Awareness and knowledge of oral cancer among final year undergraduate dental students in Baghdad-Iraq

Ameena R. Diajil, B.D.S., M.Sc., Ph.D. [(1)]

ABSTRACT

Background: The incidence of oral cancers is increasing all over the world. Early detection ofthis important public health matter makes them more amenable to treatment and allows the greatest chance of cure.The aim of this study was to investigate the awareness and knowledge on oral cancer among final -year dental students in Iraq.

Materials and methods: Questionnaires were delivered to 160 final–year dental students in the College of Dentistry in Baghdad. The questionnaire focused on the awareness/knowledge of oral cancer, earlyand common clinical signs and symptoms andassociated risk factors.

Results: It was found that 87% of students were aware of oral cancer. The followings were recognized as signs and symptoms of oral cancer: persistent ulcer and lymphadenopathy (71 %, 70%), followed by presence of white patch (63%). A satisfactory knowledge was observed on; smoking (86%), family history (84%), old age (63%), sun light exposure (59%), smokeless tobacco (57%), alcohol consumption (55%) and Immunosuppression (54%).Considering dilatory risk-factors, a satisfactory knowledge was identified on hot and spicy food (57%), but not on the other factors. Although satisfactory knowledge of dental risk-factors including premalignant disorders (84%) and previous history of oral cancer (70%) was observed, inadequate knowledge about other factors was observed.91% of future dentists indicated that oral cancer can be cured when detected early.

Conclusion: This study highlighted the need for more education in dental schools to enhance dental professionals' awareness and knowledge of oral cancer, aiding in early diagnosis and treatment of patients.

Keywords: Oral cancer, undergraduate dental students, awareness, knowledge. (J Bagh Coll Dentistry 2013; 25(3):69-79).

INTRODUCTION

Oral cancer is a potentially fatal disease that usually presents late and has a poor prognosis. The most common oral cancer is squamous cell carcinoma (OSCC) which affects significant numbers of people around the world. OSCC represents more than 90% of head and neck cancers [(1, 2)] with approximately two thirds are diagnosed at advanced stages [(2-4)]. Despite advances in the therapeutic management and increased understanding of the molecular basis of the disease, the proportion of oral cancer cases diagnosed at an early and localized stage is still below 50% [(5,6)] ; and the five-year survival rate has not improved in recent years [(7).]

OSCC may be preceded by Potentially Malignant Disorders (PMDs), which can be detected morphologically as leukoplakia, erythroplakia or erythroleukoplakia, reflecting the multi-step process of oral cancer development [(8-10)]. It has been estimated that one-third of oral PMDs progress to cancer [(11)] and most of them are asymptomatic or present with few symptoms and they are regarded as an intermediate stage between normal and malignant tissues [(12)].

Thus, it is important to identify patients at risk of developing PMDs and to detect these disorders as early as possible.

Several risk factors have been associated with the aetiology of PMDs and OSCCs, but tobacco smoking and alcohol consumption [(13)] are the most important.

They are independently and synergistically associated with high risk in a dose-dependent pattern [(14.15)]. Age, sex [(16)] and environmental carcinogens such as chemicals, radiation and viruses [(17)] have been considered significant prognostic and important promoting factors in the development of oral cancer.

Oral cancer is largely preventable [(18)] with early diagnosis is greatly increase survival rates as the mouth is easily accessible for self or clinical examination. Contrary, the late diagnosis of a significant number of OSCCs is mostly attributable to delays in patients seeking treatment, insufficient patient awareness, asymptomatic clinical states and/or inappropriate investigation [(19,20)]. According to Hollows et al. and McLeod et al. [(21,22)], lack of public knowledge and awareness is the most significant factor in delaying diagnosis and treatment of oral cancer. Some oral cancers are asymptomatic [(23)] or may experience symptoms differently [(21)] therefore lack of awareness and /or knowledge of early signs and symptoms of oral cancer among general dental practitioners may also contribute to delays in diagnosis and treatment of oral cancer [(24,25)].

Epidemiological studies showed that the incidence of oral cancer varies considerably between different parts of the world with the highest levels in the Indian subcontinent and the lower ones in Western Europe and North America [(26, 27)].

