academicJournals

Vol. 7(5), pp. 60-63, May 2015
DOI: 10.5897/JDOH2015.0149
Article Number: C46A6B552420
ISSN: 2141-2472
Copyright © 2015
Author(s) retain the copyright of this article
http://www.academicjournals.org/JDOH

Journal of Dentistry and Oral Hygiene

Full Length Research Paper

Patients' awareness of the relationship between smoking and periodontal diseases in Kingdom of Saudi Arabia

Ashwin C. Shetty

Department of Preventive Dentistry, Riyadh Colleges of Dentistry and Pharmacy, P. O. Box 84891, Riyadh 11681, Kingdom of Saudi Arabia.

Received 5 April, 2015; Accepted 20 April, 2015

The aim of this study was to investigate the patients' awareness of the effects of smoking on periodontal health in Kingdom of Saudi Arabia (KSA), and to compare with similar studies in UK and Nigeria. This cross-sectional survey was conducted on a convenience sample of 600 patients attending dental clinics of Riyadh Colleges of Dentistry and Pharmacy in 2014 using anonymous, self-completed, questionnaires. The questionnaire included mainly closed-ended questions such as smoking status, duration, frequency, type, level of awareness, and demographics. Descriptive statistics and Chi-square test was performed to analyze the data. 95.7% patients were aware that smoking had a negative impact on oral health. Majority of the patients were aware that smoking causes oral cancer and stains. 11.3% (n=68) stated that smoking affected the gums. Only 4.3% (n=26) of the respondents knew specifically of the link between smoking and periodontal disease. There was a statistically significant relation between awareness of the effects of smoking on oral health with gender, nationality, and smoking status ($p < 0.05$). This study highlights patients' lack of awareness of the relationship between smoking and periodontal diseases, with only 4.3% of the respondents knowing of the link. This finding closely resembles those of the UK and Nigerian study.

Key words: Smoking, periodontal disease, awareness.

INTRODUCTION

Tobacco use has been associated to affect oral health from tooth staining to oral cancer (Bloom et al., 2012). Smoking is considered to be a significant risk factor for periodontal disease and its clinical effects depends on the number of cigarettes smoked daily and the duration of the habit (Ramón and Echeverría, 2002; Scabbia et al., 2001). There are substantial scientific evidence of the harmful long term effects of smoking on periodontal disease (Chang et al., 2002). Periodontal diseases can affect the function of the dentition, dental appearance, and loss of teeth (Albandar et al., 2000).

Despite several studies on the association between smoking and periodontal disease (Bergström et al., 2000; Johnson and Guthmiller, 2007; Natto et al., 2005), very

E-mail: drashwin@riyadh.edu.sa. Tel: (+966) 1 2931177.
Author(s) agree that this article remain permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

few have reported on the awareness of this among patients. A study in United Kingdom (UK) (Lung et al., 2005) highlighted patients' lack of awareness of the relationship between smoking and periodontal disease, with only 6% of respondents knowing the relationship. Another study in Nigeria (Nwhator et al., 2014) reported that the level of awareness of a link between smoking and periodontal disease was extremely low (2.2%). The level of awareness in the UK, a country with a very long history of good dental care, was also considered to be low.

Although smoking in Kingdom of Saudi Arabia (KSA) is considered socially undesirable for religious and cultural reasons, a high prevalence was seen (Al-Khashan et al., 2014). This ranged from 2.4 to 52.3%, with male ranging from 13 to 38% and female from 1 to 16% (Bassiony, 2009). Studies in the past focused on dental students and dentists' knowledge and stressed more on oral cancer than other oral health related aspects. However, no study has reported on the knowledge of the patients on the link between smoking and periodontal diseases in KSA. The aim of this study was to investigate patients' awareness of the effects of smoking on periodontal health in KSA, and to compare the findings with similar studies of UK and Nigeria.

