted in Nepal reported that only 3.2% of undergraduate health profession university students had adequate knowledge about oral cancer, and only 3.4% had heard about oral cancer screening.[10] In 2020, Gunjal *et al.* showed that dental students in a Malaysian university had higher level of knowledge than medical students regarding oral cancers. More than 90% of the dental students were able to recognise risk factors associated with oral cancer compared to about 50% of medical students. Thus, the authors suggested that awareness amongst medical students should be reinforced, which will promote early detection of precancerous lesions and oral cancers.[11] Saadat *et al.* evaluated oral cancer awareness and education within the pharmacy profession in the United Kingdom in 2022. Participants who were mostly females showed positive attitude toward referral of suspicious lesions. Less than half of them feel confident in recognizing risk factors for oral cancers. Most of them agree that more educational resources are necessary. This study demonstrates a need for profession development aimed at community pharmacists who can aid in improving rates of early detection of oral cancers.[12]

In Palestine, a recent study was conducted by Shadid *et al.* at the Arab American University of Jenin which evaluated the level of oral cancer knowledge of undergraduate students in their 4th and 5th year at dental school as well as intern dentists. The authors reported that the majority of respondents had poor knowledge about clinical features, risk factors, and early detection of oral cancers. However, most respondents showed favorable attitudes towards oral cancer prevention. Among the 351 participants, 61% thought that they are adequately trained to refer high risk oral lesions to specialists.[13]

This study examines the confidence level towards oral cancer among undergraduate health students at Al-Quds University. It will discuss oral cancer awareness, early detection, and referral familiarity with premalignant and suspicious lesions.

MATERIALS AND METHODS

The study's main purpose is to assess the awareness and knowledge in oral cancer with a focus on prevention, early detection and adequate referral amongst undergraduate students studying a healthcare profession at Al-Quds university. A survey of 12 questions was distributed to students as an online questionnaire in Google Forms. The survey contained four questions on demographics followed by eight closed-ended questions, as seen in Figure 1. The questions clarified about knowledge in four main subject areas: prevention (three questions), early detection (two questions), adequate referral (two questions) and overall confidence (one question). Students were asked to describe their confidence level between zero 'not at all confident' and five 'very confident' for every question.

Prevention:

1- Do you understand oral cancer associated risk factors?

2- Do you feel you can identify high risk oral cancer patients?

3- How do you feel discussing oral cancer and/or tobacco cessation with patients?

Early detection:

4- Are able to carry out intra oral screening to identify suspicious lesions?

5- Do you know what lesions in the mouth are regarded as urgent?

Adequate referral

6- Do you know how to refer suspicious lesions?

7- Do you know what happens to patients who have oral cancer?

Overall confidence

8- Are you confident in the subject of oral cancer?

Figure 1: Survey questions

Study Area

The study was conducted at Al Quds University during spring semester of 2020. Al-Quds University Research Ethical Committee approved the study in accordance with their ethical research guidelines (Number: 106/REC/2020, Date: 17/2/2020).

The following were the inclusion and exclusion criteria of the study

Inclusion Criteria

- In their final academic year, senior undergraduate students enrolled in a health profession degree at Al-Quds University.
- Targets: Dentistry, Medicine, Nursing, Pharmacy and Midwifery students.

Exclusion Criteria

- Non-Al-Quds University students.
- Any student not enrolled in a health profession degree.
- Undergraduate students who are not in their final year of the bachelor's degree.

Statistical Analysis

Microsoft Excel was used to enter and analyse the data. Descriptive statistics was used for demographic variables. For every question, frequency analysis was performed to assess the awareness and knowledge in oral cancer, focusing on prevention, early detection and adequate referral.

Ethical Considerations

Participation in the research was completely voluntary, participants' agreement was obtained at the start of the questionnaire, and they were able to withdraw from the study at any moment. The participants' identities were neither connected to any of the information they supply nor exposed to their supervisors to eliminate any pressure on students to participate or worry about their academic evaluation.

RESULTS

The questionnaire link expired after ten days from announcing the survey. The total of 64 surveys were collected. The female participants 52 (81.3%) outnumbered the 12 male participants.

The mean age of participants was 22.2 years with an age range of 21–25. All students were in their final academic year. Almost half of the responses came from dental students 33 (51.6%) alone.