In the UK, oral cancer accounting for over 2% of all new cases of cancer in males and responsible for more than 1% of all new cases of cancer in females [(27)]. In high-risk countries such

(1) Lecturer, Department of Oral Diagnosis, College of Dentistry, University of Baghdad.

as Sri Lanka, India, Pakistan and Bangladesh, cancer of the lip and oral cavity is either the most common or second most common cancer in men, accounting for up to 15% of all new cases of cancer in males [27].

In Iraq, oral cancer account for about 4.5% of all cancer cases according to Iraqi cancer registry and it represent about 37% of the head and neck cancer [28].

Awareness and knowledge of oral cancer among Iraqi dental student is not well documented. There is a lack of studies in Iraq about oral cancer and pre-cancer knowledge among final year university dental students. Thus the aim of the current study was to assess the oral cancer knowledge and awareness of future general dental practitioners by assessing 5th year undergraduate dental students' knowledge of prevention and early detection of oral cancer.

MATERIALS AND METHODS

Study design and population

This cross sectional study was conducted among 160 dental students in the college of dentistry in Baghdad University. They were approached during seminars after permission was obtained from program coordinators and lecturers.

Instruments and data collection

Data were collected by using a self-administered questionnaire which included four sections: Section 1 included questions related to participant socio-demographics. These data included questions on age, gender, marital status, monthly household income class, residence and family history of oral cancer (table 1and figure 1). Section 2 consisted of 6 close- ended questions, which focused onawareness of oral cancer. Awareness was assessed by one question ‘did you hear about oral cancer (table 2). Section 3 assessed the knowledge of the final year students by questions on the signs and symptoms of oral cancer with the mostly mentioned manifestations of this disease (table 3). Section 4 focused on the associated risk factors and one question about the curability of oral cancer (Table 4 and figure 4).

The questionnaire was distributed in English language and based on previous work by one of the authors [25, 30 and 31]. The questions were mainly closed –ended rather than open questions. A description about the purpose and aim of the study along with the study questionnaires explanation was performed for all participants. See appendix A for questioners.

Statistical analysis

Data analysis was performed using Statistical Package of Social Sciences (SPSS) software, version 17.0. Descriptive statistics were obtained for all variables in the study with means and standard deviations were applied as appropriate.

RESULTS

Socio-demographic characteristics of the participants

The mean age of respondents was 22.74 years (SD ± 0.87) and age range was 21-25 years with the majority aged 22 years (42%), followed by 23 years (38%), 24 years (14%) and 25 and 21years (3%) equally .

Most of the students were females (66%) with remaining 34% were males, being in collage for around 5 years. Most of the respondents were singles (96%) and residing in urban area (76%). Seventy-seven percent had a middle monthly income, 13 % had high class and 10% with low household income. Only 9% of the final year students had a family history of oral cancer. Table 1 shows the social and demographic features of the participants.

Awareness and knowledge of oral cancer

The majority of the 5th year dental students were aware of oral cancer (87%) and all of them agreed that early detection can improve the treatment. Thirty –nine percent of the final year students knew that lifestyle can influence risk of oral cancer; fruit and vegetable intake 66%; good and frequency oral hygiene 81% and regular check-up and dental visits 93% (Table 2).

As can be shown in Table 3, the majority of students recognized the followings as signs and symptoms of oral cancer; persistent ulcer (71%), lymphadenopathy (70%), presence of white patch (63%), colour changes to white and red (54%) and fixation to underlying tissue (51%). Whilst half of the students agreed that a lump of leukoplakia is a well-recognized sign of oral cancer, less than half of the dental students considered the followings as signs of oral cancers; Erythroplakia mass (45%), Erythroleukoplakia growth (43%), red patch (39%), swelling (37%), altered sensation (34%), induration /necrosis (32%) and oral bleeding was the least recognized symptom (28%).

The mostly mentioned manifestations of oral cancer were also investigated and showed that ulcer that does not heal was the most common (79%) , followed by persistent white or red patch (78%) and lump or tissue overgrow (59%). Less than half of the students identified the followings as mostly identified manifestations of oral cancer; difficulty in swallowing (48%), difficulty in open the mouth (30%), Haemorrhage (30%), Abscess, boil, or infection (23%) and prosthesis that fails to fit (22%).

