Original Article

The Prevalence Of Malocclusion Amongst School Children

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Abstract

Background: As per the WHO, epidemiologic surveys at regular interval should be conducted to determine the oral diseases. Orthodontics is a branch of the dental speciality that developed in early 1900s, and it was since then that various population based surveys were done on incidence of malocclusion. The aim of the present study was to determine the incidence of malocclusion amongst children. **Materials and methods**: The cross sectional survey was conducted in the department of Orthodontics over 6 month period i.e. from July 2016-December,2016The study involved 700 subjects. Classification of the subject's was done using Angle's malocclusion and criteria introduced by DHC of IOTN. All the details were recorded in a tabulated version and analysis was done using SPSS software. **Result:** The present study enrolled 700 subjects. There were 401 males (57.3%) and 299 females (42.7%) in this study. A total of 385 subjects (55%) had angle's class I occlusion. Angle's class II div I was seen amongst 41.2% subjects (n=206). There were 108 subjects (15.4%) who had increased overjet. 1.4% subjects had reverse overjet. **Conclusion:** In the above study Angle's Class I was the most frequently seen malocclusion followed by Angle's Class II div I and Angle's Class II div II was the least commonly seen malocclusion.

Keywords: Angle, crossbite, malocclusion, overjet

INTRODUCTION

Despite the fact that malocclusion is a preventable disease but there are quite a few subjects who suffer from this crisis. Malocclusion is a kind of variation that is either with or without pathology. Among around the world, public dental health is a priority, malocclusion is the third most universal dental issue after caries and periodontal disorder.[1] As per the WHO, epidemiologic surveys at regular interval should be conducted to determine the oral diseases. These surveys should be conducted in a manner to provide a detailed information about the treatment protocols; training methods that should be the chief concern of the authorities.[2] In developing and under developed countries such as India   various efforts have been put to eradicate numerous medical and dental disorders. But because of   lack of undertaking of preventive dental health care programs there has not been a lot improvement. This is due to inadequacy of ample epidemiological data. Orthodontics is a branch of the dental speciality that developed in early 1900s, and it was since then that various population based surveys were done on incidence of malocclusion.[3-6] Appearance of the face has an everlasting influence on someone's mind. Dental occlusion can affect the facial structure and can lead to negative impact on image and hence could direct to low self-reliance and non acceptance of the peer group. So as to prevent malocclusion from having a affect on psychological development, it should be identified at an premature stage and should be corrected at the earliest.[7] Massler and Frankel did the first attempt to quantitatively assess malocclusion in the year 1951.[8] Later Van Kirk and Pennell in the year 1959 gave the index for mal alignment which involved assessment and grading of displacement and rotation of teeth and was a captivating step in the field of orthodontics.[9] The aim of the present study was to determine the incidence of malocclusion amongst children.

MATERIALS AND METHODS

The cross sectional survey was conducted in the department of Orthodontics over 6 month period

i.e. from July 2016- December,2016. The ethical committee clearance was obtained form the institute's ethical board. All the subjects were informed about the study and a written consent was obtained from all in their vernacular language. The study involved 700 subjects. Both males and females were included in the survey. Subjects between were 12-15 years of age were included in this study. Subjects undergoing orthodontic treatment or those who had undergone orthodontic treatment were not included in the study. Subjects with any systemic condition were also excluded.

Trained personnel examined all the subjects. Classification of the subject's was done using Angle's malocclusion and criteria introduced by DHC of IOTN. Children were also examined for deep bite, overbite, overjet or reverse jet etc. All the details were recorded in a tabulated version and analysis was done using SPSS software. Descriptive statistics were measured.

RESULTS

The present study enrolled 700 subjects. There were 401 males (57.3%) and 299 females (42.7%) in this study. The mean age of males was 14.9 +/- 4.3 years and the mean age of females were 13.5 +/- 4.8 years. (Table1) Table 2 shows the prevalence of Angle's malocclusion. A total of 385 subjects (55%) had angle's class I occlusion. Angle's class II div I was seen amongst 41.2% subjects (n=206). There were 2.1% subjects who had Angle's class II div I malocclusion. There were 27 subjects (3.8%) who had Angle's class III malocclusion. Normal occlusion was seen in 67 subjects (9.6%). Table 3 shows the prevalence of malocclusion according to DHC of IOTN criteria. There were 108 subjects (15.4%) who had increased overjet. 1.4% subjects had reverse overjet. Crossbite was seen amongst 31 subjects (4.4%). There were 140 subjects (20%) who had crowding. Deep bite was seen in 13.6% subjects (n=95). There were only 2.7% subjects who had supernumerary teeth. Majority of subjects (n=214) had normal occlusion. Anterior spacing was observed in 4.4% individuals.

