



## Original Research Article

## Do medical and paramedical students have a better awareness regarding oral health practices and orthodontic treatment? A KAP study

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## ABSTRACT

**Background:** oral health is the most important for the wellbeing of the patient. But it is being neglected in the developing and the underdeveloped countries and malocclusion being the third most commonly occurring dental anomaly. Medical and paramedical students have been found to be the point of contact the community on a large scale. Hence, the present study was carried out to evaluate the awareness regarding oral health and orthodontic treatment in KIMS College.

**Materials and Methods:** A validated self-administered questionnaire, pertaining to demographic data, awareness of oral health knowledge regarding orthodontics as a specialty were included. A total of 42 questions included in the study. The answers from the students were recorded as Yes or No on a 2-point Likert scale.

**Results:** Significantly higher proportions (70.7%) of the dental students were aware of the oral health practices, Orthodontic treatment and the purpose of orthodontic treatment followed by the, medical students. Female students opined with a greater frequency (70.8%) that irregular teeth have a negative impact on self-esteem and quality of life compared to male students.

**Conclusion:** The Dental students have more knowledge than the health care workers on awareness of oral health practices regarding the use of mouthwashes, flossing technique etc. and also regarding the orthodontic treatment and its importance.

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### 1. Introduction

Oral health is an essential requisite for general health and well-being of an individual throughout the life. Poor oral health and dental problems like caries and periodontal disease can have a significant effect on quality of life as they might affect the patient's eating, drinking, swallowing, smiling and communication.<sup>1</sup> Though oral health has always been neglected in the developing or underdeveloped countries,<sup>2</sup> in order to maintain a good oral health, proper and effective preventive measures must be practiced. Medical and paramedical students act as a guide for oral

health awareness program as they are in frequent contact with the general population.

Malocclusion is a commonly seen dental anomaly among large number of populations. It is considered third most frequently occurring oral pathology next to dental caries and periodontal diseases. One will undergo orthodontic treatment if he/she has knowledge and awareness regarding orthodontics and that orthodontic treatment will improve functioning and aesthetics and functioning in the perioral region. This becomes even more important for the medical and paramedical students as they have to recognise the orthodontic problems early and should be able to refer to an orthodontic specialist at the correct time for either initiating

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interceptive procedures or for correction.<sup>3</sup>

The Medical, Paramedical students after their graduation become the point of contact with the community at large through camps and in college. Their awareness regarding oral health practices in general and orthodontics in particular can influence the oral health practices of the community

It is stated that the main reasons for the malocclusion being left untreated are the lack of information about the malocclusion, lack of resources, literacy rate, and socioeconomic status. Awaisi et al<sup>4</sup> evaluated the social barriers affecting demand for orthodontic treatment, concluded that the majority of individuals who chose treatment had high socioeconomic status and the majority of those who had low socioeconomic status did not prefer treatment.

Although there are studies in the literature that evaluate orthodontic knowledge and awareness among school children in different societies, not many studies are available comparing the awareness regarding oral and orthodontics among the medical, dental and paramedical courses such as nursing, physiotherapy etc., Hence this study was carried out to assess the awareness regarding relationship of orthodontic knowledge and awareness among different dental, medical and paramedical fraternity. Our null hypothesis is that there is difference regarding awareness and knowledge regarding oral health and orthodontics among the students of medical, dental and paramedical branches.

The aim of the present study is to evaluate and compare the knowledge and awareness regarding Orthodontic treatment among dental and medical and paramedical undergraduate students of the campus.

## 2. Material and Methods

### 2.1. Study location and duration

The research was carried out in 2021 (October to December) among dental, medical and paramedical undergraduate students of our campus. The research was started after obtaining approval from the Ethical Committee of our college. The students were given detailed information regarding the purpose of the study and their informed consent was included in the study.

