

## Original Article

### Assessment of Frequency of Occurrence of Malocclusion among Known Paediatric Population: A Clinical Study

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#### ABSTRACT:

**Background:** Malocclusion is one of the public health problem which effects growth and development of a child. Malocclusion can lead to dissatisfaction in esthetical appearance which can have a negative impact on child's social life. **Aim:** The purpose of this clinical study was to assess the frequency of occurrence of malocclusion among paediatric population. **Material and Method:** A total of 400 samples were selected for the present study. Clinical examination was made according to the Dental Aesthetic Index. Patients were examined for spacing, crowding, open bite, deep bite, midline diastema etc. **Result:** A total of 400 patients were included 32.5% were males and 67.5% were females. Majority of children with malocclusion were aged between 10 to 12 years (37.5%). Crowding was the most common malocclusion observed. **Conclusion:** malocclusion is very common in children aged between 7 to 15 years. Early diagnosis can help to minimize the adverse effect of treatment by providing appropriate treatment.

**Key words:** Malocclusion, prevalence, children, aesthetic appearance.

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#### INTRODUCTION:

Malocclusions and its increasing prevalence has become a matter of interest for Public Health. Malocclusion effects self esteem, growth and development of child, quality of life.<sup>1</sup> Malocclusion can lead to aesthetic dissatisfaction. Changes in speech pattern, breathing, posture, altered chewing, swallowing, temporomandibular joint disorders and pain has been frequently observed in children suffering from malocclusion.<sup>2</sup> Studies have reported that the psychological consequences of malocclusion due to unacceptable aesthetics may be as serious, or even more serious than the biological problem.<sup>3</sup>

It has been observed that the appeal to look attractive, self perception of dental appearance, self-esteem, gender, age and peer group norms is the reason to uptake of orthodontic treatment.<sup>4,5</sup>

According to the data available the prevalence of malocclusion in India varies between 19.6% to 55.3%.<sup>6</sup> According to World Health Organization, Dental Aesthetic Index (DAI) is an effective tool which can be used in epidemiological surveys to assess un treated

orthodontic treatment need and also as a screening tool for orthodontic care.<sup>4</sup> However very few studies have used dental aesthetic index for assessment of prevalence of malocclusion among children so we aimed to assess the frequency of occurrence of malocclusion among paediatric population.

#### MATERIALS AND METHOD:

Sample size selected for the present study was 400 children aged between 7 to 15 years. Of the 400 patients 270 were females and 130 were males. Patients were recruited based on the inclusion and exclusion criteria. All the patients were explained about the purpose of study in detail.

#### Inclusion criteria:

- Patients aged between 7 to 15 years
- Those willing to participate

#### Exclusion criteria:

- Children who underwent orthodontic treatment earlier
- Handicapped children

Ethical clearance was obtained at the beginning of the procedure. A detailed description regarding the investing procedures was explained to patients and attendees. A written informed consent was obtained from patients. Total 400 children meet the inclusion criteria. Mouth mirror and explore was used for examination in day light. Dental aesthetic index was used for examination of malocclusion as described by world health organisation.<sup>7</sup>

**STATISTICAL ANALYSIS:**

All the data were calculated and tabulated. The results were analysed and compared using ANOVA tests in SPSS version 18.0. A p value <0.05 was considered as statistically significant.

**RESULTS:**

A total of 400 patients 130 males i.e. 32.5% and 270 females i.e. 67.5% were included in the present study (Table 1). Majority of the sample selected were females in our study. Patients aged between 7 to 15 years were included in this stud. Of the 400 children 120 were aged between 7 to 9 years i.e. 30%, 150/400 children aged between 10 to 12 years i.e. 37.5%, 130/400 were aged between 13 to 15 years i.e. 32.5%. In present study majority of the children were aged between 10 to 12 years (Table 2). Patients were examined for spacing, crowding, midline diastema, open bite, deep bite and cross bite. Out of 400 children spacing was observed in 30 i.e. 7.5% cases. Of the 120 children aged between 7 to 9 years, 8 children had generalized spacing, of the 150 children aged between 10 to 12 years 12 children had spacing,

10/130 children aged between 13 to 15 years had spacing. Crowding was observed in 35% cases. Majority of the patients with crowding were aged between 10 to 12 years i.e. 50, 46 children were aged between 13 to 15 years. 12.2% cases had midline diastema. Midline diastema was more commonly observed in 13 to 15 years old children. Open bite was present in 26.2%, open bite was more common in lower age group i.e. 7 to 9 years. Deep bite was observed only in 8 % cases and cross bite in 11% (Table 3). Severity of malocclusion was observed. Of the 400 cases minor malocclusion was observed in 140 cases, sever malocclusion was evident in 200/400 and only 60/400 cases were very severely affected (Graph 1).