Regarding the Knowledge of risk factors, most of the undergraduate students in this study agreed

that tobacco smoking (86%) was the major risk factor associated with oral cancer, followed by family history of oral cancer (84%), old age (63%), sun light exposure (59%), smokeless tobacco- oral tobacco use (57%), alcohol (55%), Immunosuppression (54%) and occupation hazard (50%). Whilst less than half of the 5th year dental students considered the following factors as risk for oral cancer; viral infection (41%), gender (37%), chronic trauma (33%), chronic infection (30%) and betel quid chewing (30%).

Taking in consideration the dietary factor, more than half of the participants (57%) agreed that hot and spicy food was a risk factor of oral cancer and less than half of the students regarded the followings as dietary risk factors for oral cancer; diet low in iron (39%), diet low in vitamin A (33%), low intake of fruit and vegetables (31%), diet low in vitamin C (31%) and high fat diet (7%).

The majority of students agreed that the presence of precancerous lesions (84%) and previous history of oral cancer (70%) were risk factors for oral cancer. Less than half of students considered the followings as dental risk factor for oral cancer; poor oral hygiene (40%), poor dental condition (30%) and poor fitting dentures (27%).

The curability of oral cancer has been investigated with 91% of students agreed that oral cancer can be cured if detected early; Table 3.

DISCUSSION

There is a paucity of information regarding undergraduate dental student oral cancer awareness in Iraq. In this study, we conducted a questionnaire survey among 160 final -year undergraduate dental students in collage of dentistry -university of Baghdad to investigate oral cancer awareness and knowledge of the future dental practitioners in Iraq, regarding early detection, clinical presentation, associated risk factors and curability of oral cancer.

In Iraq, according to Iraqi cancer registry oral cancer account for about 4.5% of all cancer cases and it represent about 91.5% of all oral cancer and 37% of the head and neck cancer [28].

Researchers in the field of oral oncology believe that early detection and diagnosis of oral cancer greatly increases the chance of cure and survival rates in addition to minimizing impairment and deformity [32, 33].

Lack of public awareness has been reported to be the most significant factor in delaying referral and treatment of oral cancer [21,22]. Delay in presentation and patient referral has a significant impact on the associated morbidity and mortality.

The rate of awareness among dental student in this study (87%) was in line with a study conducted by Al Dubai among university students in Malaysia [29], which found that the majority of respondents were aware of oral cancer (92 %). This finding was higher than that among UK medical students [24] and also higher than that found among general population from UK (56 %) [33] and Iran (10.6 %) [6]. Authors concluded that there is a need to introduce various educational programs to increase awareness of oral cancer.

In this study, persistent ulcer, lymphadenopathy and presence of white patch were the most commonly identified signs and symptoms, were recognized by more than 60% of the final year students. However erythroplakia mass, erythroleukoplakia growth, red patch, swelling, altered sensation, induration and oral bleeding were only known by less than half of the dental students.

The current study showed that almost half of the undergraduatestudents agreed that the presence of red or white plaques was not associated with oral cancer, is in accordance with other studies [6,31].This finding may be problematic because in addition of being an early signs of oral cancer,red/white lesions can correspond to oral potentially malignant disorders which should be early detected and treated to reduce the risk of malignant transformation and to have a good prognosis.

The results of the present study have confirmed that there was an overall deficiency in oral cancer awareness and knowledge amongst undergraduate dental students regarding early signs and symptoms with clinical presentation. This finding was similar to that of previous studies conducted in Nigeria [34], United Kingdom [24] and amongst undergraduate dental students of Lahore – Pakistan [35]. Thus, there is a vital need for increase awareness and knowledge about oral cancer for an early detection with subsequent effective management and eventually improvement in quality of life for patient.

Regarding oral cancer risk factors, our study showed that 95 % of respondents identified smoking as the most common risk factor for oral cancer which is consistent with other studies from different countries [24,33,35], followed by family history of oral cancer.

In this study, other risk factors such as old age (63%), sun light exposure (59%), smokeless tobacco, alcohol drinking, immunosuppression and occupation hazard were commonly recognized by more than half of the students, whilst viral infection, gender, chronic trauma/infection and betel quid chewing were

recognized by less than half of the students. These risk factors were also reported among medical and dental students in various studies as well as in general population [24, 35-37].

