Original article

Prevalence of malocclusions in the North-East China attending the Department Orthodontic Second Affiliated Dental Hospital of Jiamusi University

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ABSTRACT

Objective: To determine the distribution of dental malocclusions in a sample of North-East China orthodontic patients.

Methodology : Between Jun 2014 to Jun 2016 the orthodontic record of 300 patients attending the Department of Orthodontics at School of Stomatology, Second Affiliated Dental Hospital of Jiamusi University were selected randomly from 1000 patients and retrieved from the archives for evaluation. The data was entered into the computer and analyzed using the Statistical Package for Social Sciences (version 20. Inc. Chicago, USA).

Results: Angle's Class II malocclusion was found to be the most common malocclusion with 44% followed by 29.7%, Angle's class I and 26.3%. Angle's class III.

Conclusion: The results give a pattern of malocclusion in orthodontic patients and may provide a base line data for planning awareness programs, preventive and interceptive orthodontic services & the future studies. There is a strong need of epidemiological survey to find out the prevalence & causes of malocclusion in North-East China population.

Introduction

Occlusion is defined as the relationship of the maxillary and mandibular teeth as they are brought into functional contact while malocclusion is the state of any deviation from the normal or ideal occlusion as defined in the Glossary of Orthodontic Terms [13].In recent years the prevalence of malocclusion has increased and it is one of the most common dental problems along with dental caries, gingival disease and dental fluorosis. [1, 2]. The prevalence of malocclusion for different populations has been reported but the figures can vary even for the same population. Variables depends upon differences in the classification of malocclusions, the selected age group, eruption time of teeth as well as examiner differences in determining normal occlusion and differences in sample sizes which can affect the results[3]. Malocclusion can be found and recorded by lots of methods. The most commonly used is Angle's classification of molar relationship [4]. Malocclusions feature the third highest prevalence among oral pathologies second only to tooth decay and periodontal disease and therefore rank third among worldwide Public Health dental disease priorities. According to the World Health Organization [15]. There are currently no studies on the prevalence of malocclusions in the North-East China population. The purpose of this study was to investigate the prevalence of malocclusions in the North- East China. Knowledge about the distribution of different malocclusions helps orthodontist to understand the problem in a geographic

* Corresponding author: **Dr.Raihan Kibria Address: School of Stomatology, Department of Orthodontics and Dentofacial Orthopedics, Second Affiliated Dental Hospital of Jiamusi University. Jiamusi, China. Phone number: +8618249267265, E-mail: shonalisurzo@yahoo.com**

Table: 1 Frequency Distribution

S. No.	Parameters	Total N = boys+ girls = 300	Frequency %
1	Angle's class I	89	29.7
2	Angle's class II	132	44
3	Angle's class III	79	26.3

location and help them in the planning of treatment as well as awareness and preventive.

MATERIALS AND METHODS

The orthodontic records of 300 patients attending the Department of Orthodontics at School of Stomatology Second Affiliated Dental Hospital of Jiamusi University were selected randomly from 1000 patients and retrieved from the archives for evaluation. Between Jun 2014 to Jun 2016.

The study group included Chinese patients with permanent dentition with complete orthodontic records and with no syndromes of systematic disease and history of extraction or trauma. Patients in the mixed dentition and craniofacial deformities or syndrome and patients with incomplete records were excluded from this study. History of a previous orthodontic treatment also excluded. The patients have participated in this study was essentially the Chinese persons from the Jiamusi city and from the small city around Jiamusi. Written case records, Study cast evaluation, Orthopantomogram (OPG) and cephalometric X-rays and intraoral and extra oral photographs were studied. The following dentofacial characteristics were investigated from initial records molar relation according to Angle's classification. Such

as molar class I was known as where the mesiobuccal cusp of the upper first molar occluded with the

mesiobuccal groove of the lower first molar or within the range of less than half a cusp width anteriorly or posteriorly. So, data were obtained through direct clinical examination by an orthodontist. Various classes of malocclusion according to Angle's classification [14]. Angle's Class I relation is known as Mesiobuccal cusp of the maxillary first permanent molar articulates in the mesiobuccal groove of the mandibular first permanent molar.Angle's Class II relation known as The mesiobuccal cusp of maxillary first permanent molar articulates mesial to mesiobuccal groove of mandibular first molars. Angle's Class III relation known as the mesiobuccal cusp of maxillary first permanent molar occludes distal to mesiobuccal groove of mandibular first molars.

