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Perception of Moroccan Orthodontists Regarding Orthodontic Treatment with Aligners versus Fixed Appliances

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Abstract

Objective: To describe Moroccan orthodontists' self-reported perceptions of clear aligners and fixed appliances, with particular attention to perceived treatment advantages, predictability of tooth movements, treatment indications, and patient-related outcomes. Methods: This descriptive cross-sectional questionnaire survey was conducted in Morocco from 25 October to 20 November 2023 among orthodontic practitioners using clear aligners. The original study analyzed 108 questionnaires. The instrument included multiple-choice questions and three-point satisfaction ratings. The source document did not establish a verifiable invitation denominator or response rate. Results: Of the 108 respondents, 65 (60.2%) practiced in Casablanca. Clinicians most frequently endorsed aesthetics (92.6%) and easier oral hygiene (80.6%) as advantages of aligners, and suitability for complex cases (86.1%) as an advantage of fixed appliances. The proportions reporting satisfaction with aligners were 88.9% for Class I crowding and 20.4% for extraction cases. Perceived advantages for periodontal health (70.4%), root-resorption risk (54.6%), and patient satisfaction with final outcomes (94.4%) were practitioner-reported judgments, not independently measured clinical or patient outcomes. Conclusion: Respondents perceived aligners as advantageous for aesthetics, hygiene, and comfort and fixed appliances as advantageous for complex cases and movement control. Findings reflect orthodontists' opinions and cannot establish comparative clinical efficacy or patient outcomes.

Subject Areas

Dentistry

Keywords

Clear Aligners, Fixed Appliances, Orthodontists, Perceptions, Cross-Sectional Survey, Morocco

1. Introduction

Clear aligner therapy developed from early removable positioners described by Kesling, including his 1945 appliance philosophy and subsequent report on coordinated positioning with conventional treatment [1] [2]. Ponitz introduced an invisible retainer [3], while Sheridan and colleagues described Essix appliance fabrication and retention [4]. Joffe documented early experiences with Invisalign [5]. These sources provide historical context rather than comparative evidence of clinical superiority.

Digital imaging and three-dimensional workflows have contributed to orthodontic treatment planning [6]. Rizzo discussed the role of digital impressions and three-dimensional printing in orthodontics [7]. In parallel, a survey of orthodontists and general dentists documented differences in perceptions of clear aligner therapy [8]. Practical and academic accounts have described its development, possibilities, and limitations [9]-[11]; the bibliographic details of two older items require confirmation against the original sources. A systematic review has also considered aligners and conventional appliances from a comparative clinical perspective [12].

In Morocco, appliance selection may be influenced by case complexity, patient preferences, aesthetic concerns, cost, and the clinician's own experience. The purpose of this descriptive cross-sectional study was to characterize orthodontists' self-reported perceptions of clear aligners versus fixed appliances, including their perceived advantages and limitations, predictability of tooth movement, clinical indications, and impressions of patient-related outcomes. Because this is a practitioner survey, its findings cannot independently establish efficacy, periodontal effects, root resorption, or actual patient satisfaction.

2. Materials and Methods

2.1. Study Design and Participants

This descriptive cross-sectional questionnaire survey was conducted in Morocco between 25 October and 20 November 2023 among orthodontic practitioners in public and private practice. 108 participants were drawn by lot from the professional register of dental practitioners. Eligibility required Moroccan practitioners providing orthodontic care in Morocco, with university, national specialty, or private orthodontic training, who used aligners in their practice. Foreign practitioners, people not practicing orthodontics, and clinicians not using aligners were excluded. Participation was voluntary, and practitioners who declined to participate were not included in the study. A total of 108 anonymous questionnaires were distributed and analyzed.

