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## Dental health behaviour in relation to caries status among medical and dental undergraduate students of Udaipur district, India

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**Abstract:** *Objective:* To compare the caries status and oral hygiene behaviour of dental and medical students and to assess the influence of oral hygiene behaviour on the caries status. *Methods:* A questionnaire survey was conducted to assess the knowledge, attitudes and behaviour along with clinical examination to assess the caries status. A total of 403 dental and medical students enrolled with Rajasthan University of Health Sciences of Udaipur district, India were recruited in the study. *Results:* 56.4% of dental students brushed their teeth twice daily compared to 38.5% of medical students. There was no significant difference between the mean decayed components of males and females of dental stream, whereas among medical subjects, males had a higher decayed score than females ( $P = 0.012$ ). The mean behaviour score obtained by dental students (19.38) was greater than that of medical students (18.34). Moreover, medical students presented a higher decayed, missing and filled teeth (DMFT) score (1.96) than dental students (1.16). Subjects who had a habit of brushing after every meal showed lower DMFT score (1.4) than those who brushed only once a day (1.64). Step-wise linear regression analysis revealed that course of education and final behaviour score were the best predictors for the DMFT status. *Conclusion:* This study revealed significant differences between the oral hygiene behaviour and caries status of dental and medical students; furthermore, caries status was significantly influenced by the oral hygiene behaviour.

**Key words:** behaviour; caries; dental students; medical students

## Introduction

Oral health is the window to one's overall health and wellness. Dental health cannot be separated from general health. Many systemic diseases show their early manifestations in the oral cavity, thereby making the knowledge of oral tissues indispensable for any medical professional. This extreme importance of oral health and different treatment approach has led to the establishment of dentistry as a separate branch in medical field thus limiting the knowledge of oral health aspects to dental personnel only.

Although a profound knowledge and literature regarding physiological and pathological variations in accordance with the systemic conditions have been included in medical literature, its stress on practical implementation of oral hygiene practices among medical students remains uncertain. Therefore, this study, while comparing the caries status and oral hygiene behaviour of dental and medical students, also assesses the influence of oral hygiene behaviour on the caries status.

Moreover, the aim of this study was to find the impact of dental education on students, as one of the most fundamental objectives of dental education is to graduate the dental students to socially sensitive dentists. Teaching becomes fruitless unless it leads to a profound change in students' behaviour and attitude towards improvement in their personal oral health (1). The behaviour of oral health providers and their attitudes towards oral health could affect their capacity to deliver oral health and thus might affect the oral health of their patients (2, 3). Through their undergraduate study, it is logical for the students in the field of dentistry to develop and modify their attitude towards their own oral health (4), which helps their patients to lead towards better oral health thus fulfilling the general objectives of providing dental education, which is to motivate the patients to adopt good oral hygiene practices (5). Studies have been carried out regarding the oral hygiene behaviour of dental students in many countries like Tunisia (5), Japan (6), Romania (7) among others. They have shown a progression towards better oral hygiene amongst dental students along with their academic progress and they all showed a remarkable improvement when the students switched to their clinical practice.

Studies on the knowledge, attitude and behaviour of university students towards oral health and the influence of these attitudes on the caries status have been sparse and have primarily been conducted among dental or dental hygiene or medical students (8–10). Furthermore, there are no studies that compared the oral health behaviour and caries status of the

medical and dental students from India, although many studies have come from the west and south-east. Studies have proved that oral behaviour significantly influences the caries status (11).

Hence, this study intended to compare the oral hygiene behaviour and caries status of dental and medical students and to assess the influence of oral hygiene behaviour on the caries status.

## Study population and methodology

The target population comprised first to final year students attending medical and dental colleges of Udaipur district affiliated to Rajasthan University of Health Sciences. A medical and dental college was randomly selected from two medical and two dental colleges in the area for conducting the study.

