

Oral hygiene behavior, smoking, and perceived oral health problems among university students

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Abstract

Background: Behavioral aspects play a major role in the prevention of oral diseases. Moreover, not many people are aware of the relationship of smoking with potential oral diseases. Therefore, the aims of this study were to analyze oral hygiene behavior, smoking habits, and perceived oral health problems among a sample of university students in Al-Kharj, Saudi Arabia. **Materials and Methods:** A self-administered questionnaire about oral hygiene behavior, smoking, and perceived oral health problems was developed. The questionnaires were mainly distributed in Medical, Dental, and Pharmacy colleges of the university. Questionnaires completed at other colleges were included under the term “other colleges.” **Results:** Overall, 380 questionnaires were returned. Majority of the students (92.4%) reported cleaning their teeth. Most of the students reported cleaning teeth once daily (48.7%). Just over a half (55.8%) reported having a dental check-up in the last 6 months, and a significantly higher number of dental students reported having a dental check-up ($P < 0.05$). Regarding smoking, the majority (63.4%) reported to have never smoked while 17.3% reported that they were smoking frequently. About 17.6% perceived oral health problems, including a significant proportion of those who reported frequent smoking. **Conclusions:** Oral hygiene behavior exhibited by the university students sample was similar. Majority cleaned their teeth, although only once. Smoking habit was not exhibited by the vast majority of students. Frequent smokers perceived oral health problems more than other students.

Key words: Oral hygiene, oral problems, smoking habits, university students

INTRODUCTION

Oral health is an important component of general health and overall quality of life.^[1] Oral health can have an impact on overall quality of life and daily performances. Good oral health has an effect on appearance, allowing people to perform their social functions and daily activities without physical, psychological, or social inconveniences.^[2]

Changing patterns in the global diseases have been linked to changing lifestyles that include diet, use of tobacco, and consumption of alcohol. Changes in these lifestyle factors have a significant impact on oral health. Therefore, oral diseases qualify as a major public health concern.^[3] There is a need to integrate oral health promotion with general health programs.^[4]

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Dental patients can have a favorable attitude and belief, but a perceived lack of control toward dental visits can act as a barrier. Efforts should be directed to reduce these structural barriers, in order to enhance access to dental services.^[5] The long-term effect of a preventive dental program on tooth mortality, caries, and periodontal disease in adults has shown significant benefits.^[6]

Guidance is given to people to brush their teeth twice daily, on a regular basis, with a fluoridated tooth paste. There is a strong evidence that mechanical measures to remove plaque decrease the incidence of dental caries and gingival inflammation.^[7] However, for better oral hygiene, it is also important to use adjunct cleaning aids such as dental floss and mouth rinses. Many studies have recommended these measures for better long-term oral home care.^[8,9]

Cigarette smoking has now been recognized as the most important environmental risk factor in oral cancer and periodontitis.^[10,11] Apart from having widespread systemic effects, cigarette smoking also increases susceptibility to periodontitis. It may also result in poorer response to dental treatment.^[12] Behavioral aspects play a major role in the prevention of oral diseases. It is important to empower people about oral disease prevention so as to integrate this in their daily routines.^[13] Moreover, not many people are aware of the relationship of smoking with potential oral diseases, particularly periodontitis.^[14]

A study has been carried out on oral hygiene, smoking, and oral malodor among dental students in Saudi Arabia.^[15] However, other studies about smoking behavior in Saudi Arabia, particularly among adolescents,^[16-21] do not relate oral hygiene behavior of Saudi university students to their smoking habits and perceived oral health problems. Obtaining information about oral hygiene behavior and smoking is vital for a satisfactory preventive program. Furthermore, strategies can be devised to limit undesirable oral behaviors or habits with the effective use of oral health promotion programs. Therefore, the aim of this study was to examine self-reported oral hygiene behavior, smoking habits, and perceived oral health problems among university students.

MATERIALS AND METHODS

Study design and sampling

A descriptive cross-sectional study was conducted among college students ($N = 380$) in Salman bin Abdulaziz University, Al-Kharj, Saudi Arabia in the 2 months period from September to October 2014.

