



Clear Aligner Treatment: Different Outlook between Orthodontists and General Dentists

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Abstract

The increasing adoption of clear aligner therapy (CA) has highlighted contrasting viewpoints between orthodontists and general dentists concerning its application and management. This study investigates these divergent perspectives, focusing on the advanced training and expertise of orthodontists, which enables them to conduct thorough evaluations of intricate dental alignments and aesthetic factors. Conversely, general dentists perceive CAs as a more user-friendly and less invasive treatment option, allowing them to offer these services in a more accessible manner. Such disparities prompt important considerations regarding treatment efficacy, patient outcomes, and the delineation of professional responsibilities within dentistry.

To assess these differences, a web-based survey was conducted among 64 dental practitioners, exploring their demographics, experiences with CA, types of patients treated, and specific malocclusions addressed. The data were analyzed using SPSS software version 23. Results revealed that 57% of respondents reported incorporating CA into their practices, with a significantly higher percentage of orthodontists ($P = 0.001$). Orthodontists primarily treated Class I malocclusions characterized by crowding, spacing, deep bites, and open bites. The majority of CA patients were employed adults, with an equal distribution of males and females seeking treatment; notably, the prevailing source of information about CA was external media advertising.

In conclusion, the study identifies significant differences in the utilization of CA between orthodontists and general dentists, particularly regarding practitioner numbers, experience levels, and case selection strategies. As clear aligner therapy continues to develop, understanding these distinctions will be crucial for optimizing patient care.

Keywords: clear aligner, Orthodontists, General dentists

Introduction

Clear aligners (CAs) have been a part of orthodontic practice since 1946, when Dr. Harold Kesling first introduced a series of thermoplastic tooth positioners designed to achieve tooth alignment (Kesling, 1946)⁶. Over the past 18 years, advancements in technology and materials have greatly enhanced CA treatment, allowing for a broader range of tooth movements (Bishara et al., 2008)².

The primary advantages of CA treatment include improved aesthetics, which correlates with higher patient acceptance rates, as well as an overall enhancement in quality of life (Keller et al., 2017)⁵. Research indicates that CAs typically lead to less discomfort compared to traditional fixed appliances, contributing to a more favorable treatment experience for patients (Kapustina et al., 2018)⁹. Additionally, clear aligners are associated with better gingival and periodontal health outcomes, indicating their potential benefits beyond mere tooth movement (Dawson et al., 2015)⁴.

CAs are often utilized in conjunction with various orthodontic auxiliary methods and procedures, such as attachments, inter-arch elastics, and interproximal reduction, to facilitate more complex tooth movements and improve treatment efficacy (Verma et al., 2021)¹². However, certain limitations exist when addressing complex malocclusions, including challenges with root movement control, correction of intermaxillary discrepancies, and difficulty with anterior extrusion and rotational movements (Bishara et al., 2008; Toffler et al., 2019; Alavi et al., 2021)^{1,2,11}.

Another critical factor influencing the success of CA treatment is patient compliance; the effectiveness of the treatment often depends significantly on how consistently patients adhere to wearing their aligners (Boniotto et al., 2020; Magalhães et al., 2021)^{3,10}. Consequently, clinicians utilizing CAs must often depend on their clinical expertise, insights from seasoned

practitioners, and an evolving landscape of evidence-based guidelines to inform their treatment strategies (Klemp et al., 2022; Kravitz & Kusnoto, 2007)^{7,8}.

Method

A Web-based survey was developed (non probability sampling) in google forms for orthodontists and general dentists to respond to statements about the perspective of the clear aligner treatments .

The front page of each survey featured the study title along with a concise explanation of its objectives. Initially, respondents were required to specify whether they were orthodontists (those holding a specialty or recognized degree in orthodontics) or general dentists. This distinction was made to facilitate group comparisons in the analysis of results.

General dentist who were practicing CA under the supervision of orthodontist were considered for the survey.

A common section of the survey gathered demographic information of the practitioners such as

- Gender
- Age
- Years in practice
- Type of work.
- Respondents were subsequently asked whether they incorporate clear aligners into their clinical practice.

This section of the survey dedicated to users of clear aligners included inquiries about their personal experiences with this type of treatment, such as:

- The years using CA
- The number of cases initiated in the past year
- Their level of education regarding clear aligners
- The specific dental malocclusions they were addressing with clear aligners

- Following this, providers answered questions about the patient demographics that typically seek orthodontic treatment with clear aligners. Specific information collected included details about the patients.
- Gender
- Age
- Occupation status
- Patients reason for clear aligner treatment request

Statistical Methods

The data analysis was performed using SPSS software version 23.