Tobacco smoking as a risk factor for oral cancer was realized by the majority of the final year students. However, alcohol was identified to a lesser degree as a risk factor. Knowledge on the increased cancer risks by alcohol use should be included in future health promotion strategies, such as lectures and seminars.

This study found that more than 50% of the final year students agreed that hot and spicy food was a risk factor of oral cancer, less than one-third of students were able to recognize diet low in iron, vitamin A, C, low intake of fruit and vegetables and high fat diet as dilatory risk factors of oral cancer. In addition, the majority of the 5th year students agreed that the presence of premalignant disorders and previous history of oral cancer were well-recognized dental risk factors of oral cancer. However, poor oral hygiene, poor dental condition and poor fitting dentures as oral cancer risk factors were only known by less than half of students in this study.

The unsatisfactory knowledge of some oral cancer risk factors found in this study, is in agreement with previous studies [24, 33]. Therefore, there is a vital need to introduce and focus on these factors in the final year dental students' educational programme and events.

The majority of the respondents in this study were aware about oral cancer with 91% of them agreed that this type of cancer could be cured if detected early.

In conclusion, awareness and knowledge about key signs and symptoms among final-year Iraqi dental students and its major risk factor were found satisfactory. However, there was inadequate knowledge observed regardingother associated risk factors. Therefore, it is suggested that efforts should be made to introduce oral cancer education for future general dental practitioners on clinical presentation, early manifestation, early referral and possible associated risk factors to cultivate positive attitude towards prevention of oral cancer.

Since this study is limited by its small sample size, studies with larger samples are recommended to confirm the findings which may help to expand the knowledge base for future dentists in Iraq to help in early detection and diagnosis of oral cancer.

ACKNOWLEDGMENTS

The author wish to acknowledge the help of colleagues in the Oral Diagnosis Department at the college of dentistry university of Baghdad.

REFERENCES

1. Arduino PG, Carrozzo M, Chiecchio A, Broccoletti R, Tirone F, Borra E, Bertolusso G, Gandolfo S. Clinical and histopathologic independent prognostic factors in oral squamous cell carcinoma: a retrospective study of 334 cases. J Oral Maxillofac Surg 2008; 66(8): 1570-9.
2. Warnakulasuriya S. Global epidemiology of oral and oropharyngeal cancer. Oral Oncol 2009; 45(4-5): 309-16.
3. Epstein JB, Gorsky M, Fischer D, Gupta A, Epstein M, Elad S. A survey of the current approaches to diagnosis and management of oral premalignant lesions. J Am Dent Assoc 2007; 138(12): 1555-62; quiz 1614.
4. Ahmed SM, Mubeen, Jigna VR. Molecular biology: an early detector of oral cancers. Ann Diagn Pathol 2009; 13(2): 140-5.
5. Patton LL, Elter JR, Southerland JH, Strauss RP. Knowledge of oral cancer risk factors and diagnostic concepts among North Carolina dentists: implications for diagnosis and referral. J Am Dent Assoc 2005; 136: 576–78.
6. Pakfetrat A, Falaki F, Esmaily HO, Shabestari S. Oral cancer knowledge among patients referred to Mashhad Dental School, Iran. Arch Iran Med 13(6): 543-8.Chen YC and Hunter DJ. Molecular epidemiology of cancer. CA Cancer J Clin 2005; 55(1): 45-54; quiz 57.
7. Melrose RJ. Premalignant oral mucosal diseases. J Calif Dent Assoc 2001; 29(8): 593-600.
8. Brinkman BM, Wong DT. Disease mechanism and biomarkers of oral squamous cell carcinoma. Curr Opin Oncol 2006; 18(3): 228-33.
9. Williams PM, Poh CF, Hovan AJ, Ng S, Rosin MP. Evaluation of a suspicious oral mucosal lesion. J Can Dent Assoc 2008; 74(3): 275-80.
10. Saran R, Tiwari RK, Reddy PP, AhujaYR. Risk assessment of oral cancer in patients with pre-cancerous states of the oral cavity using micronucleus test and challenge assay. Oral Oncology 2008; 44(4): 354-360.
11. Kujan O, Oliver RJ, Khattab A, Roberts SA, Thakker N, Sloan P. Evaluation of a new binary system of grading oral epithelial dysplasia for prediction of malignant transformation. Oral Oncol 2006; 42(10): 987-93.
12. Reichart PA. Identification of risk groups for oral pre- cancer and cancer and preventive measures. Clin Oral Investig 2001; 5(4): 207-13.
13. Blot WJ, McLaughlin JK, Winn DM, Austin DF, Greenberg RS, Preston-Martin S, Bernstein L, Schoenberg JB, Stemhagen A, Fraumeni JF, Jr. Smoking and drinking in relation to oral and pharyngeal cancer. Cancer Res 1988; 48(11): 3282-7.
14. Castellsague X, Quintana MJ, Martinez MC, Nieto A, Sanchez MJ, Juan A, Monner A, Carrera M, Agudo A, Quer M, Munoz N, Herrero R, Franceschi S, Bosch FX. The role of type of tobacco and type of

