



Aligners vs. Braces: Choosing the Right Treatment

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Abstracts: In recent times, there have been notable strides in orthodontic treatments, presenting a multitude of choices for individuals seeking straighter teeth and a more appealing smile. To cater to the increasing demand for aesthetic alternatives to traditional braces, researchers have developed various options. These alternatives encompass ceramic or composite braces, lingual orthodontics, and transparent aligners. Among these alternatives, Invisalign aligners stand out as custom-made, transparent, and thin plastic aligners designed to gradually reposition teeth. This survey aims to evaluate disparities in the quality of life experienced by individuals undergoing treatment with clear aligners versus those receiving conventional orthodontic care.

Keywords: Orthodontic treatment, Aesthetics, Clear aligners, Braces, oOral hygiene

Introduction: Orthodontic treatment has advanced significantly in recent years, providing a variety of choices to assist people in achieving straighter teeth and a more attractive smile. Traditional braces and transparent aligners are two popular choices for aligning teeth that are crowded. Although they hold the same end goal in mind, these techniques have different appearances, levels of comfort, and approaches to therapy. To help you choose the ideal treatment, we will examine the main distinctions between aligners and braces in this article.⁽¹⁾⁽²⁾

The conventional approach for addressing dental misalignments is braces. They are made up of metal brackets fixed to the teeth, Arch wires are components used in orthodontics to apply pressure to teeth and move them into the desired position. They are usually made of metal or a special type of plastic and come in different sizes and shapes to accommodate different treatment plans. That transmits pressure to the teeth, and arch wires transmit pressure to the teeth to gradually align the teeth. The aligners are removable trays composed of a clear substance, such as medical-grade polycarbonate.⁽³⁾ The aligners are made to fit tightly over the teeth, gradually guiding them into the ideal position under controlled pressure.⁽³⁾

Several studies have been carried out that were solely based on either aligners or conventional orthodontic treatment, with some comparing the result outcomes. These studies include Motivation, Acceptance, and Problems of Invisalign Patients by Verena Nedwald et al.; Fixed Orthodontic Appliance Impact on Oral Health-related Quality of Life during Initial Stages of Treatment By Laila Baidas et al.; Fixed Orthodontic Appliance therapy and its impact on oral health-related quality of life in Chinese patients by Mu Chen et al; A comparison of treatment impacts between Invisalign aligners and fixed appliance therapy during the first week of treatment by Kevin Miller et al. However, this study aims not only to assess the impact of aligners and conventional orthodontic treatment on the standard of living of the patients but also comprises a descriptive comparison between the two treatments.⁽¹⁾⁽²⁾

Materials and Methods

Patient Selection: A total of 100 patients were included in this survey. 50 patients undergoing conventional orthodontic therapy and 50 patients having clear aligners were taken into consideration. Random Sampling was done based on inclusion and exclusion criteria. Inclusion criteria include

All duly filled survey forms from orthodontically treated patients within 6 months of their treatment and the patients undergoing treatment for >6 months. Incomplete forms, all duly filled survey forms from orthodontically treated patients greater than 6 months after completion of their treatment, and forms from patients undergoing treatment for <6 months were excluded from this study.

Discussion:

Braces: The Traditional Method

Braces are useful for treating complicated dental disorders such as severe crowding, overbites, underbites, and crossbites because they provide exact control over tooth movement.⁽⁴⁾⁽¹²⁾

One of the most notable advantages of braces is their ability to efficiently rectify various sorts of misalignments. They provide orthodontists with more control over tooth movement by using brackets, wires, and other auxiliary components like elastics and springs. Braces are a trustworthy alternative for those with complicated orthodontic situations because of this level of control.⁽⁵⁾⁽⁷⁾⁽⁸⁾

Despite their usefulness, braces are noticeable and can have an impact on the wearer's look. Metal brackets and wires can be extremely visible, which may cause self-consciousness or discomfort in certain individuals, particularly teenagers. However, developments in orthodontic

technology have created less apparent alternatives such as ceramic braces, making them a more cosmetically attractive choice. ⁽⁵⁾⁽⁶⁾⁽⁷⁾⁽¹²⁾

Aligners: Graceful Alternative

Clear aligners, made known by companies such as Invisalign, have become more popular over the past few years. ⁽⁶⁾⁽¹⁰⁾

One of the most known advantages of aligners is that they are nearly invisible. They provide a discrete orthodontic treatment alternative, allowing people to straighten their teeth while keeping their dental work hidden. This feature appeals to adults and older teenagers who may feel self-conscious about wearing traditional braces. ⁽⁶⁾⁽¹⁰⁾

