

An Evaluation of Knowledge and Awareness in Orthodontic Treatment Using Clear Aligner Therapy Among Patient - Cross-Sectional Questionnaire¹Downy M W, Orthodontic Surgeon²Badell S M, Orthodontic Surgeon**Corresponding Author:** Downy M W, Orthodontic Surgeon**Citation This Article:** Downy M W, Badell S M, “An Evaluation of Knowledge and Awareness in Orthodontic Treatment Using Clear Aligner Therapy Among Patient - Cross-Sectional Questionnaire”, IJHDC – September – October – 2024, Volume. – 3, Issue – 5, P. No. 09 – 12.**Open Access Article:** This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Type of Publication:** Original Research Article**Conflicts of Interest:** Nil**Abstract**

Orthodontics has evolved to meet the needs of patients and their expectations. Today, appearance is crucial in both personal and professional lives, and correcting malaligned teeth have become a priority. Traditional methods, such as braces on labial surfaces were used to correct malaligned teeth. However, aesthetic concerns have led to reluctance among adult patients to adopt them.

Keywords: Orthodontics, Malaligned Teeth, Virtual 3D Model, Clear Aligner**Introduction**

This has led to the development of more discreet options, such as clear aligners. These transparent trays gradually shift teeth into their desired position without the need for visible brackets or wires. This innovation has made orthodontic treatment more appealing to adult patients, who prioritize maintaining a natural-looking

smile throughout the process. Clear aligners are a rapidly evolving segment of orthodontic therapy. The development in aesthetics awareness, as well as the rise in adult orthodontic treatment demand, has fuelled the desire for a more cosmetic orthodontic treatment approach. Other dental industries have responded to the public's desire for quick and attractive care with methods such as "Instant Orthodontics," which uses crowns or veneers to conceal malaligned teeth, or with products that advertise the use of "new techniques" to merely align the anterior teeth without addressing orthodontists and other aspects of the occlusion that may require treatment to maintain a healthy dentition. It goes without saying that these approaches raise ethical concerns as well as the need to educate the public about their flaws. In the past decade, the number of teenagers seeking orthodontic treatment has more than doubled. As a result, social media is lightning fast being used to share

knowledge and awareness about clear aligners. Teeth can be effectively pushed into the correct position with the use of a series of almost invisible, clear, thin, custom-made plastic aligners known as Invisalign. Despite the reduction in size and improvement in aesthetics of ceramic brackets, fixed appliances still stand out more than transparent aligners. There are currently dozens of companies all around the world that sell clear aligner orthodontic equipment. While there have been studies on transparent aligners, the majority of the early studies sought to dismiss the use of aligners as a treatment option for orthodontics, with the exception of mild crowding or spacing issues. However, some research was carried out in order to advance and improve the clear aligner technology. Invisalign was introduced by Align Technology Inc. in the late 1990s, and with technological advances, this form of therapy is now much more accessible to orthodontists. Accurate impressions must be obtained in order to make precise castings that can be scanned to build a virtual 3D model. Using specialized software, the orthodontist may then alter this 3-D model and realistically fix malocclusion. Using this information, a set of clear plastic aligners may be designed to gradually correct the malocclusion and fulfil the clinician's goal. This sort of aligner is replaced every two weeks and is worn for approximately 20 hours each day.

By using transparent aligners, we may achieve better dental hygiene and a more attractive smile.

Therefore, this study aimed to evaluate the preclinical dental student's awareness about clear aligners. Before entering the clinical, preclinical dental students learn about clear aligners.

Methodology

A descriptive cross-sectional questionnaire -based study design was used to conduct this study. The random

sampling technique was used to collect the data in this study are included, and people who have clinical knowledge, postgraduates, and interns are excluded. The participants were administered a well-structured questionnaire consisting of a set of evaluation questions that were prepared to be surveyed among 120 participants. The questionnaire comprises 25 closed-ended questions. The statistical software used was IBM SPSS software. The statistical analysis was done using descriptive statistics to summarize demographic data and the chi square test to analyse survey data. $P < 0.05$ was considered statistically significant, and the confidence level was set at 95%.

