

# Laymens' Perspective on the Aligner Treatment Protocol: A Questionnaire Survey

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## Abstract

**Aim:** The survey was conducted to evaluate the knowledge, perception and awareness about the Orthodontic Aligner therapy among laymen.

**Materials and method:** A web based survey was carried out in which a questionnaire consisting of 19 questions was sent to 252 undergraduate, graduate and postgraduate students aged 16-23 years residing in the Gandhinagar district of Gujarat state of India.

**Result:** A total of 252 respondents completed the questionnaire, out of which 140 were males and 112 were females. Respondents were asked at the beginning of the survey to rate their level of knowledge in Orthodontic Aligner Therapy. The result explains that females are more concerned about the aesthetics and possess more knowledge about the aligner therapy and the results were statistically significant ( $p < 0.05$ ).

**Conclusion:** Survey determines that laymen have knowledge regarding aligners. They were aware about the purpose of aligners and that better oral hygiene maintenance is possible with use of aligners. It can be used to provide direction to laymen for better treatment option than braces as well as valuable information to the general population.

**Keywords:** Aligner, invisible orthodontics, esthetic therapy

## I. INTRODUCTION

Clear aligner therapy is gaining rapid popularity among the potential orthodontic patients as well as general practitioners. Reduced treatment time, more cosmetic approach, the lack of appearance of traditional metal brackets and metal wires, and

increased comfort appear to be the key reasons for this popularity.<sup>1</sup> This study aimed to evaluate the choice about clear aligners or conventional brackets treatment among the layman for their malocclusion.

In recent scenarios, different orthodontic The survey was designed to: (1) determine the

**“ALIGNERS” The choice of new generation!!**

1. Name:
2. Gender:
3. Age:
4. Educational status:
5. Have you ever visited a dentist/Orthodontist? **Yes/No**
6. Are you satisfied with your smile/teeth appearance? **Yes/No**
7. Have you ever heard about word orthodontist before? **Yes/No**
8. If you have heard about it where or who did you hear it from?  
**Television/Internet/Family/Friend/Dentist/None**
9. Have you ever noticed any crookedness or irregularities in teeth while brushing/ looking in mirror/ chewing? **Yes/No**
10. What type of problems have you noticed due to irregularities?  
**During Brushing/In appearance or smile/while chewing/none.**
11. Have you or someone you know has undergone any orthodontic treatment  
**Braces/Aligners/None.**
12. Have you heard about aligners before? **Yes/No**
13. If you have heard about it where did you hear it from?  
**Television/Internet/Family/Friend/Dentist/None**
14. Do you know the purpose of aligners? **Yes/No**
15. Do you know the difference between aligners and braces? **Yes/No**
16. Which one would you choose? **Braces/Aligners**
17. 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**
19. Do you think aligners can be used for all kind of teeth correction? **Yes/No**

*Figure 1: Questionnaire designed for the survey*

approaches such as fixed mechanotherapy, removable appliances, functional appliances, head gears etc. are available to treat the malocclusion. Aligners are becoming the treatment of choice by dentist, orthodontist as well as by the patients. Previous studies have compared the effectiveness of the orthodontic treatment performed by orthodontists and general dentist; however, there is no study which evaluates the factors that influence a patient's selection of a treatment modality.

This study aimed to evaluate the awareness about clear aligners among the layman and perception about the treatment modalities that can be performed using the same.

## II. MATERIALS AND METHOD:

A questionnaire (Figure 1) consisting of 19-questions was distributed using a web-based method. A total of 252 individuals received an electronic form to participate in the survey. The target population included undergraduate, graduate and postgraduate students aged 16-23 years residing in the Gandhinagar district of Gujarat, India.

respondent's interest in receiving orthodontic treatment; (2) assess whether they have ever noticed any dental issues; (3) assess the respondent's current level of knowledge regarding orthodontic treatment approaches; and (4) determine whether they are familiar with aligners.

Responders rated their level of interest in pursuing orthodontic treatment and their level of interest in and knowledge about aligners.

## III. STATISTICAL ANALYSIS:

Chi-square test was used to evaluate the responses based on the gender and educational status of the respondents. The significance level was set at 0.05. Cramer's V test was used for significant responses.

## IV. RESULTS:

A total of 252 respondents completed the questionnaire, out of which 140 were males and 112 were females. Respondents were asked at the beginning of the survey to rate their level of knowledge in Orthodontic Aligner Therapy.

In the survey about crookedness and irregularities noticed in the teeth, males (38.6%) were found to be less concerned than females (53.6%) and the results were statistically significant ( $p=0.017$ : Cramer's index=0.150) as shown in Table I. Female predominance was noticed in the knowledge of aligners (Females 61.6%, Male: 42.1%) as shown in Table I. This result was statistically significant ( $p=0.004$ : Cramer's  $V=0.211$ ). When the respondents were asked about the source from where they heard about aligners only 9% males and 16.1% females

'none' as their response with result being statistically significant (Table II).

