

## RESEARCH COMMUNICATION

# Awareness and Knowledge of Oral Cancer among University Students in Malaysia

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### Abstract

**Objectives:** This study aimed to assess the level of knowledge of oral cancer and its associated factors among university students in Malaysia. **Methods:** A cross sectional study was conducted among 200 university students in Malaysia. A self administered questionnaire was used to collect data. It included questions on socio-demographic data, awareness and knowledge of oral cancer. **Results:** Mean age of the respondents was 21.5±2.5 and the age ranged from 18 to 27 years. The majority of the respondents were aware of oral cancer (92.0%) and recognized the followings as signs and symptoms of oral cancer: ulcer and oral bleeding (71.0%), followed by swelling (61.5%). A satisfactory knowledge was observed on the following risk factors; smoking (95.5%), poor oral hygiene (90.5%), family history (90.0%), alcohol (84.5%) and poor fitting dentures (83.0%). However, unsatisfactory knowledge was observed about hot/spicy food (46.5%), obesity (36.0%), old age (31.5%), dietary factor (29.0%) and smokeless tobacco (25.5%). Knowledge of oral cancer was associated significantly with age ( $p<0.01$ ), year of study ( $p<0.01$ ) and course of study ( $p<0.01$ ). **Conclusion:** Instead of satisfactory awareness and knowledge of oral cancer and its clinical presentations, inadequate knowledge was observed about its risk factors. There is a need to introduce oral cancer education among university students.

**Keywords:** Oral cancer - university students - awareness - knowledge - Malaysia

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### Introduction

Oral cancer is the eleventh most common cancer in the world (Atessa et al., 2010). It accounts for approximately 2.4 percent of all cancers (Rhodus, 2005) with high incidence rate in developing countries (Peterson, 2003). Globally, it represents an incidence of 3% and 2% of all cancers among men and women respectively (Greenlee et al., 2001).

In Malaysia, oral cancer incidence varies by gender and ethnic group, with the highest prevalence among Indians and indigenous groups (Ghani et al., 2011 & Zain & Ghazali, 2001). Oral cancer was the sixth most common cancer among Indian males and the third most common cancer among Indian females in Malaysia (National Cancer Registry, 2003). Among the Indian males and females, oral cancer accounts for 4.5% and 6.5% respectively of all cancers (National Cancer Registry, 2003). Regarding gender, oral cancer was the nineteenth and sixteenth leading cancers among men and women respectively (National Cancer Registry, 2003).

Oral cancer is largely preventable (Pavia et al., 2006). Early diagnosis of the malignancy greatly increase survival rates as the mouth is easily accessible for self or clinical examination. The prognosis of oral cancer is poor with

lowest survival rates of less than 50 percent, within a five-year period (Greenlee et al., 2001). Despite advances in the diagnosis and treatment of oral cancer, the proportion of oral cancer cases diagnosed at an early and localized stage is still below 50% (Atessa et al., 2010; Patton et al., 2005).

Predisposing factors for oral cancer are heavy use of tobacco (Castellsague et al., 2004), excess alcohol consumption (Johnson & Warnakulasuriya, 1993), diet deficient in fruit and vegetables (Pavia et al., 2006), paan and betel nut chewing and poor oral hygiene (Balaram et al., 2002).

It has been reported that lack of public knowledge and awareness is the most significant factor in delaying diagnosis and treatment of oral cancer (McLeod et al., 2005; Hollows et al., 2000). Some oral cancers may be asymptomatic (McGurk et al., 2005) or some may experience symptoms differently (Hollows et al., 2000), thus ignorance of early signs of oral cancer may be the most important delaying factor (Lachlan & Graham, 2007). Lack of awareness among general medical practitioners has also been shown to contribute to delays in diagnosis and treatment of oral cancer (Schnetler, 1992).

A study in Iran involving 320 individuals found that the public awareness and knowledge of oral cancer were

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low compared to other cancers (Atessa et al., 2010). The authors concluded that there is a need to introduce various educational programs. Another study involving 255 undergraduate medical students in the United Kingdom found that medical students had inadequate knowledge on the risk factors and clinical signs and symptoms of oral cancer (Lachlan & Graham, 2007). The awareness and knowledge of oral cancer among Malaysians is not well documented. Zain & Ghazali (2001) identified that the Indians and indigenous people of Sabah and Sarawak were high risk groups for oral cancer and pre-cancer in Malaysia which may be due to chewing habit of betel quid (a traditional stimulant mixture of areca nut and/or tobacco with the betel leaf) (Ghani et al., 2011). Other risk factors included smoking (among Malay) and alcohol consumption (among Chinese) (Ghani et al., 2011).

There is a lack of studies in Malaysia about oral cancer knowledge among population and university students. The current study is aimed at assessing oral cancer knowledge and awareness among undergraduate medical and nursing students in a private university in Malaysia.

## Materials and Methods

### Study design and population

This cross sectional study was conducted among 200 medical and nursing students in a private university in Malaysia. One hundred students from each faculty were selected by using random sampling technique. They were approached during classroom after permission was obtained from program coordinators and lecturers.

