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A survey of clear aligner practices among orthodontists in India: A questionnaire study

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Abstract
Objective: This study aimed to assess the clinical opinions and treatment practices of Indian orthodontists regarding clear aligner therapy. It focused on aligner material preferences, clinical protocols, treatment planning, and comparisons with conventional fixed appliance therapy.
Materials and Methods: A structured electronic questionnaire comprising 17 multiple-choice questions was distributed to 450 members of the Indian Orthodontic Society. The survey explored diverse aspects including case selection criteria, digital treatment planning, aligner usage frequency, patient compliance issues, and retention strategies. The responses were collected over a three-month period and analyzed using automated tools via Google Forms.
Results: A total of 300 orthodontists responded, yielding a response rate of 66.6%. Among the respondents, 70.7% reported treating between 0-30 clear aligner cases annually. A significant majority expressed discomfort in treating complex malocclusions with aligners, including severe cases (98%) and crossbites (86.7%). Patient-reported concerns included speech difficulties (66.7%) and halitosis (60.3%). More than half of the clinicians indicated that over 50% of their aligner cases required refinement stages. Notably, 84.3% of orthodontists disapproved of do-it-yourself (DIY) aligner systems. Despite the growing interest in aligner therapy, 63% still preferred traditional fixed orthodontic appliances.
Conclusion: The survey highlights considerable variability in the adoption and application of clear aligner therapy among Indian orthodontists. While aligners are gaining popularity for their aesthetic and comfort advantages, fixed orthodontic appliances remain the preferred modality for most practitioners, particularly for complex cases. These findings underscore the need for standardized guidelines and further clinical research to support the expanding use of clear aligner systems in routine practice.

Keywords: Clear aligner therapy, Orthodontic treatment practices, Indian orthodontists' perspectives, fixed appliance vs aligners

Introduction
The field of orthodontics has witnessed significant advancements in appliance design and treatment modalities over the last few decades. One of the most notable innovations has been the introduction of clear aligners, initially conceptualized by Kesling in 1946 and commercially realized through the launch of Invisalign by Align Technology in 1998. While originally indicated for minor malocclusions, modern clear aligner systems supported by advancements in digital workflows and thermoplastic materials have evolved to address a wider range of orthodontic problems, including moderate to complex cases.
Despite their rising popularity driven by patients' demands for discreet, comfortable, and removable alternatives to braces, the orthodontic community remains divided on the effectiveness of aligners compared to traditional fixed appliances. Concerns remain regarding biomechanical limitations, treatment predictability, case refinement needs, and patient compliance. This survey was designed to gauge the perspectives of Indian orthodontists regarding clear aligner therapy, evaluate clinical practices, and understand how aligner therapy is being incorporated into mainstream orthodontic care.

Materials and Methods
This cross-sectional study was conducted among practicing orthodontists in India, utilizing a

random sampling approach. An online survey link was disseminated via email to 450 registered members of the Indian Orthodontic Society. The survey included 17 closed-ended questions and was structured to gather data on the following parameters:

- Demographics and years of clinical experience.
- Annual case volume of clear aligner treatments.
- Preferences regarding aligner materials and treatment planning.
- Criteria for patient selection and contraindications.
- Retention protocols and post-treatment considerations.
- Common patient-reported complaints and challenges.
- Comparison of aligner therapy with fixed orthodontic appliances.
- Views on DIY aligner systems.

Participation in the survey was voluntary, and data collection was carried out over a three-month period with assistance from Yashwantrao Chavan Dental College and Hospital. The average time to complete the questionnaire was under five minutes.

Inclusion Criteria

- **Registered Orthodontists:** Only qualified orthodontic specialists registered with the Indian Orthodontic Society (IOS) were eligible to participate in the study.
- **Currently Practicing:** Participants were required to be actively engaged in clinical orthodontic practice at the time of survey distribution.
- **Familiarity with Clear Aligner Therapy:** Orthodontists with any level of clinical exposure to clear aligner systems whether through direct treatment experience, planning, or consultation were included.
- **Consent to Participate:** Only those who voluntarily provided informed consent through the digital survey form were included in the final analysis.
- **Completed Responses:** Only fully completed questionnaires were considered valid for data analysis.

