

# Smile Alignment Survey: Understanding Patient Perspectives on Orthodontic Treatment: A Questionnaire-Based Study

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## Abstract:-

### ➤ *Background*

Orthodontic treatment is pivotal in improving both the aesthetic appearance and functional aspects of the smile. Understanding patient perspectives is crucial for providing personalized care. This study aimed to capture diverse demographic factors and explore motivations, concerns, and preferences among individuals seeking orthodontic treatment in India.

### ➤ *Methods*

A cross-sectional questionnaire-based study was conducted among 150 participants considering or seeking orthodontic treatment. The questionnaire covered various aspects, including satisfaction with smile appearance, motivations for seeking treatment, awareness of treatment options, past treatment experiences, confidence levels, difficulties due to dental misalignment, and factors influencing treatment decisions.

### ➤ *Results*

The study revealed a high inclination towards orthodontic treatment, with 96% of participants considering it to improve their smile. Aesthetic improvement was the primary motivation, followed by functional improvement. Concerns about facial appearance changes during treatment were prevalent, as were factors like cost and treatment duration. Interest in alternative treatments existed, but awareness of long-term effects was lacking. Most participants preferred treatment plans addressing both aesthetic and functional issues.

### ➤ *Discussion*

The study findings highlight the significance of patient-centered care in orthodontics. Understanding patient motivations, concerns, and preferences is crucial for effective treatment planning. The study possesses strengths such as a large sample size, a comprehensive

questionnaire, and alignment with existing literature. However, limitations include sampling bias and reliance on self-reported data.

### ➤ *Future Implications*

Future research should focus on cultural and geographic variations, conduct longitudinal studies, and integrate clinical data for a deeper understanding of treatment outcomes. Clinically, improving patient education, developing personalized treatment plans, and exploring alternative treatments are essential. Policymakers should ensure access to affordable care. Technological advancements should be embraced to enhance treatment approaches.

### ➤ *Conclusion*

This study provides valuable insights into patient perspectives on orthodontic treatment in India. It underscores the importance of addressing patient needs and preferences in orthodontic practice. Future research and clinical efforts should prioritize patient-centered care, aiming to improve treatment outcomes and patient satisfaction.

**Keywords:-** Orthodontic Treatment, Patient Perspectives, Motivations, Concerns, Preferences. Patient Perspectives, Patient-Centered Care, Treatment Outcomes.

## I. INTRODUCTION

Orthodontic treatment, a branch of dentistry focused on correcting dental and facial irregularities, plays a significant role in enhancing both the aesthetic appearance and functional aspects of a smile<sup>1</sup>. It is a journey that not only transforms the physical alignment of teeth but also boosts self-confidence and improves oral health. Understanding patient perspectives on orthodontic treatment is essential for delivering personalized care that meets the unique needs and expectations of each individual<sup>2</sup>.

This study captures a diverse range of demographic factors, ensuring representation from various age groups, socio-economic backgrounds, and geographical locations. By targeting a broad demographic, the survey aims to paint a holistic picture of patient attitudes towards orthodontic care.

The survey questionnaire covers a wide array of topics, starting with the current satisfaction levels of participants regarding their smile. This initial inquiry provides a baseline understanding of how individuals perceive their oral aesthetics and sets the stage for exploring their motivations for seeking orthodontic treatment.<sup>5</sup>

Motivations for seeking orthodontic treatment are diverse, ranging from a desire for aesthetic improvement to addressing functional issues like bite alignment. Understanding these motivations is crucial for tailoring treatment plans that align with patient goals and expectations.

Awareness of available orthodontic treatment options is another important aspect covered in the survey. From traditional braces to newer alternatives like clear aligners, participants are asked about their familiarity with different treatment modalities, providing insights into their knowledge and preferences.<sup>3</sup>

Additionally, the survey delves into past experiences with orthodontic treatment, levels of confidence when smiling in social situations, difficulties experienced due to dental misalignment, and factors influencing treatment decisions such as cost, treatment duration, and concerns about facial appearance changes.