Consequently, the target population comprised 600 medical and dental undergraduate subjects. With the response rate of 70%, 420 students participated in the study. Prior to data collection, the questionnaire was pretested on a group of similar individuals for validity assessment and it was estimated that approximate time needed to complete the questionnaire was 15 min. The data collection was carried out in the month of March 2008. Voluntary consent was obtained and no incentives were granted for the participants. Of the 420 questionnaires filled, 17 (4.04%) were rejected because of either inconsistent answers such as two replies given to the same question or when a question went unanswered and subsequently, the final sample of subjects who participated in the study consisted of 208 medical and 195 dental students. Male participants were 222 (92 – dental, 130 – medical) individuals and the rest constituted by 181 females (103 – dental, 78 – medical). No major difficulties with respect to the questionnaire were encountered during the data collection or as a result of pretesting. A retest of whole survey instrument was undertaken among 20 participants after the interval of 15 days. Minimum reliability rate was 84% for question 'How many times do you eat between meals' and maximum of 100% for question 'How many times do you brush your teeth'. Permissions from the institution heads were obtained prior to the survey implementation. Ethical approval for conducting the survey was obtained from the ethical committee for research of Darshan Dental College and Hospital.

The questionnaire consisted of two parts, the first part intended to collect demographic information such as name, age (as on last birthday), gender, academic level, course of study and the second part consisted of questions about the oral hygiene behaviour such as frequency of brushing, use of dental

floss and mouthwashes, dietary habits, smoking and dental visiting habits.

Frequency of tooth brushing was assessed on a three-point scale (1 = once, 2 = twice and 3 = after every meal). Use of dental floss as 0 = never, 1 = weekly and 3 = daily. Use of mouthwashes as 0 = never, 1 = only if prescribed, 3 = often. Smoking frequency and consumption of other tobacco based products and soft drinks was categorized as 0 = everyday, 1 = occasionally and 2 = never. Complaints regarding bad breath, bleeding gums, ulcers in mouth, decayed teeth, stains, chalky deposits on teeth and pain or sensitivity in any tooth were assessed on a two-point scale as 0 = yes and 1 = no. Weighed scores were allotted to various responses in each question (1–11) and all the scores were summed to calculate the final dental behaviour score.

Clinical examination comprised caries assessment with DMFT. All the subjects were examined in a mobile dental unit to standardize the clinical procedure. The armamentarium used for clinical examination comprised plane mouth mirror and a curved sharp sickle probe (standard explorer) (12). A single examiner conducted the oral examination and the weighed kappa statistic for intra-examiner reliability for caries status was 0.86.

Statistical analysis was performed using SPSS, version 15.0 (Chicago, IL, USA). ANOVA was used to compare between the final scores of DMFT and its components in relation to various independent variables, whereas chi-square analysis was used for discrete data. Step-wise multiple linear regression analysis was performed to estimate the linear relationship between dependent variables (DMFT) and various independent variables (gender, dental or medical course, year of study and final score obtained from the sum total of options in questionnaire). Step-wise multiple linear regression analysis examines the variables in the block at each step for entry or removal. Variables are entered or removed from the model depending on either the significance (probability) of the *F*-value or the *F*-value itself.

## Results

The study showed difference in oral hygiene measures between medical and dental students (presented in Table 1). In general, female students from both the courses were more aware and concerned about dental health issues and more engaged in dental behaviour than male students.

Table 1 shows the frequency distribution for each response with respect to gender and course. It was found that 56.4% of dental students brushed their teeth twice compared to 38.5%

of medical students. Surprisingly, the use of dental floss was very less popular among all the students, although there was a significant difference for dental floss use between the courses ( $P < 0.05$ ). In all, 81% of dental and 83.7% of medical students had never used dental floss. For the use of mouth washes, students from both the courses showed similar response and no significant differences were observed. Majority of the students picked their toothpaste on its ability to fight against various dental problems. The maximum frequency for eating in between meals was 1–2 times a day among both the medical and dental students. It was also found that females tend to eat more in between meals than males. Medical students showed a comparatively higher frequency of smoking ( $P < 0.05$ ) and consumption of other tobacco containing products. 90.8% of dental students never smoked cigarette compared to 77.4% of medical students. On self assessed manner, both medical students and dental students showed more or less equal frequency for bad breath, bleeding gums, ulcers, decayed teeth, stains, chalky deposits on teeth and pain and sensitivity. However, although equally acknowledging these problems, more of dental students (76.4%) had made a dental visit compared with medical (46.8%) students.

