

Assessment of Parental Perception Towards Clear Aligner Treatment of Their Children Aged 8-12

Krishnapriya Vidyadharan¹, Dr. Suprasidh Suprakasam², Dr. Soumya Rajan³,
Dr. Firoz Ashraf⁴, Archana G Vijayan⁵

^{1,5}Final year Post graduate student

²Professor

³Professor and Head of the Department

⁴Associate Professor

^{1,2,3,4,5}Department of Pediatric and preventive dentistry, Sri Sankara Dental College, Varkala

HOW TO CITE:

Krishnapriya Vidyadharan,
Suprasidh Suprakasam, Soumya
Rajan, Firoz Ashraf, Archana G
Vijayan (2026). Assessment of
Parental Perception Towards
Clear Aligner Treatment of Their
Children Aged 8-12.

International Journal of Special
Education, 41(19s), 105-111

ABSTRACT:

Introduction: Clear aligner therapy has been a part of orthodontics for decades. They can be recognized as one of the alternatives to conventional fixed orthodontic appliances for permanent and mixed dentition. Clear aligners have gained popularity now a days, as there is widespread marketing on social media. However the public perception towards the therapy for mixed dentition period is questionable.

Aim and Objective: To evaluate and compare the knowledge and attitude regarding clear aligners among parents of children aged 105-111 in Thiruvananthapuram.

Methodology: An e-survey with close ended questionnaire regarding clear aligners and other orthodontic treatments for mixed dentition period was administered through social media platforms among the participants. Data analysed using SPSS software version 25.0. Chi square test used to assess the knowledge, attitude regarding clear aligner and other orthodontic treatments among participants.($p < 0.05$). After the analysis, an e-poster was shown participants to gain knowledge on clear aligners for primary school children.

Results: Although more than half of the parents had heard of clear aligner therapy, many were uncertain regarding its indications, clinical applications, treatment duration, cost for children. A statistically significant association was observed between awareness of clear aligners and preference for clear aligner treatment. ($p < 0.001$).

Conclusion: Despite awareness of clear aligner therapy among many parents, important knowledge gaps regarding its use in children persist. These findings highlight the need for evidence-based educational initiatives to improve parental understanding and support informed orthodontic treatment decisions.

Keywords: Parental perception, Clear Aligner, Children

COPYRIGHT STATEMENT:

Copyright: © 2026 Authors.

Open access publication under the
terms and conditions
of the Creative Commons Attribution
(CC BY)
license (<http://creativecommons.org/licenses/by/4.0/>).

INTRODUCTION

Malocclusion is one of the most common oral health problems affecting children and adolescents, with implications for oral function, facial aesthetics, psychosocial well-being, and quality of life. The American Association of Orthodontists (AAO) estimates that nearly half of the population in developed countries has malocclusion. Early diagnosis and timely orthodontic intervention during the mixed dentition period can reduce the severity of developing malocclusions and improve treatment outcomes. ¹ Orthodontic treatment may be delivered using fixed or removable appliances. Although fixed appliances are highly effective in correcting complex malocclusions, they are often associated with compromised esthetics, patient discomfort, and difficulties in maintaining oral hygiene. ¹ Consequently, the increasing demand for esthetic and comfortable orthodontic treatment has led to the development of less visible treatment modalities. Plastic and ceramic brackets, lingual brackets, white-coated wires, and transparent tray aligners were introduced to the market to overcome the esthetic disadvantages of metal brackets. ² Among these, clear aligners have gained widespread popularity owing to their transparency, removability, improved patient comfort, and superior esthetics, making them an attractive alternative to conventional fixed appliances. ³ Furthermore, the use of removable appliances seems to have positive effects on oral hygiene and white spot development. These features make them suitable for early orthodontic treatment during the mixed dentition period. ⁴ The concept of clear aligner therapy originated with Kesling in 1946, who introduced the "tooth positioning appliance" using a series of thermoplastic aligners to achieve incremental tooth movement. Subsequent contributions by Nahoum, Ponitz, and Sheridan, together with advances in computer-aided design and computer-aided manufacturing (CAD/CAM), led to the development of modern clear aligner therapy. The introduction of Invisalign® by Align Technology in 1997 transformed clear aligners into a clinically practical and widely accepted orthodontic treatment modality. ² Clear aligners are fabricated

