# Is orthodontic treatment important? An assessment of attitude towards malocclusion among students of Jorpati, Nepal

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## ABSTRACT

Malocclusion describes a spectrum of deviation from the normal or ideal occlusion to very severe anomalies. Malocclusion was classified under the heading of handicapping dentofacal anomalies by the World Health Organization. Determining the attitude and perception towards malocclusion and assessment of the desire for orthodontic treatment is necessary for planning orthodontic treatment and motivating patients.The study population consisted of 120 individuals, 66 boys (55%) and 54 girls (45%) within the age range of 10-15 years (mean age of 10.8 years),attending senior class of high school in Kathmandu, Nepal. In this study, 77.3% of the study population considered well arranged teeth important for overall facial esthetics. There was no statistically significant difference between the genders with respect to their satisfaction to arrangement of their teeth. Both genders considered well arranged teeth important for overall facial esthetics, 77.4% of females and 77.1% of males considered well arranged teeth important aesthetically. Among the total respondents, 40.9% of the children examined revealed necessity for orthodontic treatment. This study was done to determine the attitude and perception of individuals towards malocclusion and assess their desire for orthodontic treatment among Nepalese students age 10-15 years studying in Jorpati, Kathmandu

**Keywords:** malocclusion, orthodontics, WHO FDI occlusal trait.

## INTRODUCTION

Malocclusion describes a spectrum of deviation from the normal or ideal occlusion to very severe anomalies. Malocclusion was classified under the heading of handicapping dentofacal anomalies by the World Health Organization.[1] Normal occlusion in the biological sense implies a range of variation in tooth alignment and jaw relationships, which is compatible with normal function and the absence of disease.[2] Hence, malocclusion is an appreciable deviation from the ideal that may be considered aesthetically or functionally unsatisfactory.[3] Malocclusion is not a disease but rather a set of dental deviations, which in some cases can influence quality of life. Several orthodontic researches have revealed that an important motivation for orthodontic treatment is usually improvement in one's dento-facial appearance.[4-6] Various studies on the attitude of children and adolescents towards malocclusionespecially among the Indian population revealed increased concern for dental appearance and desire for orthodontic treatment.[7,8]A study done by Rajagopal *et al*evaluated the attitudes and perceptions of adults towards orthodontic treatment.[7]This study revealed that people considered smile a major factor for aesthetics. Reason for other patients not opting for orthodontic treatment was not because this being too expensive but lack of information. Another study done by Latif in Saudi Arabia to determine the effect of gender on attitudes towards malocclusion and

the perception of treatment need among Saudi children found that majority of the subjects indicated a negative attitude towards malocclusion and showed a desire for orthodontic treatment mainly for aesthetic improvement.[9] Similar study performed including Malaysian population aged 10 – 35 years by Bailwad *et al*revealed mixed reaction towards orthodontic treatment, however,the majority agreed that orthodontic treatment would improve their mental and physical well being.[10] It was seen that there was a strong relationship between malocclusion and mental and physical well being of people.[8] In a study done in India, children aged 10-15 years old attending schools dependant on armed forces personnel were selected. A survey form was filled up after the examination of children by the principal worker and need for orthodontic treatment was assessed using index for orthodontic treatment need (IOTN) and overall oral health status by DMFT index.[11]Emmanuel *et al* studied the attitudes to malocclusion and orthodontic treatment need among school children in Lagos, Nigeria. Moderate concern for malocclusion was observed among school children in Lagos and orthodontic treatment was considered necessary and urgent in about thirty percent of these children with a significant higher need in the girls.[12]The aim of this study is to determine attitude and perception towards malocclusion and assess the desire for orthodontic treatment among students age 10-15 years studying in Jorpati, Kathmandu, Nepal .

