ORIGINAL ARTICLE

Tobacco Use and its Association with Gingivitis among Dental Students of Dow Dental College

Hina Toufique[1] **BDS**

Nighat Nisar[2] **MBBS, MPH, FCPS**

Sohail Saadat[3] **BDS, MDS**

ABSTRACT:

Background: In developing world, tobacco use among doctors and dentists is a major issue. The doctors and dentists are considered as advocates of health and responsible for providing guidance to the population. However, smoking among health professionals especially dentists has been linked with many oral health issues including gingivitis.

Objective: To determine the association of tobacco use with gingivitis among dental students of Dow Dental College, Karachi, Pakistan.

Methodology: This cross-sectional study was conducted among 150 dental students of Dow Dental College, Karachi, Pakistan. Participants were asked to fill a self administered questionnaire containing questions regarding smoking habits, knowledge related to hazards of smoking and socio-demographic characteristics. The questions related to smoking were adopted from the National Adult Tobacco Survey (NATS) by Centre for Disease Control (CDC). The participants were examined for the presence of gingivitis using Gingival Index by the principal investigator. The examination was done with patient on dental chair in out-patient department of Dow Dental College.

Results: The frequency of smoking was 92 (61%) among dental students of Dow Dental College. Similarly the frequency of smokeless tobacco use was present in 30 (20%) of individuals. The mean age of the students was 21.52 ±1.51 years. Mean age of initiation of smoking was 16.88 ± 4.01 years. Gingival index score was significantly higher among smokers 1.25± 0.91 as compared to non-smokers0.39 ± 0.63 (p-value<0.001)

Conclusion: This study found high frequency of smoking among dental students and the gingival index score was higher among smokers as compared to non-smokers.

KEYWORDS: Tobacco, Smoking, Gingivitis, Dental Students, Gingival Index.

HOW TO CITE: Toufique H, Nisar N, Saadat S. Tobacco Use and its Association with Gingivitis among Dental Students of Dow Dental College. J Pak Dent Assoc 2017; 26(2): 67-71

***Received**: 8 May 2017, **Accepted**: 3 June 2017*

INTRODUCTION

The devastating results of tobacco use on wellbeing and health have been very frequently reported. Various studies have affirmed the strong quantitative relationship between smoking and numerous illnesses, for example, coronary arteries blockage, lung tumours, bladder malignancies, emphysema, vascular disorders and neonatal morbidity[1-3]. In the developing part of the world, smoking is quite common and prevalent among doctors[1,4].

Smoking among doctors and dentists is problematic in two ways as doctors are the in charge of providing health guidance to general population and responsible for the future health and wellbeing of their nation, their behaviour of tobacco use can have adverse impacts on general population's behaviour[5].

The prevalence of tobacco use is high in Pakistan and the trend of smoking was found similar to other developing countries[6]. It is estimated that 36% of men and 9% of women use some form of tobacco on a regular basis. The mean age of onset for cigarette smoking in Pakistan is 18 years for males and 24 years for females. Inspite of more

1. Lecturer / MDS Trainee, Department of Community Dentisry, Dow Dental College, Dow University of Health Sciences, Karachi, Pakistan
2. Professor and Head of Community Medicine, Dean School of Public Health, Dow University of Health Sciences, Karachi, Pakistan
3. Assistant Professor, Dow International College, Dow University of Health Sciences, Karachi, Pakistan
Corresponding author: "Dr. Hina Toufique" <dr.hina95@yahoo.com>

knowledge about its harmful effects cigarette smoking is widespread among the medical students around the world[7].

It has been well established that younger the age of smoking onset, higher the dependence on smoking and more difficult it becomes to quit[8,9]. The Pakistani young medical and dental students who start smoking under peer pressure or social gatherings have less chances of quitting smoking and therefore not only harm their own lives but also set a bad example for their patients. A study conducted in 1993 among medical students of the Aga Khan University, Karachi, showed that 11% of the medical students were smokers (males 17%, females 4%[10].

Another study conducted in Karachi reported that the prevalence of smoking was 14.4% among medical and dental students[2]. A study from a private medical college reported that the prevalence of smoking among male students was 26% and female students was 1.7%[7]. Among medical and dental students who smoke cigarettes, gingivitis is one of the earliest findings[4]. In a study conducted in Saudi Arabian dental students, smoking was prevalent among 13% of the students and 10% of them suffered from poor oral hygiene, gingivitis and other oral health disorders[4].

