

Assessing Patient Satisfaction with Different Types of Orthodontic Treatments (such as Traditional Braces, Clear Aligners, Lingual Braces) and their Comfort Levels during the Treatment Process

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Abstract

Background: This study aimed to assess patient satisfaction and comfort levels with different orthodontic treatments, including traditional braces, clear aligners, and lingual braces. **Methods:** A sample size of 500 orthodontic patients was determined based on statistical considerations to ensure the study's reliability and representativeness. The sample size calculation considered a confidence level of 95%, a margin of error of 5%, and an assumed response rate of 85%. Descriptive statistics, Chi-square tests, and ANOVA were used to compare satisfaction and comfort levels among the treatment groups. **Results:** Clear aligner users reported the highest overall satisfaction (4.2 ± 0.7), followed by lingual braces users (4.0 ± 0.6), while traditional braces users had slightly lower satisfaction scores (3.7 ± 0.8). Clear aligner users reported the highest comfort levels (4.6 ± 0.6), followed by lingual braces users (4.4 ± 0.7), with traditional braces users reporting lower comfort levels (3.2 ± 0.9). Pain levels were highest in traditional braces users (5.4 ± 1.2), lowest in clear aligner users (2.3 ± 0.9), and intermediate in lingual braces users (2.7 ± 1.0). Dietary restrictions were most common among traditional braces users (80%), followed by lingual braces (30%) and clear aligner users (25%). Overall treatment experience was rated highest by clear aligner users (4.4 ± 0.6), followed by lingual braces (4.2 ± 0.8) and traditional braces users (3.9 ± 0.7). **Conclusion:** Clear aligners emerged as the treatment modality associated with the highest levels of satisfaction and comfort, while traditional braces had the lowest comfort levels and the highest reported pain levels. Lingual braces provided a balance between discreetness and comfort. These findings have implications for treatment selection and patient counseling in orthodontic practice.

Keywords: Clear aligners, Comfort levels, Lingual braces, Orthodontic treatment, Patient satisfaction, Traditional braces.

INTRODUCTION

Orthodontic treatments have undergone significant advancements in recent years, offering patients a variety of options beyond traditional braces. These alternatives, including clear aligners and lingual braces, promise improved esthetics and enhanced comfort during the treatment process. The aim of this study is to assess patient satisfaction with different types of orthodontic treatments, while also evaluating their comfort levels throughout the treatment journey. Understanding the perspectives and experiences of orthodontic patients is essential for orthodontic practitioners and researchers to enhance the quality of care and tailor treatment options to meet patient preferences.^[1-5]

Orthodontic treatment not only plays a pivotal role in correcting misaligned teeth and improving oral health but also has a

significant impact on an individual's self-esteem and overall well-being. Traditional metal braces, although highly effective, can be associated with discomfort, dietary restrictions, and esthetic concerns for many patients. In response to these concerns, innovative orthodontic solutions such as clear aligners and lingual braces have emerged, promising a more discreet and comfortable treatment experience. However, the

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comparative effectiveness and patient satisfaction associated with these diverse treatment modalities remain underexplored in the existing literature.^[6-10]

This study seeks to address this gap by conducting a comprehensive assessment of patient satisfaction across different orthodontic treatments, including traditional braces, clear aligners, and lingual braces. In addition, we aim to evaluate the comfort levels experienced by patients during their orthodontic treatment, considering factors such as pain, discomfort, dietary limitations, and overall treatment experience. By examining these aspects, our research aims to provide valuable insights into the preferences and needs of orthodontic patients, thereby assisting orthodontic practitioners in tailoring treatment recommendations and optimizing patient care.

Ultimately, the findings from this study will contribute to a better understanding of the strengths and weaknesses of various orthodontic treatment options, allowing for more informed decision-making by both orthodontic professionals and patients. Moreover, it has the potential to drive innovation in orthodontic care by highlighting areas where improvements can be made to enhance patient satisfaction and comfort, ultimately leading to improved treatment outcomes and a higher quality of life for orthodontic patients.

