

Prevalence of malocclusion among school Children of Kathmandu, Nepal

Dr Manju Bajracharya,¹ Dr Sunanda Sundas,² Dr Resina Pradhan,³ Dr Surendra Maharjan⁴

^{1,3,4}Assistant Professor, ²Associate professor, People's Dental College and Hospital, Nepal

Correspondence: Dr Manju Bajracharya; Email: manjub79@hotmail.com

ABSTRACT

Introduction: this study was carried to understand Prevalence of malocclusion among the school children of Kathmandu, Sorakhutte residing near school during mixed dentition period. A sample of 600 children ; 365 male, 235 female in age group of 6-13yrs was selected randomly from different school of Kathmandu city. The aim of our study is to find out prevalence of malocclusion among the mixed dentition children of Kathmandu.

Materials & Method: Data was collected using direct observation of the subjects, Descriptive cross-sectional study method was used in this research. Occlusal assessment were done according to angle's classification and dewey's modification type of class I, class III malocclusion.

Result: Subjects with normal occlusion was found to be 59.3% and with malocclusion was found to 40.7%. Among them class I malocclusion was majority of (57%) of study population, crowded incisors and significant difference was observed between male and female in the study.

Conclusion: This study helps to access the prevalence malocclusion and need of orthodontic treatment for the mixed dentition period children.

Keywords: Malocclusion, Nepal, prevalence

INTRODUCTION

Malocclusion is one of oral health problems that affects individual socially, and psychologically. According to Edward Angle "A malocclusion may be defined as any deviation from normal occlusion of teeth while normal occlusion is the normal relation of occlusion inclined planes of the teeth when the jaws are closed".¹⁶ There is very less information about the malocclusion in the community. A well organized and systematic program is require to spread knowledge about this problem in the community.

In most of the developed countries where faculty of orthodontics and pedriatic dentistry are well established have provided information about prevalence of malocclusion and its treatment need to community to great extent. But country like Nepal which is still in the developing state is lacking behind in creating awareness about the prevalence of malocclusion and its treatment need for developing children is necessary. The malocclusion if not figured out in the initial stage then in later stages it will be complicated. So,if the malocclusion problem can be detected early, it will be easier for orthodontics to provide preventive

procedure to child that will help in minimizing potential irregularity of dentofacial abnormalities.

Therefore, the aim of this study is to determine the prevalence of malocclusion during mixed dentition period among the school children of Kathmandu valley.

MATERIAL AND METHODS

Descriptive cross sectional study was conducted to assess the prevalence of malocclusion among school children of 6-13 years from 10 different school of Kathmandu valley. Six hundred students (male (365) and female(235)) from different school of Kathmandu between age group 6 years and 13 years were selected randomly for the study. Those considered 600 children visited the pediatrics department of people's dental college and hospital, Sorrhakhutte Kathmandu. All those children have never done orthodontic treatment before, they all have presence of incisors and first permanent molars were included for study; children with all permanent dentition and those children who has started early orthodontic treatment were excluded.

This study has been conducted after taking consent from parents of all the children and their schools. Ethical clearance from Institutional Review Board (IRB), Institute of Medicine (IOM) has been taken to conduct this study. The students are examined by diagnostic instrument with disposable gloves and mouth mask with halogen light chair of electronic dental chair. All the subjects were asked to bite on her or his teeth in centric occlusion. The occlusion was examined whether it is normal or malocclusion according to angle's classification with dewey's modification type. Children with proper class I molar relation of minimal overjet, overbite, crowding, spacing etc is considered as normal occlusion. In subjects with class I malocclusion dewey's modification type I is consider 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.

In subjects with class III malocclusion dewey's modification type I is normal incisor overlapping, type II is edge to edge incisor relationship, type III is incisors are in crossbite.

RESULT

A statistical analysis was performed with the collected data. Result of the analysis is shown in tables and figures.

Table 1 shows that there are 244 children with malocclusion and 356 children without malocclusion. Among those 244 children, 167 (45.8%) male has malocclusion and 77 (32.8%) female have malocclusion, malocclusion in male is greater than in female.

Out of 600 subjects, 356 (59.3%) subjects were without malocclusion, here, more female subjects (67.2%) are found than male (54.2%).

Class I malocclusion (67%) is significantly greater compared to class II (20%) and class III malocclusion (13%) which is shown in figure 1. Among dewey's modification type class I type 1 malocclusion (32%) is more than type 2 (12%), type 3 (29%), type 4 (8.5%), type 5 (4%), also angles class I bimaxillary protrusion is 3%, open bite is 8% seen in figure 2. Again, in figure 3, Angle's class II div 1 malocclusion is (90%) more than div 2 (10%) malocclusion. Also, class III malocclusion with dewey's modification type, class III type 3 (38%) is more than type 1 (27%), type 2 (16%), subdivision 16%.

Table 1: Distribution of children with and without Malocclusion Cases

Sex	Number of patients		Total patients
	With Malocclusion	Without Malocclusion	
Male	167(45.8%)	198(54.2%)	365(60.8%)
Female	77(32.8%)	158(67.2%)	235(39.20%)
Total	244(40.7%)	356(59.3%)	600(100%)

(This indicates that malocclusion cases are significantly higher among male (45.8%) than that of female (32.8%).)