This study is conducted to determine frequency of tobacco use either in the form of smoking or in its chewing smokeless form, among dental students and its association with gingivitis among dental students of Dow dental college of Karachi, Pakistan.

OBJECTIVE

To determine the association of tobacco use (both smoked and smokeless) with gingivitis among dental students of Dow Dental College, Karachi, Pakistan

METHODOLOGY

A cross-sectional study was conducted and 150 students of Dow Dental College were enrolled in the study by using convenience sampling. The sample size was calculated using online sample size calculator for frequency of tobacco use among medical students in Karachi as 14.4% reported by Khan *et al.*[2], with margin of error at 6% and confidence level at 95%, it was calculated to be 132. After taking the consent the student were asked to fill a self administered questionnaire containing questions regarding smoking habits, and socio-demographic characteristics. The questions related to smoking was adopted from the National Adult Tobacco Survey (NATS) by Centre for Disease Control (CDC)[11]. The students were examined for the presence of gingivitis using Gingival Index by the principal investigator. The examination was done with patient on dental chair in the out-patient department of Dow Dental College.

The data were entered and analysed by using SPSS version 20. Frequency of smokers and non smokers were calculated and presence of gingivitis was calculated by using gingival index. The chi-square test was applied to determine association of smoking and gingivitis. The P-value of ≤0.05 was considered statistically significant.

RESULTS

The frequency of smoking was found 92 (61%) among dental students of Dow Dental College. The mean age of the students was21.52 ±1.51 years. Mean age of initiation of smoking was 16.88 ± 4.01 years. Fifty eight percent of smokers smoked daily and 75 % were males.

Table 1. Socio-Demographic Factors of Dental Students

Characteristics	Frequency N=150 (%)
Gender	
Male	113 (75)
Female	37 (25)
Year of Education	
First	23 (15)
Second	37 (25)
Third	57 (38)
Fourth	33 (22)
Tobacco Use	
Yes	92 (61)
No	58 (39)
Smokeless Tobacco use	
Yes	30 (20)
No	120 (80)

No statistically significant difference was found when ages of male and female smokers were compared.

Majority of dental students smoked less than 10 cigarettes per day whereas 19% smoked more than 20 cigarettes per day. Further details of number of cigarettes consumed by dental students are shown in Table **3**.

Table 2. Tobacco Use among Different Dental Students

Characteristics	Tobacco users n(%)	Tobacco Non-users n(%)	Chi-square	p-value
Gender				
Male	85 (75)	28 (25)	37.25	<0.001
Female	7 (19)	30 (81)		
Year of Education				
First	14 (70)	9 (30)	10.13	0.072
Second	25 (68)	12 (32)		
Third	31 (55)	26 (46)		
Fourth	22 (75)	11 (25)		
Smokeless Tobacco use				
Yes	30 (100)	0(0)	23.64	<0.001
No	62 (52)	58 (48)		
Family member use tobacco				
Yes	60 (90)	7 (10)	40.65	<0.001
No	32 (39)	51 (61)		
Ever had dental check-up				
Yes	57 (81)	13 (19)	22.34	<0.001
No	35 (44)	45 (56)		

Table 3. Number of Cigarettes Smoked by Dental Students

Frequency of daily cigarette smoked	Participants n(%)
<10	61 (66.3)
11-20	18 (19.6)
21-30	5 (5.4)
31 or more	8 (8.7)
Total	92 (100.0)

Table 4. Tobacco Use and Gingival Index Scores

	Tobacco users	Tobacco Non-Users	P-value
Gingival index	1.25 ± 0.91	0.39 ± 0.63	<0.001

Table **4** shows the mean GI score comparisons between smokers and non-smokers. There was a statistically significant higher GI scores among smokers compared to non-smokers.

DISCUSSION

This study found a high frequency of smoking among dental college students. It was more common among males as compared to females. The students who smoke had more regular dental checkups compared to those who didn't smoke.. There was a statistically significant difference between the total GI score among those who smoke and those who didn't. Other forms of tobacco use, such as smokeless tobacco were also found to be associated with smoking. These trends were more common among males.