Because they are removable, aligners provide considerable convenience. Aligners, unlike braces, can be removed for eating, brushing, and flossing, allowing for better oral hygiene and lowering the risk of tooth decay or gum disease throughout treatment. The flexibility to remove the aligners also means that people can eat whatever they want as long as they wear them for the recommended 20-22 hours per day. ⁽⁶⁾⁽¹⁰⁾

Choosing the Right Option

When deciding between braces and aligners, several factors should be considered: The complexity of the case: Braces are typically more effective for complex orthodontic issues, while aligners work well for mild to moderate cases. Consultation with an orthodontist is crucial to determine which treatment option is best suited to address specific dental problems.

Aesthetics: If a discreet treatment option is a priority, aligners are often preferred due to their nearly invisible appearance. However, ceramic braces can also be a viable alternative for those seeking a less noticeable option.

Lifestyle and commitment: Aligners require discipline and commitment to wear them for the recommended duration each day. If an individual tends to forget or misplace aligners frequently, braces might be a more suitable choice, as they are fixed and require less maintenance but aligners provide better oral hygiene maintenance and good periodontal health; Good appearances; minimal discomfort while chewing ⁽⁵⁾⁽⁶⁾⁽⁷⁾

Cost: The cost of orthodontic treatment can vary depending on the complexity of the case, the treatment duration, and the chosen option.

Results: The E survey was done and its result is shown in the pie charts below. The total number of responses is shown in Fig Below

In this study among 100 orthodontic patients, the pie chart represents the gender distribution in a study, with two categories: male and female. The chart shows that 62% of the participants are Female, while the remaining 38% are male. This distribution suggests that there is a higher representation of males compared to females in the study.

The pie chart illustrates the response of patients regarding their consent for a study. It consists of two categories: "Consented" and "Denied." According to the chart, the majority of patients, accounting for 97%, gave their consent to participate in the study. Conversely, a small portion, representing 3% of the patients, declined to provide their support. This indicates a high level of acceptance and willingness among the participants to participate in the study. The

pie chart showcases the distribution of patients who underwent orthodontic treatment, explicitly comparing the usage of braces and aligners. It reveals that the patient population is divided evenly into two categories. Approximately 50% of the patients received orthodontic braces as their treatment modality, while the remaining 50% opted for aligners. This implies that both braces and aligners are popular choices for orthodontic treatment, with an equal preference among the patient population.

The pie chart represents the distribution of patient treatment time concerning a specific medical procedure. According to the chart, approximately 59% of patients required a treatment duration of more than 12 months. This indicates that a significant portion of the patient population experienced a relatively long treatment period. It suggests that the medical procedure may involve a more complex or extensive treatment plan, requiring additional time for optimal results.

The pie chart represents the primary reasons for seeking orthodontic treatment among patients. The chart shows that 52% of patients sought treatment primarily to improve their facial appearance. This indicates a significant number of individuals who desired orthodontic intervention for aesthetic reasons. Additionally, 11% of patients reported difficulty in chewing as their primary reason for seeking treatment. This suggests that functional concerns related to chewing and bite alignment played a role in their decision to undergo orthodontic treatment.

Furthermore, 25% of patients cited a dentist reference as their primary reason for seeking orthodontic treatment. This indicates that a considerable portion of individuals were recommended orthodontic intervention by their dentist, possibly due to oral health concerns or specific dental conditions. Overall, the chart highlights a variety of motivations for seeking orthodontic treatment, including improved facial appearance, functional concerns related to chewing, and recommendations from dental professionals. The pie chart represents the fulfillment of patient desires following orthodontic treatment. It indicates that a significant percentage of patients experienced positive outcomes in various areas:

1. Improved Appearance: Approximately 44% of patients reported that their desire for improved facial appearance was fulfilled. This suggests that the orthodontic treatment successfully addressed their aesthetic concerns, resulting in a positive transformation in their overall appearance.
2. Improved Chewing: Around 7% of patients experienced improved chewing functionality after undergoing orthodontic treatment. This indicates that the treatment effectively corrected any issues related to their bite alignment, enhancing chewing efficiency and comfort.
3. Relief in Minimal Discomfort: Roughly 19% of patients reported experiencing relief from minimal discomfort following the orthodontic treatment. This implies that any initial discomfort associated with the treatment process gradually subsided, leading to improved comfort for the patients.