Exclusion Criteria

- **Non-Orthodontic Dental Professionals:** General dentists, undergraduate students, and other dental specialists not formally trained in orthodontics were excluded.
- **Retired or non-practicing orthodontists:** Professionals not currently engaged in clinical orthodontic practice were excluded from the study.
- **Incomplete Responses:** Surveys with partially filled or missing responses were not included in the final analysis.
- **No experience or knowledge of clear aligners:** Orthodontists who reported no knowledge or clinical involvement with clear aligner systems were excluded to maintain relevance to the study objectives.
- **Duplicate Submissions:** In the case of duplicate responses from a single practitioner, only the first complete entry was retained.

Ethical Considerations

- Informed consent was obtained from all participants, with clear disclosure of the study's objective and the right to withdraw at any stage without consequence.
- No clinical or interventional procedures were involved in the study.
- Participants did not receive any form of compensation or incentives.

Statistical Analysis

All survey data were compiled using Google Forms and exported to spreadsheets. Descriptive statistics were utilized to interpret response frequencies and percentages.

Results

Out of 450 orthodontists contacted, 300 completed the survey, resulting in a 66.6% response rate. Among the respondents, 44.7% reported having between 3-6 years of clinical experience, while 22% had 6-9 years of experience.

Approximately 70.7% of orthodontists indicated treating 0-30 clear aligner cases annually. A majority were reluctant to use aligners for treating severe malocclusions (98%) and crossbites (86.7%), citing limitations in clinical effectiveness. The most frequently reported patient issues included speech difficulties (66.7%) and halitosis (60.3%).

Notably, over 50% of aligner cases reportedly required at least one refinement phase to achieve desired outcomes. Furthermore, 84.3% of practitioners disapproved of self-directed (DIY) aligner treatments due to safety and efficacy concerns. When asked about their overall preference, 63% of orthodontists favoured traditional fixed appliances over clear aligners for comprehensive treatment.

Fig 1: Years of experience

Years of Clinical Experience	Frequency (N)	Percentage (%)
< 1 year	20	6.7%
1-3 years	46	15.3%
>3-6 years	134	44.7%
>6-9 years	66	22.0%
> 9 years	34	11.3%
Total	300	100%

