

# Knowledge, attitude, and awareness toward orthodontic treatment among patients: A questionnaire survey

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## ABSTRACT

The current study's objective is to learn more about how patients, depending on their gender, perceive, feel, and know about orthodontic therapy. There was a cross-sectional survey among 100 patients to evaluate their knowledge and attitude toward orthodontic treatment. The questionnaire was prepared and circulated among patients using online google forms. The online responses were collected and tabulation of the data was done in excel sheets. Data was analysed using statistical software. Chi square test to compare the association of gender and patients knowledge regarding orthodontic treatment. In the current study 53% of the study population had visited an orthodontist. 79.6% of the patients are conscious that their teeth can be aligned properly by an orthodontist. 73.5% think that teeth should be properly positioned for a better facial appearance. According to the findings in the present study, it is evident that there is awareness and understanding regarding the orthodontic treatment among patients.

**Key words:** Innovative technique, innovative technology, malocclusion, orthodontic treatment, patients

## INTRODUCTION

Malocclusion is described as any variation in the alignment of the teeth that is not a normal occlusion and alignment of the teeth. Deformed occlusal characteristics may have significant social and psychological consequences, lowering patients' quality of life, and interfering with their daily routine.<sup>[1]</sup> It has been discovered that both parents and their

children believe that orthodontic care can boost the affected individual's self-confidence and social acceptance.<sup>[2]</sup>

Orthodontic treatment involves the alignment of teeth to a straighter position or shift of the teeth to enhance their appearance and function. Through distributing the biting pressure over all of your teeth, it will also help maintain oral health, the teeth, gingiva, and bones. There is a strong associative relation between the appearance of the teeth and the facial esthetics with the age of the patient rather than with the gender of the patient. The success or failure of orthodontic care in adults is determined by many factors, of which the patient-related ones play a predominant role.<sup>[3]</sup>

Previous research was mostly done to improve the patient's knowledge about the need for orthodontic treatment among

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adult patients. Such studies are usually done with the aim of improving the patient's understanding regarding their oral conditions.<sup>[4]</sup> In one study, in the population living in the localities of South Wales, parents and children were questioned regarding their preferences for orthodontic care. Some of the questions were designed to assess the knowledge about the type of orthodontic appliance, the level of pain, or the length of time that orthodontic care is supposed to take.<sup>[5]</sup> Patients and parents expect improved esthetic sense and appearance of their dentition, oral health, and function from orthodontic procedures, according to the previous studies by Yao *et al.*<sup>[6]</sup> In the study conducted by Ackerman and Macey *et al.*,<sup>[7,8]</sup> the impact of misalignment on dental health and the effectiveness of orthodontic treatment on oral health are not sufficiently explored by the available research. In a previous study conducted by Shrestha *et al.*, knowledge and attitude of Nepalese patients towards orthodontic treatment and the difference in perception between female and male patient were compared.<sup>[9]</sup>

Our research and knowledge have resulted in high-quality publications from our team.<sup>[10-24]</sup>

The aim of the present study was to know about the knowledge, attitude, and perception of patients toward orthodontic treatment according to their gender.

## MATERIALS AND METHODS

This was a cross-sectional study conducted among 100 patients. A simple random method of sample selection was employed to select the participants. Among 100 patients, 50 were male and 50 were female. Submission of the questionnaire after filling the survey by them meant that it was implicit consent, and hence, there was no need for obtaining signed written consent. Ethical clearance for the study was issued by the review board of the institution with institutional clearance number IDEC/DSC/ORTHO/21/050. The questionnaire that was administered to self that consisted of 13 questions that were close-ended was designed and it was circulated among patients through surveys that were built using online forum "Google Forms." The data that were collected were scrutinized for accuracy and validation, clarification, and competence. Details of demographic data were also included in the questionnaire.

### Statistical analysis

The collected data was analysed and statistical analysis was performed. Chi-square test, was done to compare the gender association on knowledge about orthodontic treatment. The results of the study were represented using bar graphs and tabulation of the frequency.

