

Evaluation of Oral Hygiene Awareness, Oral Health Practices and Dental Health Problems among the Undergraduate Medical Students of India

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ABSTRACT

Aim: The present study evaluated oral hygiene awareness and dental health problems among the medical undergraduate students of Gujrat Medical Education and Research Society (GMERS) Medical College & Hospital, Valsad, India.

Materials and methods: This was a cross-sectional study which included 196 medical undergraduate students. All the students were asked to fill a structured questionnaire which included total of 16 multiple-choice questions pertaining to their oral hygiene awareness, oral health practices, and dental health problems. Data collected were subjected to statistical analysis and results were expressed as absolute numbers and percentages for males and females. Gender-wise comparison to their responses was also made using Chi-square test.

Results: On analyzing the data, it was found that 79.1% students perceived their state of oral hygiene as "Good"; 74.5% students brushed only once a day. All the students used toothpaste and toothbrush; 44.9% students used soft-bristled toothbrush and 70.4% students changed their toothbrush every 3 months; 71.9% students used no interdental cleaning aids and only 23.5% students used fluoridated toothpaste; 47.4% of participants never visited dentist; 20.9% students reported to have toothache in past 12 months.

Conclusion: From the findings of this study, it can be concluded that medical undergraduate students had lack of awareness regarding oral hygiene and less-than-optimum standard of oral health practices. These students also had tendency to visit dentist only when there is any dental problem and majority of students had never visited dentist.

Clinical significance: Medical professionals are considered as a role model by the society. Improving their knowledge about oral hygiene awareness and oral health practices can ultimately benefit the people they are going to treat in the future.

Keywords: Cross-sectional study, Dental health problems, Medical students, Oral health practices, Oral hygiene awareness.

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INTRODUCTION

Oral health is essential to general health and well-being at every stage of life. A healthy mouth not only enables nutrition of the physical body, but also enhances social interaction and promotes self-esteem and feelings of well-being. Research has also suggested that oral and systemic health are closely associated with each other, and oral diseases, if left untreated, may exaggerate certain systemic diseases.¹ This makes maintenance of optimum oral health important in one's life.

Oral health is compromised by unhealthy habits like use of tobacco and lack of dental specialist care.² So the World Health Organization has set the goals for the year 2020 as recommended oral self-care (ROSC) which includes toothbrushing more than once a day, lesser consumption of sugar-containing snacks once daily or rarely, and regular use of fluoride-containing toothpaste.³ In order to achieve this goal, it is important for countries to evaluate oral hygiene awareness as well as to identify dental health problems in their population. Analysis of oral health behavior of the population is essential for the specification of oral health awareness as well as for the development of behavior modification strategies relevant to India.

Several studies have evaluated oral health behavior among dental students in India⁴ and other countries.⁵⁻⁸ Results of these studies showed considerable differences in dental health attitudes/behavior among dental students of different countries. However, studies evaluating oral health awareness among medical students are very few.^{9,10}

Compared with dental graduates, medical graduates are more accessible to patients, especially in rural parts of India. In urban parts of India, dentist:population ratio is 1:8,000 compared with medical doctor:population ratio of 1:1,800. This ratio in rural parts of India is respectively, 1:50,000 and 1:10,000, indicating better availability of medical graduates in urban parts of India.¹¹ Therefore, knowledge of oral hygiene among medical graduates has more chances to spread in society. Moreover, medical fraternity is expected to be a role model to the society.

Therefore, it is desirable that medical undergraduate students themselves follow ROSC.

Medical students adapt the knowledge acquired at undergraduate level which influences their orientation of medical practice and patient care after their graduation. Implementation of oral health programs among medical students will not only improve their personal oral health care, but also potentially influence their ability to motivate patients to undertake preventive oral health measures.^{12,13} This in turn has an impact on the public's understanding of preventive oral health measures. Implementation of oral health programs also forms an essential basis for promoting the importance on primary oral health care.