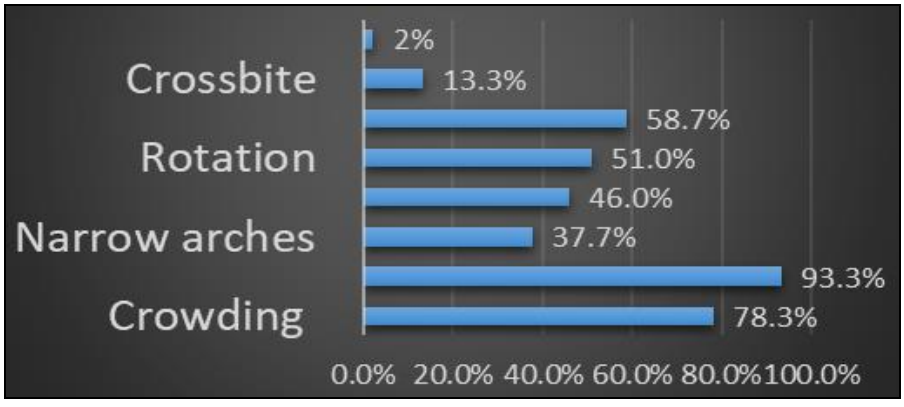

Fig 1: Case choice for clear aligner treatment

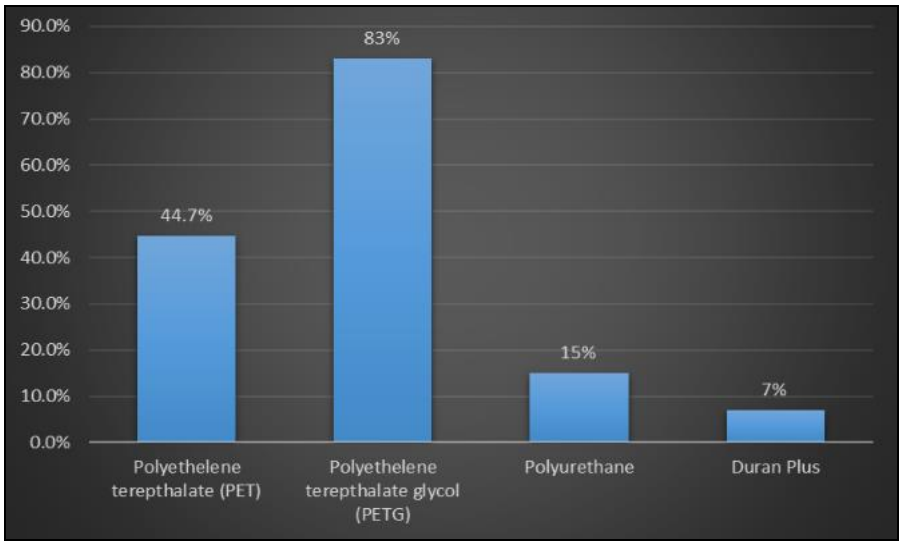

Fig 2: Material used for aligners

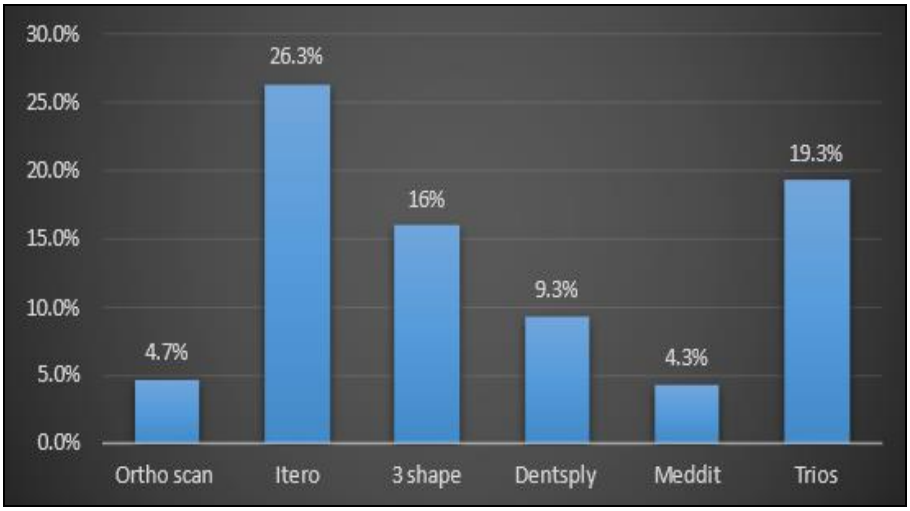

Fig 3: Preference for digital scanning

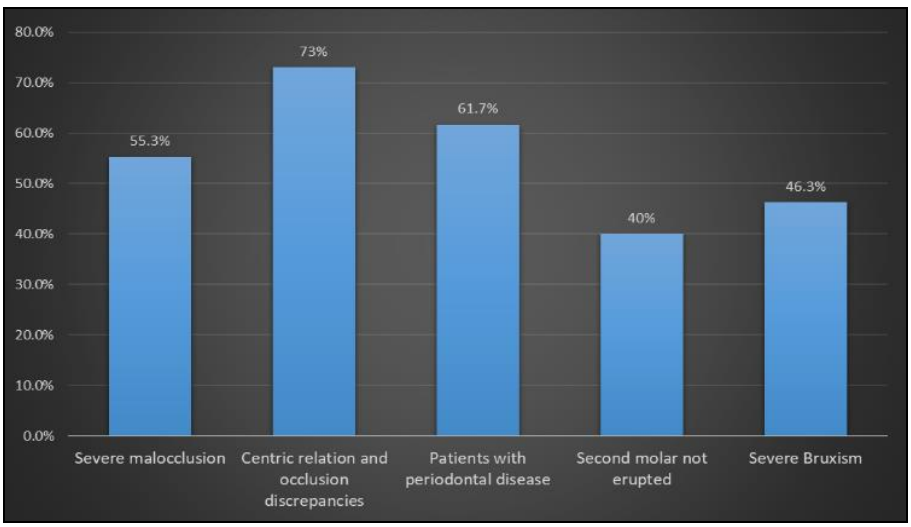

Fig 4: Exclusion cases for clear aligners

Table 2: Cases treated on yearly basis

Number of Cases Treated Annually	Frequency (n)	Percentage (%)
0-30	212	70.7%
30-60	69	23.0%
60-90	8	2.7%
>100	3	1.0%

Table 3: Time Recommendation for wear of aligner

Daily Wear Time	Frequency (n)	Percentage (%)
< 8 hours	35	11.7%
8-16 hours	19	6.3%
>16 hours - 24 hours	246	82.0%