from thermoplastic materials, including polyurethane, polyvinyl chloride (PVC), polyethylene terephthalate (PET), and polyethylene terephthalate glycol (PETG), using digital treatment planning, 3D scanning, and thermoforming over 3D-printed models. ³ Studies on aligners have focused mainly on the description of the system, the biomechanics specific to aligners and the efficiency in terms of predictability of dental movements. However, few published studies have been interested in patient satisfaction. ³ Therefore, the present study was undertaken to evaluate the knowledge and attitudes regarding clear aligner therapy among parents of children aged 8–12 years in Thiruvananthapuram.

METHODOLOGY

Study design, Sampling

A cross-sectional study was conducted over a one-month period from June 2024 to July 2024 among parents of children aged 8–12 years in Thiruvananthapuram. Those who consent to participate and respond to all the questions in the form within the time period will be included in the study. The study was carried out over the study period after obtaining approval from the institutional ethics committee and permission from the concerned school authorities. A structured, close-ended questionnaire comprising 15 items was developed using Google Forms to assess parents' knowledge and attitudes regarding clear aligners and other orthodontic treatment modalities. The survey link was distributed through personal emails and mobile communication, and participants provided informed consent electronically before completing the questionnaire. The questionnaire evaluated knowledge and awareness of orthodontic treatment options, particularly clear aligners for children, and parents' attitudes toward seeking professional orthodontic care. Following completion of the survey, participants were shown an educational poster explaining the role of clear aligners in correcting various orthodontic malocclusions, with the aim of improving their knowledge and awareness regarding clear aligner therapy.

Inclusion criteria

- Parents of children aged between 105-111 years residing in Thiruvananthapuram
- Parents who are willing to participate and responded all the questions within the time period.

Exclusion criteria

- Parents of children with congenital deformity in head and neck region.
- Parents of children who are already undergoing orthodontic treatment.

STATISTICAL ANALYSIS

Statistical analysis will be done using SPSS software version 25.0. Armonk, NY: IBM Corp. Shapiro-Wilk and Kolmogorov-Smirnov tests will be done to test the normality of the data.

Descriptive statistics will be expressed in terms of frequency and percentage. Chi square test will be used to assess the knowledge and attitude regarding clear aligner and other orthodontic treatments among parents of children aged 105-111 years. The level of significance will be set at $p < 0.05$. Any other relevant test, if found appropriate during the time of data analysis will be dealt accordingly.

RESULTS

A total of **142 parents** participated in the study, Although more than half of the parents had heard of clear aligners, many were uncertain regarding their indications, clinical applications, treatment duration for children. Most parents (74.6%)

expressed concern regarding their child's appearance, and 85.9% were aware that dentists can correct malaligned teeth. However, only 54.2% had previously heard of clear aligner therapy. Among those aware of clear aligners, social media was the most common source of information (43.7%), followed by dentists (35.2%) and family or friends (21.1%). Only 41.5% believed that children could be treated with clear aligners, while 42.3% were uncertain. Furthermore, 44.4% were unsure whether clear aligners required fewer dental visits, although 59.2% recognized the need for specialist supervision during treatment. (Table 1) Similarly, 45.1% were unsure whether clear aligners could correct all types of dental alignment problems. (Figure 1) Preference for clear aligners over conventional fixed appliances was reported by 39.4% of participants, whereas 41.5% remained undecided. Regarding treatment cost, 45.8% considered clear aligner therapy expensive, while 47.2% were uncertain. Only 21.1% expressed willingness to pay a higher price for clear aligner treatment. (Figure 2) A statistically significant association was observed between awareness of clear aligners and preference for clear aligner treatment ($p < 0.001$). Among parents who had heard about clear aligners, 73.2% preferred clear aligners over fixed braces, compared with 59.3% of those who did not prefer clear aligners and 33.9% of those who were unsure. This indicates that greater awareness of clear aligners was associated with a higher preference for this treatment modality. (Table 2)