Overall, the chart emphasizes that a notable portion of patients had their desires fulfilled, with a significant focus on improved appearance, followed by improved chewing functionality

and relief from minimal discomfort. These positive outcomes highlight the effectiveness of orthodontic interventions in addressing patients' concerns and improving their oral health and well-being. The pie chart represents the fulfillment of treatment objectives for patients before undergoing orthodontic treatment. It shows that 57% of patients had their treatment objectives completely fulfilled. This suggests that a majority of patients achieved their desired outcomes through orthodontic intervention. The chart indicates that the treatment successfully met the expectations and goals set by these patients before starting their orthodontic journey. This can include various objectives such as improving alignment, correcting bite issues, enhancing aesthetics, or addressing functional concerns. The high percentage of patients whose treatment objectives were completely fulfilled highlights the effectiveness of the orthodontic treatment in meeting their expectations and achieving the desired results. It suggests a successful outcome in aligning their teeth, improving oral health, and enhancing their overall well-being. The provided information contains various statistics related to orthodontic treatment experiences. Here's a summary of the key points:

1. Food Limitations: 47% of orthodontic patients reported limiting their food choices due to orthodontic braces.
2. Difficulty Biting and Chewing: Among patients with braces, 68% experienced difficulties while biting or chewing certain foods, such as apples or pizza.
3. Difficulty Swallowing: Approximately 92% of patients with braces faced difficulties in swallowing their saliva.
4. Speech Difficulties: About 35% of patients with braces experienced speech difficulties.
5. Satisfaction with Aligner Treatment: Among patients undergoing aligner treatment, 76% expressed satisfaction with the treatment.
6. Appearance Concerns: During treatment, 24% of patients with braces were not happy with their appearance.
7. Nervousness and Self-Consciousness: Around 30% of patients felt nervous or self-conscious about their appearance during treatment.
8. Tooth Sensitivity: 26% of patients with braces experienced tooth sensitivity to hot and cold temperatures.
9. Emergencies and Injuries: 59% of patients with braces encountered emergencies like broken appliances, injuries, or other major concerns, while only 41% of aligner patients faced such situations.
10. Elastic Wear: Approximately 45% of patients wore elastics as part of their orthodontic treatment.
11. General Health: Around 37% of patients described their general health as good during orthodontic treatment.
12. Discomfort: Roughly 42% of orthodontic patients experienced mild discomfort throughout their treatment, regardless of whether they had braces or aligners.
13. Aligner Treatment Preference: After considering all the questions, 37% of patients who underwent aligner treatment would choose Invisalign treatment again.

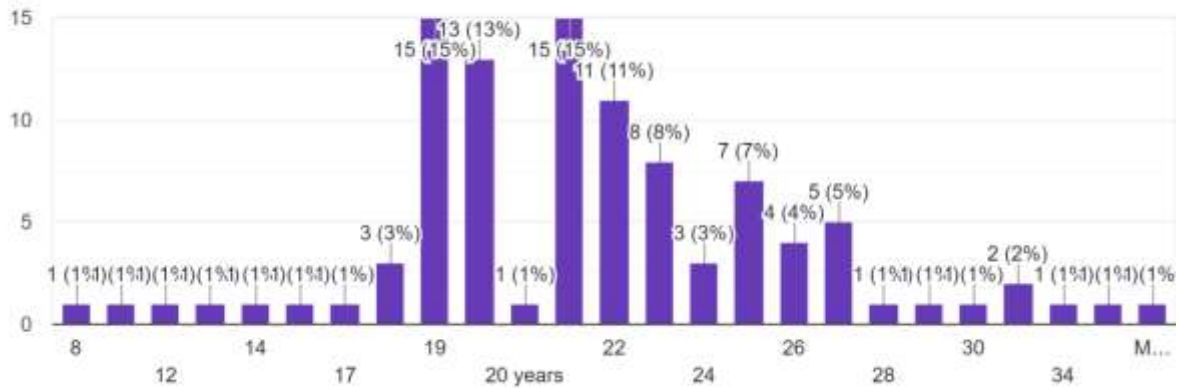
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14. Improved Quality of Life: A significant 66% of orthodontic patients regarded their quality of life as greatly improved after completing the orthodontic treatment.

These statistics provide insights into various aspects of orthodontic treatment experiences, including challenges, satisfaction levels, and impacts on daily life.