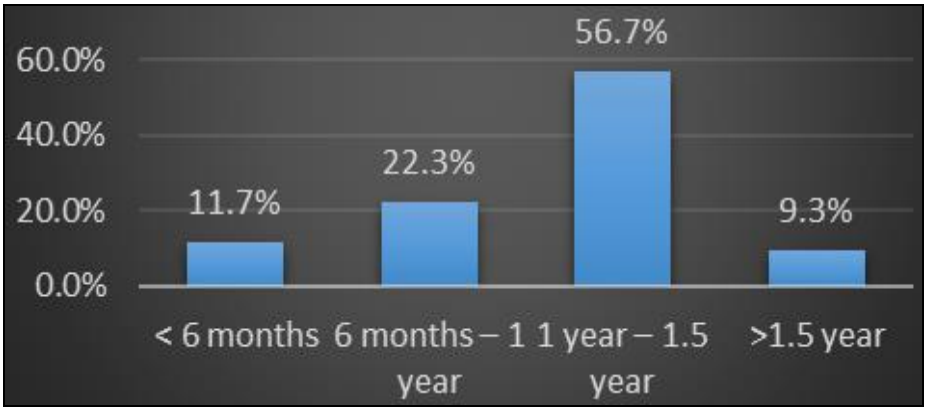

Fig 5: Duration of treatment completion

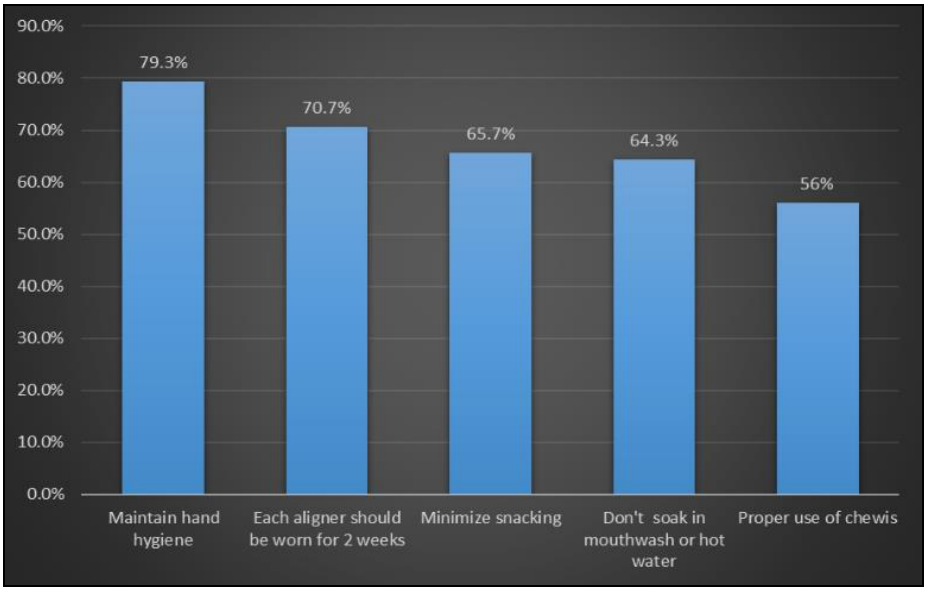

Fig 6: Instructions given to patient

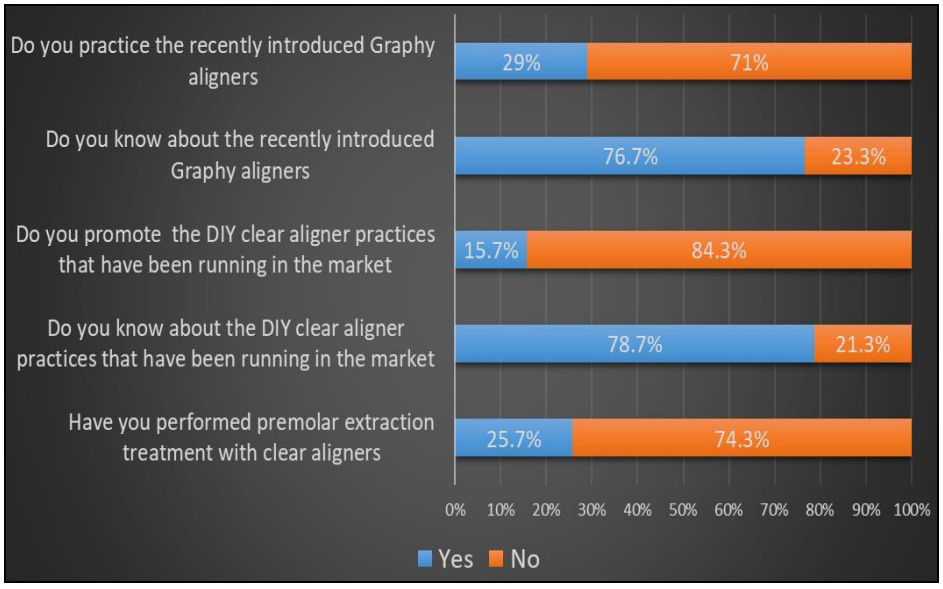

Fig 7: Awareness and practice patterns related to Graphy Aligners and DIY clear aligner treatments

Table 4: Percentage of cases requiring refinement

Refinement Required in Cases	Frequency (n)	Percentage (%)
< 10%	37	12.3%
10%-30%	59	19.7%
>50%-99%	168	56.0%
All cases	36	12.0%

Table 5: Problems reported by patient

Reported Issue	Frequency (n)	Percentage (%)
Speech problem	200	66.7%
Allergies	67	22.3%
Bad breath	181	60.3%
Discomfort	144	48.0%