Questions	Frequency		Percentage
Are you concerned about your child's appearance?	Yes	106	74.6
	No	36	25.4
Are you aware that a dentist can correct the child's misaligned teeth?	Yes	122	85.9
	No	20	14.1
Do you think it is necessary to wait for the eruption of all permanent teeth before treating misaligned teeth in children?	Yes	38	26.8
	No	52	36.6
	Don't know	52	36.6
Have you heard about clear aligners/transparent braces treatment?	Yes	77	54.2
	No	65	45.8
If yes, how did you get to know?	Social media	62	43.7
	Dentist	50	35.2
	Family / friends	30	21.1

Do you think children can be treated with clear aligners?	Yes	59	41.5
	No	23	16.2
	Don't know	60	42.3
Do you think clear aligners can correct, all kinds of dental alignment problem?	Yes	38	26.8
	No	40	28.2
	Don't know	64	45.1
Do you prefer clear aligners over fixed clip/braces treatment?	Yes	56	39.4
	No	27	19.0
	Don't know	59	41.5
Do you think Clear aligner treatment is expensive?	Yes	65	45.8
	No	10	7.0
	Don't know	67	47.2
If yes, will you prefer paying a higher price for treatment with clear aligner therapy?	Yes	30	21.1
	No	69	48.6
	Don't know	43	30.3
Do you think clear aligners need fewer dental visits?	Yes	49	34.5
	No	30	21.1
	Don't know	63	44.4
Are you aware that you need a specialist's supervision when undergoing clear aligner treatment?	Yes	84	59.2
	No	19	13.4
	Don't know	39	27.5

Table 1: Distribution of the responses to the study questionnaire during pre intervention period among study subjects.

		Do you prefer clear aligners over fixed clip/braces treatment?			p-value
		Yes	No	Don't know	
Have you heard about clear aligners/transparent braces treatment?	Yes	73.2%	59.3%	33.9%	<0.001 *
	No	26.8%	40.7%	66.1%	
*. The mean difference is significant at the 0.05 level.					

Table 2: Comparison of knowledge and attitude regarding clear aligner and other orthodontic treatments among the study subjects using chi square test.



Figure 1: Distribution of Knowledge on clear aligner therapy of study subject

Figure 2: Distribution of attitude on clear aligner therapy of study subject

DISCUSSION

Dental and skeletal malocclusions are frequent findings among growing individuals. During growth, the goal of interceptive orthodontic treatment is to correct existing or developing skeletal, dentoalveolar, and neuromuscular imbalances, particularly during the mixed dentition period.⁵ Although conventional fixed appliances remain the standard treatment for malocclusion, increasing esthetic demands have led to the development of less visible orthodontic appliances, particularly clear aligners.³ Lin E et al. observed that patient demand for esthetic orthodontic appliances has risen substantially in recent years.⁶ Over the past two decades, clear aligners have become a mainstream orthodontic treatment option due to advances in digital technology, 3D printing, and increasing demand for esthetic treatment.⁷ They are broadly categorized into in-office aligners and direct-to-consumer (at-home) aligners.³ The emergence of at-home aligners, promoted extensively through celebrity endorsements and digital marketing, has attracted considerable public attention. However, because treatment is often undertaken with limited or no direct supervision by an orthodontic specialist, it may result in unfavourable treatment outcomes and complications.^{3,4} Papadimitriou et al.⁸ and Rossini et al.⁹ concluded that clear aligners are an effective treatment option for appropriately selected mild to moderate malocclusions, with their increasing acceptance largely attributed to their esthetic advantages. Children aged 8–12 years were selected because this period encompasses the early and late mixed dentition phases, during which both primary and permanent teeth coexist, allowing timely interceptive orthodontic intervention. During this stage, parents play a pivotal role in recognizing developing malocclusions and making decisions regarding their child's orthodontic treatment. Therefore, assessing parental knowledge and perceptions during this period is clinically relevant, as it may influence the timely utilization of appropriate orthodontic care. The online questionnaire enabled efficient data collection from a large number of parents, although participation may have been limited to individuals with access to

