

Prevalence of Malocclusion among School Children of Biratnagar, Nepal

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ABSTRACT

Introduction: Various forms of malocclusion are a matter of serious concern in Nepalese population. This study was carried out to understand the prevalence of malocclusion among the school children of Biratnagar. The objective of this research is to find out the prevalence of malocclusion of children from different schools of Biratnagar visiting the Pedodontics and Orthodontics department of Nobel Medical College and Teaching Hospital, Biratnagar.

Materials and Method: A descriptive cross sectional study method was used in this research. Data was collected by using direct observation of the subjects and occlusal assessment was done according to Angle's classification and Dewey's modification types of class I, class II and class III malocclusion.

Result: Subjects with normal occlusion was found to be 39 % and with malocclusion was found to be 61%. Among them, class I malocclusion (60%) and angles class II div I subjects (88.33%) were in majority of the total study population.

Conclusion: The present study helps to determine the prevalence of malocclusion and need of orthodontic treatment for the school children of Biratnagar.

KEYWORDS: Malocclusion, Nepal, Prevalence.

INTRODUCTION

There has been an increased concern about dental appearance during childhood and adolescence to an early adulthood.¹ The public equates good dental appearance with success in many pursuits. In general, societal forces define the norms for acceptable, normal, and attractive physical appearance.² The literal meaning of malocclusion is badbite.^{3,4} The malocclusion can be defined as an occlusion in which there is a malrelationship between the arches in any of the planes or in which there are anomalies in tooth position beyond the normal limits.⁴

The American Academy of Orthodontists (AAO) recommends that children should have an orthodontic examination by age 7 for two very good reasons. One reason, it takes an expert to tell if a child may or may not develop malocclusion. The second reason for an early examination is that many conditions are easier to treat at early stage, when children's natural growth processes are intense. A consensus definition of early treatment holds it as treatment started in

primary or mixed dentition to enhance the dental and skeletal development before the eruption of permanent dentition.⁵

In country like Nepal awareness about prevalence of malocclusion and its treatment is lacking behind. Malocclusion if not identified at an early stage can be complicated later on. Orthodontists can plan preventive measures if malocclusion can be figured out at an early stage. Literature in this regard has been lacking in Nepalese population and hence the need of present investigation.

Hence the aim of the present study is to determine the prevalence of malocclusion of school children of Biratnagar, Nepal.

MATERIALS AND METHOD

The Present descriptive cross sectional study was conducted at Nobel Medical College Teaching Hospital, Biratnagar, Nepal. Five hundred students (300 Males and 200 females) from different schools of Biratnagar visiting the Pedodontics and Orthodontics department

of Nobel Medical College and Teaching Hospital, Biratnagar were selected for the study. Age group of the students was from 7 to 14 years. Prior consent to the study was obtained from parents of all the children and their schools. This study was approved by the ethical committee of the Nobel Medical College Teaching Hospital, Biratnagar.

Inclusion criteria:

- Children who had never done orthodontic treatment before
- Who had incisors and first permanent molars

Exclusion criteria:

- Children with all permanent dentition
- Previous history of orthodontic treatment

Diagnostic instrument with disposable gloves and mouth mask was used to examine the students. All the students were made to bite his or her teeth in centric occlusion. The occlusion was then examined whether it is normal or malocclusion according to angle's classification with dewey's modification type. Students with proper class I molar relation is considered as normal occlusion. In students with class I malocclusion dewey's modification type I is considered as crowded incisors, canines or both, type II is protruded maxillary incisors, type III is anterior crossbite, type IV is unilateral and bilateral posterior crossbite, type V is mesial drift of molars, anterior or posterior openbite, deep overbite. All data were analyzed and tabulated statistically using SPSS 20 software.

RESULT

Table 1 show that there are 195(39%) students with malocclusion and 305(61%) students without malocclusion. Among 195 students, 150 (30%) male has malocclusion and 45 (9%) female have malocclusion. Males have more malocclusion compared to females.

Out of 500 students, 305 (61%) students were without malocclusion. Here also more males (50%) are found than females (11%).