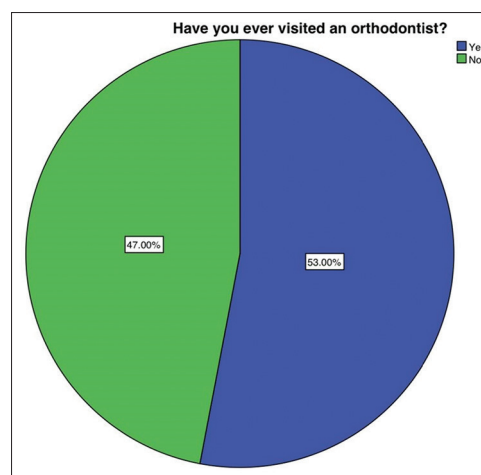
## RESULTS

The survey included the patient's age group belonging to

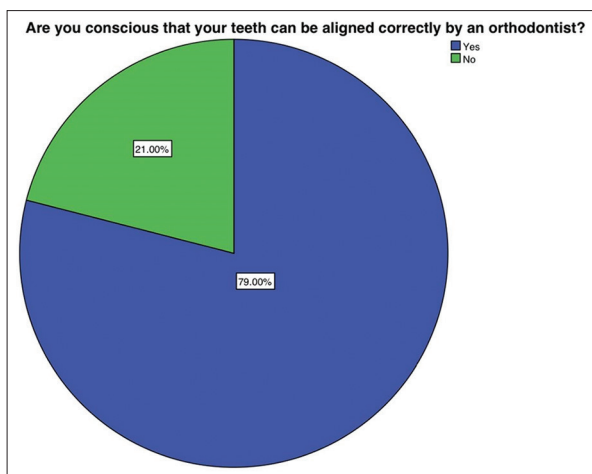
below 20 years to above 40 years. Among them, 50 were male and 50 were female. When the patients were asked whether they have visited an orthodontist, 53.1% answered yes [Figure 1]. 79.6% of the patients are conscious that their teeth can be aligned correctly by an orthodontist [Figure 2]. 73.5% think that teeth should be properly positioned for a better facial appearance [Figure 3]. 24.5% think below 20 years, 44.9% think 20–30 years, and 30.6% think 30–40 years when asked about when to start orthodontic treatment. 80.6% thought that improperly positioned teeth can be corrected above 30 years also. 85.7% know the cost of orthodontic treatment. 76.5% know that taking proper orthodontic treatment at an early age would improve your facial appearance. 61.2% are aware that few teeth might be removed for proper positioning of irregular teeth. When asked whether there is a correlation between systemic disease and bleeding gums, 67.3% answered yes. 58.2% have experienced sensitivity associated with malaligned teeth. 85.7% thought that malaligned teeth lead to periodontal lesion [Table 1]. Similarly association graphs between the various factors considered are mentioned in the figure mentioned below [Figures 4-8].

## DISCUSSION

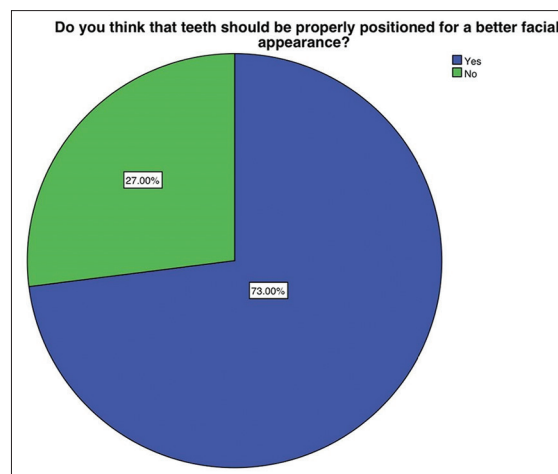
Malocclusion is not an isolated condition, but rather, a grouping of scenarios, each in itself comprising a problem, and any of these scenarios are more often complicated by a plethora of genetic and environmental causes.<sup>[25]</sup> Malocclusion has a negative effect on a person's lifestyle, since it causes psychological problems as well as other disruptions in eating, talking, and appearance.<sup>[26]</sup> Epidemiological research indicates that at least 70% of the population is affected by some form of occlusal malrelations. Orthodontic treatment aims to correct this malalignment. The financial status and educational knowledge created an increased perception of dental health and facial appearance, thus increasing those seeking orthodontic treatment.<sup>[27]</sup> The



