

# Fetor Oris and Oral Health Practices among Undergraduate Medical & Dental Students

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**Abstract:** The undergraduate dental and medical students are considered to adopt better oral practices and lifestyle practices. It is important to assess oral health practices of dental and medical students as they are the future health professionals of a country. The present study aims to evaluate bad breath problem among the dental and medical students of a private institute of Karachi, and relate it to their various oral health practices and lifestyle activities. It was a cross sectional study and the data was collected from the 240 undergraduate medical and dental students of a private medical and dental college of Karachi with the help of a questionnaire. However, only 200 forms were adequately filled and returned back with a response rate of 83.33%. Statistical analysis was conducted by SPSS version 21. It was observed that approximately 15% students complained of bad breath or fetor oris. Medical students were found significantly more concerned about brushing their teeth as compare to dental students (92% Vs 73.5%). It was also observed that only 25% of students flossed their teeth daily although 40-60% of students had history of dental carries. It is concluded that poor oral health practices and lifestyle activities were observed for both the dental and medical students. Hence it is recommended that knowledge and practices regarding self-oral healthcare should be emphasized among these students as they are the role model for their patients and society.

**Key words:** Oral healthcare, fetor oris, medical and dental students.

## Introduction

The term 'halitosis' is used to indicate any foul odor transferred in the surroundings. If this smell originates from the oral source, it is further termed as fetor oris<sup>1</sup>. Previous research works have indicated halitosis as a cause of social and psychological problems among the population.<sup>2</sup> According to an estimate, oral cavity is responsible to produce the major part of halitosis.<sup>3</sup> The Sulphur-containing amino acids are degraded to volatile Sulphur compounds (VSC), by anaerobic bacteria in the oral cavity, which results in the foul smell.<sup>4</sup> Poor oral practices, oral carcinoma, stomatitis, dental caries and gingivitis are attributed to cause fetor oris. Moreover, dry mouth can also result in bad breath.<sup>5</sup> The set of oral health behaviors, which are meant to keep mouth clean for preventing oral diseases, comes

The set of oral health behaviors, which are meant to keep mouth clean for preventing oral diseases, comes under oral hygiene practices.<sup>6</sup> These practices help in the prevention of plaque and periodontitis. Apart from daily oral hygiene practices, regular visits to physicians and dentist uphold oral health.<sup>7</sup> The dental students are proponents of oral health education and awareness. Their perception towards the importance of oral health is depicted through their own oral care behavior.<sup>8</sup> A dental student can never bring about oral health improvement among their patients, if they are not themselves committed to do the same. Thus, it is equally important to develop an oral health attitude among dental students and evaluate their understanding towards its implementation.<sup>9</sup> For this purpose, many researchers have assessed oral health practices of medical students, dental students and allied health sciences students.<sup>10,11</sup>

Al Kawas et al found that dental students have better oral health attitude as compared to medical students.<sup>12</sup> Majority of the medical students agreed that they were not given appropriate education about oral health. According to Kateeb.<sup>13</sup> Female students are more

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concerned about their oral care. Anyhow, all of the students lack in terms of implanting the oral health knowledge. Halawany et al claimed that clinical dental students were more conscious about their oral health.<sup>14</sup> However, majority of the respondents reported that they do not use floss and visits dentist only when faced with a dental problem.<sup>15</sup> In another study, Wagle et al found that dental students have better periodontal status as compared to the general population.<sup>16</sup> On the other hand, dental students were found to have better oral health care practices as compared to dental technology students.<sup>17</sup> According to Kumar et al, dental students are highly conscious about their gum color and appearance.<sup>18</sup>

There are many research works which have compared oral practices of dental students with other students in different countries. However, no research work has been conducted in Pakistan to compare the oral health practices of dental students and medical students. Thus, the present study asserts to fill in this research gap by comparing various oral health practices among dental and medical students of King Edward University, Pakistan.