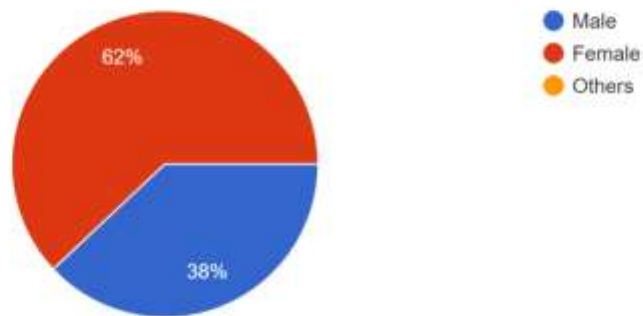
Age

100 responses



Gender

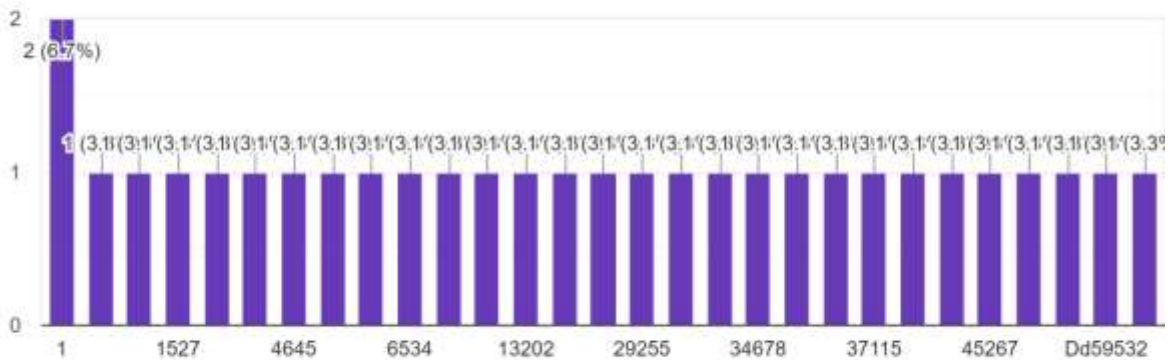
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Case No.

30 responses



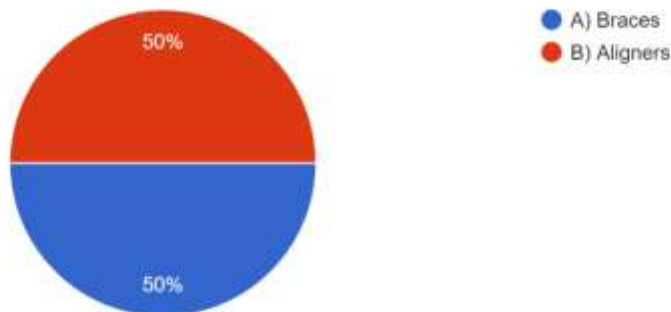
I here by give my consent to access my information for the study entitled "A Survey study comparing the impact on quality of life of patients undergoing ...ong institution and private practitioners of Gujarat"

100 responses



1) What type of orthodontic appliances did you have most recently?

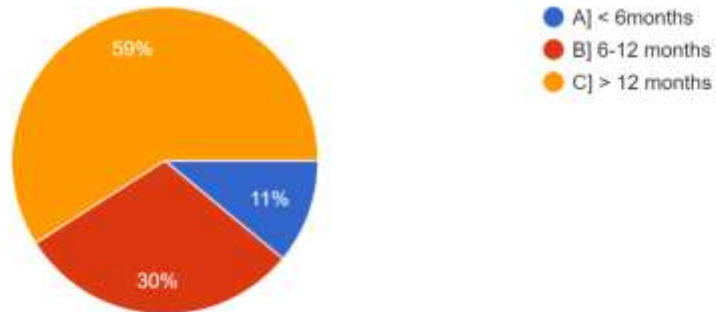
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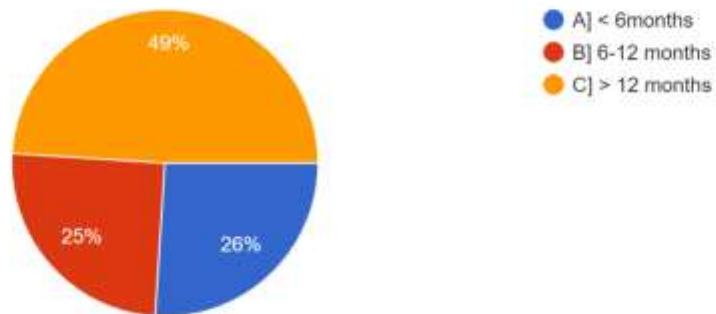
2) From how long your most recent orthodontic treatment is ongoing?