There are an estimated 9000 students studying in various college of the university. Out of total 19 colleges in Al-Kharj province, only 6 colleges were chosen for this study. Colleges with male students were only included. Colleges with female students were excluded due to cultural and regional restraints. Colleges in Al-Kharj city were only involved. Moreover, colleges related to health sciences were chosen. Mainly, three colleges, namely College of Medicine, College of Dentistry, and College of Pharmacy, were chosen. Participants from colleges other than those mentioned were grouped in the "other colleges" category. "Other colleges" included College of Applied Sciences, College of Science, and College of Humanities. The questionnaires were randomly distributed among the selected colleges. The questionnaires were self-administered during lunch break in the respective colleges. The participation was voluntary and the questionnaires included participant information letter explaining the purpose of the questionnaire in brief. Out of 400 self-administered questionnaires, 380 were returned completed. Twenty questionnaires were found to be invalid due to discrepancy in answering and were subsequently discarded.

Ethical approval and official permission

The study protocol was reviewed by the Ethical Committee of the College of Dentistry, Salman bin Abdulaziz University in Al-Kharj and was granted ethical clearance. An official permission was obtained from the authorities of the respective colleges at the university.

Pre-testing of the questionnaire

A three-page, self-administered, anonymous, structured questionnaire was first pre-tested on a group of students in the College of Dentistry and appropriate changes were made to improve the comprehensibility. The questionnaire was based on adult oral health survey UK^[22] for oral hygiene behavior, smoking questionnaire, and self-perceived oral health problems. The questionnaires were translated into the local language (Arabic) using reverse translation technique to ensure the integrity of meanings. Cronbach's coefficient was found to be 0.75, which showed an internal reliability of the questionnaire. Content Validity Ratio (CVR) was calculated and found to be acceptable.

The questionnaire used in this study addressed three main aspects: (i) Oral hygiene behavior and practices, (ii)

smoking, and (iii) self-perceived oral health problems. Questions ranged from demographic information like affiliated college to means of oral hygiene behavior and smoking status.

The questions regarding oral hygiene behavior included cleaning of teeth, frequency of cleaning, plaque control measures, use of aids and the traditional twig (miswak) for cleaning teeth. Visit to a dental clinic for preventive dental check-up was also asked. The questions about smoking mainly included the frequency and severity of smoking status. Questions were asked about the perceived oral health problems in the last 6 months.

Statistical analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS v. 20) statistical software. Comparison of different variables was performed by using the Chi-square test. Significance level used was $P < 0.05$.

RESULTS

A total of 380 completed questionnaires were returned and used in the analysis (response rate = 95%). The age range of participants was 20–25 years. Out of 380 subjects, 351 (92.36%) reported cleaning their teeth with either toothbrush and/or miswak (traditional twig). Twenty-nine (7.6%) subjects reported that they do not clean their teeth. Table 1 shows the frequencies of different oral hygiene behaviors exhibited by the participants. The total number of participants ($N = 380$) was almost equally divided among four groups. Table 2 presents the groups according to frequency of cleaning, preventive

dental visits, and smoking behavior. Majority of the participants (79.2%) reported cleaning their teeth once (48.7%) or twice (30.5%) daily. However, there was no significant difference ($P = 0.75$) of oral hygiene behaviors among the groups. Most of the students from various colleges reported similar behavior of cleaning their teeth, i.e. once daily [Figure 1]. More than half (55.8%) of the participants reported a preventive dental visit in the last 6 months. Dental students (66.7%) reported significantly higher ($P = 0.005$) number of dental visits, when compared to other groups. Figure 2 shows the reported preventive dental visits by students of the various colleges. Vast majority (68.1%) of the participants reported to be either non-smokers (63.7%) or having quit (4.4%) the behavior. College of pharmacy (70.5%) had significantly ($P = 0.025$) higher proportion of non-smokers, while the “other colleges” group had the highest proportion (28.5%) of “frequent smokers.” Figure 3 compares the reported smoking behavior among various colleges.

Table 3 compares participants according to their perceived oral health problems, smoking frequency, and cleaning of teeth. Only 17.63% of the participants reported to perceive oral health problems. Irrespective of smoking, among the participants who reported cleaning their teeth, only 14.24% perceived oral health problems. Among the participants who reported not cleaning their teeth ($n = 29$), more than half (58.6%) perceived oral health problems. The oral health problems were significantly perceived more by those who did not clean their teeth and were frequently smoking ($n = 11$; $P = 0.02$).