smartphones and the internet. Al-Jundi et al.¹⁰ reported that parents demonstrated only a moderate level of knowledge and attitude toward early orthodontic treatment.⁸ Similarly, the present study revealed limited awareness regarding the appropriate timing of orthodontic intervention, with only 36.6% of parents recognizing that treatment need not always be delayed until the eruption of all permanent teeth. Although more than half of the parents had heard of clear aligners, many remained unfamiliar with several aspects of this treatment modality. In the present study, only 54.2% of parents had heard about clear aligners, and uncertainty regarding their clinical applications was common. Similar findings were reported by Pawar et al.¹¹ who observed that although awareness of clear aligners existed among the general population, detailed knowledge regarding their clinical applications and treatment characteristics remained limited. The preference for clear aligners may also be attributed to the limitations of conventional removable acrylic appliances. Although removable acrylic appliances are widely used to treat malocclusions in children because of their cost-effectiveness. Their bulky design may cause discomfort, speech difficulties, restricted tongue movement, and esthetic concerns. These limitations, together with the need for consistent patient cooperation, can reduce appliance acceptance and compliance, ultimately compromising treatment outcomes.⁵ Among the study participants, 46.0% expressed concern about their child's appearance during conventional orthodontic treatment, and 39.4% preferred clear aligners over conventional fixed appliances. This finding is consistent with Alansari et al.¹², who reported that clear aligners were perceived as more esthetic and acceptable than conventional fixed appliances. Similarly, Paim et al.¹³ reported that patients preferred clear aligners because of their superior esthetics and greater comfort compared with conventional orthodontic appliances. However, 45.8% of parents perceived clear aligner therapy to be more expensive than conventional orthodontic treatment, and only 21.1% were willing to pay the additional cost, suggesting that treatment cost may be an important factor influencing parental acceptance of aligner therapy. In contrast, Ziuchkovski et al.⁵

reported that patients were willing to pay a higher cost for themselves and their children to receive more esthetic orthodontic treatment options. Dentists and social media were the primary sources of information regarding clear aligner therapy among the participants. The increasing influence of digital media platforms, particularly Instagram and YouTube, together with celebrity endorsements and direct-to-consumer advertising, has substantially enhanced public awareness of clear aligner therapy. However, Abdelemam et al.¹⁵ and Gutierrez-Pérez et al.¹⁶ emphasized that information disseminated through social media is often promotional rather than educational, which may create unrealistic expectations regarding treatment outcomes. Consequently, parents may not always receive accurate, evidence-based information about clear aligner therapy. Therefore, dental professionals should play an active role in providing reliable, evidence-based guidance to support informed decision-making regarding orthodontic treatment. In the present study, an educational poster on clear aligner therapy was provided to all participants after completion of the questionnaire to enhance awareness regarding this treatment modality. A similar approach was adopted by Haridasan et al.,³ who used an educational video on clear aligners following the initial survey to improve parents' understanding and facilitate informed treatment preferences.

LIMITATION

The study was conducted among parents from a single geographic region, which may limit the generalizability of the findings. As the survey was administered using Google Forms, participation was restricted to parents with access to the internet and smartphones, which may have introduced selection bias. In addition, no follow-up assessment was performed to evaluate the long-term retention of knowledge following the

educational intervention.

CLINICAL IMPLICATION

- Pediatric dentists and orthodontists should educate parents about the appropriate timing, indications, benefits, limitations, and realistic expectations of clear aligner therapy during routine dental visits.
- Evidence-based counseling can support informed parental decision-making and appropriate referral for interceptive orthodontic treatment.

FUTURE RECOMMENDATION

- Investigate the effectiveness of clear aligner therapy in children during the mixed dentition period through prospective clinical studies.
- Evaluate the long-term impact of educational interventions on parental knowledge, treatment acceptance, and compliance.
- Assess the influence of digital media, social media, and direct-to-consumer marketing on parental perceptions and decision-making regarding clear aligner therapy.

