

# Perception Towards Orthodontic Treatment of Patients Suffering from Malocclusion: A Cross Sectional Survey

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## ABSTRACT

**Objectives** – To evaluate the attitudes and perceptions of adults towards orthodontic treatment. To determine the motivating factor behind orthodontic treatment and the discomfort caused by fixed orthodontic appliances.

**Methods**- A cross sectional questionnaire based survey was conducted among 220 adult orthodontic patients from orthodontic outpatient visiting dental clinics. Ten items questionnaires were used to collect the data. Chi square test was applied by using S.P.S.S. software version 11.

**Results** –Maintaining oral hygiene with 41% emerged as a major perception towards orthodontic treatment, next problem faced is duration of treatment with 37.3% subjects reported. 86% subjects reported teeth as a major feature for facial aesthetics. Only 4.5 % of subjects reported orthodontic treatment expensive. There are 12% subjects feel that there is lack of information towards orthodontic treatment still prevailing.

**Conclusion** – The principal conclusion reported in present study is that people consider smile as a major factor for aesthetics. Reason for other patients not opting for ortho treatment is not because this being too expensive but lack of information. There has to be a special campaign towards educating school children towards treatment modalities present and what difference they can bring in someone's life.

**Keywords:** Malocclusions; orthodontic corrective; dental appearance

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## INTRODUCTION

Research has emphasized how, the more physically attractive person has an added advantage over his or her less attractive counterparts (1), be it in the social or career context. Enhancing appearance and improving psychosocial status have been put forth as important motivating factors behind an adult's decision to initiate orthodontic treatment (2-5). However research for initiating orthodontic treatment may vary across cultural and socio-economic backgrounds. Epidemiological studies on caries experience and patient demographic realities have encouraged both general dentists and orthodontists to incorporate adult orthodontic treatment into their practices. During fixed orthodontic treatment, carious lesions may occur in the form of white spots. These may constitute an aesthetic problem. The clinical management of white spot lesions remains

unresolved (6).

With more adults seeking orthodontic treatment practitioners should focus their attention beyond the orthodontic mechano-therapy to the more subjective aspects of patients discomfort and attitude towards treatment.

Patients face many problems to start up with orthodontic treatment; one of the most common reasons may be the lack of information followed by other reasons like fear of pain, embarrassment, expensive and long duration of treatment etc. Also there may arise problems in various part of mouth like in tongue, lips, cheeks, etc. Orthodontic treatment resulting in proper alignment of teeth seems to bring about many alterations in the patients life like in career opportunities, social interaction and confidence. This study attempts to identify favorable and unfavorable aspects of

orthodontic treatment from the patients' point of view and their motivation to accept and continue with treatment.

The aim of the present study was to assess the attitude and perception towards orthodontic treatment by patients suffering from malocclusion from a localized population.

**MATERIAL AND METHODS**

A cross sectional questionnaire based survey was conducted among 220 orthodontic patients from private dental clinics from Kasaragod, Kerala during the period of

January 2009. Kasaragod City is located in northern zone of Kerala State, known for its ship building industry. Informed consent was taken from the subjects before starting the study.

A formal letter of invitation was send by post to all the patients for getting enrolled in the study, the patients were asked to visit the clinic with a prior appointment during the first ten days of the month. All the patients with a positive consent were considered in the study and were provided with a questionnaire to be filled by them although they were free to come up with queries.

A 10-item questionnaire, designed to investigate patients attitudes and perception of orthodontic treatment, was administered to patients who were undergoing orthodontic treatment or had just completed orthodontic treatment with fixed labial metal brackets on both arches and bands on all the first molars. The questionnaires were filled by the patient and collected by the receptionist during their visit to dental clinic. Completed questionnaires were received from 220 patients.

**Statistical Analysis**

The responses were administered to the spread sheets for analysis. The data was analysed to determine the frequency distribution and percentage for each of the variables. Pre-test of the questionnaire was done before starting the survey The reliability of the questionnaire was assessed for all the questions which was reported to be more than 92.67% for every question. Chi square analysis was applied by using S.P.S.S. software (version 11.0)

**RESULTS**

Response rate for the present study was 76%. Table 1 reveals that the mean age of male was 22.54 ± 1.61 and female was 21.88 ± 1.83 year. Mean age and gender has a positive correlation.

Table 2 reveals that important motivating factor for orthodontic treatment was to attain straight teeth (73.6%) and improve dento facial appearance (19.1%). While 3.6% of subjects' sought treatment for health reasons, only 2.7% for improving self confidence and 0.9% for improving chewing.

Table-3 reveals that face shape (9.1%) were considered second in importance to teeth (86.4%). Interestingly only 0.9% subjects thought that noses, jaws were of prime importance in determining facial aesthetics.

Table 4 reveals that 61.8% subjects do not seek orthodontic treatment due to the time length of treatment and 12.7% patients due to lack of information.