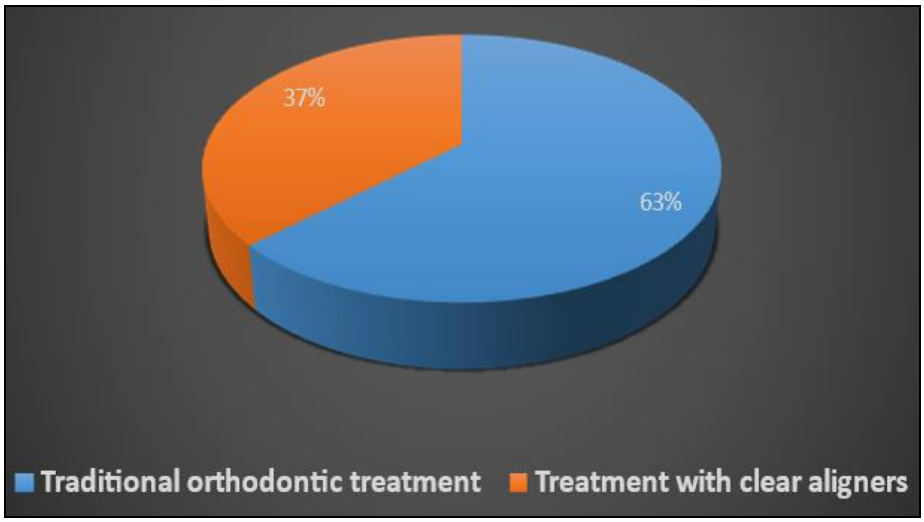

Fig 8: Treatment preferred by orthodontits

Discussion

Clear aligner therapy has seen a significant rise in popularity over the past few years, reflecting an evolving landscape in contemporary orthodontic practice. This survey-based study offers insights into how aligner therapy is currently being adopted and utilized by orthodontists across India.

The majority of the respondents reported having 3 to 6 years of clinical experience, indicating a relatively early-career demographic that may be more inclined to adopt emerging technologies such as aligners. The survey findings revealed that clear aligners were most commonly used to treat mild malocclusions, particularly spacing, minor rotations, and mild anterior crowding. In contrast, complex cases such as those involving crossbites, severe malocclusions, or centric relation-centric occlusion discrepancies were generally avoided in aligner-based treatment planning.

Regarding the choice of aligner material, polyethylene terephthalate glycol (PET-G) was reported as the most preferred by Indian orthodontists, likely due to its favourable mechanical properties, biocompatibility, and clarity. An essential component of aligner therapy is the initial diagnostic and planning phase, which relies heavily on intraoral scanning technologies. Various scanners are available in the Indian market, including 3Shape, Medit, TRIOS, and iTero. Among these, the iTero scanner was the most widely used by the survey participants, underscoring its clinical reliability and integration with major aligner systems.

Cost remains a significant limiting factor for the widespread use of aligners, as they are generally more expensive than conventional fixed appliance therapies. Consequently, most practitioners reported treating fewer than 30 aligner cases per year. In addition to financial considerations, the time investment required for comprehensive aligner planning and the necessity of strict case selection protocols further contribute to the relatively limited adoption.

Most orthodontists reported that aligner treatment typically takes between 12 to 18 months to complete, though the actual duration can vary depending on case complexity and patient compliance. Proper patient education and adherence to wear-time instructions usually 16 to 24 hours per day-are critical to achieving successful outcomes. Inadequate compliance can lead to suboptimal results and prolong treatment timelines.

Patient hygiene and aligner maintenance were emphasized by the majority of practitioners. Orthodontists routinely instructed patients to maintain hand hygiene, limit snacking, use chewies for optimal seating of aligners, and replace aligners biweekly. These measures aim to prevent complications such as infections, speech difficulties, or halitosis-common complaints reported by patients. In this study, speech difficulties were the most frequently reported issue, though they were generally transient and resolved as patients acclimated to the aligners.

An important clinical observation was that a significant proportion of aligner cases required mid-treatment refinements. These adjustments, made during or after the planned course, are often necessary to address issues like incomplete movements, loss of tracking, or unexpected occlusal interferences. This aligns with existing literature indicating that aligner refinements are a routine and expected part of the therapeutic process.

While clear aligner technology continues to evolve, including the emergence of innovative systems such as Graphy's 3D printed aligners, widespread clinical adoption of such newer platforms remains limited in India. Although many

orthodontists were aware of such advancements, few reported actual clinical usage, suggesting a cautious approach toward integrating new technology into daily practice.

Additionally, the proliferation of direct-to-consumer (DIY) aligner brands has raised ethical and clinical concerns among practitioners. A large majority of surveyed orthodontists strongly opposed the use of DIY aligners, emphasizing that all orthodontic treatments should be performed under the supervision of qualified professionals to ensure patient safety and treatment efficacy.

Despite the increasing interest and integration of clear aligners into clinical practice, traditional fixed appliance therapy remains the preferred choice for most orthodontists in India. This preference is likely driven by the predictability, biomechanical versatility, and proven outcomes associated with conventional orthodontic approaches, particularly in complex malocclusion cases.