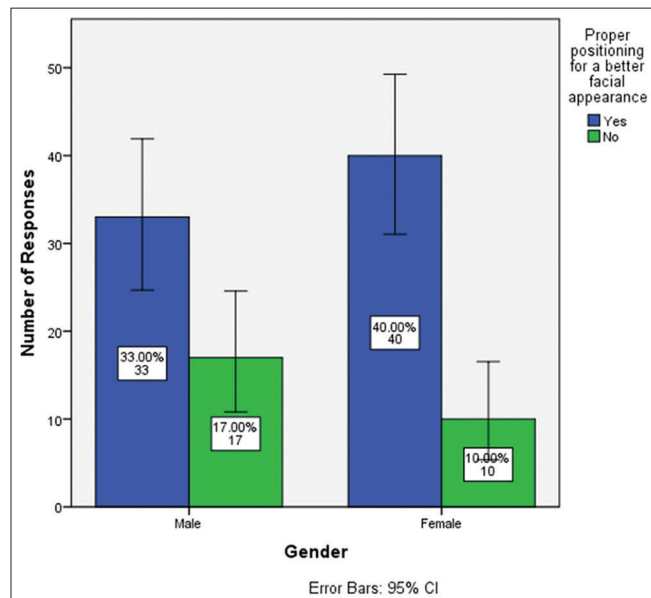
**Figure 1:** Among the total population, 53% of the population visited an orthodontist and 47% have not visited an orthodontist



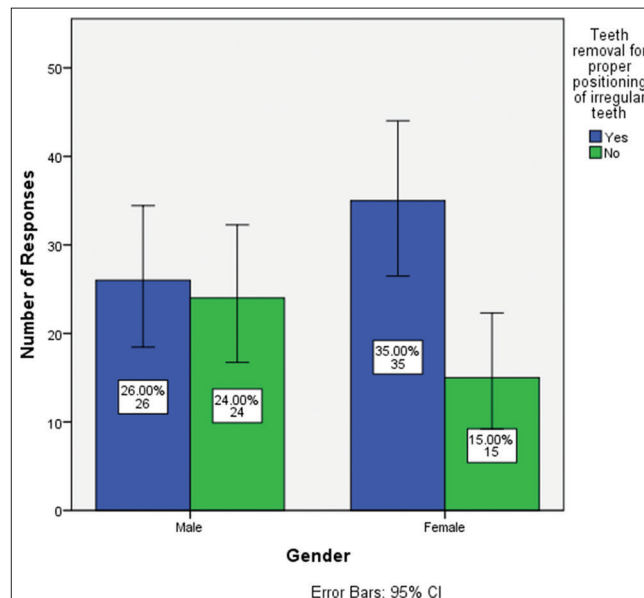
**Figure 2:** Seventy-nine percent of the total population thought that their teeth can be aligned correctly by an orthodontist, and the remaining 21% thought that it cannot be aligned correctly by an orthodontist



**Figure 3:** Among the total population, 73% thought that the teeth should be properly positioned for a better facial appearance, whereas the remaining 27% thought that no, it does not give any better facial appearance



**Figure 4:** The graphical presentation using the bar diagram depicts the possible association between gender and awareness about the teeth properly positioned for a better facial appearance. Gender distribution is depicted on X-axis, and Y-axis represents the frequency of responses in relation to awareness on the teeth positioning for a better facial appearance. Yes is represented using blue, and no is represented using green. Of 73% who are aware about teeth positioning for a better facial appearance, 33% were male and 40% were female. This difference was statistically not significant (Chi-square test;  $P = 0.115$  – not significant). CI: Confidence interval



**Figure 5:** Bar chart depicts the association between gender and awareness about tooth removal for proper positioning of irregular teeth. Gender distribution is depicted on the X-axis, and Y-axis represents the frequency of responses in relation to awareness about tooth removal for proper positioning of irregular teeth. Blue color represents yes, and green color represents no. Of 61% who are aware about tooth removal for proper positioning of irregular teeth, 26% were male and 35% were female. This difference was statistically not significant (Chi-square test;  $P = 0.065$  – not significant). CI: Confidence interval