### 2.2. Questionnaire

A validated self-administered questionnaire, was specifically designed and utilized in the study. Questions pertaining to demographic data, awareness of oral health knowledge regarding orthodontics as a specialty were included. A total of 42 questions included in the study. Demographic data includes 5 questions. Awareness of Oral health consists of 15 questions and awareness of orthodontic treatment consists of a total of 22 questions and

they were divided into three categories 1) Knowledge about irregular teeth and smile (7 questions), 2) Knowledge about orthodontic treatment (4 questions), and 3) Awareness about orthodontist and orthodontic treatment (11 questions). A pilot study was carried out to evaluate and compare the knowledge and awareness regarding Orthodontic treatment among 10 dental and 10 paramedical undergraduate students of different campus. Concern of each student has been taken before collecting the responses. Once the pilot study was approved the questionnaire study was conducted among medical, dental and paramedical undergraduate students of our campus.

The answers from the students were recorded as Yes or No on a 2-point Likert scale. There were several options for some questions. After the survey application to raise awareness of Oral health and orthodontic treatment, a presentation was given about oral and dental health and orthodontic treatment to all students in dental and medical and paramedical colleges.

All the undergraduate students in the different courses who were willing to participate in the study were included in the study.

The data were entered using Microsoft Excel and analysed with SPSS software.

### 2.3. Statistical analysis

Data were analyzed using IBM SPSS version 20 software (IBM SPSS, IBM Corp., Armonk, NY, USA). Descriptive statistics and Chi square tests were done to analyze the study data.

## 3. Results

Majority of the study subjects were medical students (39%), females (75.6%), belonged to the 20-25 years age group (53.8%) and upper middle socioeconomic status (63%). Nearly 95% of the study subjects opined that oral health is an integral part of general health. 96.3% preferred normal tooth brush. 43% of the study participants reported using such amounts of tooth paste which covers the full length of the brush. 3 months is the most frequent response (52.6%) from the participants for the question on frequency of changing tooth brush. 78.7% had the habit of rinsing their oral cavity every time they eat. 73% reported that they did not know oil pulling as an alternative for commercial mouth wash. Listerine and Colgate were the frequently used mouth washes reported by the participants. 88.1% reported tongue cleaning habit and only slightly more than 50% of the study sample knew what flossing is. Regarding orthodontic questions, nearly 91% responded that smile is very important for facial beauty. 40.2% of the study subjects reported never observing in the mirror for irregular teeth. 56.1% were aware that orthodontic treatment can resolve certain breathing issues. 46.6% felt that braces are

better used during 15-30 years of age. Nearly 70% knew that it might be necessary for some teeth to be extracted as part of orthodontic care. Only 65.2% of the study sample visited dentist at some point in time. 73.5% were aware that adults can wear braces. 71.2% had demonstrated knowledge of different types of braces and 54.9% knew that there are invisible braces available in orthodontic care. No significant differences were noted between males and females in their oral hygiene habits. Students from paramedical courses had significantly lesser knowledge on the nature of oral health as an integral part of general health. Significantly higher percentage of paramedical students (46.6%) reported brushing twice a day compared to medical and dental students. Paramedical students were significantly more aware of the benefits of oil pulling in reducing oral bacteria and promoting oral hygiene. Significantly higher proportion (70.7%) of dental students knew what flossing means as compared to medical and paramedical students. There were no significant differences in oral hygiene habits based on socioeconomic status. Female students opined with a greater frequency (70.8%) that irregular teeth have a negative impact on self-esteem and quality of life compared to male students. Female students were more aware of the availability of various types of braces compared to male students, the difference of which was statistically significant. Also, females were more knowledgeable on the availability of invisible braces than males, which was a statistically significant difference. Based on the course of study, significantly lesser percentage of dental students reported observing in the mirror for jaw discrepancies. Paramedical students were significantly less aware than medical and dental students that orthodontic treatment can resolve certain breathing problems. Dental students had significantly higher awareness of the possible necessity to extract some teeth as a part of orthodontic care, availability of various types of braces along with the existence of invisible braces. There were no significant differences based on socioeconomic status in the participants' responses to orthodontic questions.

