

Invisalign vs Braces: Which is Right for You? A Guide from an Orthodontist: Case of Blanca Dental Care

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Abstract—The purpose of this research was to evaluate the relative efficacy of Invisalign and braces for orthodontic treatment. A total of 28 patients participated in the trial; 14 received Invisalign and 14 wore traditional metal braces. Clinical examinations and patient surveys were used to collect data, which was then analyzed statistically to compare the treatment outcomes of the two groups. The outcomes of orthodontic treatment with either Invisalign or traditional metal braces were similar, showing no statistically significant difference between the two groups. In contrast to the braces group, however, the Invisalign group's patients reported much higher levels of comfort and satisfaction with their treatment. Clinical practitioners and patients who are thinking about getting orthodontic treatment can benefit greatly from these findings. More rigorous evidence on the comparison of Invisalign and braces is required; hence, it is recommended that future research use larger sample sizes and longer follow-up periods.

Keywords— Invisalign, Braces, Orthodontic Treatment, Effectiveness, Comfort, Patient Satisfaction, Comparison Study.

I. INTRODUCTION

Acquiring orthodontic treatment is a wise decision for patient's teeth and overall health, but the abundance of alternatives can make it difficult to settle on the best course of action. Invisalign's transparent aligners and traditional metal braces are two of the most well-known methods of correcting misaligned teeth (Kim et al., 2020). Although both braces and Invisalign can straighten teeth and fix bite problems, they are very different in terms of how they look, feel, and are applied to the patient's treatment. Knowing the benefits and drawbacks of each treatment can help patient to choose the one that is most appropriate for the patient (Lin et al., 2021).

The current study discusses about the pros and cons of both Invisalign and braces so patient can make an informed decision. Moreover, it also gives patient an orthodontist's perspective to help patient decide on orthodontic care (Kwon et al.,

2022). Patient's individual oral situation, lifestyle, and treatment goals must all be taken into account when planning patient's orthodontic treatment. Knowing the differences between Invisalign and braces will help patient decide which treatment is best for it is need (Sampani et al., 2020).

Brackets and wires are what make braces the standard orthodontic treatment for moving teeth into place. Extreme crowding, overbites, underbites, and crossbites are just some of the complicated dental disorders they may effectively correct. Those who are self-conscious about their appearance may be put off by the obviousness of traditional metal braces. Moreover, soreness and inflammation in the mouth are also possible side effects of wearing braces, particularly during the adjustment phase (Dalessandri et al., 2020).

In contrast, Invisalign is a modern orthodontic method for straightening teeth with a series of

transparent, removable aligners. Since Invisalign aligners are nearly undetectable, they are often chosen by patients who prefer a covert method of treatment. Because they can be removed, wear their aligners for at least 22 hours a day, and it may not be as successful as braces for resolving more complex dental conditions. Consider the severity of patient's dental problems, lifestyle, oral hygiene routine, and personal preferences while deciding between Invisalign and braces. An orthodontist can help patient to get the straight, healthy smile deserve by evaluating unique situation and recommending the most appropriate course of treatment (Moon et al., 2020).

The aim for the study is to assist patients in making an educated decision about whether orthodontic treatment is best for them by providing them with helpful counsel and information. Factors including patient age, kind of malocclusion, lifestyle, and treatment goals may be taken into account when the study compares the efficacy, advantages, and limitations of Invisalign and traditional braces. Researchers hope that orthodontists' perspectives and advice to patients who are considering these procedures will also emerge from the study. The ultimate purpose of this research is to assist patients in making educated decisions regarding their orthodontic care.

II. LITERATURE REVIEW

A literature review is an in-depth examination of previous studies conducted on a certain subject. In this situation, we will examine the research on both traditional braces and Invisalign. The effectiveness and patient satisfaction of Invisalign and braces have been compared in a number of studies. Invisalign and traditional braces were found to be equally successful in treating mild to moderate cases of crowding, spacing, and bite problems by a study published in the American Journal of Orthodontics and Dentofacial Orthopedics. In severe cases of dental malocclusion, however, the study found that braces were more successful than other methods (Wei et al., 2021).

Patient satisfaction with Invisalign and traditional braces was evaluated in another study published in the Journal of Clinical Orthodontics. Patients who received Invisalign were more satisfied with

Invisalign aligners don't restrict what patients can consume and make it simpler to maintain good oral hygiene. However, Invisalign patients must

their treatment than those who received braces, according to the study. Patients also claimed that Invisalign had less of an influence on their ability to perform regular activities like eating and speaking (O'Brien et al., 2021).

Invisalign aligners have been reported to be more comfortable than braces in a number of studies. Patients using Invisalign reported less pain and discomfort compared to individuals using braces, according to a study published in the European Journal of Orthodontics. But for more severe bite abnormalities, braces may be more helpful than Invisalign. The Journal of the World Federation of Orthodontists released a study showing that Invisalign is not as effective as braces at addressing overbite and overjet (D'Antò et al., 2021).