## MATERIALS AND METHODS

This was a descriptive study done among 120 respondents attending a high school in Jorpati,Kathmandu,Nepal. Data collection was done with the means of a validated questionnaire consisting of two sections.The first section comprised of questions to assess the demographic factors and the second section to assess attitude and perception of the students.The attitude to malocclusion was determined from the response to fixed choice questions while the need for orthodontic treatment was assessed by clinical examination of each child using the WHO-FDI basic method for recording occlusal traits,which is as follows.[13] The need for orthodontic treatment was classified into four groups using WHO-FDI Basic method for recording occlusal traits (Bezroukov *et al*, 1979) as follows:

Urgent: Extreme cases with esthetic or functionally handicapping anomalies

**Necessary:** Child showing some of risks of caries, periodontal disease, trauma or root resorption; or masticatory disturbances; socio-psychological disturbances

**Doubtful:** Cases that should be monitored before making any final decision

**Not necessary:** Examination of the respondents was performed in their classroom with illumination provided by natural light using mouth mirror and dental probe,in a systemic manner involving the entire oral cavity.

Percentage of satisfaction was taken from a study conducted in Nigeria and the minimum sample size was estimated to be 96.[12] An excess of 20% was taken to cover withdrawal issues sample size of 120 was taken for the study.Written and informed consent was taken from the patients prior to the examination. The study population consisted of randomly selected one hundred and twenty children, 66 boys (55%) and 54 girls (45%) within the age range of 10-15 years (mean age of 10.8 years) attending senior class of high school in Kathmandu,Nepal. None of the children had any previous history of orthodontic treatment. Purposive sampling was done to select Jorpati from schools in Kathmandu. From among 46 schools in Jorpati, one school was selected randomly. Students of age 10-15 years, fulfilling the inclusion criteria, were involved in the study on a first come first serve basis.All patients having full complement of permanent dentition including first and second molars and willing to participate in the study with a pre signed informed consent form were included in the study.The patients with missing tooth/teeth, undertaking medications, having systemic problems, having defect in hard and soft tissue morphology, para functional habits, wearing fixed/removable orthodontic appliances and those unwilling to participate were excluded. Patients who refused to participate in any part of the study were discontinued from the study.The duration of data collection was one month.All recorded data was entered and statistically analyzed using SPSS version 17.Descriptive statistics was computed for mean. Pearson's chi square tests was done to determine levels of associations between the variables.Ethical clearance was obtained from the internal review board for the Ethical Clearance from Nepal Medical College. (REF NO# 41-072/073) Written consent form from the patients was obtained before performing the study.

## RESULTS

In this study, respondents belonged to the age group of 10-15 years. Out of the total population, 51.8 % belonged to age group 10-12 years and 48.2% belonged to 13-15 years,among which 43.6% were male and 56.4% were female (Table 1).

**Table 1:** Distribution of population

| Variable | | N | % |
|---|---|---|---|
| Age group | 10-12 yrs | 57 | 51.8 |
| | 13-15 yrs | 53 | 48.2 |
| Gender | Female | 62 | 56.36 |
| | Male | 48 | 43.64 |
| | Total | 110 | 100 |

There was no statistically significant difference in satisfaction to teeth arrangement among the two genders. (Table 2).

**Table 2:** Satisfaction towards teeth arrangement

| | | | Satisfaction | | | Total |
|---|---|---|---|---|---|---|
| | | | yes | no | dont know | |
| Gender | Female | Number | 31 | 29 | 2 | 62 |
| | | % | 50.0 | 46.8 | 3.2 | 100.0% |
| | Male | Number | 25 | 20 | 3 | 48 |
| | | % | 52.1 | 41.7 | 6.2 | 100.0% |
| Total | | Number | 56 | 49 | 5 | 110 |
| | | % | 50.9 | 44.5 | 4.5 | 100.0% |

72.6% female and 70.9% of male study population wanted to undergo orthodontic treatment for straightening their teeth (Table 3).