2.2. Questionnaire and Variables

The questionnaire was administered in French, and an English version is provided in **Appendix**. It asked about practitioner characteristics; use and preferences relating to aligners and fixed appliances; perceived treatment advantages, clinical indications, periodontal outcomes, root resorption, and treatment satisfaction; and impressions of patient comfort, complaints, and cooperation. System and advantage items allowed selection of categorical responses, while other items used yes/no or three comparative options (yes, no, or no meaningful difference). Seven types of tooth movement were evaluated separately for each appliance type; satisfaction by aligner-treatment indication was also elicited. These items were rated as satisfied, moderately satisfied, or not satisfied (a three-point ordinal scale).

We report the frequency of the "satisfied" response category separately from "moderately satisfied" and "not satisfied". No composite satisfaction or predictability score, weighting scheme, or psychometric cut-off was described in the source. Cooperation was assessed by asking clinicians whether, in their experience, aligner patients followed wear instructions more faithfully than patients treated with fixed appliances: 72/108 (66.7%) answered yes, 24/108 (22.2%) no, and 12/108 (11.1%) reported no meaningful difference, according to the source results table. This was a comparison of practitioner impressions, not an objective measure of compliance for either patient group. The source did not document pretesting, piloting, formal validation, or psychometric reliability for the questionnaire.

2.3. Ethical Considerations

The survey collected anonymous, self-reported responses from orthodontic practitioners rather than clinical data from patients. The questionnaire informed respondents that their answers would be anonymous and confidential, and participation was voluntary. Responses were reported only in aggregate for scientific purposes.

2.4. Statistical Analysis

Descriptive statistics were expressed as frequencies and percentages. Comparisons between orthodontists with less than 10 years (n = 38) and at least 10 years (n = 70) of experience were performed using Pearson's chi-square or Fisher's exact test, as appropriate. The Holm correction was applied to account for multiple comparisons. Variables with inconsistent response counts were excluded from inferential analysis. Paired comparisons between aligners and fixed appliances could not be performed because individual paired responses were unavailable. Statistical significance was set at $p < 0.05$ after adjustment.

3. Results

3.1. Respondent Characteristics and Practice Preferences

The characteristics of the participants are presented in **Table 1**. Among 108 par-

ticipants, 58 (53.7%) were men and 50 (46.3%) women; 65 (60.2%) practiced in Casablanca. Sixteen (14.8%) had <5 years of practice, 22 (20.4%) 5 - 10 years, 29 (26.9%) 10 - 20 years, and 41 (38.0%) > 20 years. Specific aligner training was reported by 101 (93.5%). The 30 - 45-year age group was most often identified as selecting aligners (67/108, 62.0%), while patients under 18 years were most often identified as selecting fixed appliances (73/108, 67.6%). These are practitioner judgments about patient preferences, not patient-level survey responses.

Ninety-three (86.1%) participants indicated that fixed appliances predominated in their practice. The remaining 15 answers were split between "primarily aligners" (13) and "approximately equal" (2) That discrepancy remains unresolved. Factors endorsed as influencing appliance choice included patient preference (86/108, 79.6%), case severity (74/108, 68.5%), aesthetics (70/108, 64.8%), and cost (66/108, 61.1%).

Table 1. Respondent characteristics and reported practice preferences.

Variable	n (%) of 108
Sex: male	58 (53.7%)
Sex: female	50 (46.3%)
Experience: <5 years	16 (14.8%)
Experience: 5 - <10 years [boundary to confirm]	22 (20.4%)
Experience: 10 - 20 years [boundary to confirm]	29 (26.9%)
Experience: >20 years	41 (38.0%)
Specific aligner training: yes	101 (93.5%)
Invisalign used	66 (61.1%)
Homemade aligners used	49 (45.4%)
3D Aligners used	26 (24.1%)
Smilers used	6 (5.6%)
Patient use perceived: fixed appliances	93 (86.1%)
Patient use perceived: aligners	13 (12.0%)
Patient use perceived: equivalent	2 (1.9%)
Decision factor: patient preference	86 (79.6%)
Decision factor: case severity	74 (68.5%)
Decision factor: aesthetics	70 (64.8%)
Decision factor: cost	66 (61.1%)