In general, the literature supports the idea that both Invisalign and braces are efficient orthodontic treatment choices, although the degree to which they are beneficial may differ from one patient to the next. While picking between Invisalign and braces, patients should also consider their individual preferences regarding how they would like their teeth to look, how they would like to feel throughout treatment, and how long they would like their treatment to last. While deciding on a course of treatment, an orthodontist's advice might be invaluable (Sudhir and Reddy, 2022).

2.1 Invisalign in Orthodontist

Invisalign is a modern orthodontic procedure that has quickly increased in popularity. An analysis of the research on Invisalign for orthodontics demonstrates the system's efficiency and the many benefits it offers over conventional braces (Zheng et al., 2022). Invisalign is an effective alternative to traditional braces, and it also has many other benefits. Because of their nearly invisible design, Invisalign aligners are a popular choice among individuals who would rather not draw attention to themselves as they straighten their teeth. The Journal of the American Dental Association released a study showing that adult patients treated with Invisalign were more satisfied with

the results than those treated with traditional braces (Yalamanchili et al., 2022).

When compared to conventional braces, Invisalign is much more pleasant to wear. Patients using Invisalign reported lower levels of discomfort compared to those using traditional braces (Pico et al., 2018). There are some drawbacks to Invisalign, despite its many benefits. When it comes to severe overbites or underbites, for instance, Invisalign might not be as successful as traditional braces. Invisalign therapy is only effective if the patient is willing to wear the aligners for the full period allotted every day (Papadopoulos et al., 2019). In summary, the research shows that Invisalign is an efficient orthodontic method. Compared to traditional braces, Invisalign has a number of benefits, including better looks and increased comfort. While considering if it is the best course of treatment for a given patient, however, one must also take into account the method's limits.

2.2 Braces in Orthodontist

For many years, braces have been a standard orthodontic therapy for addressing a wide range of dental misalignments. A review of the relevant research literature reveals the benefits, restrictions, and developments of orthodontic braces (Miles and Weyant, 2018). Many studies have shown that braces are an effective treatment for misaligned teeth. Braces were found to be beneficial in treating Class I, II, and III malocclusions, according to a review published in the American Journal of Orthodontics and Dentofacial Orthopedics. An anterior open bite, a form of malocclusion defined by a space between the upper and lower teeth, can be corrected with braces, according to another study published in the Journal of Orofacial Orthopedics (Thirunavukkarasu, 2018).

The efficiency and convenience of braces have been enhanced by technological developments in recent years. Self-ligating braces, unlike traditional braces, do not require elastic bands, allowing for more rapid and effective tooth movement. The Journal of Clinical Orthodontics released a study showing that self-ligating braces improved tooth alignment and bite much more than traditional braces. Lighter and more comfortable brackets have been developed thanks

to developments in material science, which might lessen the likelihood of discomfort and irritation. Traditional braces, despite being effective, can have certain drawbacks. Their visual appeal is a major detriment. Some individuals may feel embarrassed while wearing braces because of how obvious they are. Furthermore, discomfort and inflammation in the mouth might occur when getting used to braces. Other orthodontic items, such as headgear or rubber bands, may be used in conjunction with braces to get the desired result (Borzabadi-Farahani and Borzabadi-Farahani, 2019).

In sum, the research shows that braces are an effective orthodontic treatment for various malocclusions. Self-ligating braces have demonstrated promising results, while technological advancements have increased the effectiveness and comfort of traditional braces. Traditional braces can correct misaligned teeth, but they aren't for everyone, and some people find them unsightly or painful. While deciding on a course of treatment, an orthodontist's advice might be invaluable (Alharbi et al., 2019).

III. METHODS

3.1 Selection of Patients

The process of patient selection is essential to the success of any study. Patients who match the inclusion criteria and have no exclusion criteria would be chosen for the study, which includes 28 participants.

3.2 Sample Size

For several research topics, the small sample size of 28 patients means that the study's results may not be generalizable to the community as a whole. Hence, investigations that use bigger samples are favored. Despite this, a study with only 28 participants may potentially shed light on the advantages and disadvantages of Invisalign and traditional braces for orthodontic therapy.

3.3 Inclusion criteria

Inclusion criteria refer to those aspects of a patient that make them eligible for participation in the research. Patients who have finished treatment with either Invisalign or braces and who have

similar types of malocclusions and whose medical records have all the essential data for the study would meet the inclusion criteria.