DISCUSSION

It has been reported that varying attitudes can have a significant impact on establishing favorable oral health

Table 1: Frequencies of oral hygiene behaviors	
Oral health related behaviors	n (%)
Do you clean your teeth?	
Yes	351 (92.4)
No	29 (7.6)
How often do you brush your teeth?	
Less than once/day	109 (31)
At least once/day	242 (69)
Do you use anything other than a brush?	
Yes	180 (51)
No	171 (49)
Cleaning aids used	
Floss	7 (2)
Twig	137 (39)
Toothpick	77 (32)
Mouth wash	63 (18)
Others	6 (1.7)

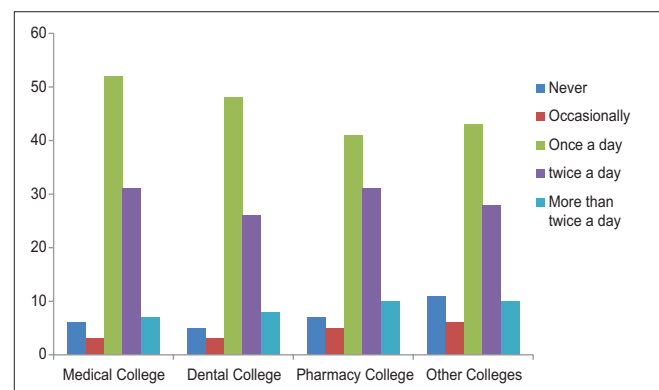


Figure 1: Frequency of cleaning

Table 2: Frequencies of cleaning, dental visits, and smoking among various colleges

College	Frequency of cleaning teeth					Dental check-up		Smoking cigarettes			
	Never	Occasionally	Once a day	Twice a day	More than twice a day	Yes	No	No never	I used to, but I quit	Occasionally	Frequently
Medical n=97 (%)	6 (6.1)	3 (3)	52 (53.6)	31 (31.9)	5 (5.1)	54 (55.7)	43 (44.3)	66 (68)	3 (3)	16 (16.5)	12 (12.3)
Dental n=90 (%)	5 (5.5)	3 (3.3)	48 (53.3)	26 (28.8)	8 (8.8)	60 (66.7)	30 (33.3)	55 (61.1)	5 (5.5)	13 (14.4)	17 (18.8)
Pharmacy n=95 (%)	7 (7.3)	5 (5.2)	42 (46.7)	31 (32.6)	10 (10.5)	53 (55.8)	41 (43.2)	67 (70.5)	7 (7.4)	12 (12.6)	9 (9.5)
Others n=98 (%)	11 (11.2)	7 (7.1)	43 (43.8)	28 (28.6)	9 (9.2)	41 (41.8)	57 (58.2)	53 (54)	3 (3)	14 (14.2)	28 (28.5)
Total N=380 (%)	29 (7.6)	18 (4.7)	185 (48.7)	116 (30.5)	32 (8.4)	208 (55.8)	172 (44.2)	241 (63.4)	18 (4.7)	55 (14.4)	66 (17.3)
χ^2	8.58					11.89		17.66			
P value	0.75					0.005*		0.025*			

*p<0.05

Table 3: Perceived oral health problems according to “cleaning of teeth” and “smoking”

	Perceived oral health problems	
	No	Yes
Cleaning teeth “yes”		
Smoke cigarette		
No never	225	7
I used to, but I quit	10	5
Occasionally	32	19
Frequently	34	19
Total=351	301 (85.75)	50 (14.24)
P=0.001*; Chi-square=70.77		
Cleaning teeth “no”		
Smoke cigarette		
No never	7	2
I used to, but I quit	2	1
Occasionally	1	3
Frequently	2	11
Total=29	12 (41.37)	17 (58.62)
P=0.02*; Chi-square=9.77		
Total (%)	313 (82.36)	67 (17.63)

*p<0.05

habits.^[21] Oral hygiene behavior is influenced by several factors, including parental attitudes, patient motivation, attitude, culture, and geographic region.^[23-26] Accurate knowledge about the oral hygiene of people at a point of time can be gained clinically. However, it is fair to say that oral hygiene status is better among those who claim to brush their teeth at least twice daily than among those who do not brush their teeth. This has been found in earlier studies as well.^[27,28] In our study, it was found that majority of the students clean their teeth, although not

following the ideal recommended way of cleaning teeth, i.e. twice a day.