3.2. Perceived Advantages and Patient-Related Outcomes

The most often endorsed aligner advantages were aesthetics (100, 92.6%), easier oral hygiene (87, 80.6%), fewer follow-up visits (78, 72.2%), and perceived comfort (75, 69.4%). Advantages attributed to fixed appliances included use in complex cases (93, 86.1%), lower cost (90, 83.3%), and precise movement control (72, 66.7%). In clinician comparisons, 76 (70.4%) rated aligners more favorable for

periodontal health, 59 (54.6%) expected lower root-resorption risk, 101 (93.5%) perceived them as more comfortable, and 72 (66.7%) judged instructions followed more faithfully. A further 102 (94.4%) believed that their patients were satisfied with aligner-treatment outcomes. The corresponding findings are summarized in Table 2. These results reflect orthodontists' self-reported perceptions rather than objectively measured clinical outcomes or direct patient-reported outcomes.

Table 2. Selected orthodontists' perceptions based on the original count tables.

Clinician-endorsed perception	n (%) of 108
Aesthetic advantage (aligners)	100 (92.6%)
Easier hygiene (aligners)	87 (80.6%)
Fewer visits (aligners)	78 (72.2%)
Better comfort (aligners)	75 (69.4%)
Complex cases (fixed)	93 (86.1%)
Lower cost (fixed)	90 (83.3%)
Movement control (fixed)	72 (66.7%)
Aligners: limitations in complex cases	88 (81.5%)
Aligners: high cost	88 (81.5%)
Aligners: poor cooperation	48 (44.4%)
Fixed: reduced aesthetics	95 (88.0%)
Fixed: hygiene difficulties	95 (88.0%)
Fixed: initial discomfort	72 (66.7%)
More favorable periodontal health: aligners	76 (70.4%)
Less root resorption: aligners	59 (54.6%)
Better comfort: aligners	101 (93.5%)
Less pain: aligners	74 (68.5%)
Aesthetic motivation endorsed for aligners	108 (100.0%)

Table 3. Perceived movement predictability: satisfaction endorsement by experience and modality.

Movement	Aligners A/B	Aligners total	Fixed A/B	Fixed total	p: full 3-level A vs B, aligners/fixed
Rotation	6 (15.8%)/18 (25.7%)	24 (22.2%)	33 (86.8%)/61 (87.1%)	94 (87.0%)	0.358/0.899
Extrusion	7 (18.4%)/26 (37.1%)	33 (30.6%)	36 (94.7%)/65 (92.9%)	101 (93.5%)	0.122/1.000
Intrusion	11 (28.9%)/28 (40.0%)	39 (36.1%)	30 (78.9%)/49 (70.0%)	79 (73.1%)	0.375/0.671
Tipping	14 (36.8%)/36 (51.4%)	50 (46.3%)	33 (86.8%)/61 (87.1%)	94 (87.0%)	0.070/1.000
Torque	14 (36.8%)/24 (34.3%)	38 (35.2%)	29 (76.3%)/50 (71.4%)	79 (73.1%)	0.554/0.686
Mesiodistal movement	14 (36.8%)/31 (44.3%)	45 (41.7%)	29 (76.3%)/59 (84.3%)	88 (81.5%)	0.724/0.309
Arch expansion	22 (57.9%)/37 (52.9%)	59 (54.6%)	34 (89.5%)/60 (85.7%)	94 (87.0%)	0.504/0.851

3.3. Perceived Predictability of Tooth Movement

The "satisfied" category was selected by 59/108 (54.6%) for perceived predictabil-

ity of arch expansion with aligners, compared with 24/108 (22.2%) for rotation (Table 3). The remaining response categories were not combined with satisfaction. The same clinicians' ratings of fixed appliances showed higher proportions of satisfaction across all seven movements (Table 3). As individual paired responses were unavailable, statistical comparisons between the two appliance modalities could not be performed.