The descriptive statistics of frequency and percentage for all categorical variables was computed.

The categorical study variables were compared between orthodontist and general dentists using Chi-square test.

The statistical significance level was fixed at $p \leq 0.05$.

Results

Characteristics of study participants

In this survey, about 64 dentists participated.

Among them nearly 57% dentists were providing clear aligners in their practice.

The Gender showed that majority of them were female dentists (59.4%).

More than 50% of dentists were practicing clear aligners since past 1-5 years.

Nearly 40% dentists were working in Academics/Hospital, 37.5% were practicing in private clinics and 15.6% were practicing in both academics and private practice. [Table 1]

Table 1: Characteristics of study participants

		N	%
Are you providing clear aligners in your practice	Yes	37	57.8
	No	27	42.2
Gender	Male	26	40.6
	Female	38	59.4
Age of practitioner	<30	26	40.6
	31-40	24	37.5
	41-50	14	21.9
Years in practice with clear aligners	6-10	7	10.9
	1-5	38	59.4
	11-15	4	6.3
Practice type	Academics/Hospital	26	40.6
	Private practice	24	37.5
	Both	10	15.6

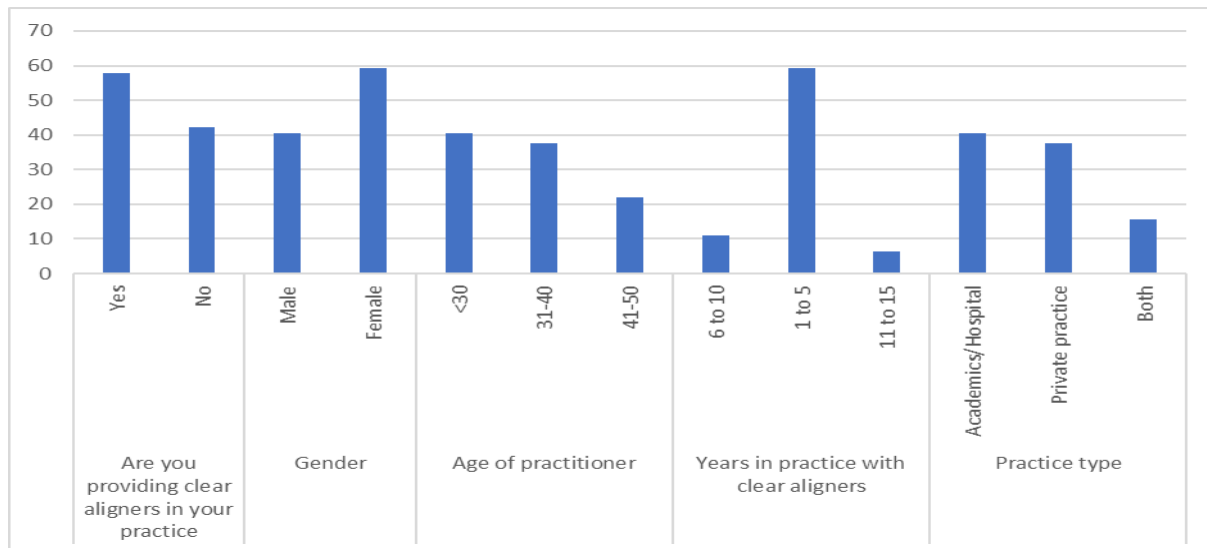


Fig 1: Graph of Characteristics of study participants

Distribution of clear aligners practice [Table 2]

In the last 12 months, 60.9% dentists reported that they started 1-10 cases of clear aligners and 12.5% dentists started 11-20 cases. About 31%, 28%, and

25% dentists mentioned that they learnt about clear aligners from Academic seminars, Multiple sources, and private courses respectively.