100 responses



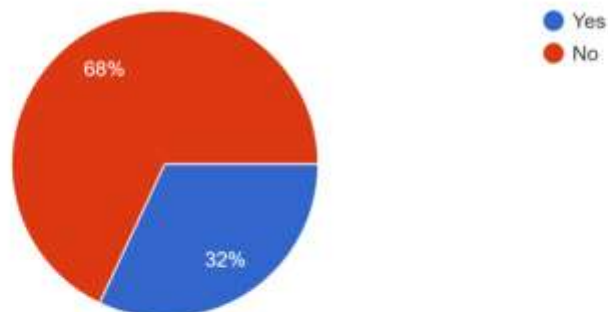
3) From how long your most recent orthodontic treatment is finished?

100 responses



4) Did you have previous orthodontic treatment prior to your most recent phase of treatment? If yes, please answer the questions 5. If no, please skip to question 6.

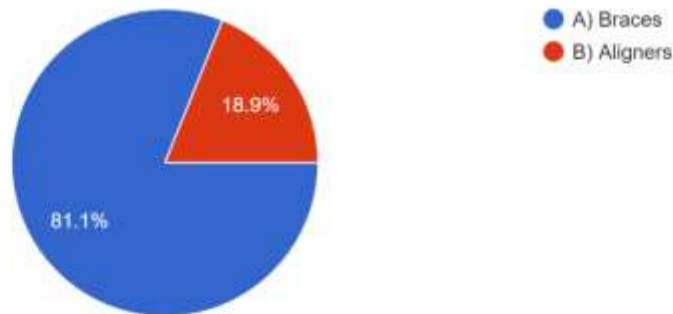
100 responses



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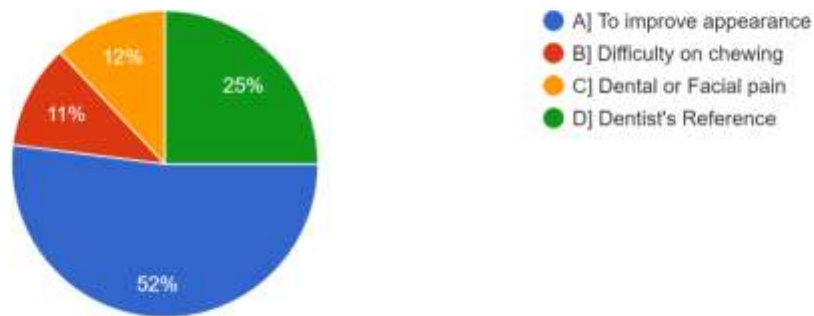
5) If yes to question 4, what type of orthodontic appliances did you previously wear?

53 responses



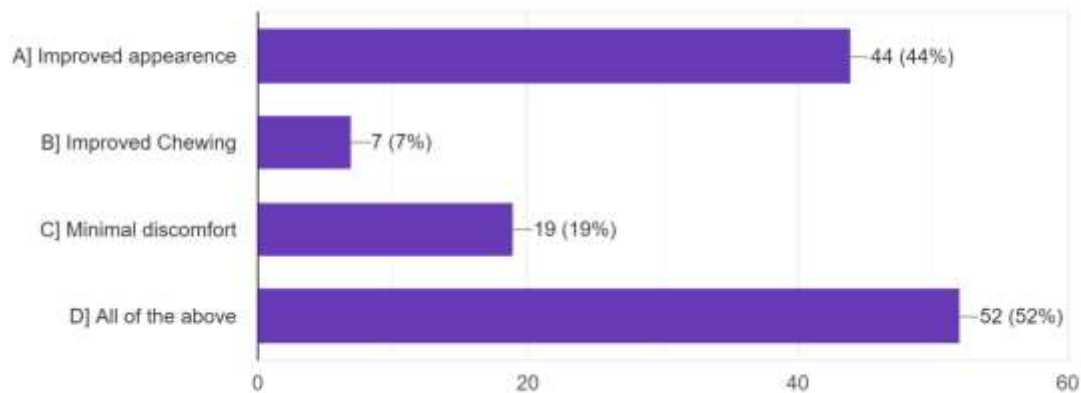
6) What was the primary reason for seeking orthodontic treatment? (Please check one)