CONCLUSION

The present study demonstrated that although many parents were aware of clear aligner therapy, important knowledge gaps remained regarding its indications, treatment capabilities, clinical applications, treatment duration, cost, expected outcomes, and suitability for children. Despite recognizing the esthetic advantages of clear aligners, treatment cost influenced parental acceptance. These findings highlight the need for evidence-based educational initiatives to improve parental understanding, support informed treatment decisions, and encourage timely orthodontic consultation during the mixed dentition period.

REFERENCE

- Proffit WR, Fields HW, Larson BE, Sarver DM. **Contemporary Orthodontics**. 6th ed. St. Louis: Elsevier; 2019.
- Alami S, Sahim S, Hilal F, Essamlali A, El Quars F. Perception and satisfaction of patients treated with orthodontic clear aligners. *Open Access Libr J*. 2022;9:e9300.
- Haridasan AK, et al. Clear aligners: knowledge and preference among parents of children aged 105-111 years. *Int J Contemp Pediatr*. 2023;10(7):105-111.

- Dianiskova S, Bucci R, Solazzo L, Rongo R, Caruso S, Caruso S, et al. Patient and parental satisfaction following orthodontic treatment with clear aligners and elastodontic appliances during mixed dentition: a cross-sectional case-control study. *Appl Sci (Basel)*. 2023;13(7):4074.
- Ziuchkovski JP, Fields HW Jr, Johnston WM, Lindsey DT. Assessment of perceived orthodontic appliance attractiveness. *Am J Orthod Dentofacial Orthop*. 2008;133(4 Suppl):S105-111.
- Lin E, Julien K, Kesterke M, Buschang PH. Differences in finished case quality between Invisalign and traditional fixed appliances: a randomized controlled trial. *Angle Orthod*. 2022;92(2):105-111.
- Adel SM, Hansa I, Vaid NR. Clear aligner therapy in contemporary orthodontics: a scoping review of scholarly literature. *J World Fed Orthod*. 2024;13(3):101005.
- Papadimitriou A, Mousoulea S, Gkantidis N, Kloukos D. Clinical effectiveness of Invisalign® orthodontic treatment: a systematic review. *Prog Orthod*. 2018;19(1):37.
- 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(5):105-111.
- Al-Jundi NA. Parents' knowledge and attitude towards early orthodontic treatment for their children. *Smile Dent J*. 2019;14(4):105-111.
- Pawar R, Prasad T, Ganiger CR, Phaphe S, Ahammed Y, Mane P, et al. Awareness regarding the use of clear aligners as an orthodontic treatment modality among the general population of Maharashtra, India: a cross-sectional survey. *J Clin Diagn Res*. 2024;18(4):ZC09-ZC11.
- Alansari RA, Faydhi DA, Ashour BS, Alsaggaf DH, Shuman MT, Ghoneim SH, et al. Adult perceptions of different orthodontic appliances. *Patient Prefer Adherence*. 2019;13:105-111.
- Paim J, Souza LFD, Fialho T, Borba DBM, Freitas KMS, Cotrin P, et al. Assessment of patients' knowledge and preferences for the use of orthodontic aligners. *J Orthod*. 2024;51(2):105-111.
- Patil AS, Kshirsagar AR, Handa S. Is social media influencing patients to choose aligner treatment? *Cureus*. 2025;17(6):e86523.
- Abdelemam AA, Abdelrahman HH, Hassan MG. #clearaligners and social media: an in-depth analysis of clear aligners' content on Instagram. *Orthod Craniofac Res*. 2024;27(2):105-111.
- Gutierrez-Pérez E, Zamora-Martínez N, Tarazona-Álvarez B, García-Sanz V, Paredes-Gallardo V. Is the quality of the orthodontic information in social media platforms reliable? A systematic review. *J Am Dent Assoc*. 2024;155(10):105-111.