Table 2: Distribution of clear aligners practice

Age of patients requesting for clear aligners	<18	2	3.1
	18-30	52	81.3
	31-45	6	9.4
Occupational status of the patients	Student	16	25.0
	Employed	33	51.6
	Don't know	10	15.6
Patients' reason for clear aligner treatment request	Information by advertising and directly asking for clear aligners	39	60.9
	Information through the office marketing	4	6.3
	Word of mouth from friends or family members	12	18.8
	Suggestion of the doctor	7	10.9
Qualification of the practitioner	Orthodontist	35	54.7
	General Dentist	29	45.3

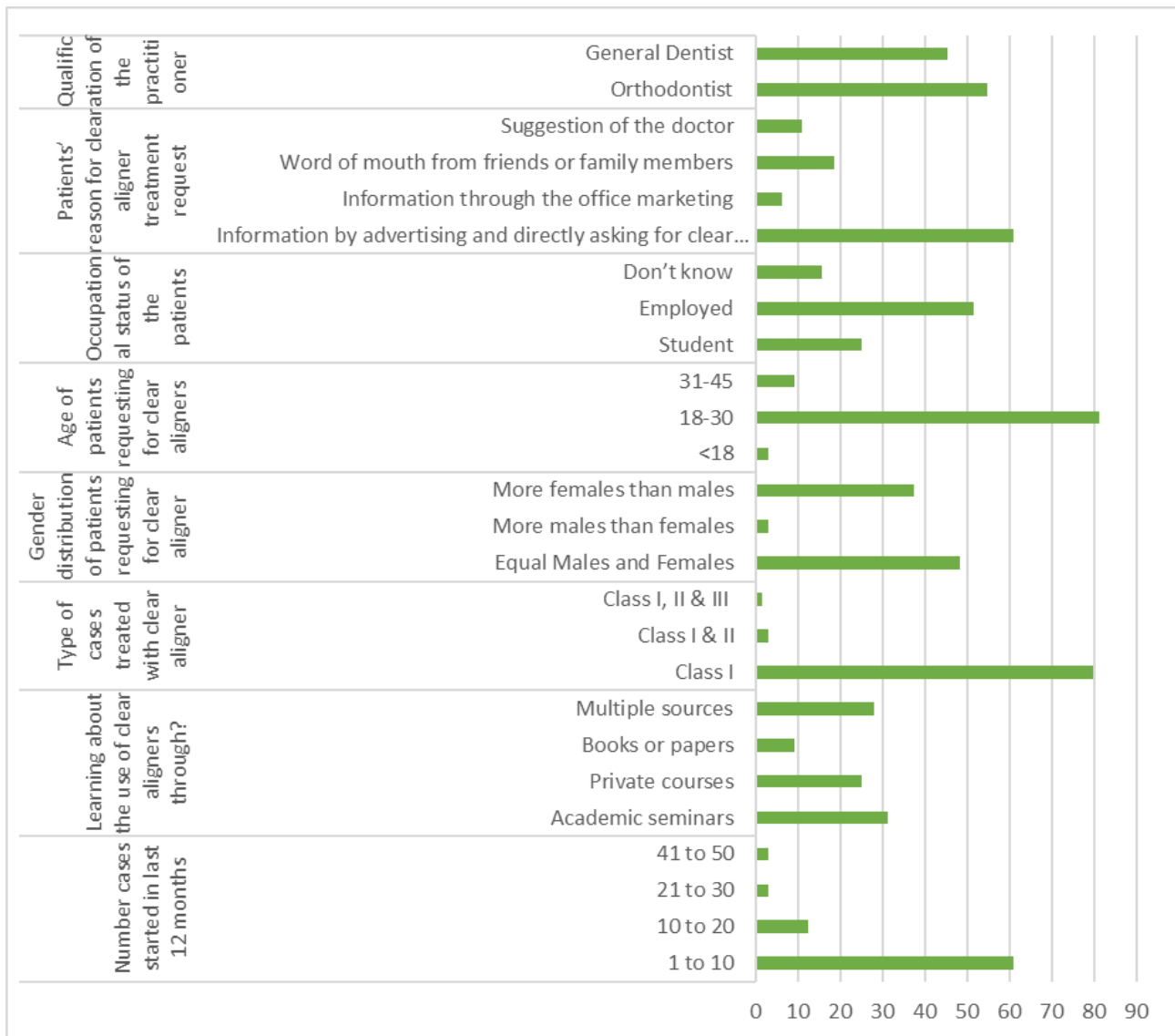


Fig 2: Graph of distribution of clear aligners practice

Nearly 80% of cases treated with Clear aligners were Class I malocclusion cases. Nearly 50% dentists reported that equal proportion of males and females were treated with clear aligners. However, 37.5% of dentists reported that that more females than males underwent clear aligners treatment.

Most of the patients (81.3%) who were undergoing clear aligners treatment were aged 18 to 30 years. Among the clear aligner's patients, about 51.6% were employed and 25% were students.

Comparison of study variables between orthodontists and general dentists

This distribution of study variables among the orthodontists and general dentists was studied.