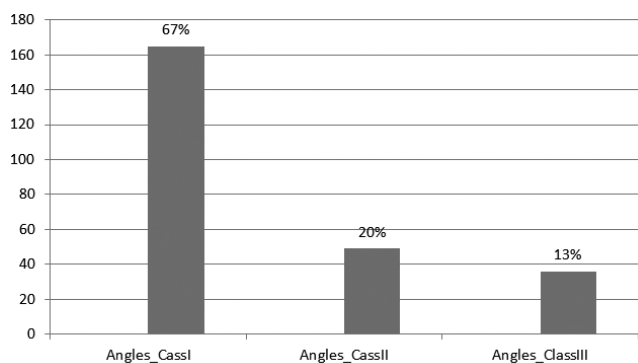


Figure 1: Distribution of Malocclusion Cases

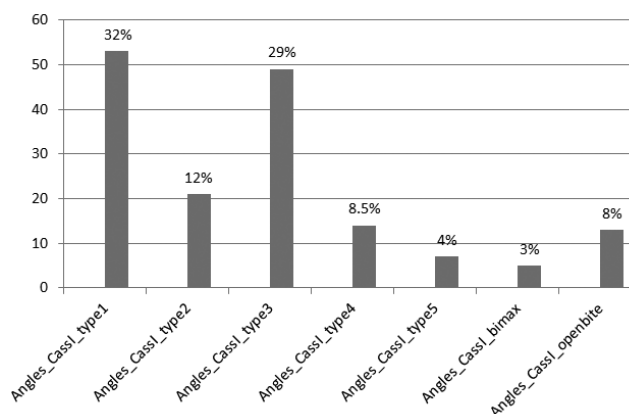


Figure 2: Distribution of Malocclusion Cases of class I by its type

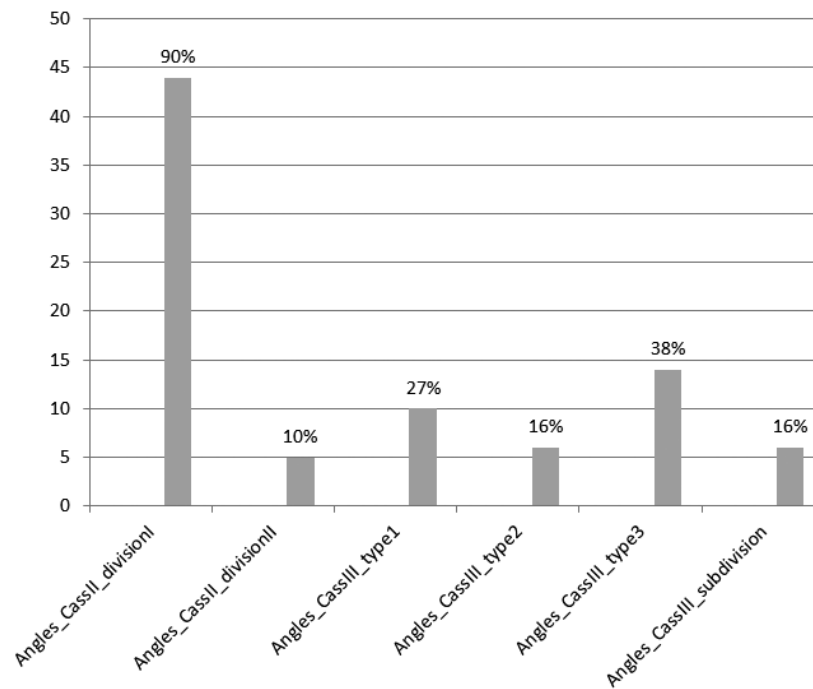


Figure 3: Distribution of Malocclusion Cases of class II and class III by its type

DISCUSSION

The study showed 244 (40.7%) subjects have malocclusion which is nearly similar to kharbandha et al¹¹ who found 36.6% of malocclusion in new delhi and sarbajeet singh sadhu et al⁴ where malocclusion prevalence in south india is 49.2% in age group of 12-15yrs. This study disagrees with Das et al¹² who conducted an epidemiologic study of malocclusion in 8-12yrs of age in bangalore city 2008, reported high incidence of malocclusion of 71%, also with usha mohan das et al² whose result showed 71% had malocclusion incidence and dr.basanta k shrestha et al⁵ showed result of 90.4% had malocclusion among medical students of institute of medicine in Kathmandu, Nepal. Among total subjects, 356(59.3%) have no malocclusion while 244 (40.7%) have malocclusion which is contrast to the study done by shiva kumar et al¹⁴ in 2009 where 80.1% have minor or no malocclusion, only 19.9 % had malocclusion and need definite orthodontic treatment. Among various malocclusion type, class I (67%) has higher range than class II(20%) and class III (30%) malocclusion which is similar to findings of Sharma. J¹³ in 2010, Umesh parajuli et al¹⁵ and also with Mridula Trehan et al.¹⁰ Mridula Trehan's study conducted in Jaipur showed prevalence of class I malocclusion

(59.9%) is more than class II div1 (1.1%) and class III (1.4%). This study showed male (45.8%) predominantly higher than female (32.8%) subject which is contrast to Mridula trehan et al,¹⁰ Usha mohan das.²

CONCLUSION

Among all Angle's classification of malocclusion, class I with dewey's modification type 1 is more prevalent compare to class II and class III malocclusion and its subdivision type. There is statistical significant greater incidence of malocclusion in male compared to female subjects in our study. So, there should be awareness programs for the prevalence of malocclusion in Kathmandu such that appropriate early needful orthodontic treatment can be provided for the developing children.

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