### Methodology

The present study was conducted from Sep 2017 to Feb 2018 in a private medical & dental college of Karachi, Pakistan. A questionnaire, designed in English, was distributed among the dental and medical students who had to self-report about their oral health practices, perception about oral health, and probable time of bad breath. Moreover, questions about dental problems and lifestyle were also inflicted upon participants. The convenience sampling technique was used to collect data and all the students were invited to participate in the study. The participants were given information and instructions about the study. They were confirmed about the confidentiality of their private information. For statistical analysis, SPSS v.17 was used. The data was expressed through frequency distribution. In order to perform a comparison between medical and dental students, Chi-square test was conducted with p value of 0.05.

### Results

The questionnaires were distributed among 240 medical and dental students. However, only 200 forms were adequately filled and returned back with a response rate of 83.33%. Among 200 (133 males and 67 females) participants, 132 (66%) were medical students and 68 (34%) were dental students. While comparing

self-perceived prevalence of bad breath, 18 (13.6%) medical students and 11 (16.2%) dental students affirmed the presence of problem. The chi square test static was found to be 0.234 with an associated  $p > 0.05$ . Thus, significant difference does not exist between the self perception of medical and dental students regarding the presence of bad breath as shown in Table 1.

**Table 1: Frequency of complain of bad breath among medical and dental students**

	Medical		Dental		Chi square	
	n	%	n	%	statistic	P-value
Bad breath					0.234	0.629
No	114	86.4%	57	83.8%		
yes	18	13.6%	11	16.2%		

\*statistical test shows p value is signification i.e.  $< 0.05$

The Table 2 shows comparative time for the presence of bad breath during the day. Majority of the medical (55; 41.7%) and dental students 25 (36.8%) reported that they felt bad breath immediately after waking up. Following which, bad breath was reported by students in the morning and the time when they felt hungry.

**Table 2: Most common time during the whole day when students find their breath worst**

What time during the day you find your breath the worst	Medical		Dental	
	n	%	n	%
After waking up	55	41.7%	25	36.8%
When hungry	20	15.2%	3	4.4%
When thirsty	8	6.1%	7	10.3%
While talking with other people	4	3.0%	0	0%
When tired	1	.8%	0	0%
During work	11	8.3%	10	14.7%
Morning	20	15.2%	16	23.5%
Afternoon	3	2.3%	7	10.3%
Never	10	7.5%	0	0%

Various questions regarding self-perception of oral health was asked from the students, as shown in the Table 3. For all the inquiries, p value was significant as  $p < 0.05$ . The comparison shows that more medical students (49; 37.1%) were able to smell their own breath as compared dental students (19; 27.9%). The medical students (87; 65.9%) mainly did not preferred in seeking examination from either dentist or physician. However, the majority of dental students (48.5%) had taken advice from dentist for bad breath.

Both medical (108; 81.8%) and dental students (64; 94.1%) had not taken treatment for bad breath. The medical students (76; 57.6%) did not treated bad breath by any self-treatment, whereas, dental students (38; 55.9%) utilized both self-medication and traditional medicine for treating bad breath. Both medical (93; 70.5%) and dental students (37; 54.4%) reported that their bad breath did not interfere with their social life at work.

**Table 3: Frequency of self-perception of oral breath among students**

Self-perception	Medical		Dental		Chi square	
	n	%	n	%	statis tic	p-value
Can you smell your own breath?					4.46	0.107
No	55	41.7%	39	57.4%		
Yes	49	37.1%	19	27.9%		
Don't Know	28	21.2%	10	14.7%		
Have you ever had an examination for bad breath by your					13.25	<0.01*
None	87	65.9%	27	39.7%		
Physician	12	9.1%	8	11.8%		
Dentist	33	25.0%	33	48.5%		
Have you ever received any treatment from your practitioner for bad breath?					6.01	0.050 <sup>a</sup>
None	108	81.8%	64	94.1%		
Physician	7	5.3%	2	2.9%		
Dentist	17	12.9%	2	2.9%		
Have you ever treated yourself for bad breath by					31.88	<0.001*
None	76	57.6%	23	33.8%		
Self-medication	22	16.7%	4	5.9%		
Traditional medicine	11	8.3%	3	4.4%		
Both	23	17.4%	38	55.9%		
In the last month, did your breath interfere with your social life at place of work?					5.07	0.024*
No	93	70.5%	37	54.4%		
Yes	39	29.5%	31	45.6%		

