

Patient-Reported Experiences With Clear Aligners Vs. Fixed Braces: A Questionnaire Study

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Abstract:

Background: To compare patient-reported experiences of orthodontic treatment with clear aligners versus fixed braces across domains of pain, esthetic perception, functional impact, treatment process, and overall satisfaction.

Material and methods: A cross-sectional questionnaire-based study assessing self-reported orthodontic treatment experiences using standardized ordinal scales. Data were collected from 73 orthodontic patients undergoing active treatment, including 30 clear aligner users and 43 fixed-braces users. Patient-reported experiences were measured across 22 variables using 0–3 Likert-type scales. Logistic regression was used to identify statistically significant associations between patient-reported experiences and treatment modality.

Results: Fixed-braces patients were more likely to report worse pain-related outcomes, including higher ulcer scores (OR = 0.28, 95% CI = 0.08–0.90), greater interference with daily activities (OR = 0.13, 95% CI = 0.02–0.76), more difficult orthodontic visits (OR = 0.09, 95% CI = 0.02–0.57), and poorer satisfaction with the overall treatment procedure (OR = 0.02, 95% CI < 0.001–0.53). In contrast, better perceived appearance was strongly associated with clear aligner use (OR = 24.25, 95% CI = 1.10–535.82), while higher dietary impact was also associated with clear aligner treatment (OR = 8.56, 95% CI = 1.83–40.00). Instruction clarity showed a marginal association that did not reach statistical significance.

Conclusions: Clear aligners and fixed braces are associated with distinct patient-reported experience profiles rather than uniform superiority of one modality. Patients with fixed braces had greater discomfort and treatment-process burden, while clear aligners revealed more favorable esthetic perceptions with increased dietary impact. These findings support individualized, patient-centered orthodontic treatment planning that incorporates patient-reported experiences into clinical decision-making.

Keywords: aligner; fixed orthodontic appliance

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I. Introduction

Orthodontic treatment plays a critical role in improving dental alignment, oral function, and facial esthetics; however, it also imposes physical, functional, and psychosocial burdens on patients throughout the course of care.¹ Beyond objective clinical outcomes, patients' subjective experiences such as pain², comfort³, appearance⁴, and impact on daily activities⁵ have increasingly been recognized as essential components of treatment evaluation and quality of care in orthodontics. In recent decades, clear aligner therapy has emerged as a popular alternative to conventional fixed orthodontic appliances. Clear aligners are frequently marketed as more comfortable, aesthetically pleasing, and less disruptive to daily life compared with fixed braces.⁶ These claims have contributed to a growing demand for aligner-based treatment, particularly among adult and young adult patients who may place a higher value on appearance, convenience, and social confidence during orthodontic care.⁷ Despite their widespread use, evidence supporting the perceived superiority of clear aligners over fixed braces remains mixed, particularly when assessed from the patient's perspective.⁸ Patient-reported outcome measures offer a valuable framework for capturing the multidimensional impact of orthodontic treatment, including pain and discomfort, functional limitations, esthetic perceptions, treatment process experiences, and overall satisfaction.⁹ Prior studies suggest that pain intensity, ulcer formation, speech difficulty, dietary restrictions, and challenges with oral hygiene can vary by appliance type, yet findings have been inconsistent across study designs and populations. Moreover, many existing comparisons rely on small samples, limited outcome domains, or clinician-reported assessments rather than direct patient feedback.¹⁰ Given the increasing emphasis on patient-centered care and shared decision-making in orthodontics, there is a need for systematic evaluation of how different orthodontic appliances influence patients' lived experiences across multiple domains. Understanding these differences can help clinicians provide more realistic counseling, tailor treatment recommendations to patient priorities, and proactively address appliance-specific challenges during treatment.⁷ The present study aims to compare self-perceived experiences of patients undergoing orthodontic treatment with

clear aligners versus fixed braces using a cross-sectional questionnaire design. By examining patient-reported outcomes related to pain, esthetics, functional impact, treatment process, and overall satisfaction, this study seeks to clarify how appliance type shapes perceived treatment burden and benefits, thereby contributing to more informed and individualized orthodontic care.

II. Material And Methods

Study Design: This cross-sectional questionnaire-based observational study was conducted among patients undergoing active orthodontic treatment with either clear aligners or fixed braces.

Study Location: The study was carried out in an orthodontic clinical setting where patients receiving routine orthodontic care were recruited.

Study Duration: Data collection was performed during the active treatment phase among enrolled participants.