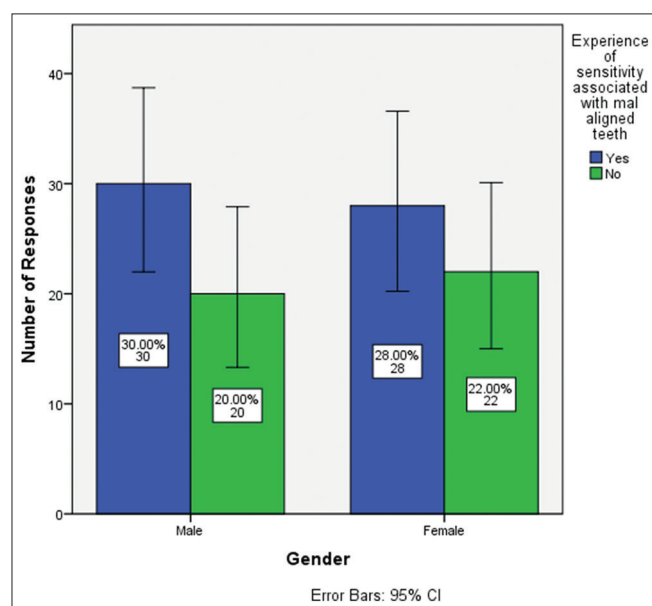
females are the ones which show off more to orthodontics treatment.<sup>[28]</sup> Malocclusion of teeth usually presents with increased inflammation of the gingiva due to the altered position of the gums and requires orthodontic correction.<sup>[29]</sup> From a periodontist’s point of view, irregularly positioned teeth tend to decrease the effect of mechanical tooth cleaning.<sup>[30]</sup> In order to provide satisfaction regarding an

orthodontic treatment, we need to take into consideration the socioeconomic background, the age and gender of a patient, and facial esthetics. When there is an increased satisfaction of the treatment results from the patient, there is an increase in cooperation, and this will enable more retention of the corrected orthodontic treatment and vice versa.<sup>[27]</sup>

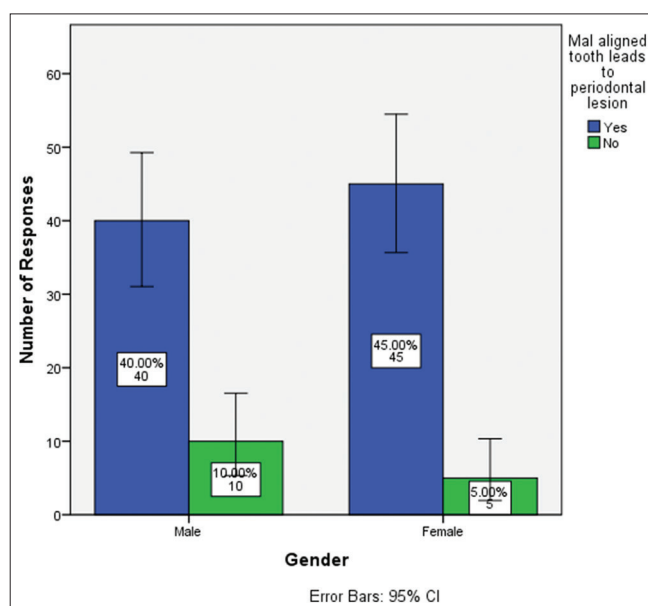
**Table 1: The percentage of responses toward orthodontic treatment**