MATERIALS AND METHODS

The ethics committee in Riyadh Colleges of Dentistry and Pharmacy approved the protocol and the questionnaire instrument for this study. This cross-sectional survey was conducted in 2014 on patients attending dental clinics of Riyadh Colleges of Dentistry and Pharmacy using self-completed questionnaires. Questionnaires were distributed to 1000 patients of whom 600 were completed and returned, giving an overall response rate of 60%. The questionnaires were distributed by the dental hygiene students to the patients attending dental clinics and were completed in the waiting room. Two pages of mainly closed-ended questions with options in simple English and Arabic were completed by these patients. The patients who completed the questionnaires represented a convenience sample.

A completed questionnaire indicated the consent to participate in the study. Anonymity and confidentiality were assured and there were no personal identifiers on the questionnaire. Information requested in the questionnaires included smoking status, duration, frequency, type of smoking, and their knowledge about how smoking affects oral health. Demographics details included were age, gender, and nationality. The quantitative data was entered onto computer for analysis using Statistical Package for Social Science (SPSS) Version 18 for Windows. Descriptive analysis was undertaken to present an overview of the findings. Univariate analysis was used to assess the association of each variable with awareness. Differences between groups were examined using the chi-square test (Pearson, Fisher's exact test). Corresponding p values from statistical tests were considered statistically significant at values of $p \leq 0.05$.

RESULTS

The mean age of the respondents was 29.9 ± 9.0 years. 67.5% (n=405) of the respondents were male and 32.5% (n=195) were female. The mean age of the males (31.8 ± 8.7 years) were higher than the females (26 ± 8.7 years) and was statistically significant ($p<0.05$). There was no significant difference between age and smoking status. Almost three quarter of the respondents were Saudi nationals (74%, n=444). Just under half the respondents (46.0%, n=276) were smokers. Amongst the smokers, majority consumed cigarettes (72.5%, n=200) followed by sheesha (27.5%, n=76). 42% (n=116) of the smokers consumed more than ten cigarettes a day and 58% (n=160) consumed less than ten cigarettes a day. 72.1% (n=199) of the smokers smoked for more than five years and 27.9% (n=77) smoked for less than five years. There was a statistical significant relation between gender and smoking status, type of smoking, frequency of smoking per day, and years of smoking ($p < 0.05$) (Table 1).

95.7% (n=574) of the respondents were aware that smoking can affect their oral health and all the respondents were aware that smoking is not good for general health. Majority of the respondents were aware that smoking causes oral cancer (34.7%, n=208) and stains (33.5%, n=201). 11.3% (n=68) of the respondents stated that they were aware that smoking affected the gums and only 4.3% (n=26) were aware that smoking causes tooth loss (Figure 1). Chi-square test showed a statistically significant relation between awareness of the effects of smoking on oral health with gender, nationality, and smoking status ($p < 0.05$). Males, Saudi nationals, and smokers were more likely to be aware that smoking causes oral cancer and inflammation of gums. Whereas, females, non-Saudis, and non-smokers were more likely to be aware that smoking causes stains and bad breath (Table 2).

DISCUSSION

This cross-sectional study examined the awareness among patients on the effects of smoking on periodontal health in KSA. All the respondents in this study were aware that smoking was not good for health and 95.7% were aware that smoking can affect their oral health. Females were more aware of the association between smoking and oral health than males. Smokers constituted 46% of the study sample and majority consumed cigarettes (72.5%). 34.7% were aware that smoking causes oral cancer and only 4.3% stated that smoking caused periodontal disease. This study was conducted on a convenience sample of patients attending dental clinics of a private dental school and hence most of the subjects belonged to a selected group, including people more aware of and more likely to be able to afford dental services. The findings thus may not reflect the perceptions of the general population in KSA.

This study emphasizes patients' lack of awareness of the relationship between smoking and periodontal disease, with only 4.3% of respondents knowing the link. The findings closely resemble that of previous studies in

Table 1. Smoking habits in relation to gender.

Variable		Gender		Total	p value
		Male [% (n)]	Female [% (n)]	[% (n)]	
Smoking status (n=600)	Smokers	91.7 (253)	8.3 (23)	46.0 (276)	0.000
	Non-smokers	46.9 (152)	53.1 (172)	54.0 (324)	
Smoking type (n=276)	Cigarette	95.0 (190)	5.0 (10)	72.5 (200)	0.003
	Sheesha	82.9 (63)	17.1 (13)	27.5 (76)	
Frequency of smoking (n=276)	<10/day	87.5 (140)	12.5 (20)	58.0 (160)	0.003
	>10/day	97.4 (113)	2.6 (3)	42.0 (116)	
Years of smoking (n=276)	<5 years	84.4 (65)	15.6 (12)	27.9 (77)	0.013
	>5 years	84.4 (168)	15.6 (11)	72.1 (199)	

Table 2. Awareness on the effects of smoking on oral health in relation to gender, nationality, and smoking status.

