

“KNOWLEDGE AND PERCEPTION OF ORTHODONTIC TREATMENT AMONG DENTAL AND NON-DENTAL UNDERGRADUATE STUDENTS”

Research Paper

¹Tarulatha R Shyagali, ²Ruchi Jha, ³Manish Singh, ⁴Pratibha Kshirsagar, ⁵Anil Tiwari, ⁶Abhishek Gupta
Department of Orthodontics and Dentofacial Orthopedics,
Hitkarini Dental College and Hospital, Jabalpur.

ABSTRACT : Objectives: the study aimed to assesses the knowledge and perception towards orthodontic treatment amongst dental and non-dental undergraduate students and compare the results obtained.

Materials and Methods: A cross sectional questionnaire study was conducted amongst 340 dental and non-dental undergraduate students. The sample included 169 dental and 171 non dental Students. The questionnaire contained 8 knowledge based and 7 perception based questions related to orthodontics. Each participant was given 10 minutes of time to fill up the questionnaire after obtaining the inform consent for his/her willing participation in the study. Data collected was subjected to chi square statistic to know the difference between the two groups.

Results: There was significant difference between the dental and non-dental students for the various questions related to knowledge and perception towards the orthodontic treatment ($p=0.001$). Majority of students in both the group agreed that the arrangement of teeth affects the facial appearance, but the dental students' (75.9%) knowledge was better in comparison to the non-dental students (63.9%). Around 57.1% of non-dental students agreed to undergo orthodontic treatment if advised by the dentist or their parents, in comparison higher number of dental students (67.6%) were willing to do the same.

Conclusion: Majority of the dental student were well aware of the orthodontic treatment and their modalities in comparison to the non-dental students. However, they lacked the positive perception towards the orthodontic treatment in comparison to their non-dental peer group. This warrants the need to educate the current group of students regarding the orthodontic treatment benefits.

Keywords:

Awareness, Dental Students, Knowledge, Non dental students, Orthodontics

Source of support: Nil

Conflict of interest: Nil

INTRODUCTION : India being a developing country in this modern world teaming with social media websites and interactive communications, has seen a remarkable increase in awareness and attention to facial appearance and smile esthetics.[1, 2]

Facial esthetics seems to be a significant determinant of self and social perceptions. Irregularities in the position of the teeth and jaws have a significant impact on the attractiveness and esthetics of the smile and quality of life of an individual. Attractive people are often regarded as friendly, intelligent, interesting, more social, and with much more positive personalities.[3, 4]

A variety of social, cultural, psychological, and personal factors influence the perception of dental appearance. Unhappy with dental appearance is the main reason to undergo orthodontic treatment. Thus, an individual's appreciation of dental esthetics affects normative assessments regarding the need for orthodontic treatment.

An orthodontist's final goal is to improve the function and esthetics to patient's satisfaction[5]. However, the success of the process might need a positive behavior and cooperation of the patient and treating orthodontist[6,7]. In addition, the awareness, attitude, and knowledge of orthodontic patients

about oral health care are a prerequisite for orthodontic treatment-related health behavior.¹ Dental Undergraduates who are introduced to the world of orthodontics during the tenure of their third year in their under graduation, are assumed to possess greater knowledge and positive attitude towards the orthodontic treatment in comparison to their contemporary non-dental undergraduates. It will be interesting to know how far the dental undergraduate knowledge about orthodontic treatment excels that of their non-dental undergraduate contemporaries, so the current study was undertaken with the hypothesis that dental undergraduates have greater knowledge and positive perception towards orthodontic treatment than the non-dental undergraduates.

MATERIALS AND METHODS:

A questionnaire based survey was carried out on 340 students, out of which 169 students were dental undergraduates and 171 were non dental undergraduates with the mean age of 21.29 years. All the students were selected randomly using the lottery system of the sample selection. The institutional ethical committee had given the ethical clearance for conducting the study. The dental undergraduates were selected from the Hitkarini Dental College and Hospital, Jabalpur and the non-dental undergraduates were selected from the Hitkarini college of Engineering sciences, Jabalpur.

A preformed proforma containing the details of the students and the self-administrated questionnaire related to the awareness and perception about the orthodontics was prepared. There were 16 questions in total, out of which 8 were assessing the knowledge and 7 for assessing the perception and awareness about the orthodontics. The selected subjects were briefed about the purpose of the study and the written informed consent was obtained before filling up the survey form. A time limit of 10 minutes was set to fill the questionnaire.