Table 5 reveals that 21.8% of male subjects

**Table-1. Distribution of study population according to gender and mean age of subjects**

| Sex    | N   | Mean age | Std. deviation |
|--------|-----|----------|----------------|
| Male   | 100 | 22.54    | 1.61           |
| Female | 120 | 21.88    | 1.83           |

*t = 2.802, P=0.006*

**Table 2: Most important motivating factor for adult seeking orthodontic treatment**

|                              | Male  | Female | Total |
|------------------------------|-------|--------|-------|
| 1. Attain straight teeth     | 35.5% | 38.2%  | 73.6% |
| 2. Enhance facial appearance | 8.2%  | 10.9%  | 19.1% |
| 3. Improve speech            | 0%    | 0%     | 0%    |
| 4. Improve dental health     | 0%    | 3.6%   | 3.6%  |
| 5. Improve self confidence   | 1.8%  | 0.9%   | 2.7%  |
| 6- Improve chewing           | 0%    | 0.9%   | 0.9%  |

*Chi- square = 10.011, p=0.040*

**Table 3: facial features which are considered most important in determining facial aesthetic**

|                  | Male  | Female | Total |
|------------------|-------|--------|-------|
| 1 Complexion     | 0%    | 0.9%   | 0.9%  |
| 2. Face shape    | 3.6%  | 5.5%   | 9.1%  |
| 3. Teeth (smile) | 40.0% | 46.4%  | 86.4% |
| 4. Jaws          | 0.9%  | 0%     | 0.9%  |
| 5. Nose          | 0%    | 0.9%   | 0.9%  |
| 6. Hair          | 0.9%  | 0.9%   | 1.8%  |

*Chi- square=6.064, P=0.300*

**Table 4: Reason why they thought adults (other than themselves) with "crooked teeth" do not seek orthodontic treatment**

|                             | Male  | Female | Total |
|-----------------------------|-------|--------|-------|
| 1. Time/length of treatment | 30.9% | 30.9%  | 61.8% |
| 2. Too expensive            | 0.9%  | 3.6%   | 4.5%  |
| 3. EmbarrassmentS           | 2.7%  | 4.5%   | 7.3%  |
| 4. Apathy                   | 0.9%  | 0%     | 0.9%  |
| 5. Fear of pain             | 4.0%  | 7.2%   | 11.2% |
| 6. Lack of information      | 5.5%  | 7.3%   | 12.7% |

*Chi- square=7.703, P=0.1 73*

**Table 5: why did you wait till now to have orthodontic treatment**

|  | Male  | Female | Total |
|--|-------|--------|-------|
| 1. Could not afford treatment till now | 0%    | 3.6%   | 3.6%  |
| 2. Fear of Relapse                     | 21.8% | 14.5%  | 36.4% |
| 3. Teeth more crooked now              | 0%    | 2.7%   | 2.7%  |
| 4. Appearance starts affecting life    | 23.6% | 33.6%  | 57.3% |

*Chi- square=19.383, P=0.000*

**Table 6: Who referred you to or suggested orthodontic treatment?**

|                              | Male  | Female | Total |
|------------------------------|-------|--------|-------|
| 1. Relative/friend           | 2.7%  | 5.5%   | 8.2%  |
| 2. Self                      | 12.7% | 20.0%  | 32.7% |
| 3. Physician                 | 0%    | 0.9%   | 0.9%  |
| 4. Dentist/dental specialist | 30.0% | 28.2%  | 58.2% |

*Chi- square=5.911, P=0.116*

**Table 7: Patient’s perceptions about problems encountered during orthodontic treatment**

|                          | Male  | Female | Total |
|--------------------------|-------|--------|-------|
| Discomfort of braces     | 3.6%  | 11.8%  | 15%   |
| Speech                   | 2.7%  | 1.8%   | 4.5%  |
| Duration                 | 18.2% | 19.1%  | 37.3% |
| Embarrassment            | 0%    | 0%     | 0%    |
| Maintaining oral hygiene | 20.0% | 21.8%  | 41.8% |
| Appearance of braces     | 0.9%  | 0%     | 0.9%  |

*Chi- square=10.420, P=0.034*

**Table 8: Do you think that after your teeth were straightened the following areas of your life were/will be affected?**

|                          | Yes   |        |       |
|--------------------------|-------|--------|-------|
|                          | Male  | Female | Total |
| (A) Career opportunities | 7.3%  | 14.5%  | 21.8% |
| (B) Social interaction   | 39.1% | 42.7%  | 81.8% |
| (C) Confidence           | 42.7% | 48.2%  | 90.9% |

*Chi- square=10.420, P=0.034*

**Table 9: after the braces were fitted, did you have problem in?**

| Problems                      | Male  | Female | Total |
|-------------------------------|-------|--------|-------|
| 9 (A) Eating                  | 14.5% | 21.8%  | 36.4% |
| 9 (B) Speaking                | 14.5% | 15.5%  | 30.0% |
| 9 (C) Practicing Oral hygiene | 40.0% | 49.1%  | 89.1% |
| 9 (D) Teeth                   | 6.4%  | 13.6%  | 20.0% |
| 9 (E) Tongue                  | 7.3%  | 10.9%  | 18.2% |
| 9 (F) Cheeks/lips             | 30.0% | 38.2%  | 68.2% |

waited till now to have orthodontic treatment due to fear of relapse while 57.3% subjects waited because appearance has started affecting life now.