100 responses



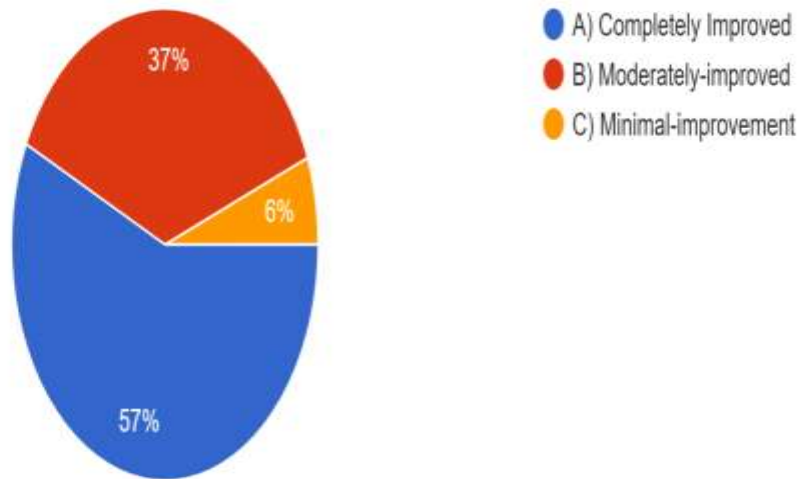
7) Which of the following describe your pre-treatment expectation with regard to your orthodontic treatment? (Please check all that apply)

100 responses



8) Prior to treatment, to what degrees you expect your orthodontic treatment objectives to be fulfilled?

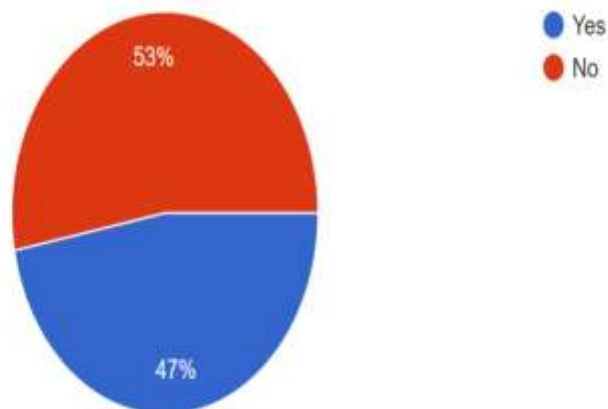
100 responses



9) Please check one response for each of the following questions in Yes/No.

9.1) Did you limit the kind or amount of food because of your orthodontic appliances?

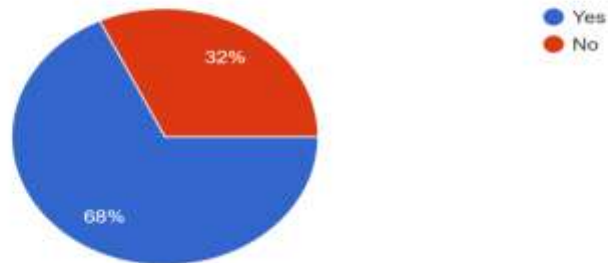
100 responses



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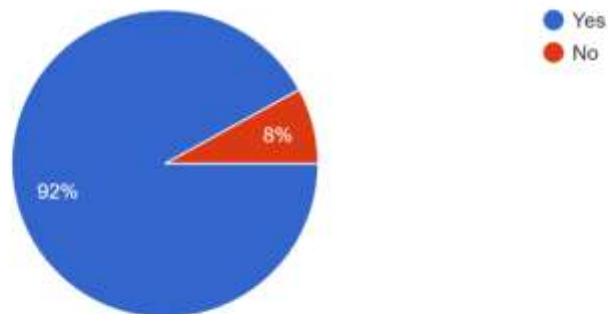
9.2) Did you have trouble biting or chewing any kind of food items, such as apples or Pizza respectively?

100 responses



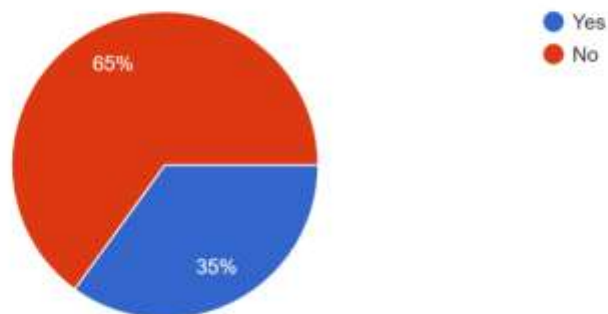
9.3) Were you able to swallow comfortably?

100 responses



9.4) Did your orthodontic appliances interfere with your speech?