alcoholic beverage in oral carcinogenesis. Int J Cancer 2004; 108(5): 741-9.
15. Beehken SW, Kronkiras H, Moddox WA, Peters GE, Soong, Urist M. T1 and T2 squamous cell carcinoma of oral and tongue. Prognostic factors and the role of elective lymphnode dissection. Head and Neck 1999; 21: 124–30.
16. Soames JV, Southam JC. Oral epithelial tumours. In Oral pathology, 3rd Ed, Oxford University press 1998. p: 159-179.
17. Pavia M, Pileggi C, Nobile CG, Angelillo IF. Association between fruit and vegetable consumption and oral cancer: a meta-analysis of observational studies. Am J Clin Nutr 2006; 83: 1126-34.
18. Mehrotra R, Gupta A, Singh M, Ibrahim R. Application of cytology and molecular biology in diagnosing premalignant or malignant oral lesions. Mol Cancer 2006; 5: 11.
19. Morse DE, Psoter WJ, Cuadrado L, Jean YA, Phelan J, Mittal K, Buxo CJ, Cruz GD, Elias A. A deficit in biopsying potentially premalignant oral lesions in Puerto Rico. Cancer Detect Prev 2009; 32(5-6): 424-30.
20. Hollows P, McAndrew PG, Perini MG. Delays in the referral and treatment of oral squamous cell carcinoma. Br Dent J 2000; 188:262-265.
21. McLeod NMH, Saeed NR, Ali EA. Oral Cancer: Delays in Referral and Diagnosis Persist. Br Dent J 2005; 198: 681-4.
22. McGurk M. Summary of: Patient awareness of oral cancer health advice in a dental access centre: a mixed methods study. Br Dent J 2005; 210(6): 262-3.
23. Schnetler JF. Oral cancer diagnosis and delays in referral. Br J Oral Maxillofac Surg 1992; 30(4): 210-3.
24. Carter LM, Ogden GR. Oral cancer awareness of undergraduate medical and dental students. BMC Med Educ 2007; **7**: 44.
25. Boyle P, MacFarlane J, Zheng T, Maisonneuve P, Evstifeeva T, Scully C. Recent advances in epidemiology of head and neck cancer. Curr Opin Oncol 1992; 4:471–477.
26. Jovanovic A, Schulten EA, Kostense PJ, Show GB, Vander Wail I. Squamous cell carcinoma of the lip and oral cavity in Netherlands; an epidemiological study of 740 patients. J Cranio-Maxillo-Facial Surg 1993; 21:149–52.
27. Oral cancer incidence statistics http://www.cancerresearchuk.org/cancer info/cancerstats/types/oral/incidence/uk-oral-cancer-incidence-statistics
28. Talabani NG, Al-Rawi NH. Squamous cell carcinoma of oral cavity: A clinico–pathological analysis of 1425 cases from Iraq. Al- Rafidan Dent J 2002; 1: 1-6.
29. Al Dubai SA, Ganasegeran K, Alabsi AM, Alshagga MA and Ali RS Awareness and knowledge of oral cancer among university students in Malaysia. Asian Pac J Cancer Prev 2012; 13(1): 165-8.
30. West R, Alkhatib MN, McNeill A, Bedi R. Awareness of mouth cancer in Great Britain. Br Dent J 2006; 200(3): 167-9, discussion 151.
31. Pett Si, Scully C. Oral cancer knowledge and awareness: primary and secondary effects of an information leaflet. Oral Oncol 2007; 43: 408–415.
32. Kerawala CJ. Oral cancer, smoking and alcohol: the patients' perspective. Br J Oral Maxillofac Surg 1999; 37: 374-6.
33. Warnakulasuriya KA, Harris CK, Scarrott DM, Watt R, Gelbier S, Peters TJ, Johnson NW . An alarming lack of public awareness towards oral cancer. Br Dent J 1999; 187(6): 319-22.
34. Uti OG, Fashina AA. Oral cancer education in dental schools: knowledge and experience of Nigerian undergraduate students. J Dent Educ 2006; 70(6): 676-80.
35. Kazmi F, Chaudhar Ma, Mumtaz M, Bhatti Mud and Khawaja N. Oral cancer knowledge and awareness amongst undergraduate dental students of lahore–pakistan. Pakistan Oral & Dental Journal 2011; 31(1): 64-7.
36. Khalili J. Oral cancer: risk factors, prevention and diagnostic. Exp Oncol 2008; 30(4): 259-64.
37. ZainRB. Cultural and dietary risk factors of oral cancer and precancer--a brief overview. Oral Oncol 2001; 37(3): 205-10.

