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# Impact of malocclusion on self-esteem and oral health-related quality of life in school going children: A retrospective study

Dr.Deepali kirtiwar, Dr.ArchanaJatania, Dr.Anurag Tiwari, Dr.Gayatree Peshne.

*MDS (Orthodontics And Dentofacial Orthopaedics)*
*Postgraguate student SaraswatiDhanwantari Dental College and Research centre, Parbhani*
*MDS (Orthodontics And Dentofacial Orthopaedics) Professor and Postgraduate guide*
*SaraswatiDhanwantari Dental College and Research centre, Parbhani*
*MDS (Orthodontics And Dentofacial Orthopaedics) Senior Lecturer*
*SaraswatiDhanwantari Dental College and Research centre, Parbhani*
*MDS (Orthodontics And Dentofacial Orthopaedics) Postgraguate student*
*SaraswatiDhanwantari Dental College and Research centre, Parbhani*

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**ABSTRACT:**
**Introduction:** Malocclusion is a highly prevalent public health problem, and several studies have shown its negative correlation with oral health related quality of life and self-esteem. **Materials and methods: Sample selection:** 128 Participants in this study were randomly selected from schools in Maharashtra aged 12 to 18 years. Data collection was done using a self-structured questionnaire consisting of 13 questions like upper front teeth are sticking out, lower front teeth are sticking out, do you feel uncomfortable that your teeth is too large or small. **Results:**The results showed that extreme maxillary overjet (> 4 mm, > 6 mm, > 9 mm), extreme deep overbite, and having space between anterior teeth or missing teeth were the types of malocclusion with the strongest relations to self-esteem and negative impact on quality of life. **Conclusion**: Malocclusion has been reported to have a negative impact on a child's self-esteem.
**(Keywords:** malocclusion, prevalence, self-esteem, overjet, overbite.)

## I. INTRODUCTION

Malocclusion is a highly prevalent public health problem and several studies have shown its negative correlation with self-esteem and social perceptions which affects quality of life and bullyingin school going childrens.[1,2]

Quality of life is a concept that includes several things, such as the subjective perception of physical, psychological, and social functions, in addition to a subjective sense of well-being. Oral health is crucial for good quality of life as it may have an impact on children's feeding, smiling, speaking, and socializing. Facial appearance can influence self-esteem and emotional well-being, playing an important role in social interaction. Changes in these functions will consequently affect children's quality of life.[3]

Bullying is defined as a practice of aggressive behaviour or intentional harm to which an individual is repeatedly exposed in a relationship characterized by an imbalance of power. Bullying may be direct, when it involves physical or verbal aggression, or indirect, when it involves manipulation of social relationships with gossips, which is the most frequent direct form and it consist of verbal abuse.

Within the school area, playground is the most common site for bullying. Persistent bullying can result in both physiological and psychological effects on child.

The general physical characteristics most commonly observed for bullying are weight, height, and facial appearance.It is said that the dentofacial region significantly contributes togeneral facial appearance and a harmonious smile plays an important role in facial beauty. Such Physical characteristics and esthetic patterns are remarkably meaningful in society, and this patterns are observed both in childhood and adolescence.[4,5,6]

Orthodontic treatment is commonly prescibed in childrensexperiencing teasing or bullying related to their dental appearance.

The study aimed to measure the self-reported frequency and severity of bullying in orthodontic patients and its effect on oral health related quality of life and to investigate the relationship between malocclusion, individual's self-esteem, self-reported bullying and need for orthodontic treatment.

## II. MATERIALS AND METHODS:

**Ethical clearance no: SDDCH./Admin/637/2021**

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**Study design:**A retrospective study.
**Method:**128school going children in Maharashtra were included.
**Data collection**: Participants in the study were school going children in Maharashtra aged 12 to 18 years. Most of the children were motivated by their parents for orthodontic consultation. A convenient consecutive sampling techniqueis used.
Data collection was done using a self-structured questionnaire consisting of 13 questions like upper front teeth are sticking out, lower front teeth are sticking out, do you feel uncomfortable that your teeth is too large or small, did people make fun of you beacause of your teeth.
Google forms were used to collect the data and circulate among the students. Questions were based on patient opinion, experience.
Data analysis done using SPSS.