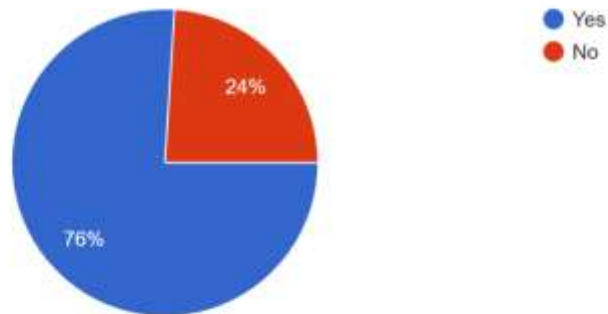
100 responses



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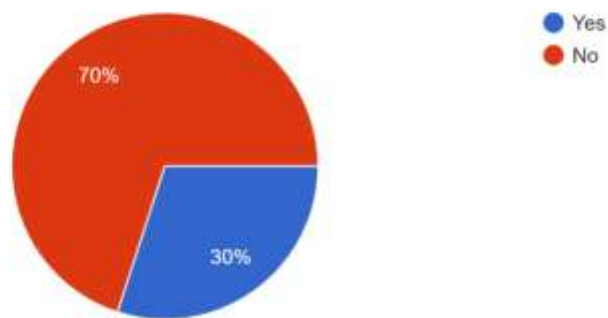
9.5) Were you pleased with the look of your orthodontic appliance?

100 responses



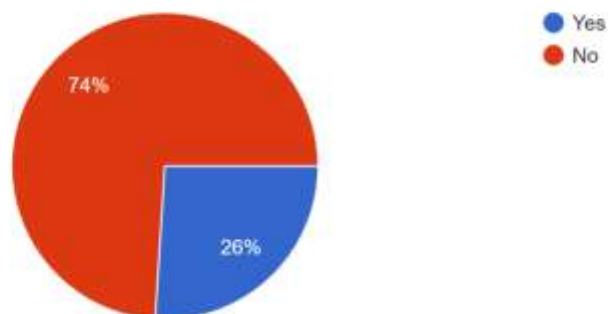
9.6) Did you feel nervous or self-conscious because of problems with your Orthodontic appliances?

100 responses



9.7) Were your teeth sensitive to hot or cold beverages and any other food items?

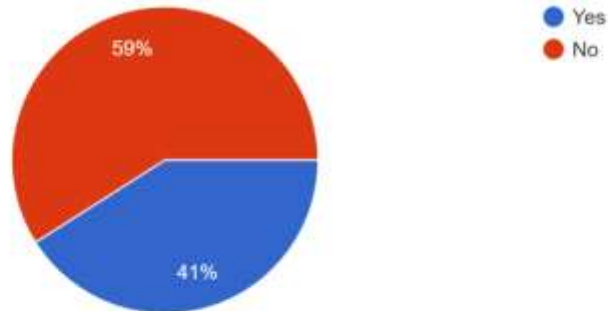
100 responses



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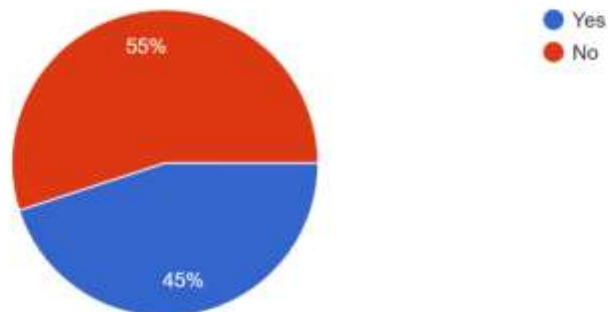
10] During your treatment, did you experience emergency situation such as a broken appliance, injury or major concern?

100 responses



11] Did you use rubber bands (elastics) as part of your treatment?