Results from this study visibly show the fact that many participants are unaware of the ways of practicing good oral hygiene. This finding presents a challenge to improvement of oral health in the 21st century.^[3] Similarly, the results from a survey conducted in May 2012 by the American Dental Association regarding oral health found that many people are not certain regarding proper dental care, recommended replacement time for toothbrushes, and causes of dental caries.^[29] In our study, dental students seemed to be practicing certain oral hygiene behaviors significantly higher than other students, which may be attributed to higher knowledge of these students, and is comparable to similar results reported in a recent study from India.^[30]

Clinical studies have proven that those with poor oral hygiene are at increased risk of developing various oral health problems.^[6] Proper oral hygiene measures like the inter-dental cleaning have shown improvement in clinical outcomes.^[28] The results of the present study about oral self-care are clearly in accordance with the earlier findings of a Turkish university and lower than that of industrialized countries.^[31] Strategies to promote dental service utilization, patients’ compliance, and a professional style oriented toward prevention may be useful to improve the oral health.^[32] Kressin *et al.* observed that use of multiple hygiene behaviors was associated with greater tooth retention.^[33] So, dental health education can only be tailored if there is a baseline data about people’s current oral hygiene behavior. Reducing the structural

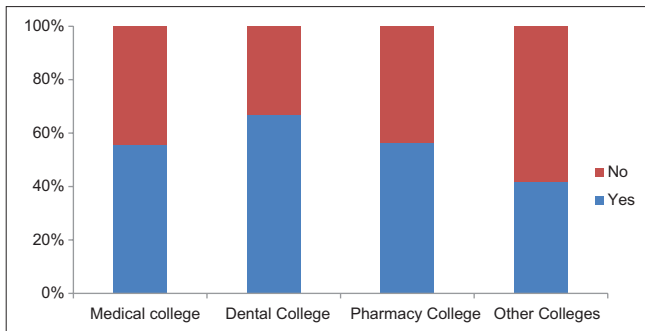


Figure 2: Preventive dental check-up

barriers may, therefore, also improve access to public dental services.^[5]

Smoking is a risk factor for poor oral health and oral diseases.^[34] One of the reports published about smoking status in Saudi Arabia suggests a wide range for the prevalence of smoking (2.4–52.3%). However, among university students, this range is lower at 2.4–37% (median = 13.5%).^[20] In the present study, 31.7% were found to be currently smoking. This value is on the higher side of the range mentioned. There was no significant difference in the frequency of smoking among various colleges. Oral and dental health care of non-smokers has been found to be better than that of smokers.^[35] Similarly, in a study of a group of Turkish students, dental health behavior, attitudes, and knowledge about oral health care improved with increasing level of education.^[31,35]

In the present study only 17.63% of participants perceived that they had an oral health problem. There was no significant difference between various colleges in terms of perceiving oral health problem; however, lesser number of dental students reported experiencing such a problem. Confounding results were found among graduate dentists in North India.^[30] Smokers perceived oral health problems significantly more than non-smokers; there was also a significant difference of perceiving oral health problems and the frequency of smoking. In fact, irrespective of cleaning the teeth, many students who were from the “frequent smoker” group did perceive oral health problems. In a study about smokers in Riyadh city, it was noted that significantly higher smoking prevalence and daily cigarette consumption were associated with being male, single, and highly educated.^[19]

In a recent study about smoking among dental undergraduate students,^[36] a direct correlation was found to exist between oral hygiene practices and oral hygiene conditions associated with halitosis. In our

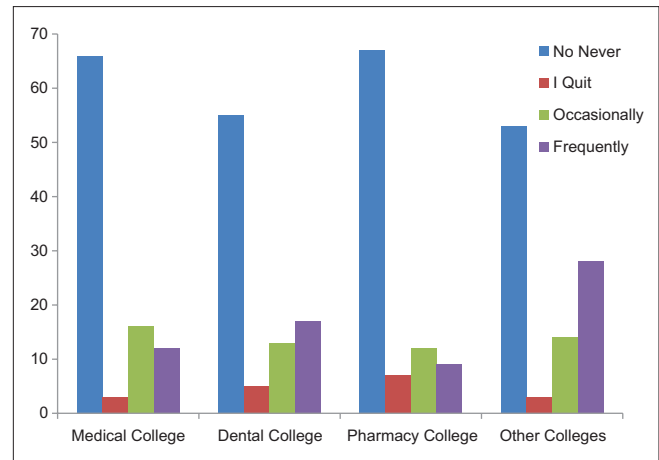


Figure 3: Smoking habits in various colleges

study, perceived oral health problems were reported more when the subjects were smokers and also reported “no” when asked about cleaning teeth. Out of 7.6% ($n = 29$) of the subjects who answered “no” for cleaning teeth, 38% ($n = 11$) were smoking frequently. This is an indication that subjects perceived more oral problems if they were frequent smokers and also did not clean their teeth. In a similar study conducted in Riyadh among university students, it was found that those who observed better oral hygiene practices and smoked less frequently perceived less oral malodor.^[15]

The oral health promotion needs to be planned so that it reaches youth better, especially in higher education institutions like a university. It was reported that education about dental health care in the pre-university curriculum could be an important factor that can influence the oral health attitudes of students.^[37] Oral health promotion in the form of oral health education can be highly beneficial for educated and motivated young students to have a better oral health.

