

# Awareness About New Generation Orthodontic Treatment Modalities Among Dental Students In Central India Population: Questionnaire Based Survey

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## Abstract

**Objective:** The aim of this study was to evaluate the awareness about orthodontic aligners and newer treatment modalities among the dental students and perception about other treatment modalities that can be performed using the same.

**Methods** A questionnaire-based study was conducted on 246 dental students. from December 2022 to March 2023. An original 22 question survey was prepared and distributed to the dental students studying in various dental colleges in Central India Population. The Target population included undergraduate students, interns and post graduate students in the age group of 18-25 years from various dental colleges in Central India **Population.** A total of 246 students responded to the survey questionnaire, out of which 39 were males and 207 were females.

**Results:** The results showed that females were more aware about aligner therapy than their male counterparts and were more inclined to choose aligners as treatment of choice.

**Conclusion:** Survey concluded that most dental students have knowledge regarding newer modalities in orthodontics. Purpose of aligners, treatment possible with aligners, better maintenance using aligners etc. Dental students preferred aligners over braces with females being more aware of same.

**Keywords:** Dental students, Orthodontic Aligner therapy, Invisible orthodontics, Esthetic treatment.

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Date of Submission: 11-05-2024

Date of Acceptance: 21-05-2024

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## I. Introduction

Orthodontic aligner therapy, also known as clear aligner therapy, is a modern approach to orthodontic treatment that involves using a series of clear, removable aligners to gradually straighten teeth and correct various bite issues. This treatment option has gained popularity in recent years due to its aesthetic advantages and convenience compared to traditional braces.[1,2,3]

The growth in the availability of orthodontic aligners to the general practitioners has grown in recent years.

Traditional orthodontic practice is based on referrals from general dentists. [4]

Orthodontic aligner therapy accepted by majority of orthodontics patients and general practitioners.

Main reason for acceptance of aligners is due to less treatment time aesthetic approach & comfort, due to these reasons orthodontics aligners are accepted by the masses.[5]

Nowadays various dental companies provide orthodontic aligner to general dentist rather than specialists. General practitioners can advise orthodontic aligners on the basis of extra oral & intraoral photographs and upper and lower arch impressions. The given photographs are send to aligner companies and from these the aligner are send to general practitioners or to the patient directly. But the disadvantages are efficacy of treatment is risk of relapse increases because of lack of supervision by orthodontists.[6]

This study aimed to evaluate the awareness about orthodontic aligners and newer treatment modalities among the dental students and perception about other treatment modalities that can be performed using the same.

### Aim of the Study

The aim of this study was to evaluate the awareness about orthodontic aligners and newer treatment modalities among the dental students and perception about other treatment modalities that can be performed using the same.

## II. Materials And Methods

Participants: Ethical clearance for this research was issued by Ethical committee at Dr. Rajesh Ramdasji Kambe Dental College and Hospital Akola, Maharashtra. An original 22 question survey (as shown in Table 1) was prepared and distributed to the dental students studying in our institute using Google forms. A total of 350 forms were distributed, out of which 246 students responded to the survey questionnaire. The Target population included undergraduate students, interns and post graduate students in the age group of 18-25 years from various dental colleges in Central India.

Data was collected by orthodontist from December 2022 to March 2023. An original 22 question survey was prepared and distributed to the dental students studying in our institute using Google forms. A total of 350 forms were distributed, out of which 246 students responded to the survey questionnaire. The Target population included undergraduate students, interns and post graduate students in the age group of 18-25 years from various dental colleges in Central India.

The survey was designed to evaluate

- 1) Awareness among the students regarding orthodontics
- 2) Awareness about the problems related with malocclusion
- 3) Preference between aligners and traditional orthodontic treatment
- 4) Other newer possible treatment modalities in orthodontics Awareness about newer treatment modalities

Name:
Gender:
Age:
Educational status:
Have you ever visited a dentist/Orthodontist? Yes/No
Are you satisfied with your smile/teeth appearance? Yes/No
Have you ever heard about word orthodontist before? Yes/No
If you have heard about it where or who did you hear it from?
Television/Internet/Family/Friend/Dentist/None
Have you ever noticed any crookedness or irregularities in teeth while brushing/looking in mirror/ chewing?
Yes/No
What type of problems have you noticed due to irregularities?
During Brushing/In appearance or smile/while chewing/none.
Have you or some one you know has undergone any orthodontic treatment Braces/Aligners/None.
Have you heard about aligners before? Yes/No
If you have heard about it where did you hear it from?
Television/Internet/Family/Friend/Dentist/None
Do you know the purpose of aligners? Yes/No
Do you know the difference between aligners and braces? Yes/No
Which one would you choose? Braces/Aligners
Do you know aligners are voluntarily removable or not? Yes/No
18 Do you think oral hygiene can be better maintained using aligners than, braces? Yes/No
Do you think aligners can be used for all kind of teeth correction? Yes/No
Have you ever heard newer treatment modalities like gene therapy, IPRF for accelerating orthodontic tooth movement?
If you have heard about it where did you hear it from?
Television/Internet/Family/Friend/Dentist/None

Table 1: Questionnaire Table

**Statistical analysis:**

Statistical analyses were performed using SPSS® ver. 24.0. Chi-square test was used to evaluate dental students responses in the survey regarding the orthodontic treatment using aligners and comparing the knowledge of students regarding the same and preference between orthodontic aligner therapy and conventional fixed mechanotherapy. Statistical significance was considered at  $p < 0.05$ . Cramer’s V test was used to test the strength of association of statistically significant results.