By analyzing the responses to these questions, this study aims to inform dental practitioners about the priorities, preferences, and concerns of patients seeking orthodontic treatment. Ultimately, the findings of this survey will contribute to the development of patient-centered approaches in orthodontic care, ensuring that treatment plans are not only effective but also aligned with the expectations and needs of the individuals they serve. The Smile Alignment Survey is a comprehensive questionnaire-based study aimed at unraveling the multifaceted aspects of patient perspectives on orthodontic treatment seeks to provide insights into the motivations, preferences, and concerns of individuals considering or undergoing orthodontic treatment in India. Our study aimed to provide valuable insights into the perspectives of patients seeking orthodontic treatment, enabling orthodontic practitioners to tailor treatment plans according to patient preferences and concerns.<sup>4</sup>

## II. METHODOLOGY

### A. Study Design

This study utilized a cross-sectional questionnaire-based design to collect data from individuals seeking or considering orthodontic treatment in India.

### B. Study Participants

With a sample size of 175, employed a cross-sectional questionnaire-based design to gather data from individuals in India who were seeking or considering orthodontic treatment.

#### ➤ Questionnaire Development

The questionnaire for our study was meticulously designed to capture information on demographic characteristics, treatment preferences, and concerns related to orthodontic treatment. Questions were structured to cover a variety of aspects, including current satisfaction with smile appearance, consideration of orthodontic treatment, motivations for seeking treatment, awareness of treatment options, past treatment experiences, confidence levels in social situations, and concerns about treatment outcomes.

#### ➤ Distribution of Questionnaires

Participants for our study were recruited through various channels including dental clinics, social media platforms, and dental associations. Prior to receiving the questionnaire, participants were informed about the study's objectives and their consent was obtained.

#### ➤ Data Collection Period

Data collection for our study spanned a specific timeframe to ensure a comprehensive representation of responses and to minimize any bias in the results.

### C. Variables

#### ➤ Independent Variables

- Demographic characteristics (e.g., age, gender).
- Previous orthodontic treatment history.
- Level of satisfaction with smile appearance.
- Confidence levels in social situations.
- Awareness of orthodontic treatment options.
- Concerns about potential changes in facial appearance during treatment.

#### ➤ Dependent Variables

- Preference for specific orthodontic treatment types (e.g., traditional braces, clear aligners).
- Motivations for considering orthodontic treatment.
- Importance of factors like cost and treatment duration.
- Interest in alternative orthodontic treatments.
- Awareness of potential long-term effects of orthodontic treatment.

### III. STATISTICAL ANALYSIS

Data analysis was performed using SPSS version 27. Descriptive statistics were utilized to present frequency distributions of demographic characteristics and preferences in orthodontic treatment among participants. Percentages were calculated to illustrate preferences in various aspects of orthodontic treatment.

Moreover, inferential statistics, specifically Chi-square tests, were employed to examine potential associations between demographic factors, such as age and gender, and participants' preferences in orthodontic treatment. The significance level was set at  $p < 0.05$ , indicating a statistically significant association if the p-value was below this threshold.

### IV. RESULTS

The results indicate a strong inclination towards orthodontic treatment among the surveyed individuals, with 96% reporting that they have considered undergoing orthodontic treatment to improve their smile. Among the motivations for seeking treatment, aesthetic improvement was predominant, with 32.57% of respondents citing it as their main motivation, followed by functional improvement (28%) and a combination of both aesthetic and functional improvement (39.42%). Additionally, a majority of participants (70.85%) had not previously undergone orthodontic treatment.

Regarding confidence levels, a significant proportion of respondents expressed high levels of satisfaction and confidence with their smile in social situations. Specifically, 47.42% reported being very satisfied with their smile, and 46.28% felt very confident when smiling in social situations.

The study also highlighted concerns and preferences related to orthodontic treatment. Concerns about potential changes to facial appearance during treatment were evident, with 73.71% of participants expressing being very concerned. Cost and duration of treatment were identified as crucial factors when considering orthodontic treatment, with 61.71% of respondents prioritizing treatment duration and 15.42% considering cost as the most important factor.

Interest in alternative orthodontic treatments, such as accelerated orthodontics, was notable, with 10.85% expressing a strong interest and 38.85% showing some interest. However, the majority of participants (85.14%) were not fully aware of the potential long-term effects of orthodontic treatment.

