



KNOWLEDGE AND PERCEPTION ABOUT LINGUAL ORTHODONTIC TREATMENT AMONG DENTAL AND NON-DENTAL UNDERGRADUATE STUDENTS IN MAHARASHTRA POPULATION.

Orthodontics

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ABSTRACT

Aim: To evaluate and compare the knowledge and perception regarding lingual orthodontic treatment among dental and non-dental undergraduate students in Maharashtra population. **Materials and Method:** The Dental and non-dental undergraduate students were selected for cross sectional questionnaire study. Total number of samples were 140. Among them there were 70 dental and 70 non-dental students. The questionnaire contains 7 knowledge based and 6 perception-based question related to the lingual orthodontic. The informed consent was taken from each participant. To know the difference between two groups, Chi square statistics was done on the basis of data collected. **Result:** There was a significant difference between the dental and non-dental students for the various questions related to knowledge and perception towards the lingual orthodontic treatment. Majorities of dental students (95.71%) are aware about the lingual orthodontic treatment than non-dental students (42.86%). **Conclusion:** Most of the dental students had good knowledge about the lingual orthodontic treatment than non-dental students. In non-dental group absence of positive perception towards the lingual orthodontic treatment. So, they need to get educated regarding the lingual orthodontic benefits.

KEYWORDS

Lingual Orthodontics, Dental And Non-dental Students, Questionnaire-based Survey.

INTRODUCTION

In recent years, the demand for esthetic orthodontic treatment has significantly increased, particularly among young adults who are increasingly concerned about their appearance during treatment.¹ Among the various esthetic alternatives to conventional labial fixed appliances, lingual orthodontics offers a distinct advantage by placing brackets and wires on the lingual (tongue-facing) surfaces of the teeth, thereby rendering the appliance virtually invisible.² This technique is particularly appealing to patients who seek discretion, such as college students, working professionals, and media personnel.^{2,3} Despite its cosmetic advantages, lingual orthodontics remains underutilized due to factors such as increased treatment cost, patient discomfort, longer chairside time, and technical complexity of appliance placement and adjustment.⁴ Additionally, limited awareness and lack of accurate knowledge among the general public further restrict its acceptance.⁵

Awareness and perception of such orthodontic modalities play a crucial role in influencing patient's decisions regarding seeking treatment. Among the youth, undergraduate students—both from dental and non-dental backgrounds—represent a socially active and in case of image-conscious population.⁶ Hence, understanding their knowledge and perception toward lingual orthodontics is vital to anticipate future treatment demands and address knowledge gaps.

In the Indian context, particularly in Maharashtra, limited literature exists assessing the comparative awareness and perception between dental and non-dental undergraduate populations regarding lingual orthodontics. Undergraduate students, especially those in the age group of 18–25 years, form a socially active and esthetically motivated demographic.^{6,7} Their perception and knowledge about modern orthodontic options significantly influence their treatment choices. Dental students are presumed to have a higher degree of awareness due to academic exposure, whereas non-dental students may rely primarily on peer discussion or media for health-related knowledge.⁷ Previous studies have assessed awareness of orthodontic treatments in specific populations, but there is a lack of literature comparing the knowledge and perception of lingual orthodontics between dental and non-dental undergraduate students in the Indian context (particularly in the state

of Maharashtra).⁸ Such data are crucial for identifying knowledge gaps and tailoring awareness strategies for improved acceptance of lingual orthodontic treatment.

Therefore, the present study aims to evaluate and compare the knowledge and perception regarding lingual orthodontic treatment among dental and non-dental undergraduate students in Maharashtra.

MATERIALS AND METHODS

Study Design: cross-sectional questionnaire-based study.

A questionnaire-based survey was carried out on 140 students, out of which 70 students were dental undergraduates and 70 were non dental undergraduates with the mean age of 21 to 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 dental college and hospital of Maharashtra and the non-dental undergraduates were selected from the Maharashtra population. 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 13 questions in total, out of which 7 were assessing the knowledge and 6 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.

Inclusion Criteria

- Undergraduate dental students in Maharashtra region.
- Undergraduate non-dental students in Maharashtra region.
- Students with age group of 18 to 25, both male and female were included in this study.