MATERIALS AND METHODS

Study design

This research employed a cross-sectional study design to assess patient satisfaction and comfort levels associated with different orthodontic treatments, including traditional braces, clear aligners, and lingual braces.

Sample size determination

A sample size of 500 orthodontic patients was determined based on statistical considerations to ensure the study's reliability and representativeness. The sample size calculation considered a confidence level of 95%, a margin of error of 5%, and an assumed response rate of 85%.

Participant selection

Participants were recruited from multiple orthodontic clinics. Inclusion criteria comprised individuals aged 18 years and older who had completed or were currently undergoing orthodontic treatment with one of the three specified methods. Patients with a history of significant dental or medical conditions that could affect their responses were excluded from the study.

Data collection

Data were collected using a structured questionnaire designed specifically for this study. The questionnaire included both closed-ended and Likert scale questions to gather information on patient satisfaction and comfort levels during orthodontic treatment.

Questionnaire development

The questionnaire was developed based on a comprehensive review of relevant literature and consultation with orthodontic

experts. It underwent pilot testing on a small sample of orthodontic patients to ensure clarity, relevance, and validity.

Variables

Dependent variables

Patient satisfaction with orthodontic treatment.

Independent variables

Type of orthodontic treatment (traditional braces, clear aligners, lingual braces), comfort levels during treatment, pain levels, dietary restrictions, and overall treatment experience.

Data collection process

Trained research assistants approached eligible participants at the orthodontic clinics and explained the purpose of the study. Informed consent was obtained from each participant. Participants were asked to complete the questionnaire either on-site or at their convenience, and anonymity and confidentiality were assured.

Data analysis

Collected data were entered into a computerized database and analyzed using statistical software (e.g., SPSS). Descriptive statistics, including means, frequencies, and percentages, were used to summarize patient demographics and satisfaction levels. Inferential statistical tests, such as chi-square tests and ANOVA, were employed to examine differences in patient satisfaction and comfort levels across different orthodontic treatment modalities.

RESULTS

Table 1 presents the demographic characteristics of the 500 participants involved in the study, categorized by the type of orthodontic treatment they received. The table includes information about gender distribution, mean age, and the mean duration of treatment (in months) with standard deviations (SD) for each treatment group. These data are essential for understanding the composition of the study population and ensuring that the groups are comparable.

Table 2 presents the results of patient satisfaction and comfort levels, as well as other relevant metrics broken down by the type of orthodontic treatment received. The metrics include as follows:

Overall Satisfaction: Participants who received clear aligners reported the highest overall satisfaction (mean $\pm$ SD: 4.2 ± 0.7), followed closely by those with lingual braces (4.0 ± 0.6). Traditional braces users had slightly lower satisfaction scores (3.7 ± 0.8).

Comfort Level: Clear aligner patients reported the highest comfort levels (4.6 ± 0.6), while lingual braces users also reported a high level of comfort (4.4 ± 0.7). Participants with traditional braces reported lower comfort levels (3.2 ± 0.9).

Pain Level: Participants with traditional braces experienced the highest pain levels (5.4 ± 1.2), followed by lingual braces users (2.7 ± 1.0). Clear aligner users reported the lowest pain levels (2.3 ± 0.9).

Table 1: Demographic characteristics of participants

Characteristic	Traditional braces	Clear aligners	Lingual braces	Total
Gender (Male/Female)	180/150	110/90	75/45	500
Age (Mean±SD)	25.4±6.2	28.1±5.7	26.8±6.4	-
Treatment duration (Mean±SD, in months)	18.7±4.3	17.9±3.8	20.2±5.1	-

Table 2: Patient satisfaction and comfort levels by orthodontic treatment type

Satisfaction and comfort metrics	Traditional braces	Clear aligners	Lingual braces
Overall satisfaction (Likert scale)	3.7±0.8	4.2±0.7	4.0±0.6
Comfort level (Likert scale)	3.2±0.9	4.6±0.6	4.4±0.7
Pain level (Numeric rating scale)	5.4±1.2	2.3±0.9	2.7±1.0
Dietary restrictions (Yes/No)	80% Yes	25% Yes	30% Yes
Treatment experience (Likert scale)	3.9±0.7	4.4±0.6	4.2±0.8

Dietary Restrictions: A substantial portion of participants with traditional braces (80%) reported dietary restrictions, while clear aligner and lingual braces users reported significantly fewer dietary restrictions (25% and 30%, respectively).

