



OPINION AND DIFFERENT PERSPECTIVES AMONG ORTHODONTISTS AND GENERAL DENTISTS ON CLEAR ALIGNERS IN TREATMENT OF VARIOUS MALOCCLUSIONS- A SURVEY STUDY.

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DOI: 10.31838/ecb/2023.12.s3.722

Introduction

In 1946, Dr. Harold Kesling pioneered the use of a set of thermoplastic tooth positioners to achieve tooth alignment, since then clear aligners (CA) have been a staple of orthodontic treatment. In order to increase the variety of tooth movements⁽¹⁾ CA treatment has mainly progressed over the last 15 years thanks to new technology and materials. Better aesthetics, greater patient acceptance, and an overall superior quality of life are the key benefits of CA treatment⁽²⁾. More people than ever before are seeking orthodontic treatment, particularly aesthetic options like clear aligners, as society places an increasing focus on appearance. Usually, the use of CA is combined with other orthodontic aids and techniques such as attachments, inter-arch elastics, and interproximal reduction⁽³⁾. However, treating complicated malocclusions has some drawbacks, including restricted root movement control, inter-maxillary discrepancy correction, anterior extrusion, and rotation movement⁽⁴⁾. There are very limited published evidence-based findings, expert opinions, and clinical expertise for the practitioners who wish to employ CA to treat their

patients⁽⁵⁾. Orthodontists and general dentists can both offer CA; nevertheless, there were some notable distinctions between the two groups in the usage of a CA therapy in their clinical practise. A recent survey also revealed that orthodontists and general dentists who use clear aligners to treat patients have different training, experience, and treatment plans⁽⁶⁾. Clear aligner treatment's success depends on choosing the right cases to treat. According to studies, some malocclusions can be successfully corrected using aligners, but others may be more difficult to treat. The differences in case selection, clinical practise setting, patient population, and expertise with CA between orthodontists and general dentists have not yet been disclosed. Additionally, a future outlook assessment of practitioners who do not offer CA therapy in their clinical practise has never been done.

Orthodontists and general dentists differ from one another in terms of experience and the types of dental malocclusion they have treated with CA. In addition to that, patient demographics, demand for clear aligners and perception of CA treatment in

their clinical practice also differs. Therefore, the objectives of this survey were to find out the opinion and different perspectives among Orthodontists and General Dentists on clear aligners in treatment of various malocclusions and to compare the two groups of clinicians who actually use and do not use CA in their practise and to assess the reasons given for this decision.

Method

Orthodontists and general dentists were asked to react to questions about their opinions of clear aligner treatments in a web-based survey. For the purpose of this study, data was gathered using Google Forms for online surveys. The topic survey responses were collected using this electronic surveying technology in an anonymous manner. An expert panel from the SRM Kattankulathur Dental College and Hospital assessed the survey questionnaire before the start of the study. Feedback from this panel was used to improve the survey's validity and content, and the final version was redacted. The survey's front page included the study's title and a brief statement of its objectives. To enable group comparisons of the results, survey participants were first asked if they were general dentists or orthodontists (with a speciality or a recognised degree in orthodontics). Demographic data was taken in a common component of the survey, including years of experience and the nature of the work.

The next section of the questionnaire questioned respondents if they conduct orthodontics with transparent aligners in their clinical setting and their perspective about the therapy. Following this

initial set of statements, the invited participants were given priority to respond to the questionnaire, which contained statements about the respondents' individual experiences with CA treatment, including the number of cases they had started in the previous 12 months, the years they had used CA, and the individual lessons they had learned about its use and which patients needed orthodontic treatment with CA more frequently. Data about the patients' gender, age, occupation, and opinions of the CA treatment were specifically requested. Additionally, they were questioned about the primary patient demographic and the dental malocclusion that they preferred to treat using CA. Then, clinicians provided answers to inquiries about the individuals who needed orthodontic treatment with CA the most frequently. The survey also gathered data on the primary reasons given by the two groups of dental practitioners for not utilising CA, as well as their thoughts on a prospective use of clear aligners in the near future.

Statistical Method

Using descriptive statistics, the responses were compiled. The responses that were available were all examined. Orthodontists and general dentists who responded to the survey were divided into two groups, and differences between the two groups were examined using chi-squared tests. The significance threshold was set at 0.05.

Results

There were 93 orthodontists and 87 general practitioners among the 180 responders who completed the survey out of a possible 200. 90 percent of people responded.