Overall, orthodontic treatment was perceived as highly important in improving overall oral health and quality of life, with 55.42% rating it as very important and 29.14% considering it important. These findings underscore the significance of addressing patient concerns and preferences in orthodontic treatment planning.

**Table No. 1:** Overview of Patient Perspectives on Orthodontic Treatment: Responses to Questionnaire Items

Sl. No	Questionnaire	Responses	N(150)	Percentage	p Value
1.	How satisfied are you with the appearance of your smile currently?	Very satisfied	88	50.28	<b>&lt;0.001</b>
		Somewhat satisfied	36	20.57	
		Neutral	29	16.57	
		Somewhat dissatisfied	14	8	
		Very dissatisfied	8	4.57	
2.	Have you ever considered undergoing orthodontic treatment to improve your smile?	Yes	168	96	<b>&lt;0.001</b>
		No	7	4	
3.	What is your main motivation for considering orthodontic treatment?	Aesthetic improvement	57	32.57	<b>&lt;0.05</b>
		Functional improvement (e.g., bite alignment)	49	28	
		- Both aesthetic and functional improvement	69	39.42	
4.	Are you aware of the different types of orthodontic treatments available (e.g., traditional braces, clear aligners)?	- Yes, I am aware of both	92	52.57	<b>&lt;0.001</b>
		- I am only aware of traditional braces	43	24.57	
		- I am only aware of clear aligners	37	21.14	
		- No, I am not aware of the options available	3	1.71	
5.	Have you previously undergone any orthodontic treatment?	Yes	51	29.14	<b>&lt;0.001</b>
		No	124	70.85	

6.	How would you rate your level of confidence when smiling in social situations?	Very satisfied	83	47.42	<0.001
		Somewhat satisfied	67	38.28	
		Neutral	11	6.28	
		Somewhat dissatisfied	9	5.14	
		Very dissatisfied	5	2.85	
7.	How would you rate your level of confidence when smiling in social situations?	- Very confident	81	46.28	<0.001
		- Somewhat confident	77	44	
		- Neutral	8	4.57	
		- Somewhat unconfident	7	4	
		- Very unconfident	2	1.14	
8.	Have you experienced any difficulties with eating or speaking due to dental misalignment?	- Yes, frequently	9	5.14	<0.001
		- Yes, occasionally	12	6.85	
		- No, rarely	27	15.42	
		- No, never	127	72.57	
9.	What factors are most important to you when considering orthodontic treatment?	Cost	27	15.42	<0.001
		Duration of treatment	108	61.71	
		Aesthetics	19	10.85	
		Comfort during treatment	21	12	
10.	Have you researched patient reviews or testimonials of orthodontic providers?	Yes, extensively	33	18.85	<0.001
		Yes, somewhat	64	36.57	
		No, I have not	78	44.57	
11.	Would you prefer a treatment plan that focuses solely on aesthetics or one that also addresses functional issues (e.g., bite alignment)?	Solely aesthetics	9	5.14	<0.001
		Both aesthetics and functional issues	157	89.71	
		Solely functional issues	7	4	
		Not sure	2	1.14	
12.	How concerned are you about potential changes to your facial appearance during orthodontic treatment?	Very concerned	129	73.71	<0.001
		- Somewhat concerned	37	21.14	
		- Neutral	7	4	
		- Not very concerned	2	1.14	
13.	Are you interested in learning about any potential alternatives to traditional orthodontic treatment (e.g., accelerated orthodontics)?	Very interested	19	10.85	<0.001
		Somewhat interested	68	38.85	
		Neutral	59	33.71	
		Not very interested	24	13.71	
		Not interested at all	5	2.85	
14.	Are you aware of any potential long-term effects of orthodontic treatment?	- Yes, I am well aware	14	8	<0.001
		Yes, somewhat aware	12	6.85	
		No, I am not aware	149	85.14	
15.	How would you rate the importance of orthodontic treatment in improving overall oral health and quality of life?	Very important	97	55.42	<0.001
		Important	51	29.14	
		Neutral	19	10.85	
		Not very important	6	3.42	
		Not important at all	2	1.14	

## V. DISCUSSION

The results of this study provide valuable insights into patient perspectives on orthodontic treatment, highlighting both motivations and concerns.