Treatment Experience: Participants across all treatment types generally reported positive treatment experiences, with clear aligner users having the highest mean score (4.4 ± 0.6), followed by those with lingual braces (4.2 ± 0.8) and traditional braces (3.9 ± 0.7).

Discussion

The discussion section aims to interpret the results presented and provide insights into the implications of the findings regarding patient satisfaction and comfort levels with various orthodontic treatment options, including traditional braces, clear aligners, and lingual braces.

Overall satisfaction and comfort levels

Our study revealed notable differences in overall satisfaction and comfort levels among patients undergoing different orthodontic treatments. Clear aligners emerged as the treatment option associated with the highest levels of overall satisfaction and comfort. This finding aligns with the growing popularity of clear aligners, which are known for their esthetic appeal and relatively lower discomfort compared to traditional braces.^[11]

In contrast, traditional braces users reported lower overall satisfaction and comfort levels. The discomfort associated with brackets and wires, as well as dietary restrictions, likely contributes to these lower satisfaction scores. However, it is essential to note that despite these challenges, a significant portion of traditional braces users still reported overall satisfaction, indicating that this treatment option remains a viable choice for many.^[12]

Lingual braces users reported intermediate levels of overall satisfaction and comfort. The discreet nature of lingual braces appeals to those who seek a less visible orthodontic treatment option. However, patients might experience some challenges

related to lingual braces' proximity to the tongue and speech difficulties.

Pain levels and dietary restrictions

Our study also assessed pain levels and dietary restrictions associated with different orthodontic treatments. Traditional braces users reported the highest pain levels, likely due to the presence of brackets and wires, which can cause friction and discomfort. This aligns with previous research highlighting the discomfort associated with traditional braces.^[13]

Clear aligner users reported the lowest pain levels, in line with the smooth plastic trays used in this treatment. This advantage contributes to their higher overall satisfaction and comfort scores. In addition, clear aligner users reported fewer dietary restrictions, reflecting the convenience of removable aligners that allow for easier eating and oral hygiene.

Lingual brace users fell between traditional braces and clear aligners regarding pain levels and dietary restrictions. While lingual braces provide discreet treatment, they may still induce some discomfort due to the proximity of the brackets to the tongue. The reported dietary restrictions were slightly higher than those for clear aligners but lower than traditional braces.

Treatment experience

The treatment experience, assessed through a Likert-scale rating, was generally positive across all treatment types. This suggests that despite varying levels of satisfaction, patients adapt to their chosen orthodontic treatment and, overall, find the experience manageable and worthwhile.^[14,15]

Implications and future directions

These findings have several practical implications for orthodontic practitioners. Clear aligners may be a preferred choice for patients seeking both effective treatment and improved comfort, especially those with esthetic concerns. Traditional braces can still be a viable option for certain cases, but practitioners should proactively address pain management and dietary restrictions to enhance patient experience. Lingual braces can provide a balance between discreetness and

effectiveness but may require additional attention to patient comfort and communication difficulties.

Future research could delve deeper into the specific factors contributing to patient satisfaction and discomfort in orthodontic treatments. Qualitative studies may help uncover patient experiences and preferences in greater detail. In addition, long-term follow-up studies could provide insights into treatment durability and post-treatment satisfaction.

CONCLUSION

In conclusion, our study underscores the importance of considering patient preferences and comfort levels when recommending orthodontic treatments. Tailoring treatment options to individual needs and expectations can enhance patient satisfaction and the overall success of orthodontic care.

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