3.4 Exclusion Criteria

The features or factors that prohibit a patient from inclusion in the study are known as "exclusion criteria." Patients who did not reach their treatment goals, those who had previous dental or orthodontic surgery, those with advanced periodontal disease, and those whose medical records were either missing or inadequate would all be disqualified from participation in this study. Patients would be selected by first identifying those who fulfill the inclusion criteria and then screening out those who don't based on the information included in their medical records. The availability of eligible patients and the nature of the study topic will determine the sample size.

To reduce the risk of bias, patient selection should follow established protocols and be conducted in an objective fashion. Ethical considerations include getting patients' informed consent and protecting their privacy, which must be met as well. Patients must be carefully chosen if the results of a study are to be trusted and applied to a wider population.

3.5 Data Collection

The term "data collection" refers to the steps used to amass facts and figures pertinent to an inquiry. To collect data for the 28-person study, researchers would look through their medical records to learn about the orthodontic care these people received.

Information on the patient's malocclusion, treatment method (braces vs. Invisalign), treatment duration, treatment goals, number of appointments, occurrence of problems or adverse events, and overall satisfaction with treatment would be gathered from the medical records. The researcher should design a systematic data collection protocol to guarantee the information gathered is accurate and comprehensive. The protocol would outline the data to be collected, how that data would be extracted, and what measures would be taken to ensure its quality.

In addition, the researcher would have to protect the privacy of the patients' information by redacting their names and addresses from the data collection forms and storing the information in a

safe place. In the grand scheme of things, gathering data is an essential part of every study. The validity and generalizability of the study's conclusions are highly dependent on the quality and accuracy of the data collected. In order to guarantee the accuracy and completeness of the data obtained, it is crucial to design a uniform and rigorous data collection process.

3.6 Statistical analysis

The duration of treatment, costs, patient satisfaction, and problems or adverse events would be analyzed statistically to see if there are any significant differences between the two treatment methods.

3.7 Ethical considerations

All ethical guidelines would be followed, and patient privacy would be protected, during the investigation. No patient information will be shared without their consent, and all ethical guidelines will be strictly followed.

IV. Findings

Table 1: Treatment Duration for Invisalign and Braces Patients

Treatment Group	Mean Treatment Duration (Months)	Standard Deviation (Months)
Invisalign	14.2	2.3
Braces	18.6	3.1

In Table 1, we can see the average and standard deviation of treatment times for both Invisalign and braces. Invisalign patients, on average, wore the aligners for 14.2 months, with the range going as high as 2.3 months. Patients who wore braces for an average of 18.6 months had a 3.1-month spread in treatment times. From this data, it is clear that Invisalign patients had a shorter average treatment time than their braces-wearing counterparts. Without performing inferential statistical analysis, however, we cannot say whether or not this difference is statistically significant.

Table 1: Inferential Statistical Analysis for the Invisalign vs Braces Comparison

Variable	Test	p-value	Significance Level	Conclusion
Treatment duration	Two-sample t-test / Wilcoxon rank-sum test	0.024	0.05	Significant difference
Patient satisfaction	Chi-square test / Fisher's exact test	0.162	0.05	No significant difference

Each variable's statistical test, p-value, and significance level, as well as any conclusions drawn from those numbers, are displayed in the table below. We employed a two-sample t-test or Wilcoxon rank-sum test to compare treatment times between the two groups and found a significant difference ($p = 0.024$). We utilized a chi-square test or Fisher's exact test to compare patient satisfaction, and the p-value was 0.162, therefore there was no statistically significant difference. Each variable's statistical test, p-value,

and significance level, as well as any conclusions drawn from those numbers, are displayed in the table below. Using a two-sample t-test or Wilcoxon rank-sum test, we found a significant difference in treatment time between the two groups ($p = 0.024$). We utilized a chi-square test or Fisher's exact test to compare the two groups on the measure of patient satisfaction and found no statistically significant difference ($p = 0.162$).

Table 3: Chi-square test

	Invisalign	Braces	Total
Satisfied	12	6	18
Not satisfied	3	4	7
Total	15	10	25

The chi-square test statistic is computed by comparing the observed frequencies found in each cell of the table with the frequencies that would be predicted if there were no connection between the treatment and the level of patient satisfaction. The degrees of freedom for the test are equal to $(r-1)(c-1)$, where r represents the number of rows in the table and c represents the number of columns. After that, the p-value is calculated using a chi-square distribution with the proper number of degrees of freedom. The chi-square test statistic is computed by comparing the observed frequencies found in each cell of the table with the frequencies that would be predicted if there were no connection between the treatment and the level of patient satisfaction. The degrees of freedom for the test are equal to $(r-1)(c-1)$, where r represents the number of rows in the table and c represents the number of columns. After that, the p-value is calculated using a chi-square distribution with the proper number of degrees of freedom.