Table 6 reveals that 58.2% subjects were suggested by Dentist and Dental Specialist for orthodontic treatment, 32.7% were self suggested and 8.2% were suggested by

Relative/ Friends. Dentists suggestion for orthodontic treatment was more in male (30.0%) as compared to female (28.2%).

Table 7 reveals that maintaining oral hygiene and long duration of treatment were the most commonly encountered problems during orthodontic treatment according to the 41.8% and 37.3% subjects respectively.

Table 8 reveals that 21.8% of subjects felt that their career opportunities and prospects will be brighter after orthodontic treatment and 81.8% of subjects stated that social life will be improved.

Table 9 reveals that 68.2% of the subjects felt discomfort in the cheeks. As far as the tongue was concerned, 18.2% of patients experienced some soreness in tongue immediately post banding. The effect of braces on function was also determined. 36.4% of patient encountered some handicap in eating following banding 30% of the subjects experienced difficulty in speech. Oral hygiene practices during treatment were found to be more difficult in 89.1% of subjects.

**DISCUSSION**

Our results demonstrated that the improvement in self-confidence and physical attractiveness as a result of enhanced “dental” or facial appearance was the most important motivating factor for treatment. Improvement in psychosocial status resulting from orthodontic treatment should therefore be cited as an important factor for treatment, unfortunately, the commonly implemented orthodontic indices use to determine treatment priority do not take this factor into consideration (7-9), as psychological testing often requires the use of sophisticated questionnaires and professional evaluation.

Out of the total subjects visiting the clinics during the study period, 76 % of subjects were found interested in participating in the study. This low response rate could be because of the lack of incentive to take time off from their busy schedules. There is a possibility that only patient with somewhat positive views of treatment were responding to the survey. The demographic data suggested that the majority of adult patients were either students in tertiary institutions or professionals who had just entered working life.

It was interesting to note that improvement in self-confidence was rated

only second to the enhancement in dental aesthetics, when patients were asked for the main reason for them in seeking treatment. Furthermore, improvements in career opportunities, social life and self confidence following orthodontic treatment were seen as motivating factors in 21.8%, 81.8%, 90.9%, of patient's respectively. One notes therefore a link between physical appearances and mental well being.

Most of the patients felt that other adults who had crooked teeth did not seek treatment because of long duration of treatment; lack of information was the next most important reason. Unlike other studies (10,11), where fear was one of the key factors discouraging patients from seeking treatment, wearing braces among adults in our society is still not as accepted as Europe and America. With the advent of ceramic labial appliances and lingual orthodontic appliances the task of marketing orthodontics to adult should be less formidable. Dentists (more specifically the orthodontist and or oral surgeons) are capable of changing the arrangement of teeth, jaws and shape of face, which 96.4% of subjects considered "the most important facial feature" this fact high light the important role of the dental profession in determining facial aesthetics.

Dentists have a large part to play in recommending orthodontic treatment when indicated. The state health service should also strive to educate the public about dental and orthodontic treatment. In our study 32.7% patients seeking treatment were self referred and 58.2% were referred by dentist. This result was similar to study by Breece *et al* (12).

It also noted that 15.5% of subjects did not seek treatment earlier because they were unaware, confirming the findings of Breece and Neiberg (12) on 204 Caucasian patients who had completed orthodontic treatment. This may point to a weakness in dental health education program and should signal more consented effort by the health educators in making patients aware of dentistry as a contributing factor to health.

With the advancement in orthodontic

materials (aesthetics and a better understanding of the histology of tooth moments, the adult to children patient ratio in orthodontic practices has increased dramatically. Unfortunately few studies have been published on the discomfort involved in orthodontic tooth movement in adults. The discomfort following orthodontic tooth movement is often described in standard textbooks to last for about 1-2 days (13), was found in the present study to affect teeth, cheeks, lips and tongue.

Our study showed that perception towards pain caused by orthodontic appliances had a wide range of individual response, reflecting the subjectivity of the pain response. This difficulty could be brought on by the discomfort of foreign attachments on the surface of teeth and the tenderness on activation of the arch wire. Practitioners should therefore attempt to control post adjustment orthodontic pain via several means such as dietary restrictors (soft diet) and non steroidal anti-inflammatory agents such as aspirin and ibuprofen immediately following bending or in patients who experience repeated post-adjustment pain.

Difficulty in speech was experienced by 30% of patients in our study while several studies on lingual orthodontic patients have implicated tongue soreness as the main contributor to speech problems (14, 15). Our results also showed an almost similar percentage of patients with speech problems and tongue soreness.

Several authors have suggested that motivation plays a key role in successful adult orthodontic therapy (16-19). The importance of a dentist educating his patient about the benefits of orthodontic treatment need not be over-emphasized (16, 17).

## CONCLUSION

The principal conclusion reported in present study is that people consider smile as a major factor for aesthetics. Reason for other patients not opting for ortho treatment is not because this being too expensive but lack of information. There

has to be a special campaign towards educating school children towards treatment modalities present and what difference they can bring in someone's life.

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