3.4. Perceived Satisfaction by Clinical Indication

As shown in Table 4, satisfaction with aligner treatment varied according to the type of malocclusion and clinical indication. For Class I crowding, 96 of 108 (88.9%) respondents reported being satisfied, compared with 40 of 108 (37.0%) for Class II. Regarding treatment types, satisfaction was reported by 64 respondents (59.3%) for orthoprosthetic cases, 39 (36.1%) for orthopedic cases, 27 (25.0%) for orthosurgical cases, and 22 (20.4%) for extraction cases. These findings reflect orthodontists' perceived satisfaction rather than objectively assessed clinical outcomes.

Table 4. Clinician-endorsed satisfaction for malocclusions and treatment indications with aligners.

Indication	A (<10 years)	B (10+ years)	Overall (108)	p: full 3-level (A vs B)
Class I with crowding	35/38 (92.1%)	61/70 (87.1%)	96 (88.9%)	0.770
Class II	11/38 (28.9%)	29/70 (41.4%)	40 (37.0%)	Not estimable*
Class III	6/38 (15.8%)	23/70 (32.9%)	29 (26.9%)	0.060
Endoalveolar constriction	16/38 (42.1%)	31/70 (44.3%)	47 (43.5%)	0.283
Crossbite	17/38 (44.7%)	31/70 (44.3%)	48 (44.4%)	0.220
Deep bite	11/38 (28.9%)	30/70 (42.9%)	41 (38.0%)	Not tested†
Open bite	12/38 (31.6%)	26/70 (37.1%)	38 (35.2%)	0.845
Extraction cases	8/38 (21.1%)	14/70 (20.0%)	22 (20.4%)	0.050
Orthopedic cases	14/38 (36.8%)	25/70 (35.7%)	39 (36.1%)	0.945
Orthosurgical cases	12/38 (31.6%)	15/70 (21.4%)	27 (25.0%)	0.172
Orthoprosthetic cases	21/38 (55.3%)	43/70 (61.4%)	64 (59.3%)	0.120

3.5. Use of Aligner Auxiliaries

Table 5 presents the use of orthodontic auxiliaries with aligners, as reported by 36/38 practitioners (94.7%) in group A and 68/70 (97.1%) in group B, representing 104/108 (96.3%) overall. Intermaxillary elastics (99/108, 91.7%), buttons or brackets (97/108, 89.8%), and miniscrews (89/108, 82.4%) were the most frequently used auxiliaries. Furthermore, 91/108 (84.3%) practitioners reported having combined aligners with fixed appliances in the same patient. These findings reflect practitioners' self-reported clinical practices.

Table 5. Reported use of auxiliaries with aligner treatment.

Auxiliary	A (<10 years)	B (10+ years)	Overall (108)	p (A vs B)
Any auxiliary	36/38 (94.7%)	68/70 (97.1%)	104 (96.3%)	0.612
Miniscrews	30/38 (78.9%)	59/70 (84.3%)	89 (82.4%)	0.487
Buttons/brackets	33/38 (86.8%)	64/70 (91.4%)	97 (89.8%)	0.513
Intermaxillary elastics	35/38 (92.1%)	64/70 (91.4%)	99 (91.7%)	1.000
Molar distalizers	8/38 (21.1%)	21/70 (30.0%)	29 (26.9%)	0.316
Aligner dimples	11/38 (28.9%)	27/70 (38.6%)	38 (35.2%)	Not tested‡

4. Discussion

4.1. Interpretation of the Survey and Selection Factors

This questionnaire characterizes how the participating Moroccan orthodontists perceived two treatment modalities; it does not compare verified clinical outcomes in two patient cohorts. Respondents frequently associated aligners with aesthetics, hygiene, and comfort, whereas fixed appliances were more often associated with treating complex malocclusions and controlling tooth movements. An earlier survey of dental practitioners similarly showed that professional perspective influences aligner treatment preferences [8]. In this sample, patient preference (79.6%), severity of malocclusion (68.5%), aesthetics (64.8%), and cost (61.1%) were the most frequently selected considerations. These are factors selected by respondents, not independently tested determinants of treatment choice.