Figures 1 and 2 compares the caries and final behaviour scores obtained from the summation of responses given to each question with respect to gender of medical and dental students. There was no significant difference between the mean decayed components of males and females of dental stream, whereas among medical stream subjects, males had a higher decayed score than females ( $P = 0.012$ ). Moreover, females from both the courses showed better behaviour scores in addition to filled teeth than males.

Table 2 compares the DMFT score of medical students and dental students with respect to their progressive academic year. In the dental students, the mean filled component increased as the year of study progressed. Significant trends were observed for decayed and filled components among dental undergraduates with mean decayed score decreasing and mean filled component increasing with the progress in the academic year of education. One way ANOVA revealed significant differences between the years for all the caries indicators except for missing teeth. Scores for decayed teeth were found to be decreasing. However, the score observed among third year dental undergraduates was more than their second year counterparts, whereas among medical students, no specific pattern was observed for any of the DMFT components.

Between dental and medical students, the medical students showed a higher DMFT score (1.96) compared with dental subjects (1.16). The mean for decayed and missed teeth present in

**Table 1. Responses to various questionnaire items according to gender and course of study (chi-square analysis)**

S. no.	Question	Medical						Dental						P-value
		Male			Female			Male			Female			
1	How many times do you brush your teeth	Once	Twice	After every meal	Once	Twice	After every meal	Once	Twice	After every meal	Once	Twice	After every meal	–
		62.3	33.1	4.6	46.2	47.4	6.4	50	48.9	1.1	34	63.1	2.9	NS
		Never	Weekly	Daily	Never	Weekly	Daily	Never	Weekly	Daily	Never	Weekly	Daily	–
2	Do you use dental floss?	86.9	9.2	3.8	78.2	17.9	3.8	85.9	9.8	4.3	81	16.4	2.6	<0.05
		Never	Only if prescribed	Often	Never	Only if prescribed	Often	Never	Only if prescribed	Often	Never	Only if prescribed	Often	–
		50.8	26.2	23.1	32.1	47.4	20.5	35.9	34.8	29.3	31.1	48.5	20.4	NS
4	Your choice of tooth paste is based on	Good ad	Flavour and colour	Ability to fight against oral problems	Good ad	Flavour and colour	Ability to fight against oral problems	Good ad	Flavour and colour	Ability to fight against oral problems	Good ad	Flavour and colour	Ability to fight against oral problems	–
		20	26.9	53.1	6.4	12.8	80.8	15.2	23.9	60.9	3.9	17.5	78.6	NS
		Never	Sometimes	After every meal	Never	Sometimes	After every meal	Never	Sometimes	After every meal	Never	Sometimes	After every meal	–
5	Do you rinse your mouth with water or gargle after meals?	3.1	40	56.9	2.6	33.3	62.8	10.9	29.3	59.8	8.7	28.2	63.1	NS
		2–3 times a day	1–2 times a day	Never	2–3 times a day	1–2 times a day	Never	2–3 times a day	1–2 times a day	Never	2–3 times a day	1–2 times a day	Never	–
		24.6	62.31	13.1	14.1	80.8	5.1	26.1	67.4	6.5	28.2	68.9	2.9	NS
7	Do you smoke?	Everyday	Occasionally	Never	Everyday	Occasionally	Never	Everyday	Occasionally	Never	Everyday	Occasionally	Never	–
		13.8	20.8	65.4		1.3	98.7	6.5	8.7	84.8	2.9	1	96.1	<0.05
		Everyday	Occasionally	Never	Everyday	Occasionally	Never	Everyday	Occasionally	Never	Everyday	Occasionally	Never	–
8	Do you consume any other tobacco containing products such as paan, gukha, etc.?	8.5	24.6	66.9		9	71	2.2	15.2	82.6	1	8.7	90.3	NS