The obtained data was tabulated and was subjected to statistical analysis using the SPSS software version[22]. Chi square test was used to know the difference between the dental and non-dental undergraduates for the answers of different questions related to knowledge and perception.

RESULTS:

Table 1 and table 2 shows the demographic data of the sample. A total of 340 students participated in the study. Out of which 76.5% were females and rest of them were males. Out 340

students, 169 were dental students and 171 belonged to non-dental students.

Table 1. Demographic details of the study sample

Age group	Gender		Total	X ² VALUE	P VALUE
	Female	Male			
17- 19 YR	60 (77.9%)	17 (22.1%)	77 (100.0%)	2.414	0.299
20-22 YR	123 (79.4%)	32 (20.6%)	155 (100.0%)		
23-26 YR	77 (71.3%)	31 (28.7%)	108 (100.0%)		
Total	260 (76.5%)	80 (23.5%)	340 (100.0%)		

Table 2. Demographic details of dental and non-dental students

Gender	Course And Year					Dental Students	Non Dental Students	Total	X ² Value	P Value
	B.D.S. 1 st	B.D.S. 2 nd	B.D.S. 3 rd	B.D.S. 4 th	Interns					
Female	29 (11.20%)	41 (15.80%)	30 (11.50%)	29 (11.20%)	0 (0.00%)	129 (49.70%)	131 (50.40%)	260 (100%)	78.04	0.001*
Male	5 (6.30%)	6 (7.50%)	3 (3.80%)	5 (6.30%)	21 (26.30%)	40 (50.20%)	40 (50.00%)	80 (100%)		
Total	34 (10.00%)	47 (13.80%)	33 (9.70%)	34 (10.00%)	21 (6.20%)	169 (49.70%)	171 (50.30%)	340 (100%)		

Comparison of Knowledge Domain of study participants:

Table 3 shows the data related to knowledge domain of the questionnaire. Around 97.1% of the non-dental undergraduates were alien to the term “malocclusion”, in comparison around 85.3% of the dental undergraduates were familiar with term 'malocclusion'. Around 94.7% dental students were aware of the benefits of orthodontic treatment, whereas only 61.8% of undergraduates knew about the advantages of taking the orthodontic treatment. More than 50% of the dental and non-dental students were not ready to take up the orthodontic treatment since it was for more than 2 years of duration.

Only 32.4% of the non-dental students were that early age orthodontic treatment can reduce the invasive treatment in the later stages, in comparison 81.8% of the dental students were well aware of the same fact. The knowledge of duration required for the completion of orthodontic treatment was also significantly much lesser in non-dental students, with 36.5% of them reporting with positive answer. The difference noted between the dental and non-dental students for all the knowledge parameters was statistically significant (p=0.001). The knowledge of various appliances used in orthodontics was significantly much lesser by 3.5% in non-dental students than dental students. (p=0.01) as appreciated in table 5. Similarly, when asked about the components of fixed appliances only 5.9% of non-dental students had some

knowledge about the fixed appliance used for the treatment of malocclusion (p=0.001).

Table 4. Response to Orthodontic knowledge related questions

Parameter	Response	Dental Undergraduates	Non Dental Undergraduates	P Value
Are you aware of the term malocclusion?	a)YES	145 (85.3%)	5 (2.9%)	0.001*
	b)NO	25 (14.7%)	165 (97.1%)	
Are you aware of orthodontic treatment?	a)YES	161 (94.7%)	105 (61.8%)	0.001*
	b)NO	9 (5.3%)	65 (38.2%)	
Do you know how much time is required to correct the malaligned teeth?	a)YES	116 (68.2%)	62 (36.5%)	0.001*
	b)NO	54 (31.8%)	108 (63.5%)	
If it requires longer duration up to 2 years would you still agree to get the treatment done?	a)YES	84 (49.4%)	59 (34.7%)	0.008*
	b)NO	86 (50.6%)	111 (65.3%)	
Are you aware that orthodontic treatment can be done in children as well?	a)YES	139 (81.8%)	48 (28.2%)	0.001*
	b)NO	31 (18.2%)	122 (71.8%)	
Are you aware that orthodontic treatment at an early age may prevent invasive orthodontic procedure involving surgeries?	a)YES	139 (81.8%)	55 (32.4%)	0.001*
	b)NO	31 (18.2%)	115 (67.6%)	