### Instruments and data collection

Data was collected by using a self administered questionnaire which included questions on socio-demographic data, awareness and knowledge of oral cancer. Socio-demographic data included questions on age, gender, and marital status, year of study, monthly household income, course, race, residence and family history of oral cancer. Awareness was assessed by one question 'did you hear about oral cancer'. Knowledge was assessed by four questions on the signs and symptoms of oral cancer, ten questions on the risk factors and one question about the curability of oral cancer. The questionnaire was distributed in English language.

Approval of the study was obtained from the research and ethics committee of MSU. The purpose of the study was explained to respondents, confidentiality and their right to withdraw was assured. In addition to oral briefing and description, each respondent received a written description of the purpose and aims of the study along with the study questionnaires. They were required to sign a consent form.

### Statistical analysis

Analysis was performed using Statistical Package of Social Sciences (SPSS) software, version 16.0. Scores of knowledge items were summed to obtain the mean total knowledge score on oral cancer. Descriptive statistics were obtained for all variables in the study. Knowledge scores were expressed as mean and standard deviations.

Test of normality was performed for the total score of knowledge. T-test and ANOVA test were applied to compare knowledge score across the socio-demographic variables. In case of ANOVA, post hoc test was used to determine where the significant difference was. The accepted level of significance was set as  $p < 0.05$ .

**Table 1. Socio-demographic Characteristics of the Respondents (n=200)**

Characteristics	n	%
Age		
≤ 21	111	55.5
22-24	62	31
≥ 25	27	13.5
Gender		
Male	46	23
Female	154	77
Marital status		
Single	195	97.7
Married	5	2.5
Race		
Malay	146	73
Chinese	6	3
Indian	39	19.5
Others	9	4.5
Year of study		
Year one	38	19
Year two	60	30
Year 3 and above	102	51
Household income (RM)		
<2000	60	30
2000-3000	72	36
>3000	68	34
Course		
Medical	100	50
Nursing	100	50
Residence		
Urban	160	80
Rural	40	20
Family history of oral cancer		
Yes	13	6.5
No	187	93.5

**Table 2. Knowledge of Oral Cancer Among Respondents (n=200)**

	Correct answer n (%)
Clinical signs	
Swelling	123 (61.5)
White patch	105 (52.5)
Ulcer	142 (71.0)
Oral bleeding	142 (71.0)
Risk factors	
Smoking	191 (95.5)
Smokeless tobacco	149 (74.5)
Alcohol	169 (84.5)
Dietary factor	142 (71.0)
Family history of oral cancer	180 (90.0)
Old age	137 (68.5)
Hot & spicy food	107 (53.5)
Poor oral hygiene	181 (90.5)
Poor fitting dentures	166 (83.0)
Obesity	72 (36.0)
Curability	
Oral cancer can be cured if detected early	76 (38.0)

## Results

### Socio-demographic characteristics

The mean age of respondents was 21.5 ( $\pm 2.5$ ) with the majority aged 21 years and below (55.5%), followed by 22 to 24 years (31.0%) and 25 years or more (13.5%). Most of respondents were females (77.0%), being in college for more than two years (51.0%). The majority were Malays (73.0%), followed by Indians (19.5%) and then Chinese (3.0%). Most of the respondents were singles (97.7%) and residing in urban area (80.0%). Thirty six percent had monthly income of RM 2000-3000 and 30 % had less than RM 2000. Only 6.5% of the respondents had a family history of malignancy (Table 1).

### Awareness and knowledge of oral cancer

The majority of respondents were aware of oral cancer (92.0%) and the majority of them recognized the followings as signs and symptoms of oral cancer; ulcer (71.0%), oral bleeding (71.0%), swelling (61.5%) and formation of white patch (52.5%) (Table 2). Regarding Knowledge of risk factors, most of the respondents agreed that the following are risk factors for oral cancer; smoking (95.5%), poor oral hygiene (90.5%), family history (90.0%), alcohol (84.5%) and poor fitting dentures

(83.0%). Less than half of the respondents considered the following factors as risk for oral cancer; hot and spicy food (46.5%), obesity (36.0%) old age (31.5%), dietary factor (29.0%) and smokeless tobacco (25.5%). Regarding the curability of oral cancer, 38.0% of all respondents agreed that oral cancer can be cured if detected early (Table 2).

### Association between socio-demographic characteristics and knowledge of oral cancer

Table 3 shows the association between socio-demographic factors and knowledge of oral cancer. There was a significant association between age and knowledge ( $p < 0.01$ ); post hoc test revealed that respondents aged 25 years and older had higher knowledge ( $11.33 \pm 2.99$ ) than those aged 22-24 years ( $11.13 \pm 2.57$ ) and those aged 21 years or less ( $9.78 \pm 2.96$ ), ( $p = 0.01$ ,  $p = 0.04$  respectively). There was a significant association between year of study and knowledge ( $p < 0.01$ ); post hoc test revealed that respondents being in college for more than two years had higher knowledge ( $10.81 \pm 2.99$ ) than those being in college for two years ( $10.65 \pm 2.60$ ) ( $p = 0.01$ ) and those being in college for one year ( $8.95 \pm 2.81$ ) ( $p < 0.01$ ). Medical students had higher knowledge ( $11.26 \pm 2.92$ ) compared to nursing students ( $9.56 \pm 2.68$ ) ( $p < 0.01$ ). Respondents with a positive family history of oral cancer had higher knowledge ( $11.92 \pm 4.42$ ) compared to respondents with negative history of oral cancer ( $10.46 \pm 2.71$ ), but this difference was not significant ( $p = 0.08$ ). Respondents being aware of oral cancer had higher knowledge ( $10.60 \pm 2.80$ ) compared to those who were not ( $8.19 \pm 3.43$ ), ( $p < 0.01$ ).