Limitations of the study

This study may have selection bias due to the sampling method. Moreover, due to cultural and regional restrictions, the study was conducted among male students only. Studies relating to overall population consisting of university students including males and females with higher representative numbers from different regions may give more accurate understanding about the issue.

CONCLUSION

- Most of the university students in our sample clean their teeth; however, majority of them do not do it in the ideal recommended way
- There is not much difference in terms of oral

hygiene behavior among the students of various colleges; however, certain variables like flossing and visit to a dentist were reported significantly higher by dental students which may be attributed to their greater exposure

- Smoking was reported to be higher than average when compared to some other groups, although there was no significant difference among various colleges.

Perceived oral health problems were reported by a few students. Frequently smoking students reported more perceived oral health problems when compared to other groups.

Recommendations

There appears to be a definite need for oral health promotion for adoption of healthy oral behaviors and also to refrain from deleterious oral-related habits like smoking. Smoking might need to be addressed as a separate issue in an attempt to increase the awareness of smoke-related problems and target the smokers group with smoke cessation programs. This will enable the students to choose better oral health habits and to have good oral health that is necessary for the general well-being.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Benyamini Y, Leventhal H, Leventhal EA. Self-rated oral health as an independent predictor of self-rated general health, self-esteem and life satisfaction. *Soc Sci Med* 2004;59:1109-16.
2. Gomes AS, Abegg C, Fachel JM. Relationship between oral clinical conditions and daily performances. *Braz Oral Res* 2009;23:76-81.
3. Petersen PE. Challenges to improvement of oral health in the 21st century--the approach of the WHO Global Oral Health Programme. *Int Dent J* 2004;54(Suppl 1):329-43.
4. Petersen PE, Kwan S. Evaluation of community-based oral health promotion and oral disease prevention-WHO recommendations for improved evidence in public health

5. practice. *Community Dent Health* 2004;21(Suppl):319-29.
5. Luzzi L, Spencer AJ. Factors influencing the use of public dental services: An application of the Theory of Planned Behaviour. *BMC Health Serv Res* 2008;8:93.
6. Axelsson P, Nyström B, Lindhe J. The long-term effect of a plaque control program on tooth mortality, caries and periodontal disease in adults. Results after 30 years of maintenance. *J Clin Periodontol* 2004;31:749-57.
7. Davies RM, Davies GM, Ellwood RP. Prevention. Part 4: Toothbrushing: What advice should be given to patients? *Br Dent J* 2003;195:135-41.
8. Baurath K, Charles CH, Mankodi SM, Simmons K, Zhao Q, Kumar LD. The efficacy of an essential oil antiseptic mouthrinse vs. dental floss in controlling interproximal gingivitis: A comparative study. *J Am Dent Assoc* 2003;134:359-65.
9. Bellamy P, Barlow A, Puri G, Wright KI, Mussett A, Zhou X. A new *in vivo* interdental sampling method comparing a daily flossing regime versus a manual brush control. *J Clin Dent* 2004;15:59-65.
10. Hecht SS. Tobacco carcinogens, their biomarkers and tobacco-induced cancer. *Nat Rev Cancer* 2003;3:733-44.
11. Johnson N. Tobacco use and oral cancer: A global perspective. *J Dent Educ* 2001;65:328-39.
12. Palmer RM, Wilson RF, Hasan AS, Scott DA. Mechanisms of action of environmental factors--tobacco smoking. *J Clin Periodontol* 2005;32(Suppl 6):180-95.
13. Widström E. Prevention and dental health services. *Oral Health Prev Dent* 2004;2(Suppl 1):255-8.
14. Lung ZH, Kelleher MG, Porter RW, Gonzalez J, Lung RF. Poor patient awareness of the relationship between smoking and periodontal diseases. *Br Dent J* 2005;199:731-7; discussion 725.
15. 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.
16. Taha A, Bener A, Noah MS, Saeed A, Al-Harthy S. Smoking habits of King Saud University students in Riyadh. *Ann Saudi Med* 1991;11:141-3.
17. Saeed AA, Khoja TA, Khan SB. Smoking behaviour and attitudes among adult Saudi nationals in Riyadh City, Saudi Arabia. *Tob Control* 1996;5:215-9.
18. Hasim TJ. Smoking habits of students in College of Applied Medical Science, Saudi Arabia. *Saudi Med J* 2000;21:76-80.
19. Abdalla AM, Al-Kaabba AF, Saeed AA, Abdulrahman BM, Raat H. Gender differences in smoking behavior among adolescents in Saudi Arabia. *Saudi Med J* 2007;28:1102-8.
20. Bassiony MM. Smoking in Saudi Arabia. *Saudi Med J* 2009;30:876-81.
21. Taha AZ, Sabra AA, Al-Mustafa ZZ, Al-Awami HR, Al-Khalaf MA, Al-Momen MM. Water pipe (shisha) smoking among male students of medical colleges in the eastern region of Saudi Arabia. *Ann Saudi Med* 2010;30:222-6.
22. O'Sullivan I, Lader D, Beavan-Seymour C, Chenery V, Fuller E, Sadler K. Foundation Report: Adult Dental Health Survey 2009 (Technical Information). England: The NHS Information Centre; 2011. p. 1-18.
23. Adair PM, Pine CM, Burnside G, Nicoll AD, Gillett A, Anwar S, *et al.* Familial and cultural perceptions and beliefs of oral hygiene and dietary practices among ethnically and socio-economically diverse groups. *Community Dent Health* 2004;21(Suppl):102-11.
24. Polychronopoulou A, Kawamura M. Oral self-care behaviours: Comparing Greek and Japanese dental students. *Eur J Dent Educ* 2005;9:164-70.