Effects of smoking on oral health	Gender		Nationality		Smoking status	
	Male [% (n)]	Female [% (n)]	Saudi [% (n)]	Non-Saudi [% (n)]	Smoker [% (n)]	Non-smoker [% (n)]
Tooth loss	4.2 (17)	4.6 (9)	4.7 (21)	3.2 (5)	3.6 (10)	4.9 (16)
Stains	27.2 (110)	46.7 (91)	29.3 (130)	45.5 (71)	33.8 (93)	33.2 (108)
Oral cancer	39.7 (161)	24.1 (47)	36.0 (160)	30.7 (48)	40.0 (110)	30.2 (98)
Inflammation of gums	13.1 (53)	7.7 (15)	13.8 (61)	4.5 (7)	12.8 (35)	10.2 (33)
Bad breath	3.2 (13)	11.3 (22)	5.6 (25)	6.4 (10)	2.5 (7)	8.6 (28)
Black lips	2.0 (8)	1.5 (3)	1.8 (8)	1.9 (3)	1.8 (5)	1.8 (6)
Black gums	4.6 (19)	1.0 (2)	3.8 (17)	2.6 (4)	3.6 (10)	3.4 (11)
Deposits	0.0 (0)	2.1 (4)	0.0 (0)	2.6 (4)	0.4 (1)	0.9 (3)
No effect	6.0 (24)	1.0 (2)	5.0 (22)	2.6 (4)	1.5 (4)	6.8 (22)
p value	0.000		0.000		0.001	

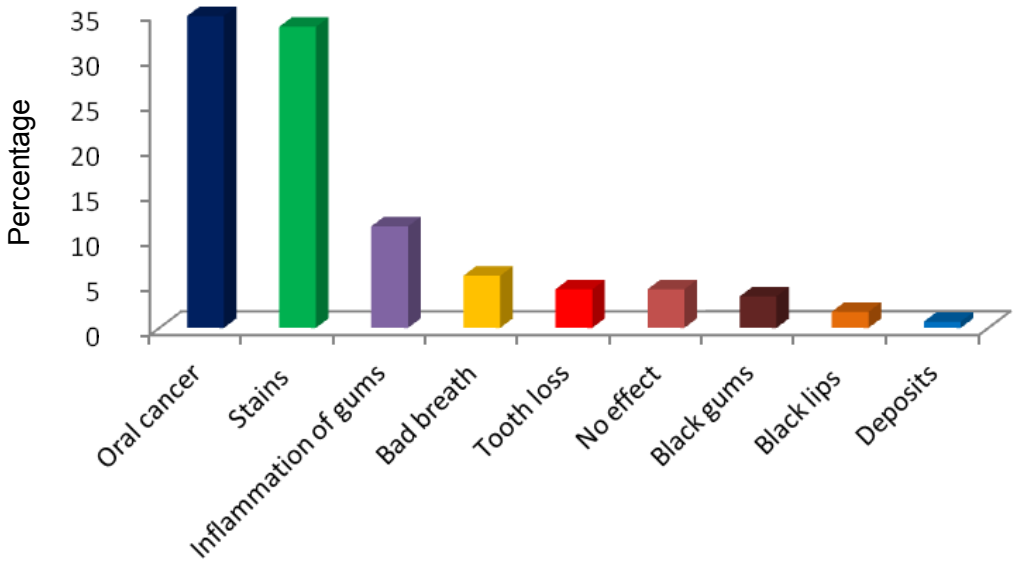

Figure 1. Awareness on the effects of smoking on oral health.

UK and Nigeria (Lung et al., 2005; Nwhator et al., 2014). Hence, the current low level of awareness of the relationship between smoking and periodontal diseases in KSA (4.3%), Nigeria (2.2%), and UK (6%) indicates a universal problem. By implication, the real situation in KSA could be worse than the already appalling picture.