Table 1. (Continued)

S. no.	Question	Medical			Dental			P-value						
		Male	Female		Male	Female								
9	Do you consume soft drinks?	Everyday	Occasionally	Never	Everyday	Occasionally	Never	Everyday	Occasionally	Never	-			
		6.9	77.7	15.4	-	83.3	16.7	81	43.1	42.9	84.5	11.7	NS	
10	Have you ever complained of	-	Yes	No	-	Yes	No	Yes	Yes	No	-	-		
a	Bad breath	-	20	80	-	17.9	82.1	12	88.1	-	8.7	91.3	NS	
b	Bleeding gums	-	20	80	-	9	91	12	88	-	16	83.6	NS	
c	Ulcers in mouth	-	28.5	71.5	-	28.2	71.8	23.9	76.1	-	35	65.1	NS	
d	Decayed teeth	-	43.8	56.2	-	25.6	74.4	23.9	76.1	-	31.1	68.9	NS	
e	Stains	-	63.8	36.2	-	21.8	78.2	42.4	57.6	-	32	68	NS	
f	Chalky deposits on teeth	-	30	70	-	25.6	74.4	27.2	72.8	-	24.3	75.7	NS	
g	Pain and sensitivity in any tooth	-	33.8	66.2	-	28.2	71.8	29.3	70.7	-	36.9	63.1	NS	
11	Have you ever visited a dentist?	-	No	Yes	-	No	Yes	No	Yes	No	Yes	-	-	
		-	60.8	39.2	-	41	59	28.3	71.8	-	15.5	84.4	NS	
12	When was your last dental visit made?	I do not remember	6 months or 1 year back	In last 6 months	I do not remember	6 months or 1 year back	In last 6 months	I do not remember	6 months or 1 year back	In last 6 months	I do not remember	6 months or 1 year back	In last 6 months	-
		34.6	32.7	32.7	30.4	34.8	34.8	30.3	31.8	37.9	26.4	28.7	44.8	NS
13	The reason for your last dental visit was:	Pain or sensitivity in a tooth	Aesthetics	Regular check up	Pain or sensitivity in a tooth	Aesthetics	Regular check up	Pain or sensitivity in a tooth	Aesthetics	Regular check up	Pain or sensitivity in a tooth	Aesthetics	Regular check up	-
		61.5	11.5	26.9	41.3	19.6	39.1	34.8	27.3	37.9	30.2	30.2	39.5	NS
14	How will you rate your oral hygiene?	Poor	Fair	Good	Poor	Fair	Good	Poor	Fair	Good	Poor	Fair	Good	-
		11.6	70.8	17.7	1.3	76.9	21.8	4.3	51.1	44.6	10.9	60.2	36.9	NS

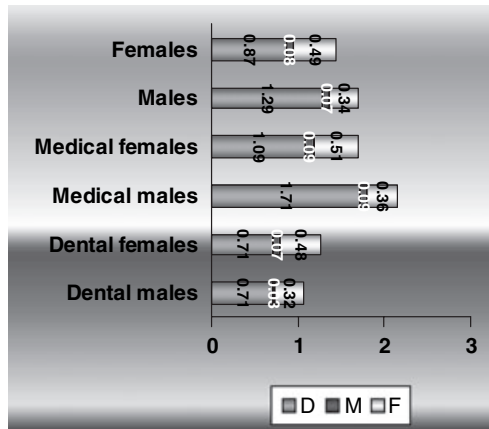


Fig. 1. Mean decayed, missing and filled teeth among males and females of dental and medical streams.