25. Almas K, Al-Malik TM, Al-Shehri MA, Skaug N. The knowledge and practices of oral hygiene methods and attendance pattern among school teachers in Riyadh, Saudi Arabia. *Saudi Med J* 2003;24:1087-91.
26. Kawamura M, Wright FA, Declerck D, Freire MC, Hu DY, Honkala E, *et al.* An exploratory study on cultural variations in oral health attitudes, behaviour and values of freshman (first-year) dental students. *Int Dent J* 2005;55:205-11.
27. Terézhalmy GT, Bartizek RD, Biesbrock AR. Relative plaque removal of three toothbrushes in a nine-period crossover study. *J Periodontol* 2005;76:2230-5.
28. Jackson MA, Kellett M, Worthington HV, Clerehugh V. Comparison of interdental cleaning methods: A randomized controlled trial. *J Periodontol* 2006;77:1421-9.
29. Bloom B, Simile CM, Adams PF, Cohen RA. Oral Health Status and Access to Oral Health Care for U.S. Adults Aged 18-64: National Health Interview Survey, 2008. *Vital and Health Statistics Series 10. Data from the National Health Survey.* Washington DC, USA: Centers for Disease Control and Prevention, National center for Health Statistics; 2012. p. 1-22.
30. Singh MS, Tuli AK. A comparative evaluation of oral hygiene practices, oral health status, and behavior between graduate and post-graduate dentists of North India: An epidemiological survey. *J Int Soc Prev Community Dent* 2013;3:19-24.
31. Kirtiloğlu T, Yavuz US. An assessment of oral self-care in the student population of a Turkish university. *Public Health* 2006;120:953-7.
32. Rimondini L, Zolfanelli B, Bernardi F, Bez C. Self-preventive oral behavior in an Italian university student population. *J Clin Periodontol* 2001;28:207-11.
33. Kressin NR, Boehmer U, Nunn ME, Spiro A 3rd. Increased preventive practices lead to greater tooth retention. *J Dent Res* 2003;82:223-7.
34. Millar WJ, Locker D. Smoking and oral health status. *J Can Dent Assoc* 2007;73:155.
35. Peker I, Alkurt MT. Oral Health attitudes and behavior among a group of turkish dental students. *Eur J Dent* 2009;3:24-31.
36. Setia S, Pannu P, Gambhir RS, Galhotra V, Ahluwalia P, Sofat A. Correlation of oral hygiene practices, smoking and oral health conditions with self perceived halitosis amongst undergraduate dental students. *J Nat Sci Biol Med* 2014;5:67-72.
37. Al-Wahadni AM, Al-Omiri MK, Kawamura M. Differences in self-reported oral health behavior between dental students and dental technology/dental hygiene students in Jordan. *J Oral Sci* 2004;46:191-7.