Gujarat Medical Education & Research Society (GMERS) Medical College & Hospital has an attached tertiary care hospital and yearly intake of 150 students. Being a government institute, it attracts students from across Gujarat with different sociodemographic background. Hence, this institute could offer an ideal sample to carry out such type of study. The present study was carried out to evaluate oral hygiene awareness, oral health practices, and dental health problems among medical students of GMERS Medical College & Hospital, Valsad, India.

MATERIALS AND METHODS

This cross-sectional study was conducted at GMERS Medical College & Hospital, Valsad, India. Ethical approval was obtained from the institutional ethical committee. All the MBBS students irrespective of their batch who were willing to participate were included in the study. Those who refused to participate were excluded from the study. On the day of data collection, total of 196 students were present. A PowerPoint presentation about the need of the study and description of the questions included in the study was made by the primary author. The students were also encouraged to raise doubts regarding any of the questions included in the questionnaire. Following the presentation, written informed consent was taken from students who were willing to participate in the study. Total of 196 students were included in the study. These students were asked to fill a pretested, structured questionnaire. This questionnaire included 12 multiple-choice questions pertaining to oral hygiene awareness and oral health practices and 4 multiple-choice questions pertaining to dental health problems. The questions and multiple choices included in the questionnaire are summarized in Tables 1 and 2. The data obtained from the completed questionnaire were subjected to statistical analysis.

Statistical Analysis

All the data collected were statistically analyzed using Statistical Package for the Social Sciences software version 17 (IBM Corporation, Armonk, New York, USA). Descriptive analysis was carried out, and results were expressed in means and percentages. Gender-wise comparison to their responses was made using Chi-square test. The level of significance was set at $p = 0.05$.

RESULTS

The study included 115 girls and 81 boys. Mean age of the study subjects was 19.57 ± 1.44 years.

Majority of students who participated in the study perceived that their oral health is "Good" (79%). Rest of the students believed that their oral health is either excellent (11.2%) or average (8.7%). Majority of students (74.5%) brushed their teeth once a day. Only 24.5% students brushed twice daily. All the students used toothbrush and toothpaste for brushing; 23.5% students said that they use fluoridated toothpaste, whereas 35.7% students did not use fluoridated toothpaste and 40.8% students were unaware about fluoride content in their toothpaste. A total of 33.9% of female students and only 8.6% male students used fluoridated toothpaste ($p < 0.001$). When asked about the type of brush, 44.9% students responded using soft-bristled toothbrush, whereas 39.8% students said they use medium toothbrush; 70.4% students changed their toothbrush once in 3 months, 19.9% once in 6 months, and 5.9% once in a year. About 9.7%, 10.2%, and 6.6% students used horizontal, circular, and vertical brushing technique respectively, whereas rest (73.5%) used combination of all these three techniques. Majority of students (71.9%) did not use any type of interdental cleaning aids and only 12.2% students used dental floss regularly. None of the participants used any type of tobacco product or consumed alcohol (Table 1).

Approximately half of the study subjects (47.4%) never visited a dentist in their life. Percentage of students who visited dentist in past 12 months, between 1 and 2 years, between 2 and 5 years, and more than 5 years back was 22.95, 12.24, 5.61, and 8.16% respectively. Significantly more female students visited dentist as compared with their male counterparts. Major reason among participants to visit dentist was dental treatment (12.2%) followed by routine checkup (11.7%), toothache (11.7%), and consultation (5.1%). Approximately 21% students experienced dental pain/discomfort in past 12 months; 73.97% of study subjects had no dental problem in past 12 months; 73% of female students did not have toothache in past 12 months as compared with 39.5% of male students who had ($p < 0.001$). When asked about the other dental problems in past 12 months, 74% participants responded

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Table 1: Gender-wise comparison according to their responses to oral hygiene awareness and oral health practices