#### 4. Discussion

The word Hygiene (from Greek *hygienos*) is a science concerned with the investigations of environmental factors that affect human health and how the human body responds to them. The primary factor in the prevention of dental caries and periodontal diseases is by obeying the rules of proper oral hygiene. Health education is very important in dentistry and basic of modern prevention programs should be included in all curricula of medical courses.<sup>5</sup>

Oral disease qualifies as major public health problems owing to their higher prevalence and significant social impact.<sup>6</sup> Oral health is considered as fundamental to general health and well-being. A healthy mouth enables an individual to eat, speak and socialize without experiencing

**Table 1:** Descriptive statistics for background characteristics of the study sample

Variable	Category	Frequency	Percent
Age	17-20	394	42.0
	20-25	505	53.8
	25-30	26	2.8
	>30	13	1.4
Gender	Male	229	24.4
	Female	708	75.6
Course	Medical	366	39.0
	Dental	246	26.2
	Paramedical	326	34.8
Year of study	I year	273	29.1
	II year	241	25.7
	III year	194	20.7
	IV year	180	19.2
Socioeconomic status	Internship	50	5.3
	Upper	79	8.4
	Upper middle	591	63.0
	Lower middle	244	26.0
	Lower	24	2.6

any active disease, discomfort or embarrassment.<sup>7</sup> Oral health knowledge is considered to be an essential prerequisite for health related behaviour.<sup>8,9</sup>

Orthodontic treatment not only improves quality of life through the correction of aesthetic component, but it also enhances the individual's self-esteem, most important motivation for orthodontic treatment is usually an improvement in appearance by not only improving the appearance of teeth but overall face. There is a scarcity of data about the awareness of orthodontic treatment and oral health in this region.<sup>10</sup>

This study assessed attitudes, knowledge and practice of dental students, medical students and paramedical students on oral health and orthodontic treatment. The sample taken was convenience and sample was evaluated by giving self-administered structured questionnaire. In this study it was found that most of the responses were highly significant.

In the current study, it was found that the awareness of dental students was better than the medical and paramedical students but still dental students should have more efficient knowledge in order to promote good oral health. The awareness in the medical and paramedical students regarding the oral hygiene practices and orthodontic treatment was less and the findings were statistically significant. Only less than 40% of the nursing students were aware of practices like flossing, mouth wash etc. whereas 70% of dental students were aware of the same. As compared to various studies<sup>1,11-14</sup> it was found that regarding orthodontic treatment, 98% of the dental students were aware that orthodontic appliance can correct the position of teeth whereas only 38% of then nursing students had a knowledge of orthodontic therapy. Students belonging to other professions apart from dentistry like engineering

**Table 2:** Association between participants' course of study and oral hygiene habits

Question	Gender	Category	Frequency	Percent	P value
Do you think that Oral health is a part of your general health?	Medical	Yes	354	96.7	<0.001*
		No	1	0.3	
		Don't know	11	3	
	Dental	Yes	240	97.6	
		No	5	2	
		Don't know	1	0.4	
	Paramedical	Yes	295	90.5	
		No	21	6.4	
		Don't know	10	3.1	
Frequency of brushing	Medical	Once a day	274	74.9	<0.001*
		Twice a day	92	25.1	
		Once a day	150	61	
	Dental	Twice a day	96	39	
		Once a day	174	53.4	
		Twice a day	152	46.6	
	Paramedical	Every month	93	25.4	
		Every 3 months	198	54.1	
		Every 6 months	63	17.2	
How often do you change your toothbrush?	Medical	Less than 6 months	12	3.3	<0.001*
		Every month	85	34.6	
		Every 3 months	136	55.3	
	Dental	Every 6 months	22	8.9	
		Less than 6 months	3	1.2	
		Every month	129	39.6	
	Paramedical	Every 3 months	159	48.8	
		Every 6 months	33	10.1	
		Less than 6 months	5	1.5	
Do you know about oil pulling is alternative for commercial mouthwash?	Medical	Yes	95	26	0.798
		No	271	74	
	Dental	Yes	66	26.8	
		No	180	73.2	
	Paramedical	Yes	92	28.2	
		No	234	71.8	
Do you know that oil pulling helps to remove bacteria and promote oral hygiene?	Medical	Yes	115	31.4	0.001*
		No	251	68.6	
	Dental	Yes	86	35	
		No	160	65	
	Paramedical	Yes	148	45.4	
		No	178	54.6	
Do you know what is meant by flossing?	Medical	Yes	178	48.6	<0.001*
		No	188	51.4	
	Dental	Yes	174	70.7	
		No	72	29.3	
	Paramedical	Yes	128	39.3	
		No	198	60.7	
Have you noticed bleeding from gums while brushing?	Medical	Yes	135	36.9	0.021*
		No	190	51.9	
		Don't know	41	11.2	
	Dental	Yes	61	24.8	
		No	155	63	
		Don't know	30	12.2	
Paramedical	Yes	113	34.7		
	No	170	52.1		
	Don't know	43	13.2		