Results

QUESTIONS	RESPONSE	PERCENTAGE
GENDER	a) male	26.50%
	b) female	74.50%
YEAR OF STUDY	a) 1 st year bds	69.23%
	b) 2nd year bds	30.77%
1. HAVE YOU EVER VISITED A DENTIST?	a) yes	44.44%
	b) no	55.56%
2. HAVE YOU GONE THROUGH ANY ORTHODONTIC TREATMENT?	a) yes	44.44%
	b) no	55.56%
3. IF THE ANSWER IS YES, WHAT KIND OF ORTHODONTIC TREATMENT DID YOU UNDERGO?	a) fixed	24.79%
	b) Invisalign	26.50%
	c) removable	25.64%
	d) both a and c	23.08%

4. IN YOUR OPINION WHATS THE BEST AGE FOR STARTING ORTHODONTIC TREATMENT?	a)below 7 years b)7-17years c)18 years and more d)don't know	5.98% 60.68% 23.93% 9.40%
5. DO YOU KNOW ABOUT FIXED METAL ORTHODONTIC BRACES	a)yes b)no	79.49% 20.51%
6. IF THE ANSWER WAS YES HOW DO YOU KNOW ABOUT IT?	a)family b)friends c)social media d) dentist	27.35% 20.51% 25.64% 26.50%
7. DO YOU KNOW ABOUT CLEAR ALIGNER?	a)yes b)no	76.07% 23.93%
8. IF THE ANSWER WAS YES HOW DO YOU KNOW ABOUT IT?	a)family b)friends c)social media d) dentist e)advertisement f) others	17.95% 12.82% 33.90% 15.38% 16.24% 1.71%
9.ACCORDING TO YOUR PERCEPTION HOW EFFECTIVE THE CLEAR ALIGNERS IS	a)high b)moderate c)not effective d)don't know	16.24% 43.59% 9.40% 30.77%
10. WHATS THE COST OF A CLEAR ALIGNERS?	a)high b)moderate c)same as fixed d)don't know	36.75% 26.50% 7.69% 29.06%
11. DO YOU KNOW WHAT CLEAR ALIGNERS IS?	a) yes b)no c)maybe d)don't know	54.70% 9.40% 20.31% 15.38%

12. WHAT IS THE AVERAGE TIME FOR TREATMENT USING CLEAR ALIGNERS?	a)long b)longer than fixed c)same as fixed d) don't know	11.11% 19.66% 26.50% 42.74%
13. DOES THE CLEAR ALIGNERS SUITABLE FOR ALL ORTHODONTICS CASES?	a)yes b)no c)maybe d) don't know	5.98% 34.19% 35.90% 23.93%
14.IS CLEAR ALIGNERS BETTER THAN TRADITIONAL BRACES?	a)yes b)no c)maybe d) don't know	24.79% 17.95% 34.19% 23.08%
15. CAN YOU SWITCH TO CLEAR ALIGNERS FROM TRADITIONAL BRACES?	a)yes b)no c)maybe d) don't know	22.22% 17.09% 30.77% 29.91%
16. CAN ANYONE GET CLEAR ALIGNERS?	a)yes b)no c)maybe d) don't know	25.64% 17.09% 28.21% 29.06%
17.IS CLEAR ALIGNERS IN PAINFUL MORE THAN TRADITIONAL BRACES	a)more painful b)less painful c)equal d)maybe e)don't know	2.56% 50.43% 9.40% 6.84% 30.77%
18. HOW TO CLEAN IT?	a)with water b)with tooth paste c)cup of warm water d) don't know	13.68% 16.24% 35.90% 34.19%
19. CLEAR ALINGERS IS MADE UP OF?	a)poly ether b)pvc c)silicon d)thermoplastic polyurethane e)co- polyester f)both d and e	5.13% 5.13% 15.38% 24.79% 15.38% 34.19%

20. DO YOU KNOW ABOUT CLEAR ALIGNERS ALLERGY?	a) yes b)no	41.03% 58.97%
21. IF YES CLEAR ALIGNERS CAUSE?	a)itching sensation b)irritation c)shortness of breathe d)plastic allergy	20.51% 40.17% 17.95% 21.37%
22. HOW MANY HOURS TO WEAR CLEAR ALIGNERS PER DAY?	a)10 hours b)15hours c)22 hours d) don't know	11.97% 24.79% 29.91% 33.33%