Table 5. Response to knowledge related to orthodontic appliance questions

Parameter	Response	Dental Undergraduates	Non Dental Undergraduates	P Value
Do you know what type of appliance is used in orthodontic treatment?	a)Removable appliance	9 (5.3%)	53 (31.2%)	0.001*
	b) Fixed appliance	9 (5.3%)	109 (64.1%)	
	c) Intra oral appliance	5 (2.9%)	1 (0.6%)	
	d) Extra oral appliance	1 (0.6%)	1 (0.6%)	
	e) all of the above	146 (85.9%)	170 (100%)	
Do you know what are the components of fixed appliance?	a) Braces	16 (9.4%)	133 (78.2%)	0.001*
	b) Wire	3 (1.8%)	26 (15.3%)	
	c) Elastic	3 (1.8%)	1 (0.6%)	
	d)all of the above	148 (87.1%)	10 (5.9%)	

Comparison of Perception Domain of study participants:

Data pertaining to the perception towards the orthodontic treatment is depicted in table 6. Increased number of dental students were happy about the arrangement of their teeth in comparison to the non-dental students, the percentage being 82.2% and 51.8% respectively. Both the dental and non-dental undergraduates were of the opinion that the arrangement of their teeth affects how they look or smile with 75.9% and 63.9% of frequency respectively. The difference noted in both the cases was statistically significant (p=0.018).

Perception regarding the need of orthodontic treatment was much higher (60%) in non-dental students (39.4%) (p=0.001).

More than half of the non-dental students were to undertake orthodontic treatment if suggested by parents or dentist and this perception was slightly lower than their dental

counterparts (67.6%). Around 55.3% of non-dental students felt that their facial appearance will improve after orthodontic treatment which was slightly higher than dental students. Increase in number of non-dental students (43.5%) felt that orthodontic treatment will lead to an increase in career opportunities. Again the difference noted between the two groups was statistically significant.

Table 6. Response to various perception related orthodontic questions

Parameter	Response	Dental Undergraduates	Non Dental Undergraduates	P Value
Are you happy with the alignment/arrangement of your teeth?	a)YES	139 (82.2%)	88 (51.8%)	0.001*
	b)NO	30 (17.8%)	82 (48.2%)	
Do you think your smile or facial appearance is affected by the arrangement of your teeth?	a)YES	129 (75.9%)	108 (63.9%)	0.018*
	b)NO	41 (24.1%)	61 (36.1%)	
Do you think you might require orthodontic treatment?	a)YES	67 (39.4%)	102 (60.0%)	0.001*
	b)NO	103 (60.6%)	68 (40.0%)	
Will you agree to get the orthodontic treatment done if your parent or dentist insist you?	a)YES	115 (67.6%)	97 (57.1%)	0.019*
	b)NO	55 (32.4%)	68 (40.0%)	
	c)NOT SURE	0 (0.0%)	5 (2.9%)	
Do you think your facial appearance will improve after orthodontic treatment?	a)YES	86 (50.6%)	94 (55.3%)	0.001*
	b)NO	28 (16.5%)	64 (37.6%)	
	c)NOT SURE	56 (32.9%)	12 (7.1%)	
Do you expect good career opportunities after orthodontic treatment ?	a)YES	78 (45.9%)	74 (43.5%)	0.001*
	b) NO	37 (21.8%)	81 (47.6%)	
	c)NOT SURE	55 (32.4%)	15 (8.8%)	

DISCUSSION: The present study was done to assess the knowledge and perception of dental and non-dental students about the malocclusion and orthodontic treatments.

Comparison of Knowledge Domain of study participants

The results of our study showed that a significant proportion (85.3%) dental students were aware of term malocclusion whereas only 2.9% non-dental students had heard of this term (p=0.001). Contrastingly, the study done in the Mysore region of India showed that the term malalignment of the teeth was heard by 65.8% non-dental students[8].