In the current study, the awareness among patients about the oral cancer was good in comparison with the previous studies (Al-Shammari et al., 2006; Sood et al., 2014; Terrades et al., 2009). However, statistically, many more patients will be affected by periodontal diseases than oral cancer.

This study suggests that smoking cessation should be stressed to improve periodontal health and reduce tooth loss among smokers. Dental health campaigns must run awareness programs on the well proved association of smoking and periodontal diseases. Moreover, dental practitioners should play a crucial role in terms of advising and supporting the patients in smoking cessation during regular dentist visits. The dental team could identify the patients willing to stop smoking and guide them to specialist smoking cessation advice centers. It is recommended to conduct further surveys among the general population covering different age groups and comparative studies in other populations to determine the validity of these results.

Conflict of interest

The author declares no conflict of interest.

ACKNOWLEDGEMENTS

The author thanks Ms Ghadah Al-Jasser and Ms Maram Al-Subaiei for helping in recording data.

REFERENCES

Al-Khashan HI, Al Sabaan FS, Al Nasser HS, Al Buraidi AA, Al Awad AD, Horaib GB, Al Obaikan AH, Mishriky AM (2014). The prevalence of smoking and its associated factors among military personnel in Kingdom of Saudi Arabia: A national study. J. Family Community Med. 21(3):147-153.

Al-Shammari KF, Moussa MA, Al-Ansari JM, Al-Duwairy YS, Honkala EJ (2006). Dental patient awareness of smoking effects on oral health: comparison of smokers and non-smokers. J. Dent. 34(3):173-178.

Albandar JM, Streckfus CF, Adesanya MR, Winn DM (2000). Cigar, pipe, and cigarette smoking as risk factors for periodontal disease and tooth loss. J. Periodontol. 71(12):1874-1881.

Bassiony MM (2009). Smoking in Saudi Arabia. Saudi Med. J. 30(7):876-881.

Bergström J, Eliasson S, Dock J (2000). A 10-year prospective study of tobacco smoking and periodontal health. J. Periodontol. 71(8):1338-1347.

Bloom B, Adams P, Cohen R, Simile C (2012). Smoking and oral health in dentate adults aged 18-64. NCHS. Data Brief 85:1-8.

Chang YC, Huang FM, Tai KW, Yang LC, Chou MY (2002). Mechanisms of cytotoxicity of nicotine in human periodontal ligament fibroblast cultures *in vitro*. J. Periodontal Res. 37(4): 279-285.

Johnson GK, Guthmiller JM (2007). The impact of cigarette smoking on periodontal disease and treatment. Periodontol. 2000. 44(1):178-194.

Lung Z, Kelleher M, Porter R, Gonzalez J, Lung R (2005). Poor patient awareness of the relationship between smoking and periodontal diseases. Br. Dent. J. 199(11):731-737.

Natto S, Baljoon M, Bergström J (2005). Tobacco smoking and periodontal health in a Saudi Arabian population. J. Periodontol. 76(11):1919-1926.

Nwhator SO, Ayanbadejo PO, Arowojolu MO (2014). Awareness of link between smoking and periodontal disease in Nigeria: A comparative study. Int. J. Nanomedicine 9:1883-1889.

Ramón JM, Echeverría JJ (2002). Effects of smoking on periodontal tissues. J. Clin. Periodontol. 29(8):771-776.

Scabbia A, Cho K-S, Sigurdsson TJ, Kim C-K, Trombelli L (2001). Cigarette smoking negatively affects healing response following flap debridement surgery. J. Periodontol. 72(1):43-49.

Sood P, Narang R, Swathi V, Mittal L, Jha K, Gupta A (2014). Dental patient's knowledge and perceptions about the effects of smoking and role of dentists in smoking cessation activities. Eur. J. Dent. 8(2):216-223.

Terrades M, Coulter W, Clarke H, Mullally B, Stevenson M (2009). Patients' knowledge and views about the effects of smoking on their mouths and the involvement of their dentists in smoking cessation activities. Br. Dent. J. 207(11):E22-E22.