Respondent with 56.3% female have a good knowledge about the purpose of aligners ( $p=0.005$ : Cramer's  $V=0.176$ ) and whether they knew about difference between aligners and braces, (females 53.6% and males 32.1%) ( $p=0.001$ : Cramer's  $V=0.216$ ) as shown in Table III.

**TABLE I: COMPARING THE RESPONSES RECEIVED WHEN ASKED ABOUT NOTICING ANY IRREGULARITIES IN THEIR TEETH AND WHETHER THEY HAVE HEARD ABOUT ALIGNERS BASED ON GENDER**

Question Asked	Gender	Response		P Value	Cramer's V
		Yes	No		
Have you noticed any crookedness or irregularities in your teeth while brushing/looking in mirror/ chewing?	Male (n= 140)	54 (38.6%)	86 (61.4%)	0.017	0.150
	Female(n=112)	60 (53.6%)	52 (46.4%)		
Have you heard about aligners before?	Male (n= 140)	59 (42.1%)	81 (57.9%)	0.004	0.211
	Female(n=112)	69 (61.6%)	42 (37.5%)		

(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)

chose 'family' as their answer, 13.6% males, 23.2% females responded positively for 'dentist' and majority (45% males; 24.1% females) chose

**TABLE II: COMPARING THE RESPONSES RECEIVED WHEN ASKED ABOUT THE SOURCE OF KNOWLEDGE OF ALIGNERS BASED ON GENDER**

Question Asked	Gender	Response		P Value	Cramer's V	
		Yes	No			
If you have heard about it, where did you hear it from?	Family	Male (n= 140)	9 (6.4%)	131 (93.6%)	0.014	0.155
		Female(n=112)	18 (16.1%)	94 (83.9%)		
Dentist	Male (n= 140)	19 (13.6%)	121 (86.4%)	0.047	0.125	
	Female(n=112)	26 (23.2%)	86 (76.8%)			
None	Male (n= 140)	63 (45%)	77 (55%)	0.001	0.217	
	Female(n=112)	27 (24.1%)	85 (75.9%)			

(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)

TABLE III: COMPARING THE RESPONSES RECEIVED WHEN ASKED ABOUT THE ROLE OF ALIGNERS AND THE DIFFERENCE BETWEEN ALIGNERS AND BRACES BASED ON GENDER

Question Asked	Gender	Response		P Value	Cramer's V
		Yes	No		
Do you know the purpose of aligners?	Male (n= 140)	54 (38.6%)	86 (61.4%)	0.005	0.176
	Female(n=112)	63 (56.3)	49 (43.8%)		
Do you know the difference between aligners and braces?	Male (n= 140)	45 (32.1%)	95 (67.9%)	0.001	0.216
	Female(n=112)	60 (53.6%)	52 (46.4%)		

(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)

Results indicate that, more females choose aligners in option to braces than males and the results were statistically significant (females:

71.4% Males: 56.4%) (p=0.014: Cramer's V=0.154). Approximately 58.0% females and

already know that aligners can be removed voluntarily by themselves and the results were significant (p=0.002: Cramer's V=0.218). Survey shows satisfaction with their smile appearance was highest in post graduate students (92.0%), in comparison with graduated people

TABLE IV: COMPARING THE RESPONSES RECEIVED WHEN ASKED ABOUT THEIR ROLE AND PREFERENCE OVER BRACES BASED ON GENDER

Question Asked	Gender	Response		P Value	Cramer's V
		Braces	Aligners		
Which one would you choose?	Male (n= 140)	61 (43.6%)	79 (56.4%)	0.014	0.154
	Female(n=112)	32 (28.6%)	80 (71.4%)		
Do you know aligners are voluntarily removable or not?	Male (n= 140)	62 (44.3%)	78 (55.7%)	0.030	0.137
	Female(n=112)	65 (58%)	47 (42%)		

(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)

44.3% males had the knowledge that aligners can be removed voluntarily (p=0.030: Cramer's V=0.137) as shown in Table IV.

Around 80.0% of post graduate students, 53.4% graduate and 43.2% undergraduate students

(88.6%) and lowest in undergraduate students (77.0%) (p=0.033: Cramer's index=0.164) as seen in Table V.

TABLE V: COMPARING THE RESPONSES RECEIVED WHEN ASKED ABOUT THE SATISFACTION WITH THEIR APPEARANCE AND WHETHER ALIGNERS CAN BE REMOVED VOLUNTARILY BASED ON THEIR EDUCATIONAL STATUS

Question Asked	Educational status	Response		P Value	Cramer's V
		Yes	No		
Are you satisfied with your smile/teeth appearance?	Undergraduate (n=139 )	107 (77%)	79 (23%)	0.033	0.164
	Graduate (n=88)	78 (88.6%)	41 (11.4%)		
	Postgraduate (n=25)	23 (92%)	5 (8%)		
Do you know aligners are voluntarily removable or not?	Undergraduate (n= 139)	60s (43.2%)	79 (56.8%)	0.002	0.218
	Graduate (n=88)	47 (53.4%)	41 (46.6%)		
	Postgraduate (n=25)	20 (80%)	5 (20%)		

(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)

## V. DISCUSSION:

Patients have always sought treatment from orthodontists. Traditionally, malocclusion has been treated using brackets and wires using various approaches. The use of traditional brackets and wire systems was a time-consuming approach.