Only 61.8% of the non-dental students were aware of the existence of orthodontic treatment which was significantly lower than their dental counterpart (p=0.001). These results were satisfactory in comparison to the earlier study where it was found that 29.8% of the general population had no idea

about the correction possibilities of malaligned teeth[9]. Another study conducted among Jazan University medical and health sciences students and non-medical students on awareness, knowledge and behavior related to orthodontic treatment and oral health concluded that there was no statistical difference found between the two groups.[10]

Knowledge of various appliances used in orthodontics was significantly much lesser (3.5%) in non-dental students than dental students. ($p=0.01$) Similarly when asked about the components of fixed appliances only 5.9% of non-dental students had some knowledge ($p=0.001$). In connection to this, Adegbite et al. had distributed self-administered questionnaire to medical students. They found that when participants were asked to identify appliances used in orthodontics (including dentures and other removable appliances), only 57.7% have identified braces as a related treatment device. Whereas, expander, headgear, and functional appliances displayed the lowest level of awareness.[11]

The knowledge of time requirement in orthodontic treatment was also significantly much lesser in non-dental students (36.5%). This is in contrast to the study conducted by M. Zakirullal et al. who concluded that 261 (58%) of males knew that orthodontic treatment is longer than other dental procedures[12].

Only 28.2% of non-dental students were aware of children's orthodontic treatment which was again much lesser than dental students ($p=0.001$). Similar results were also appreciated in the study done on Iranian patients, in which the results showed that although 94% have identified orthodontic goal of teeth arrangement using special braces, only 32% were aware that orthodontic treatment can be rendered at any age.[13]

Awareness regarding early age orthodontic treatment was also much higher (81.8%) in dental students ($p=0.001$). Majority of the children were aware of taking braces treatment at an earlier age would improve facial appearance. Dental students become more aware of esthetics during their dental education. This result is in agreement with previous studies that showed education and dental training can affect the individual's perception of facial attractiveness. [12, 14-16]

Comparison of Perception Domain of study participants

Significantly higher number of dental students (82.2%) felt happy with the arrangement of their teeth in comparison to the

non-dental students ($p=0.001$). however, in the earlier study of similar nature it was reported that 67.87% of dental students were not happy with the arrangement of their teeth. [17] Around 77.5% Libyan patient who visited the orthodontic clinic felt that they are not happy with the arrangement of their teeth.5 another study done by Faizee et al. concluded that 39.9% of the total study population were unhappy with the arrangement of their teeth[18].

Similarly, more than 2/3rd of dental students perceived that arrangement of teeth affects facial appearance whereas 63.9% non-dental students had the same opinion. ($p=0.018$). similar opinion was given by non-dental students of Karnataka state, where 50.7% of them felt that arrangement of teeth can affect their appearance[8,19]. Even in general population similar trend was noticed with 31.8% of the population believing that arrangement of teeth has nothing to do with the facial attractiveness[9]. Seventy-three percent of the out patients were in agreement that well aligned teeth improves the facial appearance[5].

Perception regarding the need of orthodontic treatment was much higher (60%) in non-dental students($p=0.001$). More than half of the non-dental students felt of getting ortho treatment after being suggested by parents or dentist and this perception was slightly lower than their dental counterparts. However, only 40.4%of the non-dental students of Indian origin agreed to take up the orthodontic treatment.8 Around 55.3% of non-dental students felt that their facial appearance will improve after ortho treatment which was slightly higher than dental students. 43.5 % non-dental students felt that ortho treatment will lead to an increase in career opportunities. Most of the patients are adolescents who may not visualize long-term benefits of orthodontic treatment in improving their social life and self confidence in later stages of life. However, in the study conducted by Mahajan et al. 93% of parents of children showed concern about orthodontic treatment affecting their child's career opportunity. affecting their child's career opportunity.[3] The parents are the ones to make final decision which may depend on different motivational factors on different priority levels. They give more importance to the treatment than their children. This was also reported by Birkland et al. who emphasizes the need of spreading awareness among students as well as their parents [20].

CONCLUSION : The dental students had good knowledge about the orthodontic treatment whereas non-dental students had positive attitude towards getting done the orthodontic

treatment. This warrants the need to impart knowledge towards orthodontic treatment in current group of dental and non-dental students.

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CORRESPONDING AUTHOR:

Dr. Tarulatha R. Shyagali

MDS, DCE, DNHE, PhD

Professor and Head,

Department of Orthodontics and Dentofacial Orthopedics,

Hitkarini Dental College and Hospital, Jabalpur.

Email : drtarulatha@gmail.com