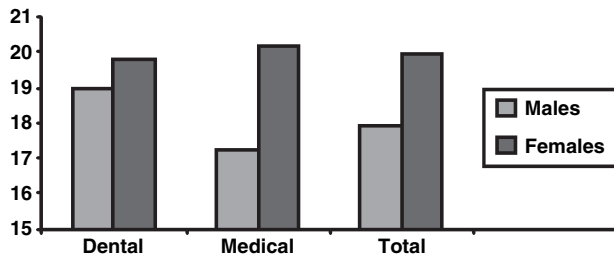


Fig. 2. Mean oral health behaviour scores of medical students and dental students in relation to gender.

medical students (1.48 and 0.09) was nearly twice that of dental students (0.71 and 0.05). The mean behaviour score obtained by dental students (19.38) was greater than that of medical students (18.34). Statistical analysis revealed significant differences between the years of education for the final behaviour score among medical students. First year students of both the streams reported the highest behaviour score.

Table 3 depicts the effect of various oral hygiene practices and habits on the caries status of students. Regular brushing habits had a definite impact on caries status. Subjects who had a habit of brushing after every meal showed lower DMFT score (1.4) than those who brushed only once a day (1.64). Same was the trend observed with use of dental floss and mouthwashes. A more frequent in between meals consumption, 2–3 times a day was related to higher caries status (1.83) compared with diet that was restricted only to regular meals (0.97). Adverse habits like smoking and consumption of other tobacco containing products had a deleterious effect on caries status. Moreover, students who consumed soft drinks everyday presented a higher DMFT score (1.59) than those who had never consumed soft drinks (1.4).

Table 2. Mean decayed, missing, filled and DMFT teeth according to year and course of study (one-way ANOVA)

Course	Academic year	Decayed teeth		Missing teeth		Filled teeth		DMFT		Significance	Final score		Significance
		Mean (SD)	Significance	Mean (SD)	Significance	Mean (SD)	Significance	Mean (SD)	Significance		Mean (SD)	Significance	
Dental	1	1.26 (1.29)	0.006	0.00 (0.00)	0.289	0.13 (0.33)	0.003	1.36 (1.40)	0.045		20.13 (2.60)	0.202	
	2	0.50 (1.09)	–	0.02 (0.13)	–	0.16 (0.62)	–	0.68 (1.29)	–		19.02 (2.59)	–	
	3	0.78 (1.55)	–	0.12 (0.55)	–	0.57 (1.25)	–	1.50 (2.10)	–		19.08 (2.78)	–	
	4	0.35 (0.70)	–	0.05 (0.22)	–	0.77 (1.15)	–	1.15 (1.36)	–		19.60 (3.21)	–	
	Total	0.71 (1.26)	–	0.05 (0.33)	–	0.40 (0.97)	–	1.16 (1.64)	–		19.38 (2.80)	–	
Medical	1	1.41 (1.84)	0.501	0.00 (0.00)	0.101	0.43 (1.17)	0.599	1.84 (2.14)	0.867		19.51 (3.12)	0.014	
	2	1.64 (1.64)	–	0.11 (0.58)	–	0.46 (1.49)	–	2.15 (2.22)	–		17.80 (3.53)	–	
	3	1.04 (1.59)	–	0.24 (0.59)	–	0.64 (1.11)	–	1.88 (2.14)	–		18.48 (3.87)	–	
	4	1.56 (1.72)	–	0.10 (0.35)	–	0.27 (0.78)	–	1.93 (1.93)	–		17.59 (3.80)	–	
	Total	1.48 (1.72)	–	0.09 (0.42)	–	0.42 (1.17)	–	1.96 (2.09)	–		18.34 (3.60)	–	

**Table 3. Mean decayed, missing, filled and DMFT components in relation to various oral hygiene practices among the study population**