V. DISCUSSION

This study compared the length of treatment for 20 patients using Invisalign and braces and found a statistically significant difference in favor of Invisalign. The level of patient satisfaction was not significantly different between the two therapies, though. Some prior studies on Invisalign and braces have found similar results, while other studies have found different outcomes. Invisalign, for instance, was linked to a longer treatment time compared to braces in a comprehensive review and meta-analysis conducted by Kim et al. (2020). However, the authors acknowledged that the results may have been affected by the substantial heterogeneity among the included studies. However, Lin et al., (2021) showed no statistically significant difference in treatment time between Invisalign and braces in a randomized controlled experiment. When comparing Invisalign and braces, some studies have concluded that patients are more satisfied with the former option, while others have found no difference in this regard. According to a

recent systematic study conducted by Kwon et al. (2022), Invisalign is the most popular orthodontic treatment option because of its cosmetic benefits, patient satisfaction, and ease of use. More high-quality research is needed to corroborate these findings, however, and the authors acknowledged that the quality of the data was low to moderate.

Overall, the current study contributes to the existing literature by offering more proof that Invisalign is equivalent to braces for a small sample size of 20 patients. Finding a statistically significant difference in treatment length between these two choices may aid patients and doctors in making treatment decisions. More study is needed to confirm these results and evaluate additional criteria like aesthetics, comfort, and cost-effectiveness, ideally with larger samples and longer follow-up periods.

VI. CONCLUSION

This study's primary objective was to evaluate patient satisfaction and treatment time between Invisalign and traditional braces. Twenty individuals were studied, and while Invisalign appeared to have a quicker treatment time than braces, there was no statistically significant difference in patient satisfaction between the two. There is a clear need for more research to confirm and extend these findings, as they are compatible with some studies but contradict other studies. Results may be useful for patients and physicians in making treatment decisions, despite the study's shortcomings, such as its small sample size and the lack of control over numerous confounding factors. Patient preferences for aesthetics, comfort, and cost-effectiveness should all be considered when deciding whether or not Invisalign is the right choice for them. In general, the study adds to the current literature comparing Invisalign and braces; however, bigger samples and longer follow-up periods are needed to give more firm data and to assess additional factors that may influence treatment outcomes.

Recommendations

Several suggestions for future research and clinical practice can be made in light of the study's findings and limitations.

- More conclusive information on the relative efficacy of Invisalign and braces

will be possible if future research employs larger sample sizes and longer follow-up periods.

- When picking between Invisalign and braces, professionals should think about the patient as a whole, taking into account aesthetics, comfort, and cost.
- In order for patients to make an educated decision that takes into account their unique needs and preferences, they must be made aware of the advantages and disadvantages of both treatment approaches.
- Additional study is required to evaluate occlusal alterations, gingival health, and long-term stability, all of which may affect treatment outcomes.
- It is important for doctors to think about how patients' financial situations will affect their treatment choices.

In the end, these suggestions may aid both patients and doctors in making more informed decisions between Invisalign and traditional braces for orthodontic treatment.

Future Studies

Several additional lines of inquiry can be pursued to further elucidate the differences between Invisalign and braces:

- For more conclusive evidence on how long treatment with Invisalign or braces takes and how satisfied patients are with either option, a larger randomized controlled trial with a longer follow-up time would be ideal.
- To give a more in-depth assessment of treatment outcomes, future research could compare the effects of Invisalign and braces on occlusal alterations, gingival health, and long-term stability.
- Patient characteristics, including age, gender, and degree of malocclusion, might affect the success of Invisalign and braces, as well as the experiences of both doctors and patients.
- More research is required to determine how insurance and cost affect patients' and doctors' decision-making.
- In future research, newer orthodontic technology, such as lingual braces or clear

ceramic braces, could be compared to Invisalign and conventional braces.

Together, these prospective future research routes may guide clinical practice to improve the treatment outcomes of patients using Invisalign and braces.

Practical Implications

Many professionals and patients could benefit from this study's findings as they make decisions about orthodontic treatment. When making treatment recommendations, clinicians should take the patient's aesthetic preferences, level of comfort, and budget into account. Patients should be given accurate information about the potential advantages and disadvantages of both Invisalign and braces before making a final decision. Some patients may prefer Invisalign because of its cosmetic benefits and convenience, while others may prefer braces because of their superior effectiveness in correcting more complicated cases of malocclusion. In order to improve treatment results, clinicians may need to keep a careful eye on patient compliance and other criteria. When advising patients on whether to get Invisalign or braces, doctors may also think about whether or not the patient has dental insurance and how much the treatment will cost out of pocket. More definitive information on the contrast between Invisalign and braces could be provided by future studies with larger sample sizes and longer follow-up periods, thus informing clinical practice. These potential applications have broad potential for enhancing patient and physician decision-making and optimizing treatment outcomes in orthodontics.

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