# The Prevalence of Malocclusion in Dental Students and Reasons for Avoiding Orthodontic Treatment

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## ABSTRACT

**Introduction-**The aim of this study is to describe the prevalence of malocclusion among dental students assessing occlusal morphology and to determine reasons for avoiding orthodontic treatment. **Material and methods**-The study included 302 dental students. According to Angle's classification relationship of maxillary and mandibular first molar is assessed along with crowding, spacing, overbite, overjet. Questionnaire is prepared, and students with malocclusion are asked about the reasons for not seeking orthodontic treatment. **Results**- Malocclusion among dental students is 71.19%. Prevalence of crowding in the lower arch is 29.76% and class I malocclusion is 92.58%. Long duration of treatment (28.17%), pain during treatment (26.23%) and subjective fear (26.23%) are most common reasons for avoiding orthodontic treatment. **Conclusion**- The prevalence of malocclusion among dental students is 71.19 %. Long duration of treatment is considered as most commonest reason for avoiding orthodontic treatment.

KEYWORDS: Dental students, Malocclusion, Orthodontic treatment, prevalence.

## INTRODUCTION

The epidemiological data plays an important role to determine the prevalence of malocclusion and planning appropriate levels of orthodontic services.[1] Malocclusion is an irregularity or malalignment of the teeth or a malrelationship of the dental arches beyond the range of what is accepted as normal.[2] Although malocclusion is not life-threatening,[3] it is considered to be a public health problem because of its high prevalence.[4] Among worldwide dental public health priorities, malocclusion ranks the 3rd highest prevalence among oral pathologies.[5]

Various etiological factors responsible for orofacial adaptability leads to malocclusion,[5] which ultimately leads to psychosocial problems related to impaired dentofacial aesthetics, disturbances in masticatory function, swallowing and phonetics and increased susceptibility to trauma and diseases of peridontium.[2]

World Health Organization (WHO), states the importance of periodic epidemiological surveys. The epidemiological data on necessity of orthodontic treatment helps in screening out disease as well as planning for resources and formulating treatment modalities.[5]

Outcome of orthodontic treatment depends on many factors, one of it is patient's attitude towards treatment, being aware of fact that we need orthodontic treatment

many of patients avoid it because of reasons such as long duration of treatment, pain during treatment, subjective fear, fear of relapse, expenses, etc.. Most often question asked by new orthodontic patients is regarding time span required for orthodontic treatment. Numbers of factors are responsible to influence duration of treatment.[6] Another factor, fear of pain is one of the key factors that may discourage a patient from seeking orthodontic treatment. Before starting orthodontic treatment patients are informed about pain and discomfort associated with insertion of separators and arch wires. However, the intensity and duration of discomfort may not always be discussed.[7] So it affects patient's compliances towards the treatment and indirectly spreads subjective fear about treatment. The subject of failure or relapse is as vast as field of orthodontics itself. In fact, every time orthodontists undertake to treat a malocclusion, orthodontist assumes that odds favor success but possibility of failure, if not total, exists in some degree.

So to study potential predictability by patients attitude to treatment and to evaluate the effects of discomfort as predictors of patients compliance, as there is a relationship between the complaints, acceptance and results of treatment. This study states about patient's reasons for avoiding orthodontic treatment for practice management of orthodontic patients, and the necessity for early intervention by clinicians.[9]

Owing to above mentioned issues and dearth of information regarding malocclusion prevalence in dental students, so objectives of this study are-

- To assess the prevalence of malocclusion in dental students.
- To determine reasons for not seeking orthodontic treatment.

## MATERIALS AND METHODS

The study includes dental students. 302 students are examined by one examiner in K.B.H. dental college, Nashik. The crowding, spacing, overbite, overjet, proclination, relationship of the first upper and lower molars according to Angle's classification is recorded. Questionnaire is prepared, and students with malocclusion are asked about the reasons for not seeking orthodontic treatment.

-Overjet (OJ), the horizontal distance between incisal edges of the upper central incisor and the labial surface of the lower central incisor, measured in millimeters. The overjet from 0 mm to 2 mm is accepted as normal.

-Overbite (OB), vertical overlap of the edge of the lower central incisor and upper central incisor edge, measured in millimeters and considered as normal overbite (from0 to 2.0 mm), and when it is more than 3 mm then considered as a deep bite.

-Relationship of the first upper and lower molars is evaluated according to Angle's classification: class I, the mesiobuccal cusp of the maxillary 1$^{st}$ molar occludes with the buccal groove of the first lower molar; class II when the mandibular 1$^{st}$ molar is in disto occlusion relative to the maxillary 1$^{st}$ molar; and class III when, the mandibular 1$^{st}$ molar is in mesio occlusion relative to the first upper molar. With the above information prevalence of malocclusion and reasons for not seeking orthodontic treatment are determined.

