



Knowledge of clear aligner therapy in orthodontics among dental practitioners in Benin city, Nigeria

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Abstract

Background: Clear aligners have been used in orthodontics since 1946 when Dr Harold Kesling introduced the use of a series of thermoplastic tooth positioners to obtain tooth alignment.

Aim: The aim of this study is to assess the knowledge of clear aligner therapy among dental practitioners in Benin City, Nigeria.

Methods: This cross-sectional study was carried out among Dental practitioners in Benin City, Nigeria. The study population consisted of Dental practitioners in both private and government hospitals in Benin City, Nigeria. Twenty-nine (59.2%) were dental officers, while 20 (40.8%) were dental resident doctors of the University of Benin Teaching Hospital, giving a total population of 49. The study instrument was a self-administered questionnaire. Data was computed and analyzed using SPSS version 21.0 software. Statistical significance was set at $P < 0.05$.

Results: Forty- nine (49) respondents constituted the study participants. The mean age of the study participants was 34.14 ± 4.3 years. Majority of the respondents know about clear aligners. The resident doctors had a higher population of knowledge of clear aligners (95.0%), but there was no statistically significant difference between the two groups ($P > 0.05$). Majority of the respondents believe that clear aligners cannot correct all types of malocclusion.

Conclusion: This study carried out among dental practitioners in a Nigerian population showed that majority of them know about clear aligners, and most of them got the information from friends.

Key words: Knowledge, Clear aligner therapy, Dental practitioners

Introduction

Clear aligners (CA) have been used in orthodontics since 1946 when Dr Harold Kesling introduced the use of a series of thermoplastic tooth positioners to obtain tooth alignment.¹ CA treatment has evolved mainly over the last 15 years through new technologies and materials to widen the range of tooth movements.^{2,3} The main advantage of CA treatment are better esthetics with higher patient acceptance and a general better quality of life.⁴ CA are used to straighten a patient's teeth without the use of wires and brackets of traditional braces, they also cause less pain compared to a traditional fixed appliance treatment.^{5,6} It is also an improvement of the gingival and periodontal health indexes.

The treatment with CA is usually performed in combination with other orthodontic auxiliaries and procedures such as attachments, interarch elastics, and interproximal reduction.⁷ There are some

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significant limitations in treating complex malocclusions, for example the limited root movement control, the inter-maxillary discrepancy correction, the anterior extrusion, and rotation movement.⁸⁻¹⁰ The reliance on patient compliance has been also reported as an important variable for the CA treatment outcome.^{11,12}

CA aligner therapy is gaining rapid popularity among the potential orthodontic patients as well as general practitioners.^{13,14,15} The main reasons for this popularity seemed to be reduced treatment time, more esthetic approach and more comfort. The growth in the availability of orthodontic aligners to the general practitioners has grown in recent years.¹⁵ The traditional orthodontic practice is based on the referrals from the general dentists. But due to various companies supplying the aligners directly to non-specialists, an increased number of these practitioners have started providing orthodontic treatment. The dentist sets an appointment for the patient to get his impressions of upper and lower arches and the intraoral and extraoral photographs. These records are then submitted to the company which plans the treatment and sends the aligner sets accordingly. Although this enables any general dentist to perform orthodontic treatment, the safety and efficacy of such treatment modality is questionable. Also the risk of potential side effects due to treatment without supervision of orthodontist increases.¹⁵

There is currently no published work on the knowledge of clear aligner therapy among dental practitioners in Nigeria. Therefore, the purpose of this study is to assess the knowledge of clear aligner therapy among dental practitioners in Benin City, Nigeria.

Materials and Methods

This cross-sectional study was carried out between October 2023 and February 2024. The study was carried out among dental practitioners in Benin City, Nigeria. Forty-nine (49) dental practitioners constituted the study population. Twenty-nine (59.2%) were dental officers, while 20 (40.8%) were dental resident doctors in the University of Benin Teaching Hospital. Thirty (61.2%) were males, while 19 (38.8%) were females. The study instrument was an 11 item self-administered questionnaire. The questionnaire consists of demographic information, and knowledge of orthodontics and clear aligner therapy. This research was approved by the Research Ethics Committee of the University of Benin Teaching Hospital. The questionnaire was pre-tested in a pilot study carried out among ten (10) dental interns at the University of Benin Teaching Hospital 4 weeks before

commencement of the study. Inclusion criteria was dental practitioners in both private and government Hospitals in Benin City, Nigeria, and dental resident doctors in the University of Benin Teaching Hospital. Consent and willingness to participate in the study. Consultants, trainers, non-dental practitioners and those without consent were excluded from the study. Data was computed and analyzed using SPSS version 21.0 software. Data generated were subjected to statistical analysis to determine the variables (frequencies, percentages, and means). Differences between variables were evaluated with Chi-square test. P values at <0.05 were set as significant.

Results

There were 30(61.2%) males and 19 (38.8%) females. The mean age of the study participants was 34.14±4.3 years.