Nealy 94% Orthodontists were practicing Clear aligners and while only 13.8% General dentists were practicing clear aligners. This difference was statistically significant difference (p=0.001*).

The gender distribution among the two groups was statistically non-significant (p=0.533). The female dentist's proportion was marginally greater among orthodontists (62.9%) than general dentists (55.2%)

Majority (40% and above) of Orthodontists and General dentists learned about clear aligners

through multiple sources and academic sources respectively. This difference was statistically non-significant (p=0.116).

Nearly 95% of both orthodontist and general dentists treated Class I malocclusion cases with clear aligners. This difference was also statistically non-significant (p=0.69). class III malocclusion was treated only by orthodontist .

Almost same proportion (54%) of both orthodontist and general dentists treated equal number of male and female patients with clear aligners. This difference was statistically non-significant (p=0.508).

All the general dentists and 77.1% of orthodontists reported that the age of patients requesting for clear aligners was 18-30 years. This difference was statistically significant (p=0.037).

The distribution of the age of dentists was statistically significant (p=0.016). Among the orthodontists, most of them were aged between 31-40 years (51.4%) and among the General dentists most of them were <30 years (58.6%).

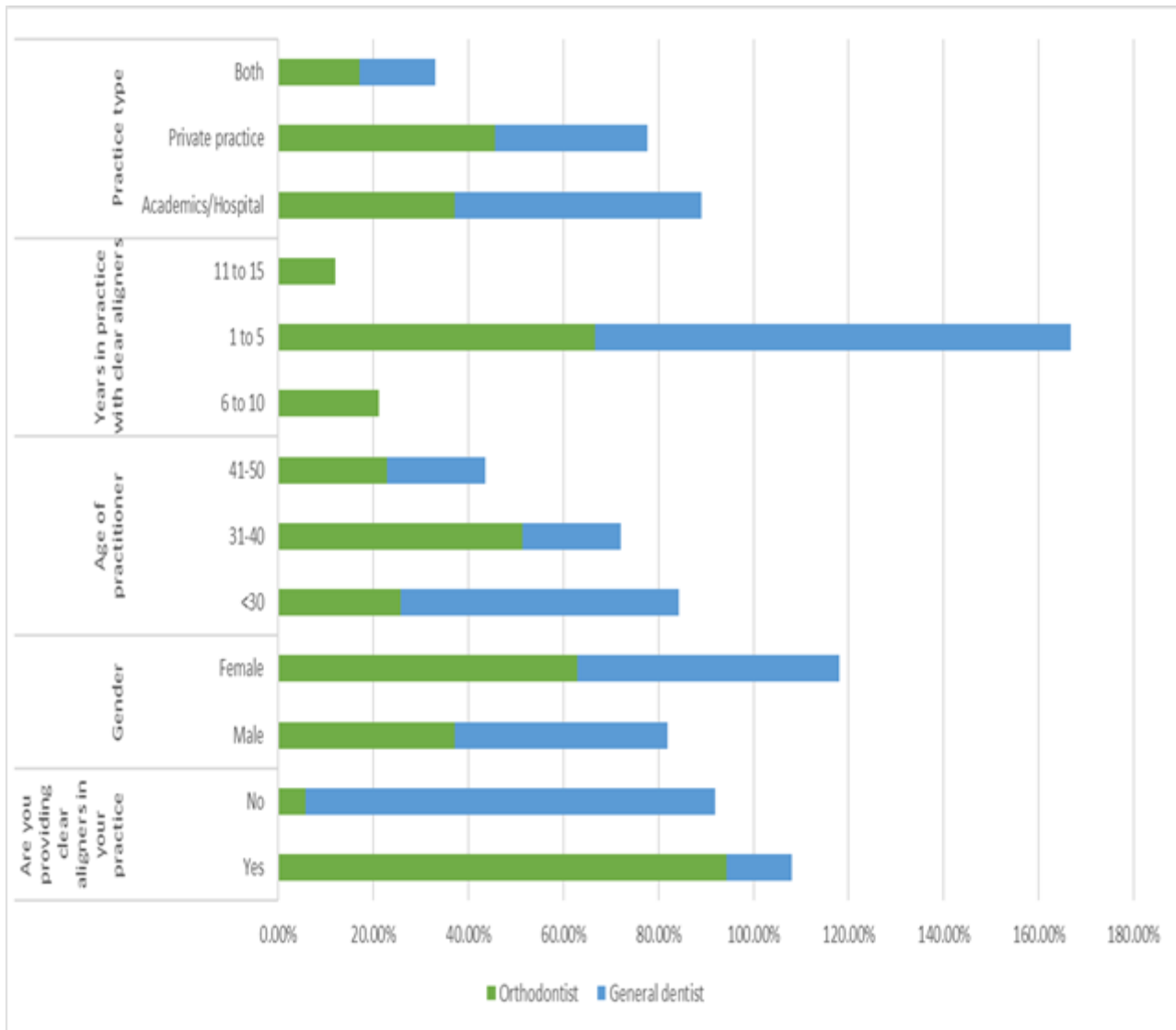
All the general dentists and 66.7% of orthodontist were practicing with clear aligners since past 1-5 years. This difference was statistically significant (p=0.032).