Sample Size: A total of 73 patients undergoing orthodontic treatment participated in the study, including 30 clear aligner users and 43 fixed braces users.

Subjects and Selection Method: Participants were recruited using convenience sampling from patients attending orthodontic appointments during the study period. Eligible participants included individuals currently receiving active orthodontic treatment with either clear aligners or fixed braces who were able to self-report their treatment experiences. Patients who had completed orthodontic treatment, were using mixed appliance modalities, or were unable to complete the questionnaire were excluded.

Inclusion Criteria

1. Patients undergoing active orthodontic treatment with clear aligners or fixed braces
2. Both male and female participants
3. Ability to complete a self-administered questionnaire
4. Willingness to provide informed consent

Exclusion Criteria

1. Patients who had completed orthodontic treatment
2. Patients using combined or mixed orthodontic appliances
3. Individuals unable to self-report experiences
4. Incomplete questionnaire responses

Procedure Methodology

After obtaining informed consent, participants completed a structured self-administered questionnaire designed to assess patient-reported experiences related to orthodontic treatment. The questionnaire included 22 items grouped into five domains: pain and discomfort, esthetic perceptions, functional impact, treatment process, and satisfaction with outcomes and cost.

Responses were recorded using a 4-point ordinal Likert scale ranging from 0 to 3, where higher scores generally represented greater discomfort, functional limitation, dissatisfaction, or perceived burden.

Pain-related measures included discomfort, pain relief strategies, pain medication use, ulcer occurrence, and discomfort level. Esthetic measures evaluated attractiveness, confidence in smiling for photographs, appliance noticeability, and satisfaction with appearance. Functional impact measures assessed ease of speaking, interference with daily activities, eating difficulty, oral hygiene satisfaction, cleaning effort, and dietary restriction. Treatment process measures included comfort during orthodontic visits, experience during treatment procedures, clarity of instructions, and comfort with retention. Outcome measures included satisfaction with treatment results and perceived cost burden.

Treatment modality (clear aligners or fixed braces) served as the primary exposure variable.

Statistical Analysis: Data were analyzed using SAS statistical software. Descriptive statistics were calculated to summarize patient-reported experience responses stratified by treatment modality. Frequencies and percentages were presented for each Likert response category.

Ordinal logistic regression models functions were used to evaluate associations between treatment modality and each patient-reported experience outcome. Treatment type was included as the independent variable, with clear aligners specified as the reference group. Odds ratios (ORs) and 95% confidence intervals (CIs) were estimated to quantify the likelihood of higher response levels among fixed braces users compared with clear aligner users. A two-sided p-value < 0.05 was considered statistically significant.

III. Results

The analytic sample included 73 orthodontic patients, of whom 30 were treated with clear aligners and 43 were treated with fixed braces. All participants completed the questionnaire assessing patient-reported experiences across pain, esthetic perceptions, functional impact, treatment process, and overall satisfaction. Descriptive summaries of patient-reported experience variables by treatment modality are presented in Table 1, which also reports statistically significant results from the logistic regression analysis.

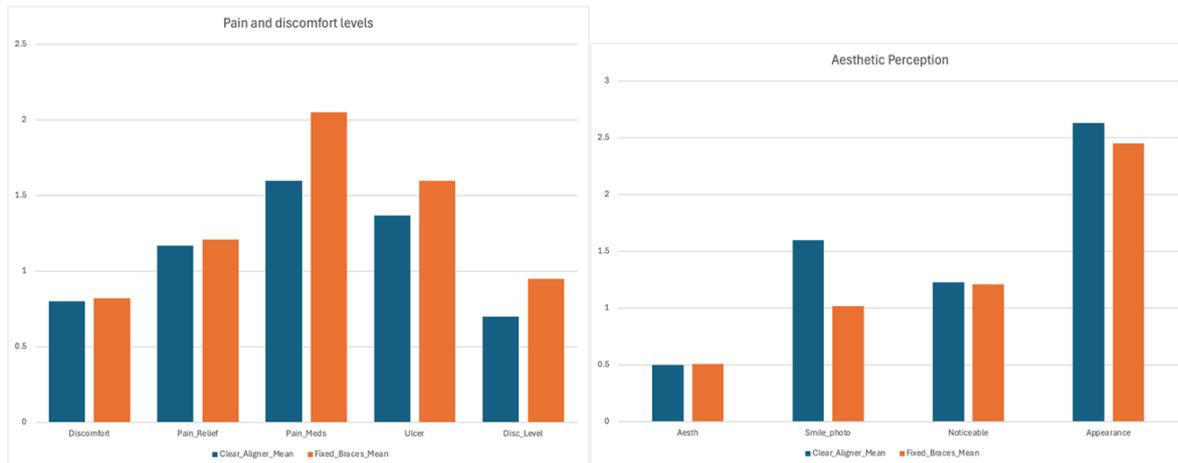
Descriptive comparisons indicated that patients treated with fixed braces reported worse pain-related experiences than clear aligner users, including higher ulcer scores and greater overall discomfort. Logistic regression results (Table 1) showed that higher ulcer scores were significantly associated with lower odds of clear aligner use (OR = 0.28, 95% CI = 0.08–0.90, p = 0.033), indicating that ulceration was more commonly reported among fixed-braces patients.