Class I malocclusion (60%) is significantly greater than class II (32%) and class III (8%) as shown in table 1 (a). Among class I malocclusion cases by its type, class I type I malocclusion (40%) is more than type 2 (20%), type 3 (30%), type 4(15%) and type 5 (8%). Angle's class I bimaxillary protrusion is 2.63% and open bite is seen in 5.26% of cases as shown in table 1(b)

As shown in Table 2, angle class II div I malocclusion is (88.33%) more than class II div II (11.66%) malocclusion. Also, class III malocclusion type III (43.75%) is more than type I (31.25%), type II (18.75%) and subdivision (6.25%)

S.N	Sex	With malocclusion	Without malocclusion	Total patients
1.	Male	150 (30%)	250 (50%)	400 (80%)
2.	Female	45 (9%)	55 (11%)	100 (20%)
	Total	195 (39%)	305 (61%)	500 (100%)

Table 1: Depicts distribution of subjects with and without malocclusion cases

S.N	Malocclusion	Subjects (n)	Percentage (%)
1	Angle's Class I Malocclusion	114	60%
2	Angle's Class II Malocclusion	60	32%
3	Angle's Class III Malocclusion	16	8%

Table 1(a): Shows the distribution of Malocclusion cases

S.N	Types of Malocclusion	Subjects (n)	Percentage (%)
1	Angle's class I type I	40	35.08 %
2	Angle's class I type 2	20	17.54%
3	Angle's class I type 3	30	26.31%
4	Angle's class I type 4	15	13.15%
5	Angle's class I type 5	8	7.01%
6	Angle's class I Bimaxillary protrusion	3	2.63%
7	Angle's class I Open bite	6	5.26%

Table 1(b): Depicts the distribution of Class I Malocclusion cases by its type

S.N	Malocclusion	Subjects (n)	Percentage (%)
1	Angle's class II division I	53	88.33
2	Angle's class II division 2	7	11.66
3	Angle's class III type I	5	31.25
4	Angle's class III type II	3	18.75
5	Angle's class III type III	7	43.75
6	Angle's class III Subdivision	1	6.25

Table 2: Predicts the distribution of study subjects based on Class II and Class III Malocclusion by its subdivision

DISCUSSION

A study on the prevalence of malocclusion in school going children of Biratnagar, Nepal has been done. The study and its result have been tabulated. The present study showed 195 (39%) of the students have malocclusion out of the total population of 500 which is almost similar to the study done by Dr Manju Bajracharya et al⁶ who found 40.7% students have malocclusion in the study done in school children of Kathmandu. Our study is also similar to the study by Kharbanda et al⁷ who found 36.6% of malocclusion in New Delhi. However, this study does not agree with the study done by Das et al⁸ who reported a very high prevalence of malocclusion of 71% in 8 to 12 years of age in Bangalore, India 2008. This study also disagrees with the study done by Dr. Basanta K Shrestha et al⁹ who reported malocclusion of 90.4% in medical students of Institute of Medicine in Kathmandu, Nepal. Our study also showed that among total population 305 (61%) students have no malocclusion which is contrast to the study done by Shiv K et al¹⁰ in 2009 where 80.1% have minor or no malocclusion and only 19.9% had malocclusion.

Our study also showed that among various malocclusion types, class I (60%) is significantly higher than class II(32%) and class III(8%) malocclusion which is very

similar to the study of Dr Manju Bajracharya et al¹⁶ in 2019, Umesh Parajuli et al¹¹ in 2018 and Sharma J et al¹² in 2010. Study done by Manju Bajracharya⁶ in Kathmandu showed prevalence of class I malocclusion (67%) is more than class II (20%) and class III (13%). Our study also showed that male (30%) predominantly higher than female (9%) students which is consistent with the study done by Manju Bajracharya et al.⁶

CONCLUSION

The present study demonstrated that 61% of the population had malocclusion requiring definite orthodontic treatment and 39% of them had normal occlusion requiring no orthodontic treatment. Among all Angle' classification, class I is more prevalent as compared to class II and class III malocclusion and also angle's class II div I subjects were in majority. This study also showed that males have more malocclusion as compared to female. The need to implement preventive and interceptive orthodontic care is of utmost importance, thereby improving the aesthetic perception and social function

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