**III. Results**

- A total of 246 students responded to the survey questionnaire, out of which 39 were males and 207 were females. Respondents were asked to rate their knowledge about the newer orthodontic treatment modalities and orthodontic aligner treatment at the start of the survey.
- Females (92.27%) were found to be more aware about Aligner therapy than Males (76.92%), with statistically significant results as shown in Table 2 ( $p$  value= 0.002; Cramer’s V- 0.186) Table 2 also shows that majority of students (Males74.36% and Females-88.41%) had an idea about purpose of aligners with statistically significant results ( $p$  value=0.0197; Cramer’s V- 0.1487).

Question Asked	Gender	Response		P value	Cramer’s V
		Yes	No		
Have you heard about Aligners before?	Male (n=39)	30 (76.92%)	9 (23.08%)	0.002	0.186
	Female (n=207)	191 (92.27%)	16 (7.73%)		
Do you know the purpose of Aligners?	Male (n=39)	29 (74.36%)	10 (25.64%)	0.0197	0.1487
	Female (n=207)	183 (88.41%)	24 (11.59%)		

( $p$  value  $< 0.05$  Statistically significant; Cramer’s V:  $> 0.25$  very strong association,  $> 0.15$  strong association,  $> 0.10$  moderate association,  $> 0.05$  weak association)

**IV. Discussion**

**Sample size**

A total of 246 students responded to the survey questionnaire, out of which 39 were males and 207 were females. Respondents were asked to rate their knowledge about the newer orthodontic treatment modalities and orthodontic aligner treatment at the start of the survey.

Orthodontic aligner therapy has gained increased recognition and popularity within the dental community over the past decade. The development of orthodontic aligners can be traced back to 1945 when Kesling introduced them as a method for performing minor tooth movements during the finishing stage of treatment or for addressing minor relapse cases.[3]

Research and studies have demonstrated the effectiveness of orthodontic aligners in treating mild malocclusions and achieving favourable outcomes. For instance, a study conducted by Alissa et al. found that orthodontic aligner treatment for mild malocclusions resulted in significantly improved tooth alignment, occlusal relations, and overjet. Additionally, treatment with aligners has been associated with reduced treatment duration, a lower number of emergency visits<sup>4</sup>, and a decreased overall number of visits compared to other treatment modalities.[4,15,17]

A systematic review conducted by Gabriele Rossini also supports the effectiveness of orthodontic aligner therapy across various treatment modalities.[5] This indicates that aligner therapy can be successfully utilized for a range of orthodontic corrections.

These findings highlight the benefits of orthodontic aligner therapy, including its effectiveness in achieving desired tooth movements, improving occlusal relationships, and reducing treatment duration and visits.[9,10,11]

It's important to note that the suitability of aligner therapy may vary depending on the specific malocclusion and individual patient factors. Consulting with an experienced orthodontist is crucial to determine if aligner therapy is the appropriate treatment option for a particular case.[12,16,17]

In present survey, 246 students studying at our institute, in the age group of 18-25 years, were given pre-structured questionnaire consisting of 22 questions.

Sample does not represent dental students in the whole India but rather gives a comparative evaluation

about the awareness between conventional orthodontic treatment and orthodontic aligner therapy among dental students.

It also evaluated the perception among dental students about the newer treatment modalities that can be performed.

Chi-square test was also done to find correlation between males and females as well as between undergraduates and Interns and Postgraduates regarding the awareness of aligner therapy and newer orthodontic treatment modalities. It was seen that Females on an average have more Awareness about Aligner therapy as well as treatment modalities that could be performed with aligners. When given a choice, majority of the students chose Aligners over braces. Undergraduates were more satisfied with their smile than Interns and Postgraduates. Majority of Undergraduates (51.79%) did not find any problems related to irregularities of teeth. However 60% of Interns and Postgraduates were dissatisfied with their smile due to irregularities of teeth. Majority of the students both Undergraduates (66.67%) and Interns and Postgraduates (76.47%) had undergone orthodontic Treatment with braces. Most of the Undergraduates (83.08%) and Interns and Postgraduates (90.19%) were aware about use of aligners.

Correlation between Males and Females showed that majority from both the groups had knowledge about orthodontics and aligners therapy. Females ( 88.41%) were more aware about the purpose of aligners than males (74.36%). This is in accordance with the study done by d' Apuzzo et al.[6], in which orthodontic aligner treatment was mainly performed in females than in males. Also Maximum of Females (90.82%) and Males (76.92%) were of opinion that oral hygiene could be better maintained using Aligners.

A study conducted by Kumar MD et al. among the general population in Chennai, Tamil Nadu, concluded that though the population was moderately aware of the orthodontic aligners, they lack knowledge regarding when to choose aligners for their orthodontic treatment.[7] In another study conducted by Gaurav Acharya et al. among dental students and interns in KIST medical college, it was found that both had a good knowledge about orthodontic treatment but awareness about aligners was not evaluated.[8]

#### **Limitations of the study:**

There are many studies undertaken to know the awareness of general population regarding orthodontic treatment with aligners throughout India. Increasing number of general dentists are providing Orthodontic aligner therapy, which necessitates the need to increase the awareness about it at the undergraduate level as well as a basic idea about which cases are ideal for treatment with aligners. However, further research is still needed to be conducted to know the awareness and perception of the aligner therapy among the dental students and interns by widening the sample and analysing the awareness about different treatment possibilities with aligners.

#### **V. Conclusion**

Following points can be concluded from the survey:

- 1) Females were more aware about the orthodontic aligner therapy.
- 2) Dentists were predominant source of knowledge of braces as well as Aligners
- 3) Students preferred Aligners over braces
- 4) 14.36% Undergraduates and 61.12% Interns/ Interns and Postgraduates were aware about Newer treatment modalities
- 5) Majority of the students were of the opinion that oral hygiene can be performed better with Aligners

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