Chi square test; \* denotes statistical significance

**Table 3:** Association between participants' course of study and response to orthodontic questions

Question	Course of study	Category	Frequency	Percentage	P value	
Are you aware that teeth alignment plays an important role for a better smile?	Medical	Yes	334	91.3	<0.001*	
		No	17	4.6		
		May be	15	4.1		
	Dental	Yes	230	93.5		
		No	11	4.5		
		May be	5	2		
	Paramedical	Yes	225	69		
		No	53	16.3		
		May be	48	14.7		
Have you ever observed any crookedness or irregularities of your teeth while brushing or looking into mirror?	Medical	Yes	193	52.7	0.092	
		No	143	39.1		
		May be	30	8.2		
	Dental	Yes	125	50.8		
		No	94	38.2		
		May be	27	11		
	Paramedical	Yes	143	43.9		
		No	140	42.9		
		May be	43	13.2		
Have you observed any jaw differences in your face?	Medical	Yes	164	44.8	<0.001*	
		No	195	53.3		
		May be	7	1.9		
	Dental	Yes	68	27.6		
		No	175	71.1		
		May be	3	1.2		
	Paramedical	Yes	101	31		
		No	216	66.3		
		May be	9	2.8		
Do you think irregular teeth can affect your Self-esteem and quality of life?	Medical	Yes	245	66.9	0.676	
		No	121	33.1		
		Yes	173	70.3		
	Dental	No	73	29.7		
		Yes	222	68.1		
		No	104	31.9		
	Paramedical	Yes	214	58.5		
		No	103	28.1		
		May be	49	13.4		
Do you know that parafunctional habits (thumb sucking, mouth breathing, lip biting) can cause irregular teeth?	Medical	Yes	202	82.1	<0.001*	
		No	27	11		
		May be	17	6.9		
	Dental	Yes	122	37.4		
		No	126	38.7		
		May be	78	23.9		
	Paramedical	Yes	234	63.9		
		No	132	36.1		
		Yes	157	63.8		
Dental	No	89	36.2	<0.001*		
	Yes	135	41.4			
	No	191	58.6			
Paramedical	Yes	135	41.4			
	No	191	58.6			
	What age do you feel better for braces?	Medical	<15		134	36.6
	15-30	174	47.5			
	>30	15	4.1			

(93%), medical (97%), paramedical (91.3%), computer science, literature, economy & education (86.5%) also believed that oral health is very important for overall health.

Regular visits to the dentist were also found to be higher amongst the dental students (70%) than the nursing students (62%). Where as in the study Pradhan et al<sup>15</sup> study, dental students (100%) visits to dentist where medical students (35%). A study in Karad also revealed lower percentage regarding the visits to the dentists by the medical students (23.8%). Another study by Al-Hussain et al.<sup>16</sup> in Kuwait showed very less percentage (22%) for the dental visits by the students of dentistry, pharmacy and medicine.<sup>2,17,18</sup>

The Knowledge related to bleeding gums and gum diseases was found to be quiet low amongst the nursing students (67%) than the dental students (82%) in this present study and Pradhan et al<sup>15</sup> study was found to be quiet low amongst the medical students (7%) than the dental students (35%), but a better score was found in the study which was conducted in school children of Jordan and their knowledge was found to be better (51.2%) when compared to dental and medical students.<sup>19,20</sup>

## 5. Conclusion

Based on the findings of the study, following conclusions are drawn:

1. The Dental students have more knowledge than the health care workers on awareness of oral health practices.
2. Dental students have more knowledge regarding the use of mouthwashes, flossing technique etc., than the nursing students.
3. Dental students have more awareness than health care workers (nursing students) regarding orthodontic treatment and its importance in KIMS campus and the study population are limited within campus.

## 6. Source of Funding

None.

## 7. Conflict of Interest


None.


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