One significant finding is the high inclination towards orthodontic treatment among the surveyed individuals, with 96% considering undergoing treatment to improve their smile. This aligns with previous research indicating a growing demand for orthodontic interventions driven by increased awareness of aesthetic improvements achievable through orthodontic treatment (Proffit et al., 2013).<sup>6</sup>

Aesthetic improvement emerged as the primary motivation for seeking treatment, with over a third of respondents indicating it as their main reason. This finding is consistent with studies emphasizing the importance of aesthetic concerns in driving patient interest in orthodontic treatment (Dias et al., 2013). However, the emphasis on aesthetic concerns raises questions about whether patient expectations align with clinical outcomes, as studies have shown that patients' perceptions of their treatment outcomes may not always match clinical evaluations (Kiyak et al., 2014).<sup>7</sup>

While aesthetic concerns were paramount, functional improvement was also cited by a significant portion of participants. This highlights the multidimensional nature of patient motivations and reinforces the importance of addressing both aesthetic and functional aspects in treatment planning (Fink et al., 2015).

Concerns about potential changes to facial appearance during treatment were prevalent among respondents, with over three-quarters expressing being very concerned. This finding underscores the need for orthodontic providers to communicate effectively with patients about treatment outcomes, potential changes, and realistic expectations (McKenna et al., 2016).<sup>8</sup>

Cost and treatment duration were identified as crucial factors in decision-making, reflecting findings from previous studies (Nurminen et al., 2010). These factors often influence patients' treatment choices and highlight the importance of providing affordable and efficient treatment options.

Interestingly, despite the high interest in alternative orthodontic treatments, such as accelerated orthodontics, the majority of participants were not fully aware of potential long-term effects. This discrepancy suggests a need for improved patient education regarding treatment options, risks, and benefits.

In terms of treatment preferences, a significant proportion of respondents favored treatment plans that addressed both aesthetic and functional issues. This preference

for comprehensive treatment aligns with recommendations emphasizing the importance of holistic treatment approaches (Al-Fraidi et al., 2019).<sup>9</sup>

Overall, the study findings underscore the significance of patient-centered care in orthodontics. Understanding patient motivations, concerns, and treatment preferences is essential for delivering effective and satisfactory orthodontic treatment outcomes.

This study possesses several notable strengths. Firstly, it benefits from a large sample size of 150 participants, which provides substantial data for analysis and increases the reliability and generalizability of the findings to a wider population of individuals seeking orthodontic treatment. Secondly, the questionnaire employed in the study was comprehensive, covering various aspects of patient perspectives on orthodontic treatment, including motivations, concerns, preferences, and awareness of treatment options. This comprehensive approach allowed for a thorough examination of patient attitudes and behaviors related to orthodontic care.<sup>10</sup>

Moreover, the study collected data from individuals seeking or considering orthodontic treatment in India, ensuring diversity in demographic characteristics and treatment-seeking behaviors. This diversity in demographics adds richness and breadth to the findings, making them more representative of the target population. The use of quantitative methods, including descriptive and inferential statistics, enabled a detailed analysis of the data, providing both numerical summaries and statistical tests to uncover associations and trends in patient responses.<sup>11</sup>

Furthermore, the study's findings are aligned with existing literature in orthodontics, reinforcing the validity of the results. For instance, the emphasis on aesthetic concerns and the importance of patient-centered care resonate with previous research. Many observed associations and trends were statistically significant ( $p < 0.05$ ), indicating strong relationships between variables and providing robust evidence to support the study's conclusions.

Overall, these strengths enhance the credibility and relevance of the study's findings, contributing valuable insights to the field of orthodontics and patient care.

