

Original Research Article

Cigarette smoking prevalence and awareness of its oral health effects amongst medical students in Qassim Region, Saudi Arabia

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ABSTRACT

Background: smoking is highly prevalent and is considered an epidemic in both developed and developing countries. Smoking has a negative effect on almost every organ in the body and is associated with multiple diseases like cardiovascular diseases, respiratory diseases, cancers, stroke and oral diseases, reducing the expectancy and quality of life. Author aimed to determine medical students awareness of effects of cigarette smoking on oral health in the Qassim region. To understand their knowledge about specific smoking cigarettes effects on oral health. Prevalence of smoking cigarettes among the medical students.

Methods: A cross-sectional study was conducted among the medical students in the Qassim Region for a period of two months from February to March 2019. An anonymous self-administrated questionnaire.

Results: A total of 194 subjects participated. The prevalence of smoking was 21.1%. Majority of students thought that oral health and smoking are related (89.2%), smoking affected oral cancer (85.6%), and cause tooth staining (90.2%). On the other hand, students less aware of delay of healing (53.6%), inflammation of salivary gland (58.8%) and hairy tongue (76.3%).

Conclusions: After completing this study, it was concluded on the basis of our findings that the students have moderated awareness about the different ill effects of smoking on oral health. Thus, a lot of awareness programs about the ill effects of smoking on oral health care should take place at regular time intervals at different venues so that the more and more students feel motivated to quit smoking.

Keywords: Age, Awareness, Cigarettes, Medical student, Oral effect, Prevalence smoking, Sex

INTRODUCTION

Smoking is highly prevalent and is considered an epidemic in both developed and developing countries.¹ Globally, there are 5 million deaths per year from tobacco use which are expected to rise to 10 million by the year 2025.² According to Saudi ministry of health report 2015, about 30% of the population is smoking, with almost 6-7 million smokers, 24.9% of which are males above 15 years of age and 1.7% females.³ Smoking has a negative

effect on almost every organ in the body and is associated with multiple diseases like cardiovascular diseases, respiratory diseases, cancers, stroke and oral diseases, reducing the expectancy and quality of life.¹

The adverse effects of tobacco smoking on oral health are well documented. Some of the reported effects range from cosmetic effects, such as tooth staining, to potentially life-threatening conditions such as oral cancer.⁴ Others include susceptibility to periodontal disease, reduced response to both surgical and non-

surgical periodontal therapies, increased risk of implant failure, reduced taste perception, melanosis, oral candidiasis, halitosis and dental caries. The highest relative risk for cancer due to smoking is to the lungs, followed by larynx and oral cavity.⁵ It is a risk factor for periodontal disease and associated with increased prevalence and severity of the disease.⁶ An ongoing closed panel longitudinal study of men in the Greater Boston area (USA), showed the rates of tooth loss among current cigarette smokers as approximately twice those of non smokers.⁵

Despite the above established negative effects of smoking, on oral health, most smokers don't realize the damage that smoking does to oral health. Students awareness of a disease or health condition is important in influencing the decision to take preventive measures. To the knowledge, there has been little research on the smoking awareness and prevalence among health care students. Therefore, the aim of this study was to assess medical students knowledge and awareness of the oral health effects of smoking.

Objectives

Objectives of the study were to determine medical students awareness of effects of cigarette smoking on oral health in the Qassim region, to understand their knowledge about specific smoking cigarettes effects on oral health and prevalence of smoking cigarettes among the medical students.

METHODS

A cross-sectional study was conducted among 194 medical students in the Qassim Region for a period of two months from February 2019 to March 2019. The content validity of the questionnaire was determined by a panel of experts. To ensure clarity, the questionnaire was initially administered to 15 students not involved in the study to assess the validity and suitable modifications were done before field administration. An anonymous self-administrated questionnaire was developed in English and used for this study. The questionnaire was grouped into three categories. First section of the questionnaire included questions for socio-demographic data (gender, age, and academic level). Second section included questions about smoking behavior. Third section of questionnaire assessed the awareness of the effects of smoking on oral health. Questionnaire concerned with smoking related knowledge about oral health hazards. No personal information were registered. Each question was a closed ended with a single answer. The data was collected using online survey. The link was distributed to medical students in Qassim Region. All medical students and interns on Qassim region were included. The Statistical Package for Social Science (SPSS) was used for the data analysis employing the reliability analysis to examine the validity of the questionnaire and examine if they measure what they are meant to measure; The

frequency distribution of the medical students' responses was used to examine the cigarette smoking prevalence and awareness of its oral health effects among medical students in Qassim region of Saudi Arabia..