Options	Males n (%)	Females n (%)	Total n (%)	Pearson chi-square value	p-value
<i>How do you perceive your state of oral hygiene?</i>					
Excellent	4 (4.9)	18 (15.7)	22 (11.2)	12.831	0.005*
Good	74 (91.4)	81 (70.4)	155 (79.1)		
Average	3 (3.7)	14 (12.2)	17 (8.7)		
Poor	0 (0)	2 (1.7)	2 (1)		
<i>How many times do you brush in a day?</i>					
Once	59 (72.8)	87 (75.7)	146 (74.5)	0.229	0.892
Twice	21 (25.9)	27 (23.5)	48 (24.5)		
More than twice	1 (1.2)	1 (0.9)	2 (1)		
<i>How do you clean your teeth?</i>					
Toothbrush	81 (100)	115 (100)	196 (100)	#	#
Finger	0	0			
Chewing stick/miswak	0	0			
<i>What type of toothbrush do you use?</i>					
Soft	36 (44.4)	52 (45.2)	88 (44.9)	0.059	0.996
Medium	33 (40.7)	45 (39.1)	78 (39.8)		
Hard	4 (4.9)	6 (5.3)	10 (5.1)		
Do not know	8 (9.9)	12 (20.4)	20 (10.2)		
<i>Frequency of changing toothbrush?</i>					
Once in 3 months	58 (71.6)	80 (69.6)	138 (70.4)	0.190	0.979
Once in 6 months	16 (19.8)	23 (20)	39 (19.9)		
Once in a year	4 (4.9)	7 (6.1)	11 (5.6)		
When useless	3 (3.7)	5 (4.3)	8 (4.1)		
<i>Method of toothbrushing?</i>					
Horizontal	8 (9.9)	11 (9.6)	19 (9.7)	0.680	0.878
Circular	8 (9.9)	12 (10.4)	20 (10.2)		
Vertical	4 (4.9)	9 (7.8)	13 (6.6)		
Combined	61 (75.3)	83 (72.2)	144 (73.5)		
<i>Use of interdental cleaning aids</i>					
Floss	10 (12.3)	14 (12.2)	24 (12.2)	0.531	0.912
Interdental brush	4 (4.9)	7 (6.1)	11 (5.6)		
Wooden pick	7 (8.6)	13 (11.3)	20 (10.2)		
None	60 (74.1)	81 (70.4)	141 (71.9)		
<i>When do you clean your tongue?</i>					
Everyday	66 (81.5)	97 (84.3)	163 (83.2)	6.222	0.101
Occasionally	14 (17.3)	13 (11.3)	27 (13.7)		
When mouth smells	0	5 (4.3)	5 (2.6)		
Never	1 (1.2)	0	1 (0.5)		
<i>Do you use toothpaste for brushing?</i>					
Yes	81 (100)	115 (100)	196 (100)	#	#
No	0	0			
<i>Does your toothpaste contain fluoride?</i>					
Yes	7 (8.6)	39 (33.9)	46 (23.5)	31.423	
No	46 (56.8)	24 (20.9)	70 (35.7)		
Do not know	28 (34.6)	52 (45.2)	80 (40.8)		
<i>Do you use tobacco?</i>					
Yes	81 (100)	115 (100)	196 (100)	#	#
No	0	0			
<i>Do you consume alcohol?</i>					
Yes	81 (100)	115 (100)	196 (100)	#	#
No	0	0			

*p-value < 0.05 indicates statistical significance; #Statistical analysis not carried out as the response was constant

Table 2: Gender-wise comparison according to their responses to dental health problems

Options	Males n (%)	Females n (%)	Total n (%)	Pearson Chi-square value	p-value
<i>When was your last visit to dentist?</i>					
0–12 months	18 (22.2)	21 (18.3)	39 (19.9)	15.391	0.004*
1–2 years	5 (6.2)	19 (16.5)	24 (12.2)		
2–5 years	6 (7.4)	19 (16.5)	25 (12.8)		
>5 years	3 (3.7)	12 (10.4)	15 (7.7)		
Never	49 (60.5)	44 (38.3)	93 (47.4)		
<i>What was the reason for your last visit to dentist?</i>					
Consultation	4 (4.9)	6 (5.2)	10 (5.1)	6.097	0.192
Pain (toothache)	9 (11.1)	14 (12.2)	23 (11.7)		
Routine checkup	5 (6.2)	18 (15.7)	23 (11.7)		
Treatment	8 (9.9)	16 (13.9)	24 (12.2)		
Do not know/do not remember	55 (67.9)	61 (53)	116 (59.2)		
<i>Did you have toothache in last 12 months?</i>					
Yes	22 (27.2)	19 (16.5)	41 (20.9)	24.127	<0.001*
No	32 (39.5)	84 (73)	116 (59.2)		
Do not know/do not remember	27 (33.3)	12 (10.5)	39 (19.9)		
<i>How often did you have any dental problem in past 12 months?</i>					
Very often	0	5 (4.3)	5 (2.6)	7.176	0.028*
Sometimes	25 (30.9)	21 (18.3)	46 (23.5)		
No problem	56 (69.1)	89 (77.4)	145 (74)		
No	0	0			