Item	Response	Decayed teeth	Missing teeth	Filled teeth	DMFT
Q1. How many times do you brush your teeth?	Once a day	1.16 (1.60)	0.06 (0.28)	0.45 (1.18)	1.64 (2.02)
	Twice a day	1.03 (1.51)	0.10 (0.47)	0.39 (1.0)	1.52 (1.86)
	After every meal	1.33 (1.67)	0.00 (0.00)	0.07 (0.25)	1.4 (1.63)
Q2. Do you use dental floss?	Never	1.12 (1.58)	0.08 (0.41)	0.43 (1.14)	1.62 (1.9)
	Weekly	0.98 (1.38)	0.03 (0.18)	0.38 (0.79)	1.36 (1.53)
	Daily	1.31 (1.7)	0.00 (0.0)	0.00 (0.00)	1.31 (1.79)
Q3. Do you use mouth washes?	Never	1.34 (0.63)	0.07 (0.32)	0.37 (0.76)	1.75 (1.8)
	Only if prescribed	0.93 (1.55)	0.06 (0.38)	0.48 (1.4)	1.48 (2.14)
	Often	1.0 (1.42)	0.10 (0.46)	0.35 (0.86)	1.45 (1.60)
Q4. Your choice of toothpaste is based upon:	Good advertisement	1.53 (1.74)	0.06 (0.24)	0.37 (1.22)	1.88 (2.13)
	Flavour and colour	1.04 (1.52)	0.05 (0.26)	0.55 (0.46)	1.65 (2.12)
	Ability to fight against oral problems	1.05 (1.53)	0.08 (0.43)	0.37 (0.08)	1.5 (1.82)
Q5. Do you rinse your mouth after meals?	Never	1.07 (1.53)	0.04 (0.01)	1.25 (0.08)	1.98 (0.12)
	Sometimes	0.88 (1.59)	0.00 (0.00)	0.61 (0.12)	1.86 (0.36)
	After every meal	1.22 (1.61)	0.14 (0.04)	0.76 (0.06)	1.84 (0.15)
Q6. How many times do you eat between meals?	2–3 times a day	1.43 (1.47)	0.00 (0.00)	0.33 (0.66)	1.83 (1.5)
	Once a day	1.12 (1.59)	0.09 (0.43)	0.38 (0.97)	1.55 (1.9)
	Never	0.97 (1.49)	0.00 (0.00)	0.00 (0.00)	0.97 (1.49)
Q7. Do you smoke?	Everyday	1.7 (2.03)	0.04 (0.19)	0.37 (.92)	2.19 (2.4)
	Occasionally	1.2 (1.37)	0.11 (0.39)	0.57 (1.4)	1.89 (2.3)
	Never	1.05 (1.53)	0.07 (0.39)	0.40 (1.05)	1.50 (1.8)
Q8. Do you consume any other tobacco containing products?	Everyday	2.29 (1.9)	0.07 (0.26)	0.50 (1.09)	2.86 (2.53)
	Occasionally	1.18 (1.44)	0.06 (0.30)	0.34 (0.72)	1.61 (1.76)
	Never	1.03 (.55)	0.07 (0.40)	0.42 (1.13)	1.51 (1.92)
Q9. Do you consume soft drinks?	Everyday	1.0 (1.50)	0.17 (0.63)	0.39 (0.78)	1.59 (1.97)
	Occasionally	1.13 (1.57)	0.06 (0.03)	0.41 (1.05)	1.54 (1.89)
	Never	0.97 (1.56)	0.00 (0.00)	0.47 (1.6)	1.4 (2.2)

It is clear from the Table 4 that there were only two independent variables that significantly influenced the caries status. Course of education was the first best predictor which alone explained a variance of 6% for DMFT status, whereas the final behaviour score was the second best predictor which, along with course of education, had an influence of 8.1%. Those variables which were not significant were excluded from the analysis.

**Table 4. Step-wise linear regression analysis with DMFT as dependent variable and gender, course, year of study and behaviour score as independent variables**

DMFT				
Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	SE of estimate
1	0.246*	0.060	0.058	1.518
2	0.284†	0.081	0.076	1.504

\*Predictors: (constant), course of education.

†Predictors: (constant), course of education, final behaviour score.

## Discussion

Oral health is the mirror to general well being of an individual. Maintenance of oral hygiene forms a small yet considerably significant part in everyday life. Effective oral hygiene plays an important role in preventing caries and periodontal diseases. Thus, the knowledge of basic oral hygiene measures is a necessity for every medical professional – a doctor or a dentist. This study is limited by the fact that the sample does not represent the target population of the whole country as the study pertained to a single locality in India.