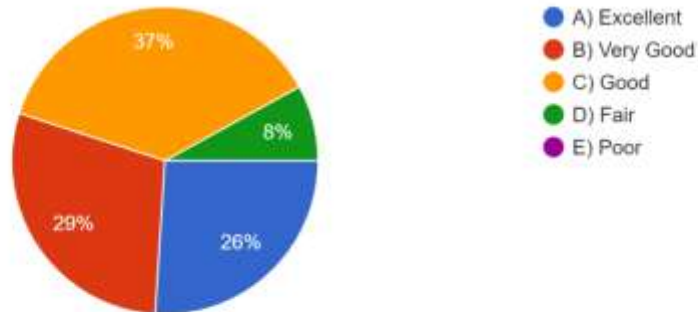
100 responses



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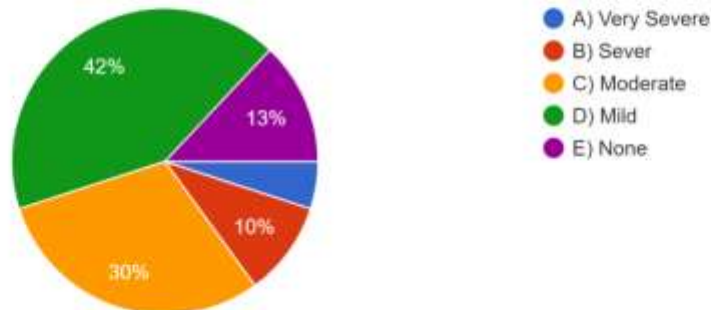
12] How would you best describe your general health status during your orthodontic treatment?

100 responses



13] Please check one choice that best describes the severity of discomfort over the course of your treatment.

100 responses



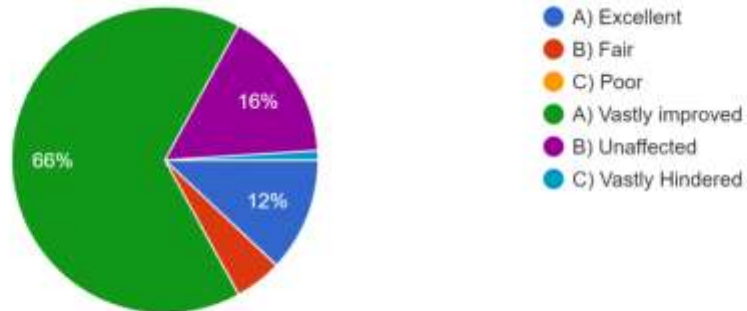
14] Please check one response that best reflects your opinion.

100 responses



15] Results aside, how would you rate your overall quality of life with regard to your teeth and/or orthodontic appliances during the entire course of your treatment?

100 responses



Conclusion:

1. Compared to the fixed appliance group, Invisalign patients had fewer negative effects on their teeth and orthodontic appliances during treatment. This was true for the overall impact as well as for the functional, pain-related, and psychosocial subscales individually. With the probable exception of the pain-related subcomponent, the significance of these differences was sustained even after several modifications.
2. There were no variations in subjective reports on the general quality of life of their teeth and appliances during orthodontic treatment across treatment groups.
3. If given the option, Invisalign patients are more likely to select the same appliance system.
4. Without a doubt, Invisalign straightens teeth.

References

- 1) Tamer İ, Öztaş E, Marşan G. Orthodontic treatment with clear aligners and the scientific reality behind their marketing: a literature review. Turkish Journal of Orthodontics. 2019 Dec;32(4):241.
- 2) Chen M, Wang DW, Wu LP. Fixed orthodontic appliance therapy and its impact on oral health-related quality of life in Chinese patients. The Angle Orthodontist. 2010 Jan 1;80(1):49-53.
- 3) Jian F, Lai W, Furness S, McIntyre GT, Millett DT, Hickman J, Wang Y. Initial arch wires for tooth alignment during orthodontic treatment with fixed appliances. Cochrane Database of Systematic Reviews. 2013
- 4) Ke Y, Zhu Y, Zhu M. A comparison of treatment effectiveness between clear aligner and fixed appliance therapies. BMC Oral Health. 2019 Dec;19(1):1-0.
- 5)"Elastics for Braces: Rubber Bands in Orthodontics". Orthodontics Australia. 2019-12-15. Retrieved 2020-12-13.
- 6) Putrino A, Barbato E, Galluccio G. Clear aligners: Between evolution and efficiency—A scoping review. International Journal of Environmental Research and Public Health. 2021 Mar 11;18(6):2870.

- 7) Littlewood SJ, Mitchell L. An introduction to orthodontics. Oxford University Press; 2019 Mar 16.
- 8)"Elastics For Braces: Rubber Bands in Orthodontics". Orthodontics Australia. 2019-12-15. Retrieved 2020-12-13.
- 9) George Sr R. DENTISTRY'S OLDEST SPECIALTY. Journal of the American College of Dentists. 2009 Apr 1;76(1).
- 10) Align Technology, Inc. Invisalign® website. www.invisalign.com
- 11) Gopalakrishnan S, Jayaram M, Chacko T, Jacob J, Anuradha P, Menon VV. Mandibular canine calcification stages as an indicator of skeletal maturity. Journal of Pharmacy & Bioallied Sciences. 2020 Aug;12(Suppl 1):S6.
- 12) American Association of Orthodontists (AAO) website. www.braces.org.