Overview of Results

The mean value of scores to the awareness questions asked can be seen in Table 1. The mean value to all eight questions is 2.88 for all participants (n = 64); 3.11 for dental students (n = 33) and 2.31 for the rest of health professions (n = 31). The mean range for all participants was between 2.41 and 3.39 (Table 2).

Table 1: Demographics of participating students

Gender	*Number of students (n = 64)*	*Percentage (%)*
Female	52	81.3
Male	12	18.7
Undergraduate faculty		
Dentistry	33	51.6
Nursing	14	21.9
Medicine	9	14.1
Pharmacy	7	10.9
Midwifery	1	1.6

Table 2: Mean value for confidence levels to questions on oral cancer from undergraduate health profession students (dental and others) at Al-Quds University

Subject area followed by questions asked	*Mean value for dental students*	*Mean value for other health profe ssion students*	*Mean value for all students*
Prevention	3.34	3.02	3.19
Do you understand oral cancer associated risk factors?	3.52	3.06	3.30
Do you feel you can identify high risk oral cancer patients?	3.03	2.71	2.88
How do you feel discussing oral cancer and/or tobacco cessation with patients?	3.48	3.29	3.39
Early detection	2.93	2.52	2.73
Are you able to carry out intra oral screening to identify suspicious lesions?	2.97	2.61	2.80
Do you know what lesions in the mouth are regarded as urgent?	2.88	2.42	2.66
Adequate referral	3.03	2.18	2.62
Do you know how to refer a suspicious lesion?	2.79	2.00	2.41
Do you know what happens to patients who have oral cancer?	3.27	2.35	2.83
Overall confidence	2.91	2.68	2.78
Are you confident in the subject of oral cancer?	2.91	2.68	2.78
Mean value for all eight questions	3.11	2.31	2.88

For dental students, highest confidence levels were in subject area 'prevention' with lowest scores in 'overall confidence'. For the non-dental student participants, the highest confidence was also in 'prevention' with lowest scores in 'adequate Referral.' The percentages of students showing the most and least confidence was calculated and the results are shown in Table 3.

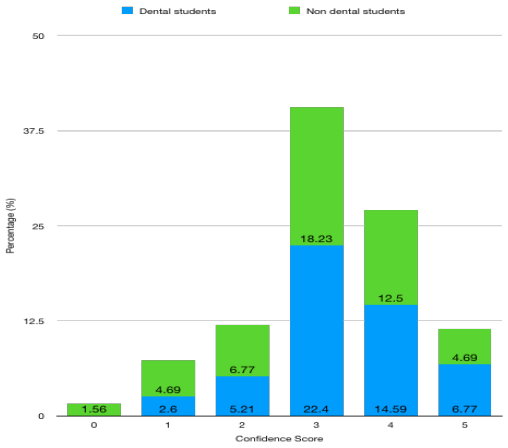
The highest percentage of students scoring 'zero' were from non-dental students for three questions: two in adequate referral and one in overall confidence. The highest percentage, scoring 'five' was for non-dental students for one question on the discussion of oral cancer/tobacco cessation with patients.

Prevention

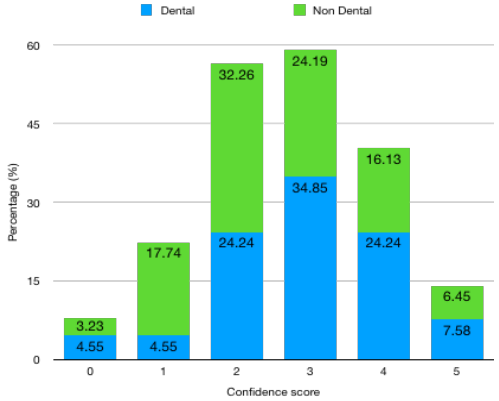
Results of questions 1 to 3 are displayed in Graph 1; showing that 11.46% of the participants scored 'five' on the questions regarding knowledge that would help in the prevention of oral cancer, with 6.77% of the dental students and 4.69% of the non-dental students achieving this mark. Additionally, 1.56% of the students scored a 'zero', none of whom were dental students. This data suggests that dental students were more confident in their answers in this area.

Early Detection

Results of questions 4 and 5 are displayed in Graph 2, showing that the percentage of dental students scoring between 'zero' and 'five' in the topic of early detection of oral cancers is higher



Graph 1: Illustrating confidence levels in relation to questions on the prevention of oral cancer.