Nearly 50% of Orthodontists and General dentists were having practice type of private practice and Academics/Hospital practice respectively. This difference in practice type was statistically non significant (p=0.48). All the general dentists and most of the orthodontists (63.6%) have started 1-10 clear aligners cases in last 12 months. This difference was statistically significant (p=0.036).

Majority of Orthodontists (65.7%) and general dentists (41.7%) reported that employed was the occupational status of the patients who were undergoing clear aligners treatment. This difference was statistically non-significant (p=0.166). The 57.1% and 70.4% of Orthodontists and general dentists respectively reported that the patients' reason for clear aligner treatment request was "Information by advertising and directly asking for clear aligners". This difference was also statistically non-significant (p=0.107). [Table 3]

Table 3: Comparison of study variables between orthodontists and general dentists

		Qualification of the practitioner				P value
		Orthodontist		General dentist		
		N	%	N	%	
Are you providing clear aligners in your practice	Yes	33	94.3%	4	13.8%	0.001*
	No	2	5.7%	25	86.2%	
Gender	Male	13	37.1%	13	44.8%	0.533
	Female	22	62.9%	16	55.2%	
Age of practitioner	<30	9	25.7%	17	58.6%	0.016*
	31-40	18	51.4%	6	20.7%	
	41-50	8	22.9%	6	20.7%	
Years in practice with clear aligners	6-10	7	21.2%	0	0.0%	0.032*
	1-5	22	66.7%	16	100.0%	
	11-15	4	12.1%	0	0.0%	