## III. STATISTICAL ANALYSIS:

Sample size estimation - The sample size (n) is derived by using the "Sample size for Frequency in a Population" formula,

$$\text{Sample size (n)} = \frac{[DEFF*Np(1-p)]}{[(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]}$$

Where, N = Population size (for finite population correction factor) (et al) = 1134
p = Hypothesized % frequency of outcome factor in the population = 10.4%
d = Confidence limits as % of 100 (absolute +/- %) = 5%
DEFF = Design effect (for cluster surveys) = 1
$Z_{1-\alpha/2}$– critical value at confidence level of 95%, α is 0.05 and the critical value is 1.96,

Substituting the values in the above formula,

$$n = \frac{\{1*(1134*10.4)(1-10.4)}{[(5)^2/(1.96)^2 *(1134-1)+\{10.4*(1-10.4)\}]}$$

n = 127.67 ~ 128
A total sample size of 128 participants is required for the study.

Method of statistical analysis -

- Data obtained will be entered in Microsoft Excel 2007/2013
- Descriptive and Frequency analysis will be done by using SPSS (v.21.0) statistical software.
- p value of <0.05 will be considered statistically significant at 95% confidence intervals
- Chi-square test of proportion will be performed, if required for significance within parameters.
- Non-parametric tests will be performed wherever required.

## IV. RESULTS:

Method of statistical analysis – Data obtained was entered in Microsoft Excel (v.2013). Statistical analysis was performed using Statistical package for social sciences (SPSS) software (v.21.0). Frequency statistics was performed for each item of the questionnaire. Chi-square test of proportion was performed to determine significant differences within each question. All statistical tests were performed at 95% confidence intervals; keeping p value of less than 0.05 as statistically significant.

Result of this questionnaire shows that upper front teeth were sticking out in 59 children i.e. 46.5%, the frequency of lower front teeth sticking out were 37 i.e. 29.1%.The percentage of chin placed far back and chin placed forwardly were 28.8%, response to the question like do you feel uncomfortable that your teeth is too large or small were 48.8% children feel the same and 45.2 % children does not feel the same as shown in table 1.

44.1% children have gap between their teeth or missing teeth.33.1% children showing too much gums above upper front teeth when they are smiling, 33.3% childrens unable to close their lips uncomfortably. 57 children were present with crowding. Response to the question like are your lower teeth placed forward in relation to upper

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teeth 31 children saying yes and 96 children out of 128 saying no to it as shown in table 2.

45.7% children feel uncomfortable when smiling and 54.3% does not feel the same. 31.1% children get bullied because of their teeth. 40.9% children felt difficulty in maintaining oral hygiene because of their teeth as shown in table 3.