RESULTS

Respondents' characteristics

Out of the target population, 194 respondents participated in this study. The characteristics of the respondents were one of the objectives to understand respondents' characteristics prior to proceed to the advance statistics. Gender were the first categorical variable that included in the analysis. Out of 50 images were included, 111 for male and 83 for female. Age categorized into four categories. These categories were represented as under 18 years old 2 (1.0%), 18-23 years (154 (78%), and 24-29 years 34 (18.9%). Academic years were the last socio demographic variables. It categorized into five categories. These categories represented as 1st academic year 39 (20.1%), 2nd 29 (14.9%), 3rd 33 (17%) 3rd (34 (17%) 31 (16%) and internship respondents represent 28 (14.4%). Details information about respondents characterizes included variables represented in Table 1.

Table 1: Respondents' characteristics (n=194).

Variables	Categories	Frequency	Percent
Gender	Male	111	57.2
	Female	83	42.8
Academic year	1st	39	20.1
	2nd	29	14.9
	3rd	33	17.0
	4th	34	17.5
	5th	31	16.0
	Internship	28	14.4
Age in years	Under 18	2	1.0
	18-23	154	79.4
	24-29	34	17.5
	above 30	4	2.1

Prevalence of smokers and smoking behavior

Out of the consented sampled respondents, 41 were smoker. Those 41 respondents' representing 21.1% from the sample size. Out of those 41 respondents, 19 (46.3%) started smoking between 12-18 years while 17 (41.5%) started smoking after getting 18 years old. 18 out of 41 smoker respondents were smoking at least from 1-5 years. With regards to numbers of cigarettes that respondents smoke, 11-20 cigarettes take were selected by 16 (39%). Detail information represented in Table 2.

Awareness of the effects of smoking on oral health

The total questions that used to evaluate the respondents' awareness regarding oral health was 10 questions.

Table 2: Prevalence of smoker and smoking behavior (n=194).

Variables	Catégories	Frequency	%
Are you smoker?	No	153	78.9
	Yes	41	21.1
If yes, at what age did you start smoking?	I don't remember	3	7.3
	Under 12 years	2	4.9
	12 - 18 years	19	46.3
	after 18 years	17	41.5
How many years have you been smoking?	Less than 1 year	7	17.1
	1 - 5 years	18	43.9
	5 - 10 years	10	24.4
	Above 10 years	6	14.6
How many cigarettes do you smoke per day?	Less than 10	13	31.7
	11-20 cigarettes	16	39.0
	21-30 cigarettes	8	19.5
	More than 30	4	9.8

The response to these questions computed to come out with the total score of the awareness. The level of

awareness were 6.6 (SD 2.4) out of 10 which indicate the respondents have moderate level of awareness regarding oral health (Table 3) shows the level of awareness.

Table 3: Awareness score, n=194.

Total score	Mean	SD
	6.5928	2.35109

Awareness evaluated by valid questionnaire. This questionnaire encompasses of 10 questions. The answer of these questions were by yes no and I do not know. Yes coded by one while no or I do not know coded by zero.

The response to these questions were mostly answer yes for some finding including smoking cause staining of the teeth and soft tissue, smoking cause halitosis, and increases the risk of oral cancer. which indicated that, the respondents aware about some of oral health risks for smoking. Details information about each item or question of the questions represented in Table 4.

Table 4: Descriptive statistics of awareness questions response (n=194).

Variables	Categories	Frequency	Percent
Is cigarette smoking harmful to your oral health?	No	21	10.8
	Yes	173	89.2
Does smoking cause staining of the teeth and soft tissue?	No	19	9.8
	Yes	175	90.2
Does smoking cause halitosis (bad odour/breath)?	No	21	10.8
	Yes	173	89.2
Do you know hairy tongue is associated with smoking?	No	148	76.3
	Yes	46	23.7
Smoking is a risk factor for dental caries.	No	69	35.6
	Yes	125	64.4
Does smoking effect the gums/ periodontium (tissue surround and support teeth), which of the following you aware of?	I don't know	60	30.4
	Gingivitis/Periodontitis	66	34.0
	Losing teeth/ Tooth los	24	12.4
	Failure of tooth implant	45	23.2
Does smoking cause inflammation of salivary gland?	No	114	58.8
	Yes	80	41.2
Delay the healing after extraction teeth (dry socket) associated with smoking.	No	104	53.6
	Yes	90	46.4
Smoking causes oral ulcers.	No	78	40.2
	Yes	116	59.8
Smoking increases the risk of oral cancer.	No	28	14.4
	Yes	166	85.6

DISCUSSION

This study gives us insights into prevalence and knowledge of respondents towards the problem of smoking and the dentist's role in the prevention of smoking. International studies have addressed that smoking is prevalent among students of health care professionals, despite their knowledge on the hazardous impact of smoking on health.⁸ A study amongst medical students in king Saud University in Riyadh, Saudi Arabia

reported the rate of smoker 29%. This rate was higher than that reported 5 years later, in a similar study where they reported a smoking rate of 13%.^{7,8} Our results indicate a smoking rate of 21.1%, and approximately 78.9% who never smoked, among the medical student in Qassim, Saudi Arabia. As the result show significant higher percentages of smoker among 5th and internship. Tobacco smoking was found to be higher among senior medical students compared to their junior colleagues. The risk of tobacco consumption increases, as students

progress through their studies, probably due to increased stress.⁹

The second part of the study is determined medical students awareness of effects of cigarette smoking on oral health and understand their knowledge about specific smoking cigarettes effects on oral health. According to the result students show high percentage regarding to their knowledge about staining, halitosis and oral cancer with rate of 90.2%, 89.2% and 85.6% respectively.