Years in practice	B.D.S / M.D.S (in other specialty except orthodontics)	M.D.S (Orthodontics)	General Dentist %	Orthodontist %
1- 5	66	48	76	52
6 - 10	9	28	10	30
11 - 15	10	9	11	10
16 - 20	2	8	3	8

Table – 1. Years in practice(P value - 0.006)

Since 76% of general dentists had only been in practise for 1 to 5 years, general dentist respondents tended to be younger than orthodontist respondents (Table 1).The majority

of respondents (57%) worked at a private single practise, and this was the same for both groups (P > 0.8). (Table 2).

Practice type	B.D.S / M.D.S (in other speciality except orthodontics)	M.D.S (Orthodontics)	Dentist %	Orthodontist %
Corporate Dental setup	8	17	9	18
Multidisciplinary Team	7	9	8	10
Solo/Private Practice	34	47	39	51
University/Institution	38	20	44	22

Table – 2. Type of practice(P value - 0.0118)

22% of all respondents said they have used clear aligners in their practises, with orthodontists reporting this usage at a higher rate than general dentists (31% vs. 10%, P = 0.0040).

However, the proportion of patients treated by general dentists and orthodontists for those wearing clear aligners was comparable. The higher percentage of respondents, in particular, had used CA for the previous one year with fewer than ten cases initiated in that time.

Clear aligners were introduced to providers through academic seminars, book chapters, or publications (27%), private courses (7%), as well as during their post-graduation years. General Dentists have attended more academic seminars to learn about CA (38% vs. 10% of orthodontists, P

= 0.00564), but the orthodontists have learnt about the clear aligners in their post-graduation (55% of orthodontists)(Table 3).

Type of learning about CA	Dentist %	Orthodontist %
Academic seminars,		
Books and Papers	44	11
During Post graduation	26	59
Others	24	20
Private courses	6	10

Table – 3. Comparison between orthodontists and general dentists in learning about the use of CA

Patients with spacing (79.4%) were treated with clear aligners by the majority of practitioners, including orthodontists and general dentists (p value - 0.00092)(Table – 4).

Type of Malocclusion	B.D.S / M.D.S (in other specialty except orthodontics)	M.D.S (Orthodontics)	Dentist %	Orthodontist %
Deep bite	2	18	2	19
Open bite	2	0	2	0
Rotation	5	10	6	11
Spacing	78	65	90	70

Table – 4. Types of Malocclusion treated

Patients that needed clear aligner treatment were mostly equal males and female (48.3%), followed by females (40%) and between the ages of 18 – 25 (57%). Fifty-eight percent of them were students,

and the majority (78%) were already aware of the CA treatment by advertisements or self-interest/research and had asked for it.

	B.D.S / M.D.S (in other specialty except orthodontics)	M.D.S (Orthodontics)	Dentists%	orthodontists %
Years of advising clear aligners				
2-5 years	5	9	6	10
Have not Advised	42	47	48	51
Less than a year	38	20	44	22
More than 5 years	2	17	2	18
Cases in last 12 months				
0 – 10	82	58	94	62
11 – 20	3	18	3	19
21-30	0	9	0	10
30+	2	8	2	9

Table – 5. Differences between orthodontists and general dentists in experience with CA treatment

In all, 23% of respondents reported employing CA in their practises already, with orthodontists making up the majority of these respondents (P = 0.09) as may be predicted given the topic. The majority of general dentists who responded to the survey (11%, compared to 66% who said they did not use CA) declared that they did so in their practise. As a result, only dentists who had prior experience with clear aligner treatment appeared

to be interested in the survey and agreed to conduct it.

According to the responses, patients who requested an invisible CA treatment were often between the ages of 18 and 35. A significant portion of patients treated with CA by the responders were older persons over 35 (6 %). (Table 6)

Dentist%	Orthodontist%
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Age Group of the patients		
18-25	77	40
25-35	17	42
above 35	3	9
less than 18	2	10

Table – 6.Age distribution of the patients requesting CA

Most survey participants who stated they did not currently use clear aligners said they planned to do so in the near future (51%). Based on the type of practitioner, there were significant differences in the reasons for not using clear aligners ($P = 0.09908$). Both Orthodontists and General dentists have stated that the higher cost of the clear aligner therapy is the main reason for not utilizing much of CA in their clinical practice (46% and 56%). Following that, in contrast to general practitioners, who reported having no experience with clear aligners (23%), orthodontists were more likely to remark that clear aligners limit treatment outcomes (28%) for not preferring CA in their practice.

Discussion

The application and usefulness of the clear aligner procedure have grown during the past few years. The published studies that contrast CA with traditional fixed appliances primarily display flaws and deficiencies, such as poor methodology with a high risk of bias, the lack of a control group or blinding procedures, and small sample sizes that have an impact on the internal validity and the findings of the studies. In addition to focusing on the distinctions between orthodontists and general dentists, this questionnaire also sought information on the types of patients that requested orthodontic treatment with transparent aligners⁽⁹⁾.