Table 1 showed the distribution of the respondents by their type of practice. Dental officers were 29 (59.2%) and Resident doctors were 20 (40.8%).

Table 1: Distribution of respondents by type of practice

Type of Practice	Frequency	Percent
Dental officers	29	59.2
Dental resident doctors	20	40.8
Total	49	100.0

Table 2: Awareness of clear aligners among study participants

Have you heard about clear aligners?	Frequency	Percent
Yes	44	89.8
No	5	10.2
Total	49	(100.0)

Table 3: Knowledge of the purpose of clear aligners among study participants

Do you know the purpose of clear aligners?	Frequency	Percent
Yes	43	87.8
No	6	12.2
Total	49	100.0

Table 4: Relationship between type of Practice and knowledge of clear aligners

Have you heard of clear aligners?	Yes (%)	No (%)	Total
Dental officers	25 (86.2)	4 (13.8)	29
Dental resident doctors	19 (95.0)	1 (5.0)	20
Total	44 (89.8)	5 (10.2)	49(100.0)

Chi-square=0.636; P>0.05

Table 2 showed the awareness of clear aligner therapy among the study participants. Forty-four (89.8%) of the study participants were aware of clear aligners in orthodontics, while 5 (10.2%) had no awareness of clear aligners.

Table 3 showed the knowledge of the purpose of clear aligners in orthodontics among the study participants. Forty-three (87.8%) of the study participants knew the purpose of clear aligners in orthodontics, while 6 (12.2%) had no knowledge of the purpose of clear aligners.

Table 4 showed the relationship between type of practice and knowledge of clear aligners. Twenty five (86.2%) of the dental officers had knowledge about clear aligners, while 16 (95.0%) of the dental resident doctors had knowledge about clear aligners. More dental resident doctors had knowledge of clear aligners when compared to the dental officers, this was not statistically significant ($P > 0.05$).

When the study participants were asked about their source of knowledge of clear aligners, 5 (10.2%) reported they heard from television, 1 (2.0%) from internet, 3 (6.1%) from family, 39 (79.6%) from friends, and 1 (2.0%) from fellow dentists. When asked if they knew the difference between clear aligners and braces, 41 (83.7%) knew the difference between aligners and braces, while 8 (16.3%) did not know the difference between clear aligners and braces. When asked what their choice would be between clear aligners and braces, 32 (65.3%) chose clear aligners, while 17 (34.7%) chose braces.

When asked if clear aligners could easily be removed, 41 (83.7%) were aware, while 8 (16.35%) did not know if clear aligners were removable. When asked if oral hygiene was better with clear aligners when compared to braces, 43 (87.8%) agreed that oral hygiene was better with clear aligners, while 6 (12.2%) did not agree. When asked if they agree that clear aligners could be used for correction of all types of malocclusion, 22 (44.9%) agreed that clear aligners can correct all types of malocclusion, while 27 (55.1%) did not agree that clear aligners can correct all types of malocclusion.

Discussion

This study showed that majority of the study participants had knowledge of clear aligner therapy in orthodontics. This was a similar finding in

previous studies.^{5,15}

Majority of the respondents know the difference between clear aligners and braces. This was a similar finding in a previous study.¹⁵

This study reported that majority of the respondents got their knowledge of clear aligners from their friends when compared to other sources. This was also reported in a previous study.⁵

In this study, majority of the respondents believe that there was better oral hygiene maintenance with clear aligners when compared to braces. This was a similar finding in a previous study.¹⁶

Majority of respondents do not believe that clear aligners can correct all types of malocclusions. This was reported in a previous study.²

This study showed that a greater number of the dental resident doctors know about clear aligner therapy in orthodontics when compared to the dental officers, though the difference was not statistically significant. This may be due to a higher level of exposure to current orthodontic techniques in a teaching hospital environment.

Conclusion

This study which was carried out among dental practitioners in a Nigerian population showed that majority of them know about clear aligner therapy in orthodontics and most of them acquired their knowledge from friends, however majority of them do not believe that clear aligners can correct all types of malocclusion.

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APPENDIX

QUESTIONNAIRE

1. Job description
A. Dental officer; B. Resident doctor
2. Gender
A. Male; B. Female
3. Age (years)
4. Have you heard about aligners before?
A. Yes; B. No
5. If yes to no 11, where did you hear it from?
A. Television; B. Internet; C. Family; D. Friend;
E. Dentist; F. Others
6. Do you know the purpose of aligners?
A. Yes; B. No
7. Do you know the difference between aligners and braces?
A. Yes; B. No
8. Which one would you choose?
A. Braces; B. Aligners
9. Do you know aligners are voluntarily removable or not?
A. Yes; B. No
10. Do you think oral hygiene can be better maintained using aligners than braces?
A. Yes; B. No
11. Do you think aligners can be used for all kind of teeth correction?
A. Yes; B. No