**Table 3. Association Between Socio-demographic Characteristics and Knowledge of Oral Cancer (n=200)**

	Knowledge score		P value
	Mean	SD	
Age			
$\leq 21$	9.78	2.96	
22-24	11.13	2.57	
$\geq 25$	11.33	2.99	< 0.01
Gender			
Male	10.35	3.21	
Female	10.43	2.84	0.87
Marital status			
Single	10.43	2.93	
Married	9.8	2.5	0.64
College years			
One year	8.95	2.81	
Two years	10.65	2.6	
> 2 years	10.81	2.99	< 0.01
Household income (RM)			
$\leq 2000$	10.21	2.84	
2001-3000	10.93	2.59	
> 3000	10.31	3.21	0.37
Course			
Medical	11.26	2.92	
Nursing	9.56	2.68	< 0.01
Race			
Malay	10.51	2.93	
Chinese	10.5	2.95	
Indian	10.08	2.93	
Others	10.11	2.93	0.85
Residence			
Urban	10.36	3.02	
Rural	10.63	2.49	0.6
Family history of oral cancer			
Yes	11.92	4.42	
No	10.46	2.71	< 0.01
Awareness of oral cancer			
Yes	10.6	2.8	
No	8.19	3.43	

## Discussion

This study investigated the awareness and knowledge of undergraduate medical and nursing students regarding clinical signs, risk factors and curability of oral cancer. The rate of awareness among medical student in this study (92%) was higher than that found among UK medical students (28%) (Lachlan & Graham, 2007). It was also higher than that found among general population from UK (56.0%) (Warnakulasuriya et al., 1999) and Iran (10.6 %) (Atessa et al., 2010). More than half of the respondents could identify the clinical signs and symptoms of oral cancer. A similar finding was reported in Pakistani undergraduate medical and dental students (Farhat et al., 2011) whereas a low level of knowledge was found in Iranian population (Atessa et al., 2010). Although the majority of the respondents in this study had adequate knowledge about signs, symptoms and risk factors of oral cancer, 38.0% agreed that this cancer could be cured if detected early, which is similar to the findings of Atessa et al. (2010).

Our study showed that 95.0% of respondents identified smoking as the most common risk factor for oral cancer which is consistent with other studies from different countries (Farhat et al., 2011; Lachlan & Graham, 2007; Warnakulasuriya et al., 1999). In this study, poor oral hygiene, family history of oral cancer, alcohol consumption, poor fitting dentures, smokeless tobacco and dietary factor were commonly recognized as risk

factors for oral cancer. Adequate knowledge of these risk factors was also reported among medical and dental students (Farhat et al., 2011; Lachlan & Graham, 2007) as well as in general population (Khalili, 2008; Zain & Ghazali, 2001).

Unsatisfactory knowledge of oral cancer risk factors such as old age, hot and spicy food and obesity was found which is in agreement with previous studies (Farhat et al., 2011; Lachlan & Graham, 2007). The current study found a significant association between age and knowledge of oral cancer. This finding is consistent with previous studies from Iran (Atessa et al., 2010; Motallebnejad et al., 2009). The association between knowledge of oral cancer and year of study among undergraduate medical students was significant which is similar to Farhat et al. (2011) finding.

Findings of this study showed no association between place of residence and level of knowledge. This finding was not consistent with that found in a previous study from Iran in which a significant difference between urban and rural populations was found (Motallebnejad et al., 2009).

In conclusion, satisfactory awareness and knowledge of oral cancer and its clinical presentations were found among Malaysian medical students whereas inadequate knowledge was observed about its risk factors. The level of knowledge was significantly associated with awareness of oral cancer and course of study. Since majority of the respondents in this study had adequate knowledge about clinical signs of oral cancer, efforts should be made to cultivate positive attitude towards prevention of oral cancer. There is a need to introduce oral cancer education on prevention, early referral and diagnostic methods of oral cancer in focus on younger generation. Primary health care workers should be involved in such education program and they should be encouraged to participate in health education by providing information on oral cancer and preventive methods to citizens nationwide. The role of mass media, particularly television should be stressed as it was found to play a key role in imparting health education and belief changes. Younger generation could be approached through social networking sites. Since this study is limited by its small sample size, studies with larger and representative samples are recommended to confirm the findings of the present study which will help to expand the knowledge base for healthcare providers and decision makers in Malaysia to take appropriate action.

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