Despite the strengths identified, this study has several notable limitations. Firstly, the sample was drawn exclusively from individuals considering or seeking orthodontic treatment in India, which raises concerns about sampling bias and generalizability to other populations with different cultural, socioeconomic, and healthcare contexts. Secondly, reliance on self-reported data introduces the possibility of recall bias or social desirability bias, potentially affecting the accuracy of responses regarding past experiences or motivations. Thirdly,

the cross-sectional design of the study limits the ability to establish causality between variables, highlighting the need for longitudinal research to better understand changes in patient perspectives over time. Additionally, while the questionnaire covered various aspects of patient perspectives on orthodontic treatment, certain factors, such as cultural influences on treatment preferences, were not fully explored, indicating a potential limitation in the questionnaire design. Moreover, the absence of clinical data, such as orthodontic diagnoses or treatment outcomes, restricts the depth of understanding about patient perspectives. The lack of reporting on the response rate also raises concerns about non-response bias, which could affect the representativeness of the sample. Furthermore, the study's exclusive focus on India limits the generalizability of findings to other countries, each with unique healthcare systems, cultural norms, and patient demographics. Lastly, while statistical tests were employed, the analysis could have been enhanced with more sophisticated methods, such as regression analysis or structural equation modeling, to elucidate the relationships between variables. Recognizing these limitations is crucial for interpreting the study's findings accurately and for guiding future research to address these gaps in knowledge.<sup>12</sup>

The findings of this study have significant implications for the future of orthodontic research, clinical practice, and policy development. First, there is a need for further research focusing on understanding how cultural and geographic factors influence patient perspectives on orthodontic treatment. Comparative studies across diverse populations can provide a deeper understanding of patient needs and preferences, informing more tailored treatment approaches.<sup>13</sup>

Second, longitudinal studies tracking changes in patient perspectives over time are crucial. These studies can shed light on the evolution of attitudes towards orthodontic treatment, guiding strategies for patient education and communication. Integrating clinical data into research efforts is also essential for better understanding the relationship between patient-reported perspectives and treatment outcomes. Including measures of treatment success, patient satisfaction, and quality of life can provide a more comprehensive evaluation of orthodontic treatment efficacy.

Healthcare providers should prioritize improving patient education about orthodontic treatment options, risks, benefits, and long-term effects. Clear communication can help manage patient expectations and address concerns about treatment outcomes, enhancing overall patient satisfaction.<sup>14</sup>

Customized treatment plans that consider both aesthetic and functional concerns are vital for optimizing treatment outcomes. Orthodontic practices should strive to develop patient-centered treatment approaches that align with individual patient preferences and priorities.<sup>12</sup>

Research into alternative orthodontic treatments, such as accelerated orthodontics and clear aligner therapy, should continue. Assessing patient interest, effectiveness, and long-term outcomes of these alternatives can broaden treatment options and improve patient access to care.

Policymakers and insurance providers need to consider the impact of treatment cost and duration on patient decision-making. Ensuring affordable orthodontic care and adequate insurance coverage can enhance access to treatment for a broader population.<sup>15</sup>

Finally, exploring the role of emerging technologies, such as 3D printing, digital imaging, and artificial intelligence, in orthodontic treatment planning and delivery is crucial. These advancements have the potential to streamline treatment processes, improve treatment predictability, and enhance the overall patient experience.<sup>13</sup>

In summary, addressing these future implications can advance orthodontic care, optimize treatment outcomes, and better meet the diverse needs and preferences of patients seeking orthodontic treatment.<sup>14</sup>

## VI. CONCLUSION

This study provides valuable insights into patient perspectives on orthodontic treatment, highlighting motivations, concerns, and preferences among individuals seeking or considering orthodontic care in India. The high inclination towards orthodontic treatment, with a significant majority considering treatment to improve their smile, underscores the importance of addressing patient needs in orthodontic practice. Aesthetic improvement emerged as a primary motivation, emphasizing the role of orthodontics in enhancing smile aesthetics. However, concerns about potential changes to facial appearance and the importance of cost and treatment duration highlight the multifaceted nature of patient decision-making.

Moving forward, it is essential to conduct further research to explore cultural and geographic variations in patient perspectives, conduct longitudinal studies to track changes over time, and integrate clinical data for a more comprehensive understanding of treatment outcomes. Clinically, healthcare providers should focus on improving patient education, developing personalized treatment plans, and exploring alternative treatment options to better meet patient needs. Policymakers and insurance providers also play a crucial role in ensuring access to affordable orthodontic care.

Overall, addressing these findings and future implications can enhance orthodontic practice, optimize treatment outcomes, and improve patient satisfaction. By prioritizing patient-centered care and incorporating advancements in technology and treatment approaches,

orthodontic care can better align with the diverse needs and preferences of patients, ultimately leading to improved oral health and quality of life.

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