**Table 3:** Do you want your teeth to be straightened- By gender

| | | | straightened | | Total |
|---|---|---|---|---|---|
| | | | yes | no | |
| Gender | Female | Number | 45 | 17 | 62 |
| | | % | 72.6 | 27.4 | 100.0% |
| | Male | Number | 34 | 14 | 48 |
| | | % | 70.8 | 29.2 | 100.0% |
| Total | | Number | 79 | 31 | 110 |
| | | % | 71.8% | 28.2% | 100.0% |

**Table 4:** Do you consider well arranged teeth necessary for overall esthetics-Response by Gender

| | | | Well Arranged | | | Total |
|---|---|---|---|---|---|---|
| | | | yes | no | dont know | |
| Gender | Female | Number | 48 | 9 | 5 | 62 |
| | | % | 77.4 | 14.5 | 8.1 | 100.0% |
| | Male | N | 37 | 6 | 5 | 48 |
| | | % | 77.1 | 12.5 | 10.4 | 100.0% |
| Total | | N | 85 | 15 | 10 | 110 |
| | | % | 77.3 | 13.6 | 9.1 | 100.0% |

From among the total respondents,77.3% of the study population considered well arranged teeth was important for overall facial esthetics (Table 4). There was no statistically significant difference between males (70.8%) and females (72.6%) in context to their desire for orthodontic treatment (p-value >0.05) (Table 5). Both genders considered well arranged teeth were important for overall facial esthetics, 77.4% of females and 77.1% of males considered well arranged teeth were important (Table 5).

However, this was not statistically significant. Among the total, 40.9% of the children examined revealed necessity for orthodontic treatment (Table 5). There was greater need of orthodontic treatment among females (41.9%) compared to males (39.6%) (Table 5).

Females showed greater dissatisfaction (41.9%) and desire for orthodontic treatment compared to males (35.4%) (Table 6).

## DISCUSSION

In the present study, attitude towards malocclusion and need for orthodontic treatment was evaluated among Nepalese school population. These resultsare in accordance with a study performed in India.People considered smile as a major factor for aesthetics and they were motivated to undergo orthodontic treatment for correction of their malocclusion.[7] A study done in Nigeria showed similar concern of students towards increase in Orthodontic care.[12] In most developing countries, malocclusion is still not considered a dental problem,which could be due to its aesthetic

**Table 6:** Desire for Orthodontic Treatment

| Variable | Frequency | Percent |
|---|---|---|
| Dissatisfied,desired treatment | 43 | 39.1 |
| Dissatisfied,did not want treatment | 6 | 5.5 |
| Satisfied,desired treatment | 32 | 29.1 |
| Satisfied,did not want treatment | 24 | 21.8 |
| Indecisive responses | 5 | 4.5 |
| Total | 110 | 100.0 |

component and alsosince more priority is given to the treatment of dental caries and periodontal diseases due to the pain experienced by them. Most malocclusion cases are not given priority for dental treatment due to ignorance of patients regarding the long term consequences, unwilling parents, inadequacy of resources, lack of knowledge about malocclusion and other influencing factors like literacy rate and socio-economic status. The level of dental health knowledge, positive dental health attitude, and dental health behavior are interlinked and associated with the level of education and income as demonstrated by studies in the past.[5] Attitudes and perceptions towards dental appearance differ among populations and among individuals.[11] Although age-related changes in malocclusion concerns ideally should be studied longitudinally, the present study allowed comparison between different age groups by means of a cross-sectional study. Malocclusion has an impact on the social and the psychological behavior of an individual, hence knowledge on how individuals perceive and react to malocclusion in a community is necessary for effective orthodontic treatment and care. The children revealed moderate level of awareness about malocclusion. This survey supports the study done by Roopa Siddegowda*et al*, stating both boys and girls exhibit same level of awareness in relation to Orthodontic treatment.[8]

However, the present study being a descriptive design cannot be used to draw causal relationships between the variables. An experimental study is further recommended.

**Table 5:** Need for orthodontic treatment by Gender

| | | | Need not necessary | doubtful | necessary | urgent | Total |
|---|---|---|---|---|---|---|---|
| gender | female | Number | 10 | 18 | 26 | 8 | 62 |
| | | % | 16.1% | 29.0% | 41.9% | 12.9% | 100.0% |
| | male | Number | 7 | 16 | 19 | 6 | 48 |
| | | % | 14.6% | 33.3% | 39.6% | 12.5% | 100.0% |
| Total | | Number | 17 | 34 | 45 | 14 | 110 |
| | | % | 15.5% | 30.9% | 40.9% | 12.7% | 100.0% |

## ACKNOWLEDGEMENTS

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