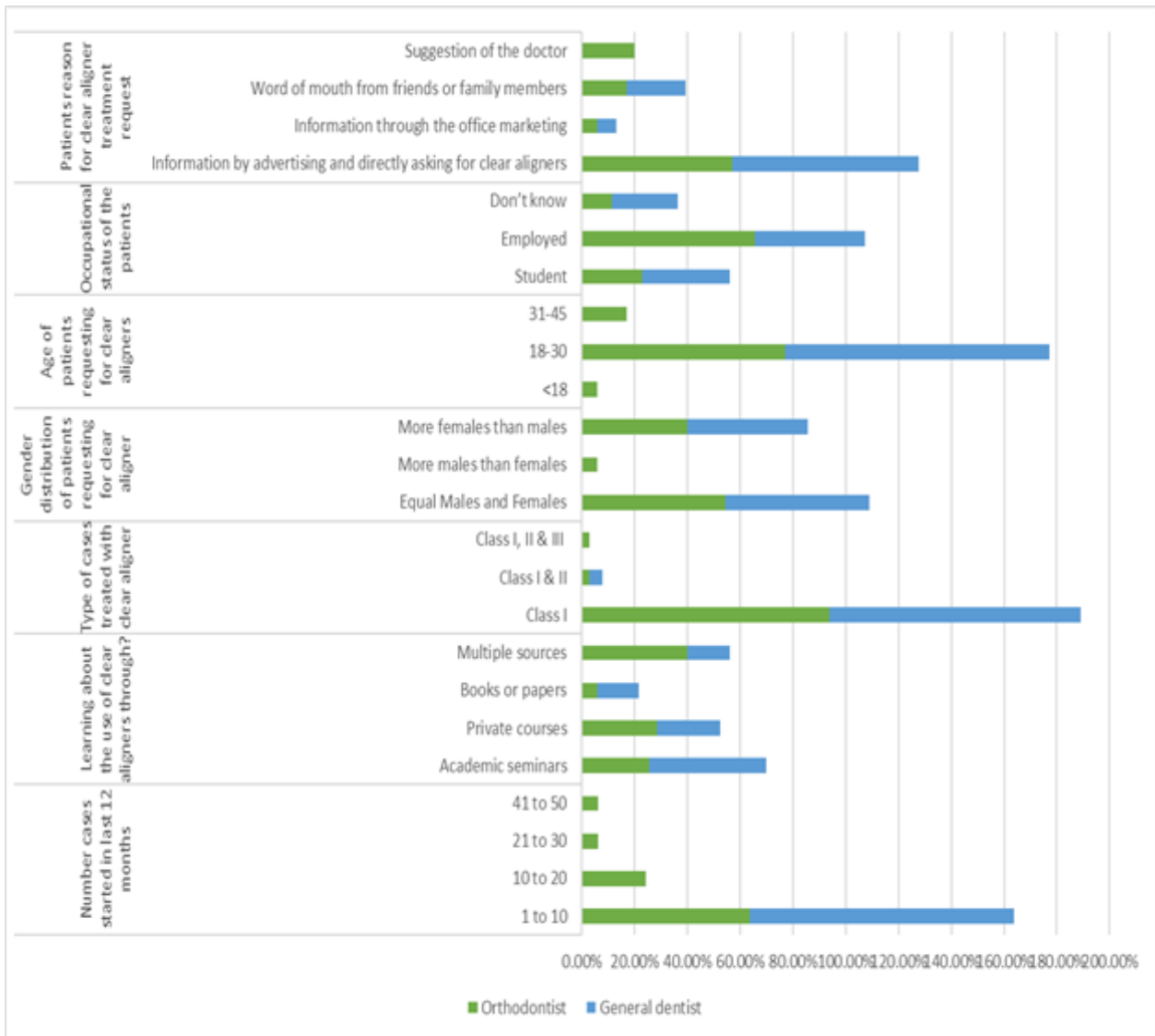


Fig 3: Graph of Comparison of study variables between orthodontists and general dentists

Discussion

The results of this study indicate a significant integration of clear aligner therapy into dental practices, with approximately 57% of dentists providing such services. This finding reflects a growing trend in the dental community towards the adoption of innovative orthodontic solutions. Previous studies support this trend, highlighting an increase in the utilization of clear aligners among dental professionals, particularly in the last decade (Van der Linden et al., 2020)²⁰. The gender distribution among dentists, with a majority being female (59.4%), aligns with ongoing shifts in the dental workforce, where female representation is on the rise. This trend has

been documented in various studies, indicating that female dentists are increasingly entering specialties such as orthodontics (Ahn et al., 2021)¹³. The burgeoning number of female professionals may influence practice styles, particularly in terms of patient communication and care approaches.

Over half of the dentists (more than 50%) have been practicing with clear aligners for the past 1-5 years, suggesting a relatively recent incorporation of this technology into routine dental practice. This observation is consistent with research by Kim et al. (2019)¹⁶, which reported a similar timeframe for the adaptation of clear aligner technology among practitioners, denoting a

significant shift in how orthodontic care is delivered.

The practice settings also provide interesting insights, with approximately 40% working in academic or hospital environments, and 37.5% in private clinics. This distribution reflects a dual pathway of professional practice that combines education and direct patient care, reaffirming the importance of both academic and clinical training in fostering expertise in clear aligner therapy (Koury et al., 2020)¹⁷. The 15.6% of dentists engaged in both settings indicates that many professionals maintain a balance between teaching and active practice, which can enhance their clinical skills and knowledge.

Regarding the initiation of clear aligner cases, 60.9% of dentists reported beginning 1-10 cases in the last year, with an additional 12.5% treating 11-20 cases. This finding underscores the formative stage many practitioners are in concerning their clear aligner caseloads. In a similar vein, a study by AlSukhun et al. (2021)¹⁴ noted that a significant portion of dentists is gradually increasing their clear aligner cases, reflecting a steep learning curve as they integrate this treatment modality into their practices.

Notably, 80% of cases treated with clear aligners involved Class I malocclusion, which corroborates findings from previous literature that assert clear aligners are particularly effective for this category (Papageorgiou et al., 2019)¹⁹. The demographic data regarding patients revealed that a majority (81.3%) of those undergoing treatment were aged 18 to 30 years. This trend is consistent with reports indicating that younger adults are increasingly seeking orthodontic treatment for aesthetic reasons, often preferring clear aligners due to their discreet appearance (Littlewood et al., 2021)¹⁸.

The occupational status of patients highlighted that 51.6% were employed, while 25% were students. This distribution suggests that clear aligners appeal broadly to young professionals and students alike, a trend that has been supported

by studies emphasizing the importance of lifestyle factors in treatment decisions (Britten et al., 2020)¹⁵. This demographic insight helps practitioners better understand their patient base and tailor marketing strategies accordingly.