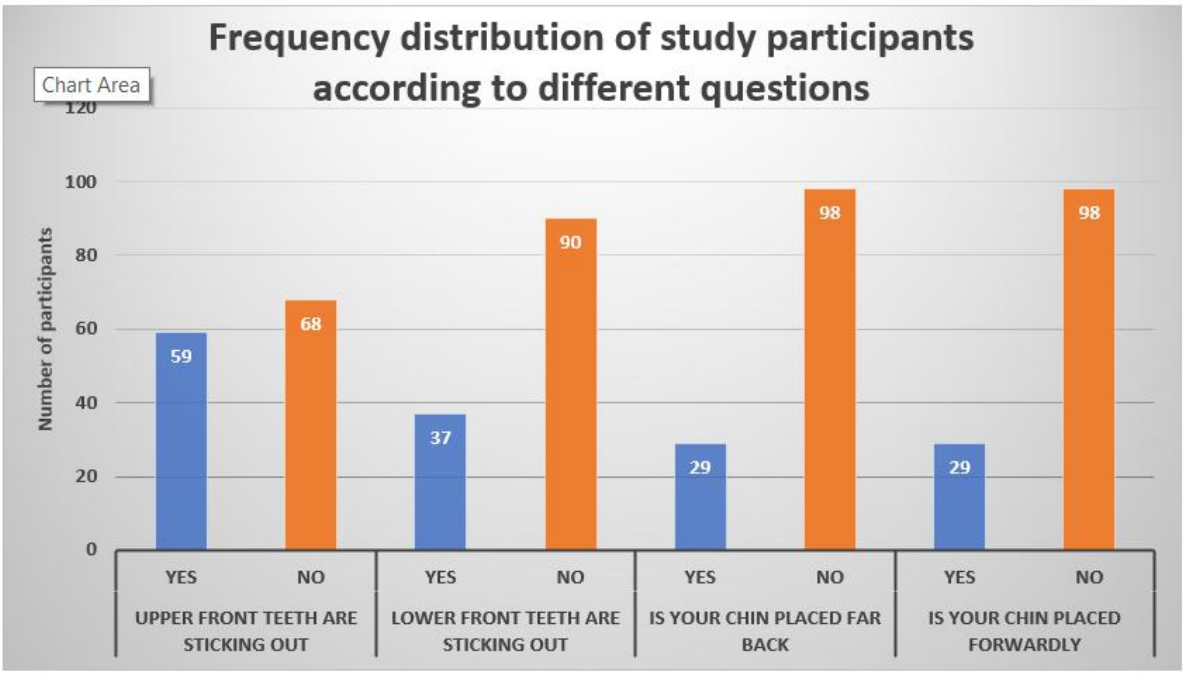


Table 1

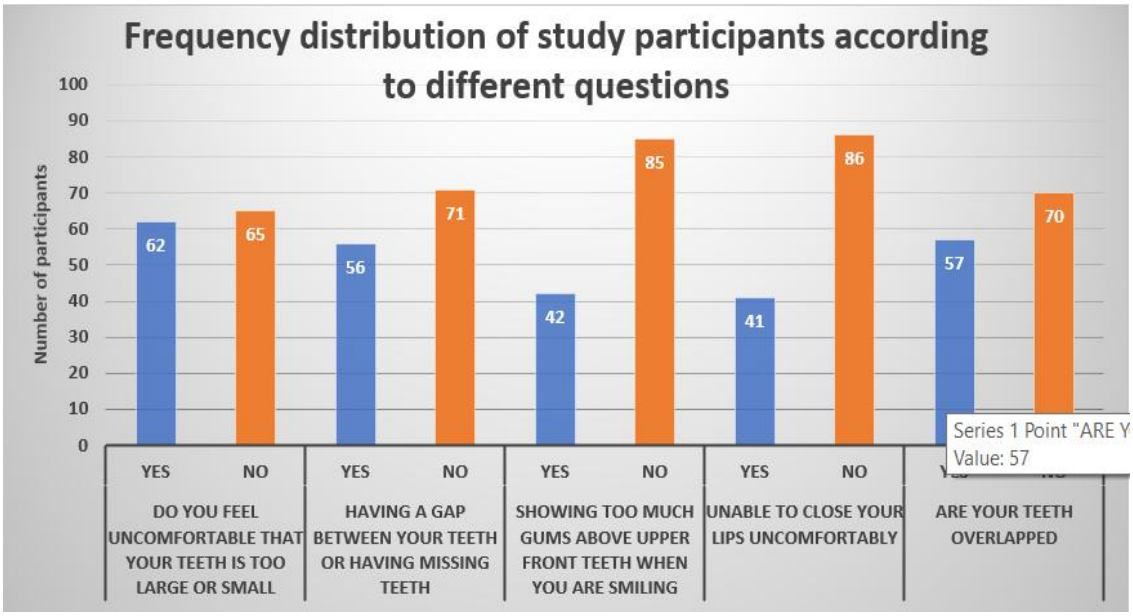


Table 2

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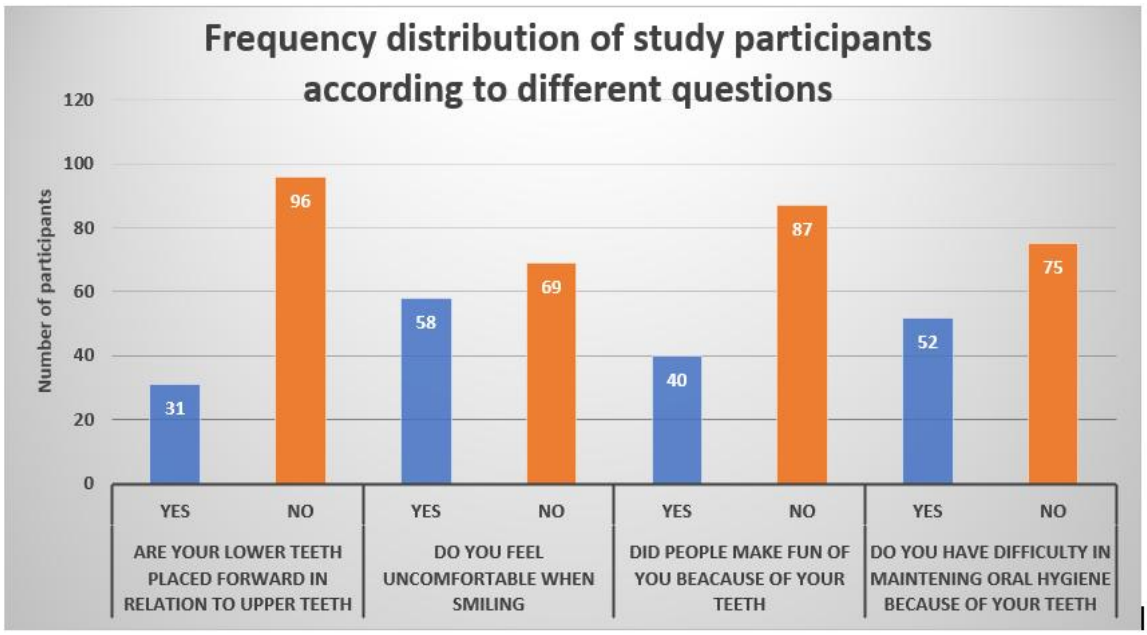


Table 3

## V. DISCUSSION:

This retrospective study involves an adolescentgroup referred for orthodontic assessment has found that there is prevalence for bullying and quality of life in school going children with an untreated malocclusion aged 12 to 18 years. The presence of malocclusion has been reported to have a negative impact on child's self-esteem. It has been clear that there is an apparent association between self-esteem and malocclusion in school going children. Questionnaire was specifically used in this study to reduce limitations and enhance validity of the results.

**Tristaoet. al** reported thatthe presence of malocclusion has negative impact on a child's oral health related quality of life. There is a growing interest among researchers on the influence of facial esthetics on the quality of life of children. This study found that children with extremely severe malocclusion were more likely to have a negative impact on quality of life.[7]

In children with extreme maxillary overjet (> 4 mm, > 6 mm, > 9 mm), extreme deep overbite, and having space between anterior teeth or missing teeth, would be bullied more often than those with normal occlusion and it causes negative impact on quality of life of childrens. This might be associated with the fact that children with a normal dental appearance are considered to be smarter, prettier, and friendlier, whereas bad-looking ones are those with malocclusion and are more prone to teasing and harassment. In this way malocclusion affects quality of life in school going children.[7,10]