DISCUSSION

The present study was done to provide knowledge about the prevalence of malocclusion amongst school going children. Although assessment of malocclusion should be done after growth as it is more reliable but in the present study school children were assessed as they starts developing malocclusion and the require orthodontic treatment could be evaluated early. In the present

study, total of 385 subjects (55%) had angle's class I occlusion.

Table 1: Age and Gender wise distribution of subjects

GENDER	FREQUENCY	PERCENTAGE	AGE
Males	401	57.3	14.9+/-4.3 years
Females	299	42.7	13.5 +/-4.8 years
Total	700	100	

Table 2: Prevalence of malocclusion according to Angle's classification

ANGLE'S CLASSIFICATION	TOTAL	PERCENTAGE
Angle's class I	385	55
Angle's class II div I	206	41.2
Angle's class II div II	15	2.1
Angle's class III	27	3.8
Normal occlusion	67	9.6
Total	700	100

Angle's class II div I was seen amongst 41.2% subjects (n=206). There were 2.1% subjects who had Angle's class II div I malocclusion. There were 27 subjects (3.8%) who had Angle's class III malocclusion. Normal occlusion was seen in 67 subjects (9.6%).According to the study conducted by Varun Pratap singh et al amongst children of Nepal, the incidence of Angle's malocclusion were as follows: 48.50% had class I, 32.68% had class II, and rest 4.32% had class III malocclusion. The age range selected in the above study were similar to our present study.[10] As per the study by Jagannath Sharma, amongst Nepalese population between the age group of 7 years to 48 years, he found that the most frequent age group in which malocclusion occurred was 12 to 24 years. As per his survey the prevalence of Angle's malocclusion

was 67.5%, 28.8%, and 3.7%, respectively.[11] According to Trehan et al similar study was conducted

Table 3: Prevalence of malocclusion according to DHC of IOTN

CRITERIA	FREQUENCY	PERCENTAGE
Increased overjet	108	15.4
Reverse overjet	10	1.4
Crossbite	31	4.4
Deep overbite	95	13.6
Open bite	14	2
Scissor bite	6	0.8
Crowding	140	20
Submerged deciduous teeth	32	4.8
Supernumerary teeth	19	2.7
Anterior spacing	31	4.4
Normal occlusion	214	30.8
Total	700	100

amongst Rajasthan's subjects, the prevalence of malocclusion as reported in their study was 66.7% in Jaipur's subjects out of which 57.9% subjects had Angle's class I occlusion. In 1.9% Angle's class II division 2 was seen and Angle's class III malocclusion was seen in 1.4% subjects.[12] In our study, there were 108 subjects (15.4%) who had increased overjet. 1.4% subjects had reverse overjet. Crossbite was seen amongst 31 subjects (4.4%). There were 140 subjects (20%) who had crowding. Deep bite was seen in 13.6% subjects (n=95). There were only 2.7% subjects who had supernumerary teeth. Majority of subjects (n=214) had normal occlusion. Anterior spacing was observed in 4.4% individuals.

In a study conducted amongst Nepalese populace, IOTN criteria indicated that 21.59% had an extreme requirement of orthodontic treatment, 24.67% and 24.07% had severe to moderate treatment requirement respectively. 14.7% had mild treatment requirement, and 15.02% did not need any treatment.[10] In a study conducted by JT Nainani et al.[13] spacing was seen in 40.36% of cases, in 38.08% cases deep bite was observed, crowding was observed in 31.88% subjects, rotation was observed in 15.36% subjects, cross bite in 5.5% and open bite in 2.98% of school going children. As per a study by Robert S Corrucini et al.[14] conducted amongst rural and urban young adults of Punjab, they observed that there was an increased prevalence of cross bite amongst urban population while the overjet difference was insignificant amongst urban and rural young subjects.

CONCLUSION

In the above study Angle's Class I was the most frequently seen malocclusion followed by Angle's Class II div I and Angle's Class II div II was the least commonly seen malocclusion. Early appreciation of malocclusion is essential and it reduces the rate of relapse after treatment.

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