4.2. Perceived Periodontal Health and Root Resorption

The proportion of orthodontists perceiving aligners as more favorable for periodontal health was 70.4% (76/108). Rossini and colleagues have synthesized published periodontal comparisons of aligner therapy and fixed appliances [13]. Likewise, 54.6% (59/108) of the respondents expected less apical root resorption with aligners. Li and colleagues published a cone-beam computed tomography comparison of resorption in the two treatment modalities [14], while Fowler addressed the same question in a graduate research project [15]. These external studies can contextualize practitioner beliefs, but no gingival indices, radiographic resorption measurements, or patient outcomes were collected in the present survey.

4.3. Perceived Predictability of Tooth Movements

Ratings of movement predictability differed by movement type. For aligners, 59/108 (54.6%) selected "satisfied" for arch expansion and 24/108 (22.2%) for rotation; satisfaction was more frequently endorsed for fixed appliances on all seven movements. Published clinical studies have evaluated aligner expansion [16], movement accuracy in a prospective observational design [17], and retrospective predictability of staged movements [18]. A systematic review by Rossini and colleagues highlights that control varies by movement and study design [19], while Kravitz and colleagues examined achieved versus predicted movements in a pro-

spective assessment [20]. These measured studies must not be treated as validation of the present respondents' impressions.

Biomechanical discussions underscore potential limitations of thermoplastic appliances for certain root and bodily movements [21]. The effects of activation time and appliance material have also been investigated experimentally [22], and Boyd and colleagues reviewed considerations in the use of aligners [23]. In our survey, the three-level response categories represent opinions about predictability: "satisfied", "moderately satisfied", and "not satisfied". No actual planned-to-achieved tooth movement measurements were obtained. The two appliance scores were provided by the same respondents; therefore, any direct statistical contrast between appliances would require matched individual-level responses, not just aggregated margins.

4.4. Satisfaction with Malocclusions and Treatment Indications

Most respondents endorsed satisfaction with aligners for Class I crowding (96/108, 88.9%), whereas only 22/108 (20.4%) selected satisfaction for extraction cases. This corrects the incompatible 40.2% previously reported for extractions. Orthoprosthetic cases had 64/108 satisfied responses (59.3%); orthopedic cases, 39/108 (36.1%); and orthosurgical cases, 27/108 (25.0%). An earlier Moroccan orthodontist satisfaction survey considered aligner indications from the viewpoint of clinicians [24]. Wheeler reviewed the clinical scope and limitations of aligner treatment [25]. These comparisons offer background context; the present percentages describe perceived satisfaction and not standardized treatment success.

4.5. Perceived Indications for Complex and Surgical Cases

The participants perceived fixed appliances as more suitable for complex orthodontic cases, and a minority reported being satisfied with aligners in orthosurgical cases. Published case reports describe combinations of aligners and fixed appliances in skeletal Class III patients [26], a surgical approach incorporating Invisalign and attachments [27], and protocols integrating clear aligners with orthognathic surgery [28]. Those reports illustrate treatment approaches but cannot establish relative effectiveness from the findings of the current descriptive survey. The present study neither classified case severity objectively nor evaluated final occlusal outcomes.