Several studies shows that malocclusion has negative effects on children self-esteem. In bullying victims, a combination of factors may act synergistically, associating self-esteem, bullying, malocclusion and quality of life.It also causes negative effect on their psychosocial status. Bullying among children and adolescents is a problem with severe and long-lasting effects. [13,14,15]

In this study, age range of the participants was specificallychosen on the basis that a high prevalence of bullyinghas been reported within this age group and this is theage when majority of children need orthodontic treatment.

Research demonstrate that children who experience bullying are at a higher risk of mental health problems as they grow into adulthood. It can lead to physical injury, emotional or social problems.

Bullied children and teens are more likely to experience depression and sometimes long-term damage to self-esteem. childrens often feel lonely. Some may fight back with extreme, sudden violence. These children have the highest rates ofschizophrenia, anxiety, depression and substance abuse, compared to children who are victims or bullies.

They are also more likely to feel less positive about the future and develop antisocial personality disorder as adults.

## VI. CONCLUSION:

A significant relationship exists between an individual being bullied and the presence of malocclusion. Malocclusion also causes effects on

self-esteem of children.Traits commonly associated with malocclusion are increased overjet, crowding,missing teeth, sprognathism and retrognathism.Individuals who are being bullied because of malocclusion have higher need for orthodontic treatment.

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