*p-value < 0.05 indicates statistical significance

negatively and only 2.6% participants had dental problems very often (Table 2).

DISCUSSION

This study was conducted in a sample of 196 medical undergraduate students of GMERS Medical College & Hospital, Valsad. This study assessed oral hygiene behavior and dental health problems in the medical undergraduate students. As a future medical professional, he or she is expected to be a role model to his or her parents. Patterns of oral health behavior in medical graduates, their beliefs, and attitudes play an important role in the knowledge they impart to the general public and their community.¹⁴

Frequency of dental caries is associated with incidence of dental caries. Brushing at least twice daily has shown a decrease in caries incidence.¹⁵ In the present study, approximately 75% of students brushed their teeth once daily and 25% students brushed twice daily. The results are in accordance with a study done by Kamble et al⁹ who demonstrated that 79% medical students brushed once daily. The number of students brushing their teeth twice a day was less as compared with those from Karad Institute of Medical Sciences where almost 50% students brushed twice a day.¹⁰ This finding suggests that medical undergraduate students should be encouraged to brush their teeth twice daily.

Role of fluoridated toothpaste in prevention of dental caries is well documented.¹⁶ In our study, 23.46% students responded as using fluoridated toothpaste, which is less in comparison with the study carried out by Folyan et al (95%).¹⁷ Possible reason for this finding could be that the study by Folyan et al¹⁷ included dental students, so naturally they are more aware about the benefit of fluoridated toothpaste. Therefore, medical students should be made aware of the importance of fluoridated dentifrices for good oral health.

Use of tobacco, either smokeless or in the form of smoking, is associated with poor oral health.¹⁸ In this study, all the students claimed to have not used any form of tobacco which is a good sign. Similar results were found in another study among medical undergraduate students of Karnataka state.

Regular dental visit is an important aspect of maintaining good oral health. In our study, strikingly almost 51% students never visited dentist in their life. This finding is consistent with a study by Kamble et al⁹ who reported 45% of medical students of ESIC Medical College, Gulbarga, never visited a dentist. However, in another similar study among the medical students of Karad, only 18.3% students were found to have never visited the dentist.¹⁰ Another alarming finding in our study was that only 11.7% students tended to visit dentist for routine checkup. This finding displayed considerable lack of awareness among medical students toward dental health.

A cross-sectional survey among the undergraduate medical students of Davangere city reported poor oral health awareness among these students.¹⁹ Researchers suggested this finding could probably be due to less clinical exposure of medical students to oral health problems as they are preoccupied with their own curricular activities, and also the attitude of the students toward oral health considering it as least important. Medical students of Mangalore city were also found to have poor oral health knowledge.²⁰

This study was based on self-reporting of responses by medical undergraduate students which might have led to some bias as some students might have registered ideal responses rather than what they actually practice.

CONCLUSION

The present study evaluated oral hygiene awareness and dental health problems among the undergraduate medical students of GMERS Medical College & Hospital, Valsad, India. This study established that there is much room for improvement of oral hygiene awareness among medical students. The oral health behavior of Indian medical students has to be improved in order to serve as a positive model for their patients, family, and friends.

CLINICAL SIGNIFICANCE

Medical professionals are considered as a role model by the society. Improving their knowledge about oral hygiene awareness and oral health practices can ultimately benefit the people whom they are going to treat in the future.

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