It is of great importance that the future dental surgeon, whose duty will be to motivate the patients and to give them all the basic instructions to enable them to achieve a sufficient degree of oral hygiene, should themselves be particularly conscious of the pathological effects of a poor oral hygiene (13).

Dental students were found to have more positive dental health behaviour than medical students. This is in accordance with a previous study (14) from Mangalore, India which observed dental students to have better oral health behaviour than medical and paramedical students.

Similar findings were observed among medical and dental professionals of Calcutta (15). This might be explained by the fact that dental students are given a continuous exposure to oral health problems and their treatment possibilities and they are also taught about the correct way to deal with them at an early stage; also, in medical syllabus, oral health receives hardly any exposure (15) with their primary focus being diverted over the study of the numerous systemic diseases affecting the population. Various studies showing the impact of dental clinical training and curriculum on the oral health behaviour have been conducted earlier (1, 4, 9).

The mean for decayed and missed teeth present in medical students was nearly twice that of dental students, this could be as a result of the thorough knowledge of oral health practices and early diagnosis of dental problems in case of dental students.

It was found that the mean number of fillings improved as the level of education increased among dental students; this could be the result of receiving more dental health care education as the academic year progressed (16).

Numerous studies conducted earlier confirms this fact that as the academic year progresses so does the oral health (17). But, such improvement was not observed in medical students over their progressive academic years; rather, they showed an abrupt trend.

Nevertheless, dental students of third year showed a DMFT score more than second year students in spite of their introduction to clinics. An increased demand for studies leading to higher stress level may be the plausible explanation for this. Furthermore, third year represents the transition phase from preclinical to a clinical contact and a study has reported that it may lead to stress in many students (18).

However, the highest behaviour score from the students of first year of both the streams was found to be an interesting finding. It is probably because a majority of students just entering the colleges are not yet influenced for tobacco use and they have less academic burden; therefore, they can spend ample time on pursuing good oral hygiene habits. This study clearly showed that females from both the courses showed better caries status than males and were found to be more aware of oral hygiene practices. Less employment of adverse habits such as tobacco use among female students was also found.

Gender-specific studies conducted earlier also showed similar results (19). However, there was no significant difference between the mean decayed components of males and females of dental stream, whereas among medical stream subjects, males had a higher decayed score than females. Moreover, females from both courses showed better behaviour scores in addition to filled teeth than males. This can be attributed to equal provision of knowledge among males and females in dental field and a better approach towards dental health issues among females of medical field.

The habits having adverse effect on oral health like smoking and the use of other tobacco containing products were found to be more common among medical students. One of the reasons for this is the lack of concern about smoking as a health problem within medical schools (20). Increased academic stress also allures many students to take up smoking as a means of coping with the burden. Prevalence of tobacco use among medical students has been extensively studied (21–23).

In comparison with medical students, more of the dental students were found to brush twice daily. The impact of dental literature may be considered as the reason for this. However, with the use of dental floss and mouthwashes, both medical and dental students showed negligence.

The study also went well with the already proved beneficial effects of oral hygiene practices on the caries status. Practices like brushing, regular flossing, using mouth washes and rinsing mouth after every meal depicted a lesser caries score in all students with a more frequent practice when compared with students with a less regular practice. The plausible explanation for this observation is the frequent removal of food debris among subjects who practice regular oral hygiene procedures thus making the oral cavity non-conducive for the cariogenic bacteria which in turn improves the caries status.

In conclusion, this study revealed significant differences between the oral hygiene behaviour and caries status of dental students and medical students; furthermore, caries status was significantly influenced by the oral hygiene behaviour. Medical students need to be more aware of their oral health as they are going to be the health providers to the masses and can create awareness by setting an example.