Table 1. Socio-demographic characteristics of the respondents (n=160).

Socio-demographic Characteristics of the Respondents		
Characteristics	**Number**	%
Age (21-25) years		
Gender		
Male	**48**	**30%**
Female	**112**	**70%**
Marital status		
Single	**156**	**96%**
Married	**5**	**3%**
Divorced	**1**	**1%**
Year of study	**5th**	
Household income class		
Low	**16**	**10%**
Middle	**123**	**77%**
High	**21**	**13%**
Residence		
Urban	**122**	**76%**
Rural	**38**	**24%**
Family history of oral cancer		
Yes	**15**	**9%**
No	**145**	**91%**

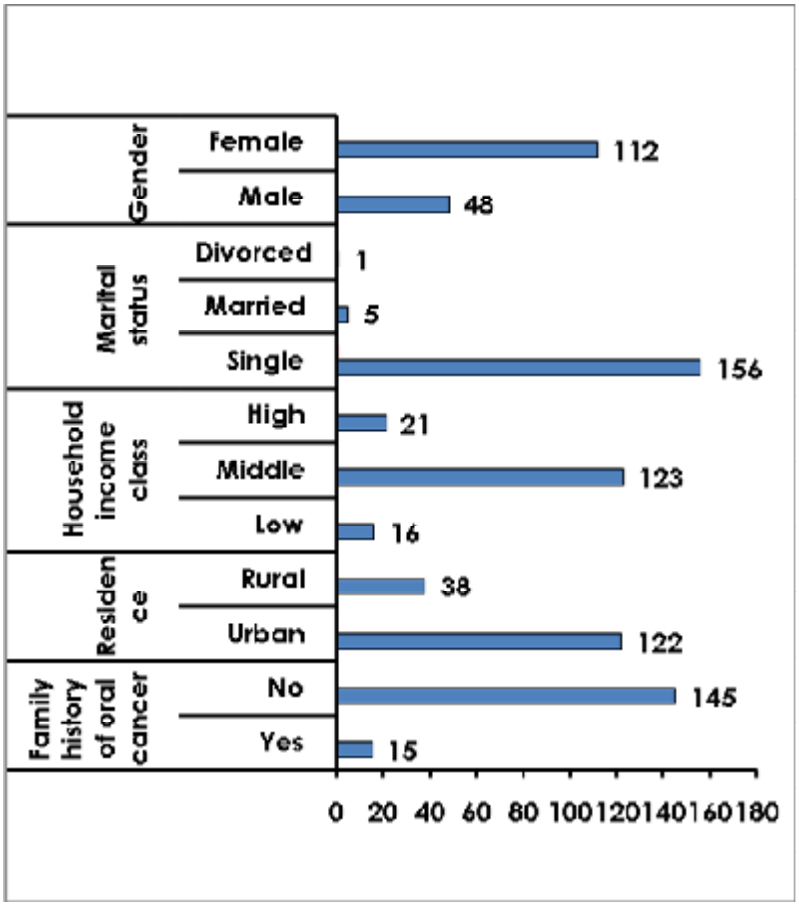

Figure 1. Socio-demographic Characteristics of the Respondents (n=160).