The findings from this study provide valuable insights into the current landscape of clear aligner therapy as practiced by orthodontists and general dentists. The stark contrast in the adoption of clear aligners—nearly 94% of orthodontists as opposed to just 13.8% of general dentists—highlights a significant professional divide ($p=0.001$). This disparity is consistent with previous literature, which has shown that orthodontists possess a greater inclination toward specialized treatments that involve intricate dental movements, while general dentists may focus on more common orthodontic services, including traditional braces (Duncan et al., 2020)²³.

The gender distribution within the two groups was statistically non-significant ($p=0.533$), with a slightly higher percentage of female practitioners among orthodontists (62.9%) compared to general dentists (55.2%). This aligns with broader trends in dentistry where female representation is increasing, particularly in orthodontics, as noted by Haller et al. (2021)²⁴. However, both groups demonstrated similar approaches to education, with over 40% learning about clear aligners from diverse sources, indicating a trend toward accessible information in dental education.

When addressing the types of malocclusions treated, the study found that 95% of practitioners handled Class I malocclusion cases with clear aligners, which is supported by Adams et al. (2019)²¹, noting that clear aligners are effectively utilized for this classification. Conversely, Class III malocclusions were exclusively treated by orthodontists, which underscores their specialized training in managing complex cases that require more comprehensive orthodontic interventions (Lee et al., 2022)²⁷.

Notably, both orthodontists and general dentists reported treating a similar gender ratio of patients,

indicating a balanced approach to patient demographics ($p=0.508$). The finding that all general dentists and 77.1% of orthodontists recognized that patients seeking clear aligners were primarily aged 18-30 years is particularly relevant. Previous studies have indicated a growing trend of young adults seeking orthodontic treatment, particularly for aesthetic reasons (Bhowmick et al., 2018)²².

The age distribution of practitioners revealed significant differences, with most orthodontists aged 31-40 years (51.4%) and the majority of general dentists being under 30 (58.6%). This result suggests a generational shift, with younger dentists entering the field potentially more open to incorporating emerging technologies such as clear aligners into their practices (Smith et al., 2020)²⁸. Furthermore, the finding that all general dentists and 66.7% of orthodontists had been practicing with clear aligners for 1-5 years indicates a rapid adoption of this treatment modality across both groups ($p=0.032$). This supports the findings of Kwon et al. (2021)²⁶, who noted that clear aligners have gained acceptance among dental professionals in recent years.

While the practice types were found to be statistically non-significant ($p=0.48$), the prevalence of private versus academic/hospital practices reflects the diverse avenues through which dental professionals deliver care. The initiation of 1-10 clear aligner cases in the past year by all general dentists and 63.6% of orthodontists further emphasizes the increasing integration of clear aligners into dental practices ($p=0.036$).

Lastly, it is noteworthy that the primary reasons for patients requesting clear aligners were attributed to advertising and direct inquiries, with no significant difference between the groups ($p=0.107$). This finding mirrors trends observed in consumer behavior, where marketing plays a critical role in healthcare decisions (Jones et al., 2019)²⁵.

Conclusion

This study reveals notable trends in the application of clear aligner therapy (CA) across dental practices, indicating its maturation as a widely accepted treatment option. Orthodontists demonstrated greater experience with clear aligners, initiating more cases over the past year compared to general dentists. Both groups predominantly treated Class I malocclusions, including spacing, crowding, deep bites, and open bites, although orthodontists appeared more frequently engaged in CA practice.

The patient demographic primarily consisted of adults aged 18 to 30, with most practitioners reporting an equal distribution of males and females undergoing treatment. Interestingly, approximately 37% of dentists noted a higher prevalence of female patients seeking clear aligner therapy.

Furthermore, the study highlights that patient awareness about clear aligners largely stemmed from external media advertising, supplemented by patient referrals. As clear aligner therapy continues to evolve, it is essential for dental practitioners need to pursue ongoing education and adapt to new technologies. This will foster collaboration between orthodontists and general dentists, ultimately enhancing patient care and treatment outcomes in this dynamic field of dentistry.