Graph 2: Illustrating confidence levels in relation to questions on the early detection of oral cancer.

Table 3: Percentage of confidence showing differences between dental students and non-dental student participants.

	Dental students		*Non dental students*	
Question	*Percentage scoring 0 (%)*	*Percentage scoring 5 (%)*	*Percentage scoring 0 (%)*	*Percentage scoring 5 (%)*
Do you understand oral cancer associated risk factors?	0.00	15.15	6.45	3.23
Do you feel you can identify high risk for oral cancer patients?	0.00	6.06	3.23	9.68
How do you feel discussing oral cancer and/or tobacco cessation with patients?	0.00	15.15	0.00	16.13
Are you able to carry out intra oral screening to identify suspicious lesions?	3.03	9.09	6.45	9.68
Do you know what lesions in the mouth are regarded as urgent?	6.06	6.06	0.00	3.23
Do you know how to refer a suspicious lesions?	6.06	12.12	9.68	2.23
Do you know what happens to patients who have oral cancer?	3.03	15.15	9.68	2.23
Are you confident in the subject of oral cancer?	0.00	12.12	9.68	9.68

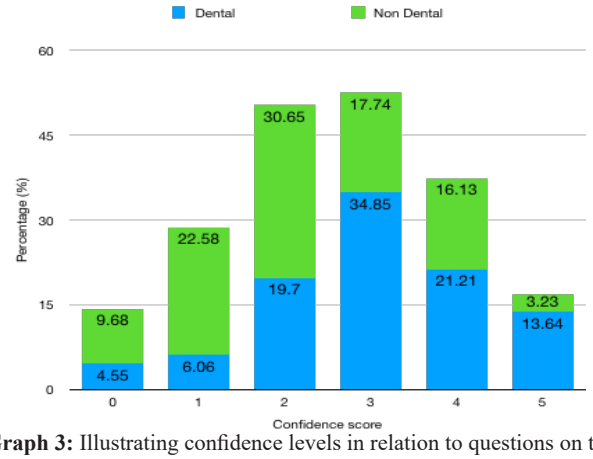
(4.55%) than that of non-dental students (3.23%). In contrast, more dental students (7.58%) scored 'five' in comparison to non-dental students (6.45%).

Adequate Referral

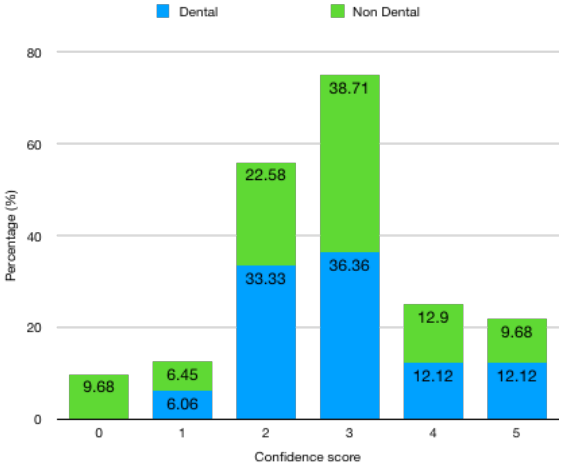
Results of questions 6 and 7 are displayed in Graph 3, showing the confidence of dental and non-dental students in their ability to appropriately refer oral cancers. Graph 3 displays the results of the percentage of students who scored from 'zero' to 'five' in this particular area. The results from the survey indicate that dental students had a higher confidence (13.64%) than non-dental students (3.23%). Additionally, a larger proportion of the non-dental students (9.68%) scored 'zero' for confidence in comparison to dental students (4.55%).

Overall Confidence

Results of question 8 are displayed in graph 4 showing overall confidence level in oral cancer. The results showed that dental students had a higher level of confidence overall in comparison to non-dental students, with 9.68% of non-dental students scoring 'zero.' Overall of 21.80% of participants scored 'five.'



Graph 3: Illustrating confidence levels in relation to questions on the adequate referral of oral cancer.



Graph 4: Illustrating confidence levels in relation to questions on the overall confidence of oral cancer.