Table 2. Awareness of oral cancer amongrespondents (160).

Awareness of oral cancer		
	Number	%
Have you heard about mouth cancer?		
Yes	139	87%
No	7	4%
No idea / I don't know	14	12%
Early detection can improve treatment		
Yes	160	100%
No	0	0%
Lifestyle influence risk of oral cancer		
Yes	148	93%
No	12	8%
Fruit and vegetables		
Yes	105	66%
No	55	34%
Good and frequency oral hygiene		
Yes	130	81%
No	30	19%
Regular dentist visits and check up		
Yes	148	93%
No	12	7%

Table 3. Knowledge of oral cancer among respondents (n=160).

Knowledge of Oral Cancer Among Respondents (n=160)		
Clinical Signs of Oral Cancer	**Number**	**%**
Swelling	42	37%
White patch	37	63%
Red patch	45	39%
Persistent ulcer	82	71%
Oral bleeding	32	28%
Colour changes to white and red	62	54%
Erythroplakia Mass (red lesion)	52	45%
Leukoplakia Lump (white lesion)	58	50%
Erythroleukoplakia Growth (white and red lesion)	49	43%
Induration /Necrosis	37	32%
Fixation to underlying tissue	59	51%
Lymphadenopathy	80	70%
Altered sensation	39	34%

Mostly mentioned manifestations of oral cancer		
Sore (ulcer) that does not heal	91	79%
Lump or tissue overgrow	68	59%
Difficulty in swallowing	55	48%
Difficulty in opening the mouth	34	30%
Prosthesis that fails to fit	25	22%
Persistent white or red patch	91	78%

Table 4. Recognised risk factors of oral cancer.

Recognised risk factors of oral cancer		
	Number	**%**
Sex	43	37%
Old age	73	63%
Tobacco smoking	99	86%
Oral tobacco use/ Smokeless tobacco use	65	57%
Betel quid chewing	35	30%
Drinking alcohol	63	55%
Family history of oral cancer	97	84%
Obesity	5	4%
Chronic trauma	38	33%
Sun (UV light) exposure	68	59%
Viral infection	47	41%
Immunosuppression	62	54%
Chronic infection	35	30%
Occupation	57	50%
Car smoke	29	25%
Don't know	0	0%
Dietary factors		
Reduced intake of fruit and vegetables	36	31%
Diet low in iron	45	39%
Diet low in vitamin A	38	33%
Diet low in vitamin C	36	31%
High fat diet	8	7%
Hot & spicy flood	66	57%
Dental factors		
Chronic irritation from jagged (sharp) teeth	46	40%
Infections in the teeth	15	13%
Poor dental condition	35	30%
High number of missing teeth	8	7%
Poor oral hygiene	53	40%
Poor fitting dentures	31	27%
Pre-cancerous conditions/lesions	97	84%
Previous history of oral cancer	80	70%
No idea	1	1%
I don't know	2	2%
Curability		
Oral cancer can be cured if detected early		
Yes	146	91%
No	14	9%