**TABLE 1: DISTRIBUTION OF SAMPLE BASED ON GENDER**

Gender	n	Percentage
Male	130	32.5%
Female	270	67.5%
TOTAL	n = 400	100%

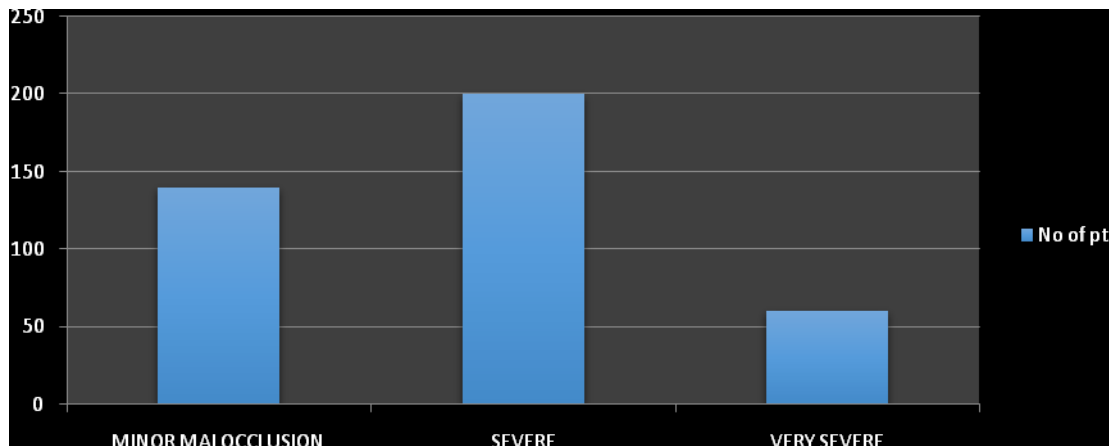
**Table 2: AGE DISTRIBUTION**

Age Group	Number	Percentage
7-9	120	30%
10-12	150	37.5%
13-15	130	32.5%
Total	400	100%

**TABLE 3: PREVALENCE OF DENTAL ANOMALIES**

Observation	7-9 years n=120	10-12 years n=150	13-15 years n= 130	Total Percent %
Spacing	8	12	10	7.5 %
Crowding	44	50	46	35 %
Midline diastema	12	15	22	12.2%
Open bite	38	45	22	26.2%
Deep bite	8	14	10	8%
Cross bite	10	14	20	11%

**GRAPH 1: SEVERITY OF MALOCCLUSION OBSERVED**



## DISCUSSION:

Some studies in the past have suggested that most of the children in the mixed dentition stage have some type of malocclusions.<sup>8</sup> In present study majority of the patients were in mixed dentition period. Probable reason behind increased rate of malocclusion in mixed dentition period could be due to the intense occlusal exchanges and dental changes occur at this stage, and the occlusion is highly susceptible to external agents such as harmful habits.

Based on the result of our study crowding was observed in 35% cases. Ashok Kumar et al in their study 12.1 % of children had incisal segment crowding, which was lower than those found in our study.<sup>9</sup> however Sushanth VH et al reported that 38.7 % of children had incisal segment crowding, our study is in agreement with the authors.<sup>10</sup> Majority of the patients with crowding were aged between 10 to 12 years. Out of 400 children spacing was observed in 30 i.e. 7.5% cases. Of the 120 children aged between 7 to 9 years, 8 children had generalized spacing, of the 150 children aged between 10 to 12 years 12 children had spacing, 10/130 children aged between 13 to 15 years had spacing. Sushanth VH et al reported that 15.7% children had incisal segment spacing either in one or both the arches, which was higher than the results observed in our study.<sup>10</sup> Esa R, Razak IA and Allister JH in their study reported 22.2% incisal segment spacing.<sup>11</sup> In present study 12.2% cases of midline diastema was observed. Midline diastema was more commonly observed in 13 to 15 years old children. Some authors in the past have reported 15.3% incidence of midline diastema.<sup>10,11</sup> However Garcia AB, have observed a low of 9.8% and 9.2% respectively.<sup>12</sup> In present study Open bite were present in 26.2%, deep bite in 8 % cases and cross bite in 11%. Which was higher than those reported by other authors.<sup>10</sup> some authors reported 10.2% cases of open bite which is lower than our result.<sup>13</sup>

## CONCLUSION:

Malocclusion is a very common finding in children. As per our finding crowding and open bite are most common malocclusion observed. If malocclusion is diagnosed at an early stage, treatment becomes easy and further complications can be prevented.

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