DISCUSSION

A total of 64 replied have been received from all AQU senior students of the five specialities: dentistry, medicine, pharmacy, nursing and midwifery. The ages of participants ranged from 21–25, reflecting the typical ages of students at AQU who probably enter university immediately after high school, in most cases at 18 or 19. Females represented the majority (81.3%) of respondents, which is in compliance with the female-to-male ratio at the various health profession specialities at AQU. The number of senior students at the faculty of dentistry was 167 at the time when this study was conducted, the percentage of females was 77.2%. More than half of the total responses came from dentistry students, this may reflect that the topic of this study attracted them more than other specialties, and may also indicate negligence from other students who felt may have felt insecure about this topic.[20] This means that the confidence levels of the students who did not fill the questionnaire may be lower than those who filled it.

This survey was conducted to assess the confidence levels of undergraduate health profession students (dental

and non-dental) at AQU about their knowledge of oral cancer prevention, early detection, and adequate referral. The results from this study indicate that dental students had higher levels of confidence in their knowledge of oral cancer than non-dental students in all areas; dental students scored 3.11 out of 5, while non-dental students scored 2.31. The results from the survey show that dental students had the highest levels of confidence in the prevention of oral cancer, with 15.15% of dental students scoring a five for confidence, compared to 3.23% of non-dental students. The results also indicate that dental students had a higher level of confidence in their ability to detect oral cancer in its early stages, with 7.58% of dental students scoring five compared to 6.45% of non-dental students and 4.55% of dental students scoring zero, compared to 3.23% of non-dental students. Additionally, the average percentage of 13.64% of dental students scored a five for confidence in adequate referral questions, compared to 3.23% of non-dental students, and 4.55% of dental students scored zero, compared to 9.68% of non-dental students. These results are not surprising, since dental students are more used to evaluating the clinical appearance of healthy oral tissues due to the routine examination of teeth and oral mucosa. In a study in the United Kingdom, 93% of final year medical students felt they have insufficient knowledge regarding early detection of oral cancer.[19]

A study evaluating dental students in Turkey showed the importance of improved educational methods on oral cancer knowledge. Satisfactory results in identifying risk factors and premalignant lesions were reported among the different undergraduate dental students. The authors recommended that medical history forms should be updated to include a comprehensive list of available and emerging risk factors for oral cancer.[18]

In a study in Palestine, Shadid *et al.* showed significantly better knowledge among intern dentists compared to undergraduate dental students at the Arab American University of Jenin. However, 93% thought they needed additional training in preventing and screening oral cancer. The authors recommended implementing continuous education programs from graduate dentists to compensate for lack of knowledge in this sensitive field of dentistry.[13]

The results from this survey indicate that dental students had higher levels of confidence in their knowledge of oral cancer than non-dental students in the areas of prevention and early detection. However, previous studies showed that there is a deficiency for proper referral among Palestinian dentists.[21,22] The results are not yet satisfactory. This suggests that more emphasis should be placed on educating non-dental students on the referral process for oral cancers to ensure that patients receive the appropriate care as early as possible. In addition, dental students should receive more education on the referral process, as they may be more likely to refer oral cancers than non-dental students. This is especially important, as dental students are likely to be the first advisors for patients presenting with symptoms of oral cancer.[23] Overall, this survey indicates that there is a need for more education on the subject of oral cancer for both dental and non-dental students. As oral cancers are a major health concern, it is important that all health profession students have a good understanding of the prevention, early detection, and referral of oral cancers. Further research should be conducted to determine the most effective methods of educating health profession students on oral cancers.

ACKNOWLEDGMENT

The authors would like to thank Dr. Susan Khader, who contributed to this study's design and analysis.