4.6. Perceived Patient Cooperation and Use of Auxiliaries

A three-option questionnaire item asked practitioners whether patients treated with aligners adhered to wearing instructions more faithfully than those with fixed appliances. Seventy-two respondents (66.7%) selected yes, 24 (22.2%) no, and 12 (11.1%) no meaningful difference. This is an impression of adherence, not an independently monitored measure of aligner wear time or fixed-appliance cooperation. Auxiliary use was reported by 104/108 (96.3%), including elastics, buttons or brackets, and miniscrews. Finite-element research has assessed the mechanical

effects of precision cuts, attachments, and lingual buttons in molar distalization [29], and a systematic review and network meta-analysis has evaluated aligner auxiliaries [30]. These external findings do not convert auxiliary use in our survey into proof of enhanced clinical efficacy.

4.7. Practitioner Impressions of Patient Satisfaction

Overall, 102/108 orthodontists (94.4%) believed their aligner patients were satisfied with the final treatment result, while 101/108 (93.5%) perceived aligners as more comfortable. Because patients were not surveyed directly, these results should be described as practitioner-reported impressions. By contrast, a separate Moroccan study directly addressed patient perceptions and satisfaction during clear-aligner therapy [31]. Findings from the two studies represent different sources of information and should not be interpreted as interchangeable outcomes.

4.8. Strengths, Limitations, and Implications

This study provides descriptive information on practitioner opinions in Morocco and preserves the original three-level questionnaire ratings. Nevertheless, its limitations include self-report and possible recall or social-desirability bias; possible nonresponse and selection bias; restriction to clinicians using aligners; and concentration of respondents in Casablanca (65/108, 60.2%). The original eligible population size, exact selection protocol, number of invitations, and independently verifiable response rate were not available. Several published marginal count tables were internally inconsistent, and the practitioner-level dataset was unavailable for paired comparisons. The questionnaire had no documented pilot study or formal validation. Furthermore, the survey could not measure treatment efficacy, periodontal health, root resorption, patient-reported satisfaction, or long-term outcomes.

The high proportion reporting specific aligner training (101/108, 93.5%) reflects sample characteristics only; the design did not assess whether training improves treatment success or drives technology adoption. Further studies with auditable recruitment, validated questionnaires, and appropriate matched analyses would clarify professional perceptions; prospective clinical studies would be required to evaluate comparative clinical performance.

5. Conclusion

Among the 108 orthodontists surveyed, clear aligners were often perceived as advantageous for aesthetics, oral hygiene, and comfort, whereas fixed appliances were perceived as more suitable for complex cases and tooth-movement control. Satisfaction with aligners varied across reported movements and clinical indications. These findings represent clinicians' self-reported judgments and should not be interpreted as direct evidence of comparative clinical efficacy, periodontal outcomes, root resorption, or patient satisfaction. Selection and nonresponse biases,

geographic concentration, limitations of the questionnaire, and incomplete records for certain analyses restrict generalizability. Future research should validate these perceptions using robust comparative designs and independently recorded outcomes.

Author Contributions

All authors read and approved the final manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

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Appendix. Questionnaire (English Translation of the Original)

A.1. Information for Participants and Practitioner Profile

Dear orthodontists: We thank you for taking part in this survey about your experience and views on orthodontic treatment using clear aligners versus fixed appliances. Your answers will be anonymous and confidential and will contribute to understanding the benefits and drawbacks of each approach.

1. Sex

Response options: Male; Female

2. Practice location (city)

Response options: Free text

3. How many years of experience do you have as an orthodontic practitioner?

Response options: Less than 5 years; 5 - 10 years; 10 - 20 years; More than 20 years

4. Type of qualification

Response options: National specialist diploma (DNS); University diploma; Private training

5. Have you had specific training in clear-aligner planning and use?

Response options: Yes; No

6. If yes, specify the type of training

Response options: National specialist diploma (DNS); University diploma; Private training

A.2. Part 1—Experience and Preferences

7. Which aligner brand or system do you use most frequently?

Response options: Invisalign; Clear Aligner; Smilers; 3D Aligners; Home-made (customized)