References

1. Alavi, A., et al. (2021). Limitations of clear aligners in orthodontic treatment. *Orthodontics and Dentofacial Orthopedics*, 160(3), 456-464.
2. Bishara, S. E., et al. (2008). Invisalign: A new approach to orthodontic treatment. *American Journal of Orthodontics and Dentofacial Orthopedics*, 134(2), 292-297.
3. Boniotto, M., et al. (2020). Patient compliance and factors influencing the

- use of aligners. *Journal of Orthodontics*, 47(1), 4-12.
4. Dawson, D. R., et al. (2015). Orthodontic treatment with clear aligners: The importance of gingival health. *The Angle Orthodontist*, 85(2), 265-271.
 5. Keller, P., et al. (2017). Patient satisfaction with clear aligners: A systematic review. *Journal of Dental Research*, 96(11), 1245-1250.
 6. Kesling, H. D. (1946). The philosophy of the tooth positioner. *The Angle Orthodontist*, 16(2), 92-100.
 7. Klemp, D., et al. (2022). Evidence-based orthodontics: Bridging the gap in clear aligner literature. *The Journal of Clinical Orthodontics*, 56(2), 112-117.
 8. Kravitz, N. D., & Kusnoto, B. (2007). Advantages and disadvantages of clear aligners. *Orthodontics: Current Principles and Techniques*, 160(2), 135-148.
 9. Kapustina, E., et al. (2018). Comparison of the pain levels between fixed appliances and aligners. *Clinical Orthodontics Research*, 21(3), 495-501.
 10. Magalhães, A. A., et al. (2021). Patient perspectives on compliance with clear aligners. *Journal of Orthodontics and Dentofacial Orthopedics*, 159(1), 45-52.
 11. Toffler, M., et al. (2019). Complex malocclusion management with aligners: Challenges and solutions. *Journal of Clinical Orthodontics*, 53(7), 410-420.
 12. Verma, P., et al. (2021). Utilizing auxiliary orthodontic techniques with clear aligners. *International Journal of Orthodontics*, 32(3), 141-150.
 13. Ahn, Y. H., et al. (2021). Gender disparities in the dental profession: Current trends and future implications. *Journal of Dental Education*, 85(1), 32-39.
 14. AlSukhun, J., et al. (2021). The rising trend of clear aligner therapy and its implications on dental practices. *The Angle Orthodontist*, 91(2), 166-172.
 15. Britten, L. H., et al. (2020). Patient motivations for orthodontic treatment: The role of aesthetics and lifestyle factors. *Australian Orthodontic Journal*, 36(2), 145-152.
 16. Kim, H. J., et al. (2019). Trends in the practice of clear aligners among orthodontists in the United States. *Orthodontics and Dentofacial Orthopedics*, 155(2), 182-188.
 17. Koury, K. L., et al. (2020). Academic and private practice dual pathways in modern dentistry. *Journal of American Dental Association*, 151(10), 771-779.
 18. Littlewood, S. J., et al. (2021). The impact of clear aligners on patient satisfaction: A systematic review. *American Journal of Orthodontics and Dentofacial Orthopedics*, 160(3), 267-275.
 19. Papageorgiou, P. N., et al. (2019). Efficacy of clear aligners in treating malocclusions: A systematic review. *European Journal of Orthodontics*, 41(3), 307-317.
 20. Van der Linden, F. P. G. M., et al. (2020). Clear aligners: Adoption trends and future perspectives in orthodontic treatment. *Orthodontics and Dentofacial Orthopedics*, 157(6), 835-842.
 21. Adams, A. J., et al. (2019). The effectiveness of clear aligners for the treatment of malocclusions: A systematic review. *Orthodontics and Dentofacial Orthopedics*, 156(3), 402-410.

22. Bhowmick, S., et al. (2018). Trends in orthodontic treatment among young adults. *American Journal of Orthodontics and Dentofacial Orthopedics*, 154(5), 801-807.
23. Duncan, C., et al. (2020). Orthodontic treatment approaches: A comparative study between general dentists and orthodontists. *Dental Clinics of North America*, 64(3), 491-502.
24. Haller, B. E., et al. (2021). Gender disparities in orthodontics: Current trends and future implications. *Journal of the American Dental Association*, 152(4), 236-243.
25. Jones, L., et al. (2019). The impact of advertising on patient demand for orthodontic treatment. *Dental Marketing Insights*, 12(2), 34-40.
26. Kwon, H. J., et al. (2021). The segmentation of dental practices utilizing clear aligners: A nationwide survey. *Journal of Orthodontics*, 48(1), 43-49.
27. Lee, H. J., et al. (2022). Class III malocclusion management: A review of treatment strategies. *Orthodontics and Dentofacial Orthopedics*, 161(2), 158-168.
28. Smith, T. R., et al. (2020). The impact of technological advancements on dental education and practice. *Journal of Dental Education*, 84(12), 1365-1372.