REFERENCES

1. GLOBOCAN. Estimated Cancer Incidence, Mortality and prevalence Worldwide in 2018, 2018.
2. Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M et al. Global cancer observatory: cancer today. Lyon, France: International Agency for Research on Cancer; 2018.
3. Warnakulasuriya S. Global epidemiology of oral and oropharyngeal cancer. Oral Oncol. 2009;45(4-5):309-16. doi: 10.1016/j.oraloncology.2008.06.002, PMID 18804401.
4. Blot WJ, McLaughlin JK, Winn DM, Austin DF, Greenberg RS, Preston-Martin S, et al. Smoking and drinking in relation to oral and pharyngeal cancer. Cancer Res. 1988;48(11):3282-7. PMID 3365707.
5. Silverman S, Kerr AR, Epstein JB. Oral and pharyngeal cancer control and early detection. J Cancer Educ. 2010;25(3):279-81. doi: 10.1007/s13187-010-0045-6, PMID 20204575.
6. McCullough MJ, Prasad G, Farah CS. Oral mucosal malignancy and potentially malignant lesions: an update on the epidemiology, risk factors, diagnosis and management. Aust Dent J. 2010;55;Suppl 1:61-5. doi: 10.1111/j.1834-7819.2010.01200.x, PMID 20553246.
7. Güneri P, Epstein JB. Late stage diagnosis of oral cancer: components and possible solutions. Oral Oncol. 2014;50(12):1131-6. doi: 10.1016/j.oraloncology.2014.09.005, PMID 25255960.
8. Messadi DV. Diagnostic aids for detection of oral precancerous conditions. Int J Oral Sci. 2013;5(2):59-65. doi: 10.1038/ijos.2013.24, PMID 23743617.
9. Montero PH, Patel SG. Cancer of the oral cavity. Surg Oncol Clin N Am. 2015;24(3):491-508. doi: 10.1016/j.soc.2015.03.006, PMID 25979396.
10. Poudel P, Srii R, Marla V. Oral cancer awareness among undergraduate dental students and dental surgeons: A descriptive cross-sectional study. JNMA J Nepal Med Assoc. 2020;58(222):102-7. doi: 10.31729/jnma.4847, PMID 32335622.
11. Gunjal S, Pateel DGS, Lim RZS, Yong LL, Wong HZ. Assessing oral cancer awareness among dental and medical students of a Malaysian private university. Int Dent J. 2020;70(1):62-9. doi: 10.1111/idj.12524, PMID 31691268.
12. Saadat S, Longridge N, Shaw R, Walker A, McCarthy C. Oral cancer awareness and education within the pharmacy profession. J Oncol Pharm Pract. 2023;29(4):826-32. doi: 10.1177/10781552221081387, PMID 35261305.
13. Shadid RM, Abu Ali MA, Kujan O. Knowledge, attitudes, and practices of oral cancer prevention among dental students and interns: an online cross-sectional questionnaire in Palestine. BMC Oral Health. 2022 September 5;22(1):381. doi: 10.1186/s12903-022-02415-8. PMID 36064693.

14. Soares TRC, Carvalho ME, Pinto LSS, Falcão CA, Matos FTC, Santos TC. Oral cancer knowledge and awareness among dental students. Braz J Oral Sci. 2014;13(1):28-33. doi: 10.1590/1677-3225v13n1a06.
15. Burzynski NJ, Rankin KV, Silverman S Jr, Scheetz JP, Jones DL. Graduating dental students' perceptions of oral cancer education: results of an exit survey of seven dental schools. J Cancer Educ. 2002;17(2):83-4. doi: 10.1080/08858190209528804. PMID 12092858.
16. Nazar H, Shyama M, Ariga J, El-Salhy M, Soparkar P, Alsumait A. Oral cancer knowledge, attitudes and practices among primary oral health care dentists in Kuwait. Asian Pac J Cancer Prev. 2019;20(5):1531-6. doi: 10.31557/APJCP.2019.20.5.1531. PMID 31128059.
17. Alsaud B. Knowledge, attitudes, and practices of dental undergraduates and practitioners regarding oral cancer in Jeddah. Saudi Arabia EC Dent Sci. 2019;18:1944-52.
18. Keser G, Pekiner FN. Assessing oral cancer awareness among dental students. J Cancer Educ. 2019;34(3):512-8. doi: 10.1007/s13187-018-1332-x, PMID 29446005.
19. Carter LM, Ogden GR. Oral cancer awareness of undergraduate medical and dental students. BMC Med Educ. 2007;7:44. doi: 10.1186/1472-6920-7-44, PMID 18005417.
20. Ball HL. Conducting online surveys. J Hum Lact. 2019;35(3):413-7. doi: 10.1177/0890334419848734, PMID 31084575.
21. Rabi TH, Assaf M, Rabi H, et al. Periodontal practice and referral profile of general dentists in Palestine. J Dent Health Oral Disord Ther. 2016;4(4):101-3. doi: 10.15406/jdhodt.2016.04.00117.
22. Assaf M. Dental implant therapeutic trends among dentists in Palestine: A cross-sectional questionnaire study. Cureus. 2022;14(4):e24301. doi: 10.7759/cureus.24301, PMID 35607572.
23. Messadi DV. Diagnostic aids for detection of oral precancerous conditions. Int J Oral Sci. 2013;5(2):59-65. doi: 10.1038/ijos.2013.24, PMID 23743617.