We found similar results as reported by a study conducted in Saudi Arabia[4]. The high prevalence of tobacco use, both smoked and smokeless, among dental students in a dental college of Karachi reflects a number of reasons. Smoking is started at a younger age among Pakistani adolescents, before their admission to medical or dental colleges hence a good proportion of these students enter medical and dental colleges already using tobacco. Secondly the once in dental colleges and acquiring the knowledge regarding hazards to tobacco use, majority of the students don't quit its use reflecting the level of addiction and tobacco dependence.

The effect of smoking on the presence of gingivitis is reported by several studies[12-14]. The dental students have knowledge of oral hygiene and hazards of smoking, in spite of this fact this study found a high frequency of smokers among dental students.

The probable mechanism of causation might include decrease in blood flow to gingival tissue due to damaged blood vessels[15]. Furthermore, the tar in the cigarette smoke causes plaque to accumulate which increases the chances of periodontitis[16].

CONCLUSION

This study found high frequency of smoking among dental students and the gingival index score was higher among smokers as compared to non-smokers.

RECOMMENDATIONS

This situation is alarming as for students of dental health sciences, these students should be considered advocate of smoking cessation programs and role models for the community. It is recommended that health education programs should be implemented for the control and prevention of smoking and related dental hazards due to smoking.

REFERENCES

1. Xiang H, Wang Z, Stallones L, Yu S, Gimbel HW, Yang P. Cigarette smoking among medical college students in Wuhan, People's Republic of China. Preventive medicine. 1999;29:210-5.
2. Khan F, Husain S, Laeeq A, Awais A, Hussain S, Khan J. Smoking prevalence, knowledge and attitudes among medical students in Karachi, Pakistan. 2005.
3. Azab M, Khabour OF, Alzoubi KH, Anabtawi MM, Quttina M, Khader Y, et al. Exposure of pregnant women to waterpipe and cigarette smoke. Nicotine & Tobacco Research. 2013;15:231-7.
4. Almas K, Al-Hawish A, Al-Khamis W. Oral hygiene practices, smoking habit, and self-perceived oral malodor among dental students. J Contemp Dent Pract. 2003;4:77-90.
5. Kaplan RM, Fang Z, Morgan G. Providers' advice concerning smoking cessation: Evidence from the Medical Expenditures Panel Survey. Prev Med. 2016;91:32-6.
6. Smith D, Leggat P. An international review of tobacco smoking among medical students. Journal of postgraduate medicine. 2007;53:55.
7. Omair A, Kazmi T, Alam S. Smoking prevalence and awareness about tobacco related diseases among medical students of Ziauddin Medical University. JPMA. 2002;52(389).
8. Grant BF. Age at smoking onset and its association with alcohol consumption and DSM-IV alcohol abuse and dependence: results from the National Longitudinal Alcohol Epidemiologic Survey. Journal of substance abuse. 1998;10:59-73.
9. Khuder SA, Dayal HH, Mutgi AB. Age at smoking onset and its effect on smoking cessation. Addictive behaviors. 1999;24:673-7.
10. Hussain SF, Moid I, Khan JA. Attitudes of Asian medical students towards smoking. Thorax. 1995;50:996-7.
11. King BA, Dube SR, Tynan MA. Current tobacco use among adults in the United States: findings from the

National Adult Tobacco Survey. American journal of public health. 2012;102:e93-e100.

12. Al-Bayaty FH, Baharuddin N, Abdulla MA, Ali HM, Arkilla MB, ALBayaty MF. The influence of cigarette smoking on gingival bleeding and serum concentrations of haptoglobin and alpha 1-antitrypsin. BioMed research international. 2013;2013.
13. Alexander A. The relationship between tobacco smoking calculus and plaque accumulation and gingivitis. Dental health. 1969;9:6-9.
14. Allam E, Zhang W, Zheng C, Gregory RL, Windsor LJ. Smoking and oral health. Cigarette Smoke Toxicity: Linking Individual Chemicals to Human Diseases. 2011:257-80.
15. Müller HP, Stadermann S, Heinecke A. Longitudinal association between plaque and gingival bleeding in smokers and non-smokers. Journal of clinical periodontology. 2002;29:287-94.
16. Naderi NJ, Semyari H, Elahinia Z. The Impact of Smoking on Gingiva: a Histopathological Study. Iranian journal of pathology. 2015;10:214.