Overall esthetic ratings were broadly similar between treatment groups in descriptive analyses, though clear aligner users reported more favorable perceptions of appearance. Regression results presented in Table 1 demonstrated that better perceived appearance was significantly associated with higher odds of clear aligner use (OR = 24.25, 95% CI = 1.10–535.82, p = 0.043), suggesting a strong association between positive esthetic perception and aligner treatment, despite the wide confidence interval. Functional impact measures indicated that fixed-braces patients experienced greater interference with daily activities, whereas clear aligner users reported greater dietary impact. In logistic regression analyses (Table 1), greater interference with daily activities was associated with significantly lower odds of clear aligner use (OR = 0.13, 95% CI = 0.02–0.76, p = 0.024). In contrast, higher dietary impact scores were associated with increased odds of clear aligner use (OR = 8.56, 95% CI = 1.83–40.00, p = 0.006).

Descriptive results showed that fixed-braces patients reported greater difficulty related to orthodontic visits and the overall treatment experience. Regression findings reported in Table 1 indicated that greater difficulty associated with the frequency of orthodontic visits was significantly associated with lower odds of clear aligner use (OR = 0.09, 95% CI = 0.02–0.57, p = 0.010). Additionally, poorer satisfaction with the entire treatment procedure was strongly associated with lower odds of clear aligner use (OR = 0.02, 95% CI < 0.001–0.53, p = 0.019). Better instruction clarity demonstrated a marginal association with treatment type (OR = 0.20, 95% CI = 0.04–1.13, p = 0.069) and did not reach statistical significance.

Table no. 1: Significant Associations between variables and Clear aligner use

| Predictor | Odds Ratio (95% CI) | p-value |
|--|------------------------------|---------------|
| Overall discomfort | 3.74 (0.83–16.84) | 0.086 |
| Pain Medication Frequency | 0.75 (0.31–1.83) | 0.530 |
| Ulcer Frequency | 0.28 (0.08–0.90) | 0.033* |
| Level of Discomfort while sleeping | 0.24 (0.03–1.73) | 0.157 |
| Aesthetic performance | 1.93 (0.28–13.26) | 0.505 |
| Smile perception | 1.85 (0.73–4.74) | 0.198 |
| Noticeable | 2.46 (0.58–10.48) | 0.224 |
| Satisfactory appearance | 24.25 (1.10–535.82) | 0.044* |
| Ease in speaking clearly | 0.97 (0.20–4.64) | 0.969 |
| Interference with daily activity | 0.13 (0.02–0.76) | 0.024* |
| Interference with ability to eat | 0.25 (0.04–1.48) | 0.127 |
| Maintenance of oral hygiene | 3.74 (0.51–27.47) | 0.194 |
| Clarity in instructions | 0.20 (0.04–1.13) | 0.069 |
| Ease of cleaning appliance | 2.24 (0.40–12.43) | 0.357 |
| Change in dietary choices | 8.56 (1.83–40.00) | 0.006* |
| Frequency of orthodontic visits | 0.09 (0.02–0.57) | 0.010* |
| Satisfaction with treatment process (initial 3-6 months) | 4.17 (0.70–24.91) | 0.118 |
| Comfort with retention plan | 0.18 (0.01–2.72) | 0.217 |
| Satisfaction with the entire treatment process | 0.02 (<0.001–0.53) | 0.019* |
| Final result | 0.18 (0.01–5.14) | 0.316 |
| Cost of treatment | 0.63 (0.23–1.72) | 0.366 |