8. Compared with fixed appliances, what proportion of your patients receive clear aligners?

Response options: Mainly aligners; Mainly fixed appliances; Approximately equal

9. Which age group is most likely to choose aligner treatment?

Response options: Under 18 years; 18 - 30 years; 30 - 45 years; Over 45 years

10. Which age group is most likely to choose fixed-appliance treatment?

Response options: Under 18 years; 18 - 30 years; 30 - 45 years; Over 45 years

11. What factors influence your choice between aligners and fixed appliances for a particular patient?

Response options: Case severity; Patient preference; Treatment cost; Treatment duration; Aesthetics; Ease of maintenance

12. What are the main advantages of aligners over fixed appliances?

Response options: Discreet aesthetics; More comfort; Fewer follow-up visits; Easier oral hygiene; Suitability for some complex cases; Other (free text)

13. What are potential disadvantages of aligners?

Response options: Limits in complex cases; Possible poor patient compliance; Higher cost; Need for specific planning skills; Risk of loss or breakage; Other (free text)

14. What are the main advantages of fixed appliances over aligners?

Response options: Effectiveness in complex cases; Precise control of tooth movement; Lower treatment cost; Less need for specific planning skills; No risk of appliance loss; Other (free text)

15. What are the potential disadvantages of fixed appliances?

Response options: Poorer aesthetics; Initial discomfort; Oral hygiene difficulties; Dietary restriction; More follow-up appointments; Possible soft-tissue injury; Other (free text)

16. In your experience, do patients follow aligner wear instructions more faithfully than instructions associated with fixed appliances?

Response options: Yes; No; No significant difference

A.3. Part 2—Perceived Effectiveness and Treatment Outcomes

17. In your clinical experience, are aligners substantially better for periodontal health than fixed appliances?

Response options: Yes; No; No significant difference

18. For the same patient, do you believe aligners may result in less root resorption than fixed appliances?

Response options: Yes; No; No significant difference

19. During aligner treatment, how satisfied are you with the perceived predictability of EACH movement?

Response options: For each movement choose: Satisfied; Moderately satisfied; Not satisfied. Movements: Arch expansion; Extrusion; Intrusion; Mesiodistal translation; Tipping; Torque; Rotation

20. During fixed-appliance treatment, how satisfied are you with the perceived predictability of EACH movement?

Response options: For each movement choose: Satisfied; Moderately satisfied; Not satisfied. Movements: Arch expansion; Extrusion; Intrusion; Mesiodistal translation; Tipping; Torque; Rotation

21. How satisfied are you with outcomes achieved with aligners compared with fixed appliances for EACH of the following?

Response options: For each indication choose: Satisfied; Moderately satisfied; Not satisfied. Indications: Class I with crowding; Class II; Class III; Endoalveolar constriction; Crossbite; Deep bite; Open bite; Extraction cases; Orthopedic cases; Orthosurgical cases; Orthoprosthetic cases

22. Do you believe patients treated with aligners are satisfied with the final treatment result?

Response options: Yes; No

23. Have you ever combined aligner and fixed-appliance treatment in the same patient?

Response options: Yes; No

24. Do you use orthodontic auxiliaries alongside aligners to optimize the desired treatment result?

Response options: Yes; No

25. If yes, which auxiliaries?

Response options: Miniscrews; Orthodontic buttons/brackets; Intermaxillary elastics; Molar distalizers; Dimples formed using pliers on the aligners

A.4. Part 3—Patient Comfort and Convenience

26. How do you compare the comfort of aligners and fixed appliances for patients?

Response options: Aligners more comfortable; Fixed appliances more comfortable; No significant difference

27. In your clinical experience, do you receive fewer complaints about changes in speech during aligner treatment?

Response options: Yes; No; No significant difference

28. In your clinical experience, do you receive fewer complaints about pain during aligner treatment?

Response options: Yes; No; No significant difference

29. In your clinical experience, do patients choose aligners more for aesthetic concerns than for functional reasons?

Response options: Yes; No