<sup>a</sup> fisher exact test is used

\*statistical test shows p value is significant i.e. < 0.05

The Table 4 depicts the distribution of oral health practices among the students. A significant difference was observed for brushing, use of regular mouth wash and tooth pick. Medical (121; 91.7%) students were observed to brush teeth regularly as compared to

dental students. On the other hand, dental students had better tendencies towards the use of miswak (27; 39.7%), mouth wash (60.3%), and tooth pick (32; 47.1%). However the practice of flossing daily was equal for both the medical and dental students (23.5%). This was less than that found by Mulla and Omar.<sup>7</sup>

**Table 4: Distribution of oral health practices among students**

	Medical		Dental		Chi square	
	n	%	n	%	statistic	p-value
Do you brush your teeth every day?					11.909	0.001*
No	11	8.3%	18	26.5%		
Yes	121	91.7%	50	73.5%		
Do you use miswak every day?					1.78	0.182
No	92	69.7%	41	60.3%		
Yes	40	30.3%	27	39.7%		
Do you use both toothbrush and miswak regularly?					1.69	0.193
No	73	55.3%	31	45.6%		
Yes	59	44.7%	37	54.4%		
Do you use mouthwash regularly?					6.23	0.012*
No	77	58.3%	27	39.7%		
Yes	55	41.7%	41	60.3%		
Do you use toothpick regularly?					6.012	0.014*
No	93	70.5%	36	52.9%		
Yes	39	29.5%	32	47.1%		
Do you floss daily					0.001	0.994
No	101	76.5%	52	76.5%		
Yes	31	23.5%	16	23.5%		

\*statistical test shows p value is significant i.e. < 0.05

The distribution for the dental problems among students is shown in the Table 5. In all the aspects including dental decay (55.9%), bleeding gums (29.4%) and dryness of mouth (50%), dental students had more frequency. Only tongue coating was more prevalent among the medical students (30.3%). However, significant difference was found only for dental caries and tongue coating (p < 0.05).

**Table 5: Frequency of dental caries and bleeding gums among students**

Dental Problems	Medical		Dental		Chi square	
	n	%	n	%	statistic	P-value
Do you have tooth decay (dental caries)?					4.47	0.034*
No	79	59.8%	30	44.1%		
Yes	53	40.2%	38	55.9%		
Do you have bleeding gums?					0.008	0.93
No	94	71.2%	48	70.6%		
Yes	38	28.8%	20	29.4%		
Do you have dryness of mouth					2.707	0.10
No	82	62.1%	34	50.0%		
Yes	50	37.9%	34	50.0%		
Is your tongue coated with white or yellowish deposits?					3.73	0.053
No	92	69.7%	56	82.4%		
Yes	40	30.3%	12	17.6%		

\*statistical test shows p value is significant i.e. < 0.05

The Table 6 shows a comparison of lifestyle habits between medical and dental students. The habits of smoking (47.1%) and drinking soft drinks (60.3%) were more common among dental students. On the other hand, medical students were found to drink tea or coffee (56.1%) more regularly. A significant difference was found for practice of smoking (p < 0.05).