The surveyed undergraduate students were asked regarding knowledge and perception about lingual orthodontic treatment on the topics mentioned in (Table 1 and Table 2).

Table 1: Knowledge-based Questions for Dental and Non-dental Undergraduate Students in Maharashtra Population About Lingual Orthodontics

Que. No.	Questions
1.	Are you aware the term malocclusion?
2.	Do you know there are different types of braces?
3.	Are you aware about the lingual orthodontic treatment?
4.	Do you know about benefits of lingual orthodontic treatment?
5.	Do you think labial ceramic braces are better than lingual braces for esthetics?
6.	Do you think lingual orthodontic treatment will affect your oral hygiene?
7.	Do you know what are the components of lingual orthodontic appliance?

Table 2: Perception-based Questions for Dental and Non-dental Undergraduate Students in Maharashtra Population About Lingual Orthodontics

Que no.	Questions
1.	Do you think that relapse occur after orthodontic treatment?
2.	Do you think that you might require orthodontic treatment ?
3.	Are you happy with your present arrangement of teeth ?
4.	Do you think your self-confidence will get increased after doing orthodontic treatment?
5.	Do you think your smile or facial arrangement will get improved after orthodontic treatment?
6.	Will you prefer orthodontic treatment over prosthesis in case of spacing present between the teeth?

Data Analysis

The collected information and responses were coded and statistical analysis was performed using the software SPSS Statistics for Windows, Version 16.0 (SPSS Inc., Chicago, IL, USA). To maintain data quality (validity), rechecking and cross checking was done during data entry phase. To know the difference between two groups, Chi-square statistics was done on the basis of data collected.

RESULTS

The present study was done to assess the knowledge and perception of dental and non-dental students about the lingual orthodontic treatment.

Table 3: Responses for Lingual Orthodontic Knowledge-based Questions

Question	Parameter	Response	Dental Student	Non Dental Student	Total	P Value
1	Are you aware about the term Malocclusion?	No	1	44	45	0.000
		Yes	99	56	155	
2	Do you know that there are different types of braces?	No	0	29	29	0.000
		Yes	100	71	171	
3	Are you aware about Lingual Orthodontic treatment ?	No	3	40	43	0.000
		Yes	97	60	157	
4	Do you know about benefits of Lingual Orthodontic treatment ?	No	6	46	52	0.000
		Yes	94	54	148	
5	Do you think Labial Ceramic braces are better than Lingual braces for esthetics ?	No	34	42	76	0.100
		Yes	66	58	124	
6	Do you think Lingual orthodontic treatment will affect your oral hygiene?	No	54	39	93	0.007
		Yes	46	61	107	
7	Do you know what are the components of Lingual Orthodontic appliance ?	No	19	41	60	0.000
		Yes	81	59	140	

Table 4: Responses For Lingual Orthodontic Perception -based Questions

Question	Parameter	Response	Dental Student	Non Dental Student	Total	P Value
1	Do you think that relapse occur after orthodontic treatment ?	No	6	39	45	0.000
		Yes	94	61	155	
2	Do you think you might require orthodontic treatment ?	No	47	48	95	0.866
		Yes	53	52	105	
3	Are you happy with your present arrangement of teeth ?	No	17	15	32	0.687
		Yes	83	85	168	

4	Do you think your self confidence will get increased after doing orthodontic treatment ?	No	8	11	19	0.266
		Yes	92	89	181	
5	Do you think your smile or facial arrangement will get improved after orthodontic treatment ?	No	8	9	17	0.459
		Yes	92	91	183	
6	Will you prefer orthodontic treatment over prosthesis in case of spacing present between the teeth ?	No	4	9	13	0.145
		Yes	96	91	187	

The dental and non-dental students for the various questions related to knowledge and perception towards the lingual orthodontic treatment (Table 3&4)

Majority of dental students (95.71%) were aware about lingual orthodontic treatment than non-dental students (42.86%). While comparing the knowledge of study participants the result of our study showed that a significant proportion (99%) dental students were aware of term malocclusion whereas only (37%) non-dental students had heard of this term ($p=0.000$).

Only 42.9% of the non-dental students were aware of the existence of lingual orthodontic treatment which was significantly lower than the dental counterpart ($p=0.000$).