Conflict of Interest
Not available

Financial Support
Not available

References

1. Meade MJ, Weir T. A survey of orthodontic clear aligner practices among orthodontists. American Journal of Orthodontics and Dentofacial Orthopedics. 2022;162(6):e302-e311.
2. d'Apuzzo F, Perillo L, Carrico CK, Castroflorio T, Grassia V, Lindauer SJ, *et al*. Clear aligner treatment: Different perspectives between orthodontists and general dentists. Progress in Orthodontics. 2019;20:1-9.
3. Meade MJ, Weir T, Seehra J, Fleming PS. Clear aligner therapy practice among orthodontists in the United Kingdom and the Republic of Ireland: A cross-sectional survey of the British Orthodontic Society membership. Journal of Orthodontics. 2023 Oct 13:14653125231204889.
4. Rossini G, Parrini S, Castroflorio T, Deregibus A, Debernardi CL. Efficacy of clear aligners in controlling orthodontic tooth movement: A systematic review. Angle Orthod. 2015;85(5):881-889.
5. Charalampakis O, Iliadi A, Ueno H, Oliver DR, Kim KB. Accuracy of clear aligners: A retrospective study of patients who needed refinement. Am J Orthod Dentofacial Orthop. 2018;154(1):47-54.
6. Kravitz ND, Kusnoto B, BeGole E, Obrez A, Agran B. How well do clear aligners align? A prospective study evaluating the efficacy of tooth movement with Invisalign. Am J Orthod Dentofacial Orthop. 2009;135(1):27-35.
7. Elkholy F, Ziegler F, Lapatki BG. Quantification of orthodontic forces exerted by aligners: Influence of material thickness and thermoforming parameters. J Orofac Orthop. 2020;81(3):153-162.
8. Robertson L, Kaur H, Fagundes NCF, Romanyk D, Major PW, Mir FC. Effectiveness of clear aligner therapy for orthodontic treatment: A systematic review. Orthod Craniofac Res. 2020;23(2):133-142.
9. Papadimitriou A, Mousoulea S, Gkantidis N, Kloukos D. Clinical effectiveness of Invisalign® orthodontic treatment: A systematic review. Prog Orthod. 2018;19(1):37.
10. Kuncio D, Maganzini A, Shelton C, Freeman K. Invisalign and traditional orthodontic treatment post retention outcomes compared using the Peer Assessment Rating index. Angle Orthod. 2007;77(6):864-869.
11. Mendoza SB, Linares IA, Vico YRM, Mendoza MA, Reina SE. Predictive model for differential tooth movement with aligners. Prog Orthod. 2017;18(1):20.
12. Baldwin DK, King GJ, Ramsay DS, Huang GJ, Bollen AM. Force-deflection properties of thermoplastic aligners. Am J Orthod Dentofacial Orthop. 2008;133(3):305-313.
13. Phan X, Ling PH. Clinical limitations of Invisalign. J Can Dent Assoc. 2007;73(3):263-266.
14. Grünheid T, Gaalaas S. Quantitative evaluation of Invisalign treatment effectiveness: A pilot study. Am J Orthod Dentofacial Orthop. 2017;152(6):804-810.
15. Fujiyama K, Honjo T, Suzuki M, Matsuoka S, Deguchi T. Analysis of torque expression of plastic aligners using a finite element method. Eur J Orthod. 2014;36(5):550-556.
16. Krieger E, Seiferth J, Marinello I, Jung BA, Wriedt S, Wehrbein H. Invisalign® treatment in the anterior region: were the predicted tooth movements achieved? J Orofac Orthop. 2012;73(5):365-376.
17. Barreda GJ, Duran GS, Gil JA. Comparison of clear aligners and conventional fixed appliances in adolescents: Perception and acceptability. J Clin Pediatr Dent. 2021;45(2):87-92.
18. Lagravère MO, Flores-Mir C. The treatment effects of Invisalign orthodontic aligners: A systematic review. J Am Dent Assoc. 2005;136(12):1724-1729.

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