**Table 6: Frequency smoking, tea and coffee habits among students**

Characteristics	Medical		Dental		Chi square	
	n	%	n	%	statistic	P-value
Do you smoke?					14.27	<0.01*
No	104	78.8%	36	52.9%		
Yes	28	21.2%	32	47.1%		
Do you drink soft drinks regularly					2.84	0.092
No	69	52.3%	27	39.7%		
Yes	63	47.7%	41	60.3%		
Do you drink normal tea/coffee regularly					1.97	0.160
No	58	43.9%	37	54.4%		
Yes	74	56.1%	31	45.6%		

\*statistical test shows p value is significant i.e. < 0.05

## Discussion

No previous research work has been conducted to compare oral health practices among dental and medical students in Pakistan. Generally, the dental students are considered to have better oral health practices as compared to general population.<sup>19</sup> This not only shows their commitment towards bringing about better oral health practices among patients, but also depicts their understanding towards its importance. However, in the present study, the dental students were found to have more prevalence and less consciousness of bad breath (16.2%) than medical students. Although both medical and dental students indicated that bad breath was present highly at the time of waking up, medical students were more conscious about it (41.7%). The same was found by Bashiru and Omotola.<sup>20</sup>

The dentists and physicians should be the first one to diagnose a condition, but it is obvious from the results that not even dental students consider this fact. However, dental students had more prevalence of dental examination for bad breath from both physician (11.8%) and dentist (48.5%) as compared to medical students. The same was found by Kumar et al(18). Contrary to this, more medical students had taken treatment for bad breath from both physician (5.3%) and dentist (12.9%). This was in contrast with research work of Shah.<sup>15</sup>

There are many products present in the market that are used by people as a self-medication towards oral bad breath. On the other hand, some remedies are brought about by all the cultures to cope with health problems. It was found that dental students were more reluctant towards both the methods of self treatment (55.9%). Same has been formulated by Benjamin et al.<sup>2</sup>

Bad breath is considered as a social handicap. It can also cause social and psychological problems in people(21). The dental students were more conscious about interference of bad breath with their social life (45.6%). This was also observed by Bashiru and Omotola.<sup>20</sup>

The medical students showed more tendency towards brushing teeth on a daily basis (91.7%). This frequency is more than that found by previous works of Shah(15). Kumar et al, has also found a significant difference in brushing habit for medical and dental students. However, other oral health care practices such as use of miswak (39.7%), combination of brush and miswak (54.4%), use of mouthwash (60.3%) and toothpick (47.1%) was more prevalent in dental

students(18). The same has been found by Halboub et al (5) and Pradhan et al (10). The habit of floss was equivalent for both the medical and dental students (23.5%), and better than the study of Kumar et al(18). This shows that although dental students has better oral health concerns as compared to medical students, there is still a room for improvement, especially in the case of daily brushing routine. The same has been postulated by the works of Singh et al.<sup>21</sup>

With regard to dental problems, tooth decay (55.9%), bleeding gums (29.4%) and mouth dryness (50%) were more prevalent among dental students, whereas, tongue coating was highly present in medical students (30.3%). This is contrary to the findings of Wagle et al(16). Among lifestyle habits, drinking tea and coffee were more prevalent among the medical students (56.1%). These findings are in accordance with the work of Shah<sup>15</sup>, and Rashid et al.<sup>1</sup> On the other hand, smoking (47.1%) and drinking soft drinks (60.3%) were more common among dental students. This is contrary to the results of Messer and Calache.<sup>22</sup>

Many previous research works have shown that dental students have better knowledge of oral health as they learn it from their curriculum.<sup>23,24</sup> Some others have indicated that medical students do not have good oral health awareness.<sup>25</sup>As oral health practices depict general health, knowledge regarding oral health should also be a part of medical education.<sup>26</sup>

The study had limitation of research design which included self-reporting. Such an approach can result in over reported data or under reported data due to a sense of social responsibility and social desirability. There are many research areas such as an association of oral cancer, cause of delaying dental examination and treatment, and additional oral health approaches, which can be explored by future studies. Moreover, longitudinal research designs along with clinical examination-based data can be more useful for comparison between medical and dental students.

## **Conclusion**

The comparison between medical and dental students depicts the poor conditions of oral hygiene practices. The dental students should have best oral health practices, followed by medical students, but this was not the case found in present study. Thus, it is recommended that both dental and medical students are provided with better knowledge about oral health practices and they should also be encouraged with its application.

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