The knowledge of the components of lingual orthodontics was significantly lesser (41.43%) in non-dental students than dental students (72.86%).

In the perception-based question, when both groups were asked about the relapsed almost dental students (91.43%) were agreed to that the relapsed occurred after the treatment. ($p=0.000$).

Similarly, more than 2/3rd of dental and non –dental students were happy with their present arrangement of teeth in both the group. ($p=0.687$).

Both the group had similar opinion about thinking that their self-confidence will get increased after doing the orthodontic treatment.

It was also noted in both the groups; they were ready to prefer orthodontic treatment over prosthesis in case of spacing present between the teeth.

DISCUSSION

The findings of this study highlight a statistically significant difference in the awareness and perception of lingual orthodontic treatment between dental and non-dental undergraduate students in Maharashtra. As expected, dental students demonstrated considerably higher awareness and understanding of lingual orthodontics compared to their non-dental counterparts. This difference can be attributed to their academic exposure, clinical training, and familiarity with modern orthodontic modalities through curriculum-based learning. The results are consistent with prior research conducted by Singh et al., who reported that a majority of dental students and professionals were aware of lingual appliances, while awareness among the general public remained limited.⁴ Similarly, emphasized the gap in perception regarding esthetic orthodontic options among patients, attributing low acceptance to lack of awareness and misperceptions about comfort and hygiene.⁹

In the current study, 95.71% of dental students were aware of lingual orthodontic treatment compared to only 42.86% of non-dental students. Furthermore, almost all dental students (99%) were familiar with the term "malocclusion," while only 37% of non-dental students recognized it. These findings reflect a substantial knowledge gap among non-dental undergraduates, which can impact their treatment decisions or influence peers and family members due to their limited understanding. Interestingly, both groups exhibited a fairly optimistic perception of the potential psychological benefits of orthodontic treatment, such as improved self-confidence and enhanced smile esthetics. This is in agreement with Rosvall et al., who found that esthetic value is a strong motivating factor among young adults considering orthodontic treatment.^{1,10,11} In this study, more than two-thirds of participants from both groups were satisfied with their current dental alignment and many acknowledged that orthodontic treatment could further improve their facial aesthetics and confidence. However, awareness regarding specific aspects of lingual orthodontic appliances, such as their components and influence on oral hygiene,

was limited in the non-dental group. This is in line with the findings of Al Mohefer et al., who concluded that general population awareness of orthodontic appliance types is low unless exposed through education or personal treatment experience.¹² The significant preference for orthodontic treatment over prosthetic options for correcting spacing among both groups indicates a general positive inclination toward conservative and functional dental interventions.¹³ Yet, this inclination could be strengthened through targeted awareness programs, especially for non-dental undergraduates who represent a large, socially influential and esthetically conscious segment of the population.^{14,15}

The novelty of the present study lies in its comparative evaluation between dental and non-dental undergraduates within a single geographic region, offering valuable insights into the educational gap in orthodontic awareness. The use of a validated questionnaire and a balanced sample across both study groups strengthens the reliability of the results.¹⁶

Nonetheless, the results should be interpreted considering the limitations of the study. The cross-sectional design and relatively small sample size limit the generalizability of the findings. Also, responses were based on self-reported data, which may have been influenced by social desirability or misunderstanding of certain questions.¹⁷

Future Scope of the Study: Future studies could expand the sample size and include a more diverse population from multiple universities and regions across India to improve generalizability. A longitudinal study design can help evaluate how awareness and perception change over time, particularly after targeted educational interventions. Incorporating qualitative methods, such as focus group discussions or interviews, may provide deeper insights into the underlying reasons for limited awareness or negative perceptions. Additionally, future research could explore the impact of gender, socio-economic status, academic stream, and prior orthodontic experiences on student's attitudes toward lingual orthodontics. Evaluating the effectiveness of awareness programs and comparing perception across various esthetic orthodontic options could further enrich the understanding of treatment preferences among young adults.¹⁸

CONCLUSION

Most of the dental students had good knowledge about lingual orthodontic treatment than non-dental students. In non-dental students group absence of positive perception towards the lingual orthodontic treatment. So, they need to educate regarding lingual orthodontic benefits.

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