Questions	Choices	Responses (%)	Male (%)	Female (%)	P
Have you ever visited an orthodontist?	Yes	53	32	21	0.028
	No	47	18	29	
Are you conscious that your teeth can be aligned correctly by an orthodontist?	Yes	79	29	50	0.001
	No	21	21	10	
Do you think that teeth should be properly positioned for a better facial appearance?	Yes	73	33	40	0.115
	No	27	17	10	
Do you know at what age orthodontic treatment should be started? (years)	Below 20	25	8	17	0.107
	20-30	45	26	19	
	30-40	30	16	14	
Do you think improperly positioned teeth can be corrected above 30 years also?	Yes	80	45	35	0.012
	No	20	5	15	
Do you know the cost of orthodontic treatment?	Yes	85	40	45	0.161
	No	15	10	5	
Do you know that taking proper orthodontic treatment at an early age would improve your facial appearance?	Yes	76	45	31	0.001
	No	24	5	19	
Are you aware that few teeth might be removed for proper positioning of irregular teeth?	Yes	61	26	35	0.065
	No	39	24	15	
Do you think there is a correlation between systemic disease and bleeding gums?	Yes	67	32	35	0.523
	No	33	18	15	
Have you ever experienced sensitivity associated with malaligned teeth?	Yes	58	30	28	0.685
	No	42	20	22	
Do you think malaligned teeth lead to periodontal lesion?	Yes	85	40	45	0.161
	No	15	10	5	

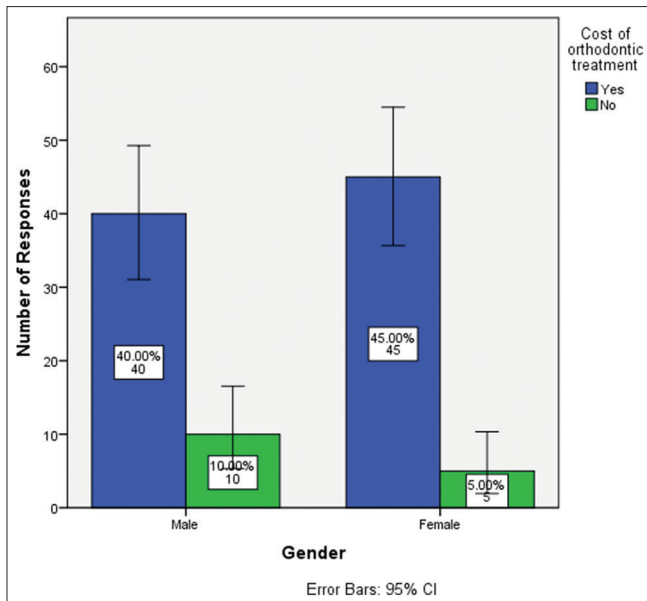
P value <0.05 statistically significant



**Figure 6:** Bar chart depicts the association between gender and experience of sensitivity associated with malaligned teeth. Gender distribution is depicted on the X-axis, and Y-axis represents the frequency of responses in relation to sensitivity associated with malaligned teeth. Blue represents yes, and green represents no. Of 58% who experienced sensitivity, 30% were male and 28% were female. This difference was statistically not significant (Chi-square test;  $P = 0.685$  – not significant). CI: Confidence interval



**Figure 7:** Bar chart depicts the association of gender and malaligned teeth leading to periodontal lesion. Gender distribution is depicted on the X-axis, and Y-axis represents the frequency of responses in relation to malaligned teeth leading to periodontal lesion. Blue represents yes, and green represents no. Of 85% who think that malaligned teeth lead to periodontal lesion, 40% were male and 45% were female. This difference was statistically not significant (Chi-square test;  $P = 0.161$  – not significant). CI: Confidence interval



**Figure 8:** Bar chart depicts the association of gender and awareness regarding the cost of orthodontic treatment. Gender distribution is depicted on the X-axis, and Y-axis represents the frequency of responses in relation to the cost of orthodontic treatment. Blue represents yes, and green represents no. Of 85% who were aware about the cost of orthodontic treatment, 40% were male and 45% were female. This difference was statistically not significant (Chi-square test;  $P = 0.161$  – not significant). CI: Confidence interval

The current study only evaluated 100 patients, and the sample included a population of mixed background. The small sample size is the study's main shortcoming. The future prospect of this study would be to re-evaluate using a large population, and a varied population would analyze the knowledge, attitude, and awareness toward orthodontic treatment among patients.

## CONCLUSION

The conclusion of this study is that those who participated in this survey have adequate knowledge, attitude, and awareness toward orthodontic treatment.

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## Conflicts of interest

There are no conflicts of interest.

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