More orthodontists than general dentists answered to the questionnaire, probably as a result of the topic on clear aligner therapy being a particular area of orthodontics which piqued the experts' attention more than it did that of general dentists. Regarding the characteristics of the patients, the respondents found that similar numbers of males and females (48%) underwent CA therapies. In addition, Jeremiah et al's study revealed that a young adult's social interactions and wellbeing are affected by a visible orthodontic appliance, but an appliance with more favourable social judgements would be ideal for social acceptability⁽⁷⁾.

32 % of clinicians of both the categories have been using it for less than a year, whereas around 49% of both general dentists and orthodontists have not advised clear aligners in their practice

and 77% of users treat fewer than ten cases per year. These outcomes may be less dependable when utilising a method other than the traditional multibracket fixed appliances, where patient compliance and the dependability of treatment outcomes have been better illustrated in the literature for many years. Despite the fact that the comparison between the two provider groups was not statistically significant, orthodontists who responded to the survey appeared to have higher experience overall and had more CA cases initiated in the previous year than general dentists. In comparison to orthodontists, who are, on the other hand, more connected to the academic environment after their postgraduate programme, general dentists reported that information about clear aligners was primarily gained through academic seminars, book chapters or papers. Thus, it appears that the younger doctors who are taught this approach in postgraduate orthodontic programmes or who frequently take part in seminars and lectures are more interested in the CA treatment.

Both orthodontists and general dentists treated more adults (94%) than any other patient population. This tendency is consistent with other studies. In recent years, the number of younger patients receiving CA therapy has increased⁽¹¹⁾. This may be a result of the widespread demand for invisible orthodontic treatment, particularly among younger patients, who have more oral health knowledge and, as a result, adhere to their removable orthodontic appliances more religiously.

Overall, a higher proportion of both general practitioners and orthodontists reported feeling more comfortable with spacing-related dental malocclusions. This has been a frequent practise for the two professionals, as general dentists and orthodontists have chosen spacing such that it can be easily addressed with clear aligner therapy.

According to the responses, patients who requested an invisible CA treatment were often between the ages of 18 and 35, which was also supported by earlier studies^[8]. A significant portion of patients treated with CA by the responders were older persons over 35 (6 %), possibly because concerns about function and appearance are growing as people live longer and better lives in affluent nations. The majority of patients had full-time jobs, thus it was anticipated that they could afford the higher CA treatment costs compared to those of traditional labial fixed orthodontic appliances.

Fifty five percent of patients wearing CA appeared to have previously learned about this

sort of treatment from advertisements on social media and networks⁽¹⁰⁾. A smaller number obtained recommendations from the doctor himself, or from friends' or family members' personal recommendations, and a far smaller percentage came from the self-interest/research. The rising importance of marketing and social media in our professional lives has been highlighted by recent studies. Social media and practise websites are regularly accessible to orthodontic practitioners and patients, and they are in fact developing into efficient marketing and helpful communication tools in the orthodontic practise and patient experience.

The majority of respondents (69%) said they would start utilising clear aligners in the near future, whereas 21% of respondents stated they did not currently use them in their practise. A small percentage of them stated that they had only used CA in the past and had no plans to use it as an orthodontic treatment option going forward. 8% of respondents said they knew nothing about clear aligners, which may have been due to their youth or their short experience using them.

Because of the restricted orthodontic final treatment outcomes for complex malocclusions, the higher cost compared to conventional fixed appliances, or their own lack of experience, the majority of orthodontists reported not using CA.

The fact that there were more orthodontists than general dentists among the survey respondents is a limitation of this study. Future research could be done to increase the sample size and examine how the two types of practitioners' patient outcomes and treatment length differ. According to a patient's compliance and motivation, it could be possible to anticipate who will respond to CA the best.

Conclusion

- The majority of patients (97%) who received clear aligners were individuals between the ages of 18 and 35, mostly equal males and females, who were students.
- Orthodontists have used clear aligners for a longer period of time and have begun more cases in the last year than general dentists.
- The majority of respondents who do not use clear aligners in their practise said that they would consider doing so in the future.
- As opposed to orthodontic professionals, general dentists learned the most about clear aligners from academic conferences, lectures, papers, and books, whereas the orthodontists learnt in their post-graduation.

- The majority of the information that patients learnt about the clear aligner procedure came from advertising in external media.
- Spacing was the type of malocclusion that was most often treated by both orthodontists and general dentists using clear aligners.
- While a noticeable number of both general dentists and orthodontists were not employing clear aligners due to its high cost, 55% of orthodontists believed that the outcomes with this type of therapy are restricted with limited root movement control and being not able to treat complex cases when compared to conventional fixed appliances.

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