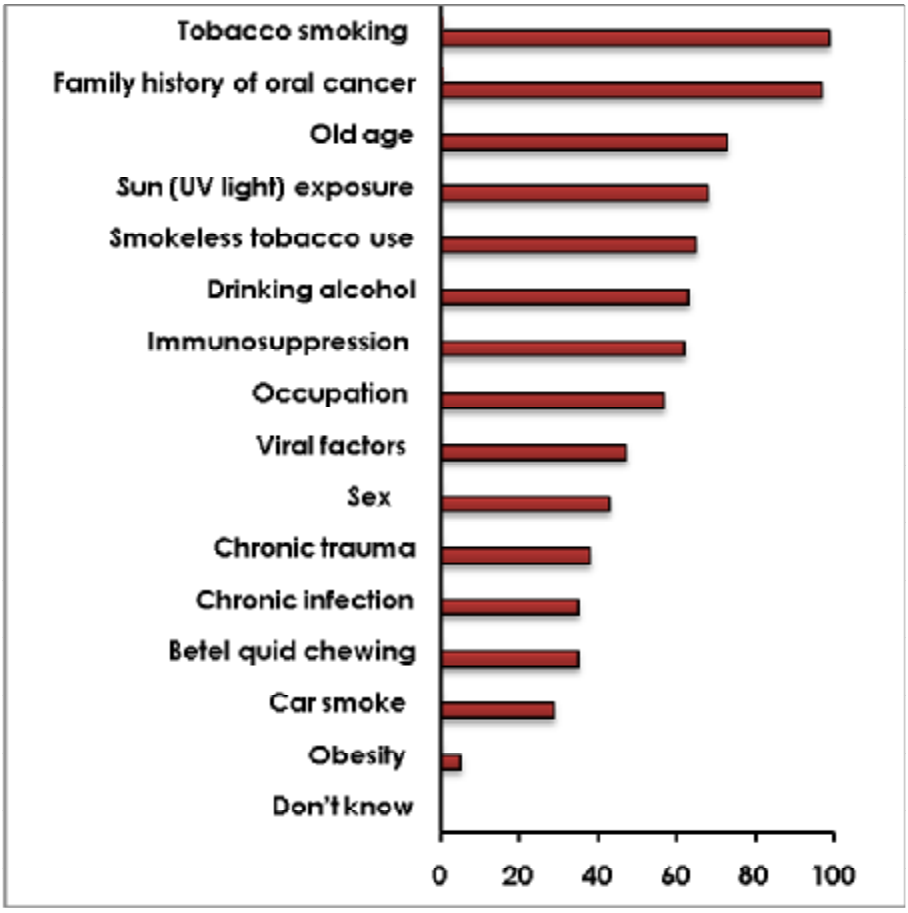

Figure 4. Recognised risk factors of oral cancer.

Appendix (A)
Oral Cancer Knowledge and Awareness amongst Undergraduate Dental Students in Baghdad University-College of Dentistry

Please circle as appropriate			
Socio-demographic Characteristics			
Year of study			
Gender	Male	Female	
Age			
Marital status	Single	Married	Divorced
Household **income** class	Low	Middle	High
Residency	Rural	Urban	
Family history of oral cancer	Yes	No	
Knowledge of Oral Cancer **Clinical signs/ Oral changes associated with Oral Cancer /Recognised early signs of mouth cancer**			
Swelling			
White patch			
Red patch			
Persistent ulcer			
Oral bleeding			
Colour changes to white and red			
Ulceration Exophytosis			
Erythroplakia Mass (red lesion)			
Leukoplakia Lump (white lesion)			
Erythroleukoplakia Growth (white and red lesion)			
Induration /Necrosis			
Fixation to underlying tissue			
Lymphadenopathy			
Altered sensation			
Recognised risk factors of oral cancer			
Sex			
Old age			
Tobacco smoking			
Oral tobacco use/ Smokeless tobacco use			
Betel quid chewing			
Drinking alcohol			
Family history of oral cancer			
Obesity			
Chronic trauma			
Sun (UV light) exposure			
Viral factors			
Immunosuppression			
Chronic infection			
Occupation			
Car smoke			
Close contact with another cancer patient			
Don’t know			
Dietary factors			
Reduced intake of fruit and vegetables			
Diet low in iron			
Diet low in vitamin A			
Diet low in vitamin C			
High fat diet			
Hot & spicy flood			
Dental factors:			
Chronic irritation from jagged (sharp) teeth			
Infections in the teeth			

Poor dental condition		
High number of missing teeth		
Poor oral hygiene		
Poor fitting dentures		
Pre-cancerous conditions/lesions		
Previous history of oral cancer		
No idea/ I don't know		
Mostly mentioned manifestations of oral cancer- Signs and symptoms		
Sore (ulcer) that does not heal		
Lump or tissue overgrow		
Difficulty in swallowing		
Haemorrhage		
Abscess, boil, or infection		
Difficulty in open the mouth		
Persistent white or red patch		
Prosthesis that fails to fit		
Curability		
Oral cancer can be cured if detected early	Yes	No
Awareness of oral cancer		
Have you heard about mouth cancer?		
Yes		
No		
No idea / I don't know		
Early detection can improve treatment	Yes	No
Lifestyle influence risk of oral cancer	Yes	No
Fruit and vegetables	Yes	No
Good and frequency oral hygiene	Yes	No
Regular dentist visits and check-up	Yes	No

THANKS VERY MUCH FOR YOUR PARTICIPATION