IV. Discussion

This study examined patient-reported experiences associated with clear aligners and fixed braces, identifying distinct patterns across pain, esthetic perceptions, functional impact, treatment process, and overall satisfaction. Rather than demonstrating uniform superiority of one appliance type, the findings suggest that each modality is associated with specific advantages and burdens, underscoring the importance of individualized, patient-centered orthodontic care.⁹

Pain-related outcomes differed meaningfully by treatment type. Higher ulcer scores were significantly associated with lower odds of clear aligner use, indicating that ulceration was more commonly reported among fixed-braces patients. This finding is consistent with prior literature suggesting that brackets and wires increase mucosal irritation due to continuous mechanical contact with oral soft tissues.¹¹ Reduced ulcer formation among aligner users may reflect the smoother surfaces and removable nature of aligners, which limit prolonged tissue friction and facilitate temporary relief during periods of discomfort.¹²

Esthetic perception emerged as a strong predictor of appliance type, with better perceived appearance associated with substantially higher odds of clear aligner use. Although the wide confidence interval suggests imprecision likely related to the modest sample size, the direction and magnitude of the association align with existing evidence that clear aligners are perceived as more discreet and socially acceptable than fixed braces.¹² These findings reinforce the role of esthetic considerations in orthodontic decision-making, particularly among adults and young adults who may prioritize appearance during treatment.¹³

Functional impact also differed between treatment modalities. Greater interference with daily activities was associated with lower odds of clear aligner use, suggesting that fixed-braces patients experienced more disruption to routine functioning. This may reflect challenges related to speech, discomfort, or appliance management commonly reported with fixed appliances.¹⁴ In contrast, higher dietary impact was associated with increased odds of clear aligner use. This finding may appear counterintuitive but likely reflects the behavioral demands of aligner therapy, including removal during meals and adherence to strict wear schedules, which can impose perceived dietary limitations despite the absence of mechanical eating restrictions.¹⁵

Treatment process experiences were among the strongest predictors of appliance type. Greater difficulty related to orthodontic visit frequency and poorer satisfaction with the overall treatment procedure were both strongly associated with fixed-braces use. Fixed appliances often require more frequent adjustments and longer in-office visits, which may contribute to patient burden and reduced satisfaction.¹⁶ Conversely, aligner-based treatment may involve fewer or shorter appointments and greater perceived autonomy, factors that have been linked to improved patient satisfaction in orthodontic care.¹⁷

Instruction clarity demonstrated only a marginal association with treatment type and did not reach statistical significance, suggesting that communication quality may be more dependent on provider practices than on appliance modality itself. This finding highlights the importance of standardized patient education across treatment types to optimize patient understanding and engagement.¹⁷

Taken together, these results emphasize that orthodontic appliance choice should not be guided solely by assumptions of overall superiority but rather by a nuanced understanding of patient priorities, lifestyle considerations, and tolerance for specific treatment burdens. Incorporating patient-reported experience measures into orthodontic consultations may enhance shared decision-making, improve expectation management, and ultimately increase treatment satisfaction.⁹

Several limitations should be considered when interpreting these findings. The cross-sectional design precludes causal inference, and patient-reported outcomes may be influenced by recall bias or individual expectations. The modest sample size likely contributed to wide confidence intervals for some estimates,

particularly for esthetic outcomes. Additionally, experiences were assessed at a single time point, limiting the ability to capture changes in perception over the course of treatment. Future studies should employ longitudinal designs with larger and more diverse samples to better characterize temporal trends and psychological predictors of orthodontic satisfaction.

V. Conclusion

This study highlights that clear aligners and fixed braces are associated with distinct patient-reported experience profiles rather than one modality being universally superior. Fixed-braces patients were more likely to report greater pain-related burden, including ulcer formation, increased interference with daily activities, more difficult orthodontic visits, and poorer overall satisfaction with the treatment process. In contrast, clear aligner use was strongly associated with more favorable esthetic perceptions but also with greater perceived dietary impact. These findings underscore the importance of incorporating patient-reported experience measures into orthodontic treatment planning and counseling. Understanding appliance-specific challenges can help clinicians better align treatment recommendations with individual patient priorities, expectations, and lifestyles, thereby supporting shared decision-making and improving satisfaction with care. From a clinical perspective, realistic counseling regarding potential discomfort, functional limitations, dietary considerations, and treatment logistics may help mitigate dissatisfaction and improve adherence regardless of appliance type. Future research using longitudinal designs and larger, more diverse samples is warranted to evaluate how patient experiences evolve over time and to further elucidate the psychosocial factors that shape orthodontic treatment satisfaction.

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