Ethical approval was not received from Jiamusi University for the retrospective study because patients were not exposed to additional radiation and not subjected to additional treatment. But an approval consentment was obtained from the Second Affiliated Dental Hospital of Jiamusi University by patients for to use their medical record data. The data was entered into computer and analyzed using the Statistical Package for

Social Sciences (version 20. Inc. Chicago, USA).

RESULTS

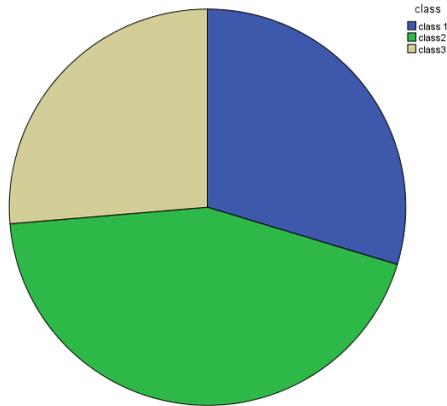The results were presented in a descriptive fashion using

Figure 1: showing frequency distribution of Angle's class I, II & III malocclusions

absolute numbers & the percentage of different types of malocclusions for both boys and girls separately. The error of the method was determined by repeating the evaluations of molar relation. All investigations were carried out by the same operator. Results have been presented in Tables 1, and 2   distribution of malocclusion in both sexes according to Angle's classification of first molars. The prevalence of Angle class I malocclusion was 29.7%, class II 44% and class III 26.3%. There were some differences in the prevalence of Angle malocclusion between the sexes but these were not statistically significant. However, among all inTable2 class III patients the percentage of girls (19.9%) was significantly lower than boys (32.1%).

DISCUSSION

The prevalence of malocclusion varies from one geographical area to another and differs from one country to another country and even from one city to another city. The reported prevalence of malocclusion in

different parts of the world varies from 39% to 93% [6].Angle's classification [5] is useful for easy documentation and provides a common channel of communication among dentist. It is one of the easy way and rather accurate way to categorize malocclusions, and is globally used among dentist. In this study of North-East China attending the Department orthodontic Second Affiliated Dental Hospital of Jiamusi University who came for orthodontic treatment, the prevalence of class I, II and III malocclusion of first molars was 29.7%, 44.0% and 26.3%respectively. The prevalence of different types of malocclusion may show considerable variability, even in a population of the same origin. The criteria for normality vary from one examiner to another, and this affects the results of different studies. Our results are also very similar to those of Jones, who investigated dental malocclusion in 132 Saudi Arabian patients referred for orthodontic treatment and reported that 53.8% had class I, 33.3% class II and 12.9% had class III Angle dental malocclusions [7]. However, these results might not represent the prevalence of malocclusion in the reference population because the sample size was insufficient. Our findings show less agreement with Sayin and Türkkahraman's study, which found that the prevalence of class I, II and III Angle dental malocclusions in a Turkish population referred for orthodontic treatment, was 64%, 24% and 12% respectively [3]. Although their reported frequency of class I and II malocclusions was different from our results, the frequency of class III malocclusion was similar. However, a study in Indonesia obtained different figures for class III frequencies, reporting a 2% incidence in the Indonesian sample compared to 4% in an English sample and 23% in a Chinese population [8].The data from our orthodontic population was affected by selection bias and cannot be extrapolated to

the whole Jiamusi population. It is nonetheless difficult to compare prevalence studies of dentofacial characteristics because the results represent different ethnic types [9] the type of malocclusion is an important

Table: 2 Class * Gender Cross Tabulation

			gender		Total
			boy	girl	
class	class 1	Count	43	46	89
		% within gender	27.0%	32.6%	29.7%
	class2	Count	65	67	132
		% within gender	40.9%	47.5%	44.0%
	class3	Count	51	28	79
		% within gender	32.1%	19.9%	26.3%
Total		Count	159	141	300
		% within gender	100.0%	100.0%	100.0%

factor that affects a patient's motivation to seek treatment [3]. Our results were also in agreement with the findings of Gul-e-Erum and Fida[10] who found that Pakistani orthodontic patients have a higher percentage of ClassII malocclusion .However; it disagreed with studies that were performed in other countries that measured malocclusion in orthodontic patients like Nigeria and Turkey. [11, 12]

CONCLUSION

Most of the patients attending the Department of Orthodontics at Second Affiliated Dental Hospital of Jiamusi University had class II malocclusion. Since the number of orthodontists available to treat patients in the city of Jiamusi is limited, there is a high demand on each practitioner for treatment. Therefore current orthodontics students should receive more education and training in the management of class II malocclusion to improve the overall quality of care for patients.

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