A study compares the awareness between smoker and non-smoker patients shows the majority of subjects in this study were aware of smoking effects on tooth staining 89.5% of all subjects.⁴ Other study among dental patients report that most respondents were aware of the effects of smoking on aesthetic features, social acceptance and morbidity, namely tooth staining 89.9%, bad breath 96.0%, and oral cancer 76.9%. On the other hand, Awareness levels decreased with the other variables of Hairy tongue 49% they don't know and 27.6% answered no. It is harm- less lesions related to smoking associated with heavy smoker, although they can be seen in nonsmokers as well.¹⁰ Additionally, delay healing after extraction teeth 53.6% they don't know, in similar study among smoker and non-smokers report that 27.7% of all subjects do not aware of it.⁴ Other study among dental patients report that 58.0% not aware.¹¹ 64.4% aware that smoking is a risk factor for dental caries. However, there are a few studies suggesting an association between smoking and dental caries, although a direct etiological relationship is lacking. It seems at least that smoking is a risk indicator of in-creased caries activity.¹⁰

During the last 20 years numerous cross-sectional and longitudinal studies have demonstrated a clear relationship between smoking and periodontal disease.¹⁰ Periodontitis is more prevalent and more severe in smokers, 34.0% of medical student were aware of it.⁴ Few number of medical student were aware of losing the teeth as final result of the Periodontal disease 12.4%, where is in different study of dental patients awareness 51.0% were aware of losing teeth.¹¹ In addition, 23.2% of students show less knowledges about the negative effect of smoking on the implant. Recent studies suggested increased the number of implant failures in smokers is not the result of poor healing or ossointegration, but is due to the exposure of peri-implant tissues to tobacco smoke, possibly linking the smoking effects on implant survival to the smoking effects on periodontitis.¹⁰ Despite the numbers of students that provided the relation between failure of successful implant and smoking, few percentage of medical students have this knowledge.

CONCLUSION

We found that medical student in Qassim region were aware of the effects of smoking on aesthetic features, social acceptance and morbidity. On the other hand, some

responses showed lake of knowledge about the effects of smoking on specific conditions of oral health. Such as implant failure, healing after extraction, inflammation of salivary gland, hairy tongue and losing teeth. Thus, the need for targeted and focused smoker and non-smoker medical students prevention interventions and increase their knowledge toward the effects of smoking in oral health by adopting a comprehensive approach. Enabling teachers to educate the students regularly regarding tobacco use should be a cornerstone activity. Nongovernmental organizations may be involved in increasing awareness and also in massive public health education campaigns.

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REFERENCES

1. Newman. Carranza's Clinical Periodontology. 11th Ed. Saunders, an imprint of Elsevier Inc; 2012: 294.
2. Rozi S, Butt ZA, Akhtar S. Correlates of cigarette smoking among male college students in Karachi, Pakistan. *BMC Public Health*. 2007;7(1):312.
3. Saudi Ministry of Health. [https://www.moh.gov.sa/Ministry/MediaCenter/News/Pages/ NEWS-2008-9-14-001.aspx](https://www.moh.gov.sa/Ministry/MediaCenter/News/Pages/NEWS-2008-9-14-001.aspx). Accessed 15 July 2019.
4. Al-Shammari KF, Moussa MA, Al-Ansari JM, Al-Duwairy YS, Honkala EJ. Dental patient awareness of smoking effects on oral health: comparison of smokers and non-smokers. *J Dent*. 2006;34(3):173-8.
5. Warnakulasuriya S, Dietrich T, Bornstein MM, Casals Peidr o E, Preshaw PM, Walter C, et al. Oral health risks of tobacco use and effects of cessation. *Int Dent J*. 2010;60(1):7-30.
6. Bergstr om J, Eliasson S, Dock J. Exposure to tobacco smoking and periodontal health. *J Clin Periodontol*. 2000;27(1):61-8.
7. Hasim TJ. Smoking habits of students in College of Applied Medical Science, Saudi Arabia. *Saudi Med J*. 2000;21(1):76-80.
8. Al-Turki YA. Smoking habits among medical students in Central Saudi Arabia. *Saudi Med J*. 2006;27(5):700-3.
9. Wali SO. Smoking habits among medical students in Western Saudi Arabia. *Saudi Med J*. 2011;32(8):843-8.
10. Reibel J. Tobacco and oral diseases. Update on the evidence, with recommendations. *Med Princ Pract*. 2003;12 Suppl 1:22-32.
11. Tin-Oo MM. Awareness of the Effects of Smoking on Oral Health among Dental Patients at the Defense Service General Hospital, Myanmar. *Int Med J*. 2013;20(2):1-3.

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