Aligner therapy is one of the major evaluations in the orthodontic treatment modalities. Aligners are less time consuming for patient as well as orthodontist. According to the studies, having a favourable treatment plan has a considerably bigger impact on a patient's decision to choose between braces and aligners.<sup>5,8,10</sup> Aligners are one of the esthetic treatment modalities for orthodontic malocclusion correction such as spacing, minor rotation and crowding.

It will reduce the frequent visiting of the patient to their orthodontist and it is slightly cost effective. Sets of aligners are provided to the patients which they have to change frequently by their own or they can replace it with their orthodontist by returning the old set to their

orthodontist and getting new one at regular time interval.

Our results showed that laymen included in our study from Gandhinagar district of Gujarat state of India were aware about Aligners. They knew that aligners are least painful treatment modality and that will treat their malocclusion. Aligners don't have traditional wires and brackets so it is highly esthetic according to their point of view. Further analysis of this survey proved that, when choices were given between aligners and braces, more than half of males and more than 2/3<sup>rd</sup> of females chose an aligner as a treatment option for treating malocclusion. Satisfaction with smile appearance was highest amongst post graduate students and lowest in undergraduate students. Most of them agreed on the fact that oral hygiene can be maintained better by use of aligners than braces. Majority of the males think that not all kind of orthodontic teeth correction can be done by using aligners while on contrary more females stated that all kind of orthodontic teeth correction can be possible with aligners. Although there is

proof that clear aligners can be used to treat a variety of malocclusions.<sup>9</sup>

Recent studies have underlined the increased relevance of marketing and social media in our working activities. Patients routinely get access to social media that are indeed becoming effective marketing and positive communication tool in the treatment options.

The respondents were presented with information about their basic knowledge of aligners, purpose of aligners, source of information regarding aligners, and their choice between aligners and braces. Orthodontic research surveys are frequently limited to a convenience sample of current patients, college students, small geographic areas, or easily accessible mailing lists.<sup>5-8</sup>

Further study could be performed to widen the sample and to analyse the different treatment mechanics possible with aligners.

## VI. CONCLUSION

This research adds to our understanding of the fact that laymen have knowledge regarding aligners, their role and that better oral hygiene can be maintained with use of aligners. It can be used to provide direction to the laymen for better treatment option than routine fixed mechanotherapy, as well as to provide valuable information to the general population. In perspective to the gender, females are more concerned about the aesthetic and possess more knowledge about the aligner therapy.

## REFERENCES

- [1] Olson et al, comparison of patient factors influencing the selection of an orthodontist, general dentist, or direct-to-consumer aligners. *Am J Orthod Dentofacial Orthop* 2020; 157(4).
- [2] Wolsky SL, McNamara JA. Orthodontic services provided by general dentists. *Am J Orthod Dentofacial Orthop* 1996;110: 211-7.
- [3] Galbreath RN, Hilgers KK, Silveira AM, Scheetz JP. Orthodontic treatment provided by general dentists who have achieved master's level in the Academy of General Dentistry. *Am J Orthod Dentofacial Orthop* 2006;129:678-86.
- [4] Vicens J, Russo A. Comparative use of Invisalign by orthodontists and general practitioners. *Angle Orthod* 2010;80:425-34.
- [5] Walley EK, Silberman SL, Tuncay OC. Patient and parent preferences for orthodontic practices. *Clin Orthod Res* 1999;2:110-23.
- [6] Edwards DT, Shroff B, Lindauer SJ, Fowler CE, Tufekci E. Media advertising effects on consumer perception of orthodontic treatment quality. *Angle Orthod* 2008;78:771-7.
- [7] Bedair TM, Thompson S, Gupta C, Beck FM, Firestone AR. Orthodontists' opinions of factors affecting patients' choice of orthodontic practices. *Am J Orthod Dentofacial Orthop* 2010;138: 6.e1-7; discussion 6
- [8] Nelson KL, Shroff B, Best AM, Lindauer SJ. Orthodontic marketing through social media networks: the patient and practitioner's perspective. *Angle Orthod* 2015;85:1035-41.
- [9] Rossini G, Parrini S, Castorflorio T, Deregibus A, Debernardi CL. Efficacy of clear aligners in controlling orthodontic tooth movement: a systematic review. *Angle Orthod* 2015;85:881-9.
- [10] St Louis BL, Firestone AR, Johnston W, Shanker S, Vig KWL. Prospective patients rate practice factors: development of a questionnaire. *Am J Orthod Dentofacial Orthop* 2011;139:235-41.
- [11] Heath EM, English JD, Johnson CD, Swearingen EB, Akyalcin S. Perceptions of orthodontic case complexity among orthodontists, general practitioners, orthodontic residents, and dental students. *Am J Orthod Dentofacial Orthop* 2017;151:335-41.
- [12] Best AD, Shroff B, Carrico CK, Lindauer SJ. Treatment management between orthodontists and general practitioners performing clear aligner therapy. *Angle Orthod* 2017;87:432-9.