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# References

- 1 Bakdash MB, Proshek JM. Oral hygiene status of dental students as related to their personal and academic profiles. *J Periodontal Res* 1979; **14**: 438–443.
- 2 Uitenbroek DG, Schaub RM, Tromp JA, Kant JH. Dental hygienists' influence on the patients' knowledge, motivation, self-care, and perception of change. *Community Dent Oral Epidemiol* 1989; **17**: 87–90.
- 3 Brown LF. A comparison of patients attending general dental practices employing or not employing dental hygienist. *Aust Dent J* 1996; **41**: 47–52.
- 4 Kawamura M, Spadafora A, Kim KJ, Komabayashi T. Comparison of United States and Korean dental hygiene students using the Hiroshima University-Dental Behavioural Inventory (HU-DBI). *Int Dent J* 2002; **52**: 156–162.
- 5 Maatouk F, Maatouk W, Ghedira H, Ben Mimoun S. Effect of 5 years of dental studies on the oral health of Tunisian dental students. *East Mediterr Health J* 2006; **12**: 625–631.
- 6 Kawamura M, Sasahara H, Kawabata K, Iwamoto Y, Konishi K, Wright FA. Relationship between CPITN and oral health behaviour in Japanese adults. *Aust Dent J* 1993; **38**: 381–388.
- 7 Dumitrescu AL, Kawamura M, Sasahara H. An assessment of oral self-care among Romanian dental students using the Hiroshima University-Dental Behavioural Inventory. *Oral Health Prev Dent* 2007; **5**: 95–100.
- 8 Al-Hussaini R, Al-Kandari M, Hamadi T, Al-Mutawa A, Honkala S, Memon A. Dental health knowledge, attitudes and behavior among students at the Kuwait University Health Sciences Centre. *Med Princ Pract* 2003; **12**: 260–265.
- 9 Kawamura M, Iwamoto Y, Wright FA. A comparison of self-reported dental health attitudes and behavior between selected Japanese and Australian students. *J Dent Educ* 1997; **61**: 354–360.
- 10 Park DY, Ma DS, Horowitz AM. Oral health education sources for university students: why not? *J Public Health Dent* 2004; **64**: 3–4.
- 11 Loe H. Oral hygiene in the prevention of caries and periodontal disease. *Int Dent J* 2000; **50**: 129–139.
- 12 World Health Organization. *Oral Health Surveys – Basic Methods*, 3rd edn. Geneva, WHO, 1987.
- 13 Tenenbaum H. Impact of a periodontal course on oral hygiene and gingival health among senior dental students. *Community Dent Oral Epidemiol* 1980; **8**: 335–338.
- 14 Usman S, Bhat SS, Sargod SS. Oral health knowledge and behavior of clinical medical, dental and paramedical students in Mangalore. *J Oral Health Comm Dent* 2007; **1**: 46–48.
- 15 Chattopadhyay A. Self assessed oral health awareness and unmet demands among medical and dental professionals in Calcutta. *Community Dent Oral Epidemiol* 1990; **18**: 163–164.
- 16 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**: 191–197.
- 17 Polychronopoulou A, Kawamura M, Athanasouli T. Oral self-care behavior among dental school students in Greece. *J Oral Sci* 2002; **44**: 73–78.
- 18 Sofola OO, Jeboda SO. Perceived sources of stress in Nigerian dental students. *Eur J Dent Educ* 2006; **10**: 20–23.
- 19 Al-Omari QD, Hamasha AA. Gender specific oral attitude and behavior among dental students in Jordan. *J Contemp Dent Pract* 2005; **6**: 107–114.
- 20 Mas A, Nerin I, Barrueco M *et al*. Smoking habits among sixth-year medical students in Spain. *Arch Bronconeumol* 2004; **40**: 403–408.
- 21 Dumitrescu AL. Tobacco and alcohol use among Romanian dental and medical students: a cross-sectional questionnaire survey. *Oral Health Prev Dent* 2007; **5**: 279–284.
- 22 Baska T, Baskova M, Hudeckova H, Straka S, Madar R. Increasing trends of tobacco use in medical students in Slovakia – a reason for concern? *Cent Eur J Public Health* 2007; **15**: 29–32.
- 23 Kurpas D, Jasinska A, Wojtal M, Sochocka L, Sen M. Tobacco smoking amongst students in the Medical Faculty of Wroclaw Medical University. *Przegl Lek* 2007; **64**: 795–796.

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