## RESULTS

The study demonstrated that only 87 students i.e. 28.81% have normal occlusion which requires no orthodontic treatment, malocclusion is observed in 215 students i.e. 71.19%, class I malocclusion is observed in 199 students i.e. 92.58%, class II malocclusion is, observed in 11 students i.e. 5.30%, class III malocclusion is observed in 5 students i.e. 1.32%, crowding in upper arch is observed in 28 students i.e.13.02%, crowding in the lower arch is observed in 64 students i.e. 29.76%, crowding in both upper and lower arch is observed in 33 students i.e. 15.34%, Spacing in the upper arch is observed in 35 students i.e 16.27%, Spacing in both upper and lower arch is observed in 10 students i.e. 4.65%, proclination of upper anteriors is observed in 27 students i.e. 12.55%, proclination of lower anteriors is observed in 18 students i.e. 8.37%, deep bite is observed in 9 students i.e. 4.18%, increased overjet is observed in 9 students i.e 4.18%.(Table 1,2,3)

| | Normal Occlusion | Cl.I Malocclusion | Cl. Ii Malocclusion | Cl.Iii Malocclusion |
|---|---|---|---|---|
| **No. Of Students** | 87 | 199 | 11 | 5 |
| **Prevalence** | 28.81% | 92.58% | 5.30% | 1.32% |

Table 1- Prevalence of Malocclusion.

| | Spacing Upper Arch | Spacing Upper And Lower Arch | Proclination Upper Anteriors | Proclination Lower Anteriors |
|---|---|---|---|---|
| **No.Of Students** | 32 | 10 | 25 | 15 |
| **Prevalence** | 14.88% | 4.65% | 11.63% | 6.98% |

Table 2- Prevalance Of Malocclusion

| | Crowding Upper Arch | Crowding Lower Arch | Crowding Upper And Lower Arch | Increased Overjet | Deep Bite |
|---|---|---|---|---|---|
| **No. Of Students** | 25 | 60 | 30 | 9 | 9 |
| **Prevalence** | 11.63% | 27.90% | 13.95% | 4.19% | 4.18% |

Table 3- Prevalance Of Malocclusion

Among reasons for avoiding orthodontic treatment (Table 4), 28.17% students believe orthodontic treatment as long duration treatment, 26.23% students have subjective fear about treatment, 21.78% avoid it because of pain during treatment, 13.36% students neglected orthodontic treatment, 6.43% students feels orthodontic treatment expensive, 3.46% students avoid it because of fear of relapse.[8]

| Reasons | Long Duration | Pain | Negligence | Expensive | Relapse |
|---|---|---|---|---|---|
| % of Students | 38.13% | 35.81% | 14.41% | 7.44% | 4.21% |

Table 4- Reasons For Avoiding Orthodontic Treatment

## DISCUSSION

The present study is carried out to evaluate the prevalence of malocclusion among dental students in Nashik and to determine reasons for avoiding orthodontic treatment. This study demonstrated that 215 students i.e. 71.19% have malocclusion, 199 students i.e. 92.58% of having class I malocclusion, 11 students i.e. 5.30% have class II

malocclusion whereas 5 students i.e. 1.32% have class III malocclusion. Crowding in lower arch is observed in 64 students i.e. 29.76% and is most common type of malocclusion. Many studies have reported on contributing to dental crowding. Harvold focused on effect of soft tissue pressure and reported that the volume and position of tongue are related to dental crowding. Moss and Picton reported that tooth inclination was influenced by check pressure. In a longitudinal investigation, Richardson pointed out that movement of erupted first molar is important for late lower arch crowding.[13] crowding in upper arch is observed in 28 students i.e.13.02%, crowding in both upper and lower arch is observed in 33 students i.e. 15.34%, Spacing in the upper arch is observed in 35 students i.e 16.27%, Spacing in both upper and lower arch is observed in 10 students i.e. 4.65%, proclination of upper anteriors is observed in 27 students i.e. 12.55%, proclination of lower anteriors is observed in 18 students i.e. 8.37%, deep bite is observed in 9 students i.e. 4.18%, increased overjet is observed in 9 students i.e 4.18%.

Similar studies have been conducted in Hong Kong male dental students and results were the most commonly occurring in following sequence, first - Crowding (38.9 %), second - Class II malocclusion (21.3 %), and third - Class III malocclusion (14.8 %). [10]

Similar studies occurred in 7–15-year-old Lithuanian schoolchildren, results of study the prevalence of malocclusion among 10–15- year-old schoolchildren is 84.6%. The most common malocclusion was dental crowding. The crowding in maxillary arch was found to be 44.1% and for mandibular arch 40.3% of all schoolchildren. The class I malocclusion was detected in 68.4% of the individuals while class II malocclusion was found in 27.7%; and class III in 2.8%.[1]

Among reasons for avoiding orthodontic treatment 28.17% students believe orthodontic treatment as long duration, 26.23% students avoid treatment because of subjective fear, 26.23% avoid it because of pain during treatment, 13.36% students neglected orthodontic treatment, 6.43% students feels orthodontic treatment expensive, 3.46% students avoid it because of fear of relapse.

Study has been conducted regarding attitude and perception of adults towards orthodontic treatment the principal conclusions were, enhanced dento-facial aesthetics due to orthodontic treatment increases their self-confidence and self-esteem in a majority of patients; pain and uneasiness in oral soft cavity were transient and did not exceed 7 days. These results may be helpful in correlating problem level of future orthodontic patients. It was also evident in the study that several cross-cultural differences existed in the attitudes of our patients compared to those reported in Caucasians. [11]

When conducting an initial consultation, every clinician is called upon to answer questions regarding the duration of the treatment proposed, which is influenced by many factors. Success in orthodontic practice is influenced by

an accurate prediction of treatment duration. In a 2003 orthodontic practice survey, finishing a case in the predicted time was considered an important practice building method. Patients who are informed initially and accurately are excellent consumers of dental services, with more reasonable expectations of treatment outcomes, and more greatly satisfied with their overall treatment. Cost efficiency is an important concept in modern health care and prolonged treatment time may be detrimental to the 'profitability' of practice or a national health care system. Shorter treatments are also desirable in view of the briefer exposure to possible harmful side-effects.[12] Therefore, it is to the benefit of both the patient and the profession to present reliable information regarding the duration, pain and cost of treatment that will ultimately remove fear of orthodontic treatment from patients mind.

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