Discussion

Malocclusion is not a single condition; rather, it is a collection of situations, each of which is a difficult itself. These situations are frequently made more difficult by a wide range of environmental and genetic factors. A person's lifestyle is negatively impacted by malocclusion since it can lead to psychological issues and other disturbances in speaking, eating, and looking. According to cross sectional studies, malocclusion impact at least 70% of the population. The goal of orthodontic treatment is to realign the teeth. The number of people seeking orthodontic treatment grew as a result of improved perceptions of facial appearance and dental health brought about by educational attainment and socioeconomic standing. When it comes to orthodontic treatment, women tend to exhibit more. Because of the changed gum position, malocclusion of teeth typically manifests as increased gingival inflammation and calls for orthodontic correction. The patient's age, gender, and facial aesthetics all must be taken into account in order to ensure their contentment with their orthodontic treatment. Approximately 117 individuals were analysed in the current study, and a population with a variety of backgrounds was included in the sample. The study's ultimate objective is to re-evaluate using a wide range of pre-clinical students need to improve awareness, knowledge, and attitudes regarding clear aligners in orthodontic treatment.

Conclusion

In today's society, youngsters also experience the influence of facades in both their personal and professional life, in addition to adults. Patient's appearance when using Invisalign grows as a result of its transparency. Patients need to be fully informed about the benefits and drawbacks of clear aligner therapy. The Invisalign device can offer greater oral hygiene, comfort, convenience of use, and an excellent aesthetics during treatment. Clear Aligners shall be included in the curriculum to improve the knowledge, awareness and attitude of emerging dentists.

References

1. El-Meligy O, Alhosini N, Bagher S. The Effect of Preformed Metal Crowns on Primary Molars' Exfoliation Time. *Journal of King Abdulaziz University: Medical Sciences*. 2013;98(2704):1-14.
2. Moshkelgosha V, Kazemi M, Pakshir H, Safari R. Parental knowledge and attitude towards early orthodontic treatment for their primary school children. *Iranian J Orthodontics*. 2017;12(2):1-6.
3. Dimberg L, Arnrup K, Bondemark L. The impact of malocclusion on the quality of life among children and adolescents: A systematic review of quantitative studies. *Eur J Orthod*. 2014;37:238-47.
4. Graber TM. *Orthodontics: Current Principles and Techniques*. In: Paquette D, Colville C, Wheeler T, editors. *Clear Aligner Treatment*. St Louis: Mosby; 2012:778-811.
5. Rossini G, Parrini S, Castroflorio T, Deregibus A, Debernardi CL. Efficacy of clear aligners in controlling orthodontic tooth movement: a systematic review. *Angle Orthodontist*. 2015;85(5):881-9.
6. Chisari JR, McGorray SP, Nair M, Wheeler TT. Variables affecting orthodontic tooth movement with clear aligners. *Am J Orthod Dentofacial Orthop*. 2014;145(Suppl 4):S82-S91.
7. Lombardo L, Arreghini A, Ramina F, Huanca Ghislanzoni LT, Siciliani G. Predictability of orthodontic movement with orthodontic aligners: a retrospective study. *Prog Orthod*. 2017;18(1):35.
8. Henick D, Dayan W, Dunford R, Warunek S, Al-Jewair T. Effects of Invisalign (G5) with virtual bite ramps for skeletal deep overbite malocclusion correction in adults. *Angle Orthod*. 2021;91(2):164-170.
9. Goh S, Dreyer C, Weir T. The predictability of the mandibular curve of Wilson, buccolingual crown inclination, and transverse expansion expression with Invisalign treatment. *Am J Orthod Dentofacial Orthop*. 2023;163(1):109-116.
10. De Felice ME, Nucci L, Fiori A, Flores-Mir C, Perillo L, Grassia V. Accuracy of interproximal enamel reduction during clear aligner treatment. *Prog Orthod*. ;21(1):28.