Prevalence of malocclusion in 9-12 years old schoolchildren in Tikrit city

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Abstract

The aim of this study is to evaluate the prevalence of malocclusion in a population of Iraqi children aged 9-12 _years old .A sample of 558(294 boys and 264 girls) school children from the schools of Tikrit City were examined for malocclusion using Angle's classification .Only 10 .5 % had no malocclusion, (17 % class II div 1 ,1 % class II div 2 and 2 % class III malocclusion),also 23 % of the sample had crowding ,11 .8 % had rotation , 10.3 % had diastema and 7.7 % had spacing , while deep bite ,open bite , impaction and edge to edge were found in low percent 0.1 % . our findings suggest that (89.4 %)of children have malocclusion. These results were compared with other ethnic groups.

Key words: malocclusion, prevalence.

Introduction

For many years, studies have been conducted to determine the prevalence of malocclusion in different populations (1). A comparison of these results is almost impossible ,and the results of studies, even those studies conducted in a population of the same origin, may show great variability. Variables such as the differences in classification of occlusal relationships, the developmental period of the study sample, examiner differences in determining the bounds of normal, and differences in sample sizes can affect the results (2).

Instead of differentiating normal and abnormal in population, determining frequencies of different types of malocclusions in a referred population may also give variable information (3). However, treatment need indices do not provide accurate information regarding prevalence of specific malocclusion traits. For example, due to the hierarchy of the index of Orthodontic Treatment Need, a large over jet (O.J.) will not be scored in cases without impactions or impeded eruption. Similarly ,neither overbite (O.B.)nor amount of contact displacement will be scared in subjects with a large O.J.(4).It is well established that molar relationship as well as prevalence of lateral cross bite , open bite and malaligment in the anterior segment may change during the transition from mixed to early permanent dentition (4,5) .Inferences from craniofacial growth studies also suggest changes in anteroposterior and vertical relationships ,during the period from adolescence of adulthood ,Results from studies examining patients of a wide arrange may therefore not allow inferences to specific age groups (5).

Another problem is inability to accurately adjust for any effect of previous treatment when older age groups are included .Although some samples have been of sufficient size, most studies have selected subjects from school in a limited geographic area. Few studies have evaluated homogeneous population based samples of age comparable to start of one phase orthodontic treatment. Most studies have evaluated molar relationship similar to Angles definition as it known Angles classification of malocclusion in 1899 was an important step in the development of orthodontics (6). It not only subdivided the major types of malocclusion, but also provided the first clear definition of normal occlusion in natural dentition (7).

Since then, numerous classifications and indices have been developed but as yet non has been universally accepted (8).This could be due to variations in the terminology, sampling differences of age and sex ,levels of severity and the accuracy of examining methods (9). Angles classification is based on the antero-posterior relationship of the jaws with each other does not take into account the vertical or transverse discrepancies, despite early criticism by Criers Case ,Hillman ,Simon and Ackerman and Prophet ,Angles classification has remained widely accepted and used in most

dental schools and population method of studying occlusion, recently, Graber and Vanarsdall confirmed the simplicity and practically of this system(6,10).

So quantitative methods of recording and measuring occlusal features are important for epidemiologist and for those planning the provision of orthodontic services in certain community .Also untreated malocclusion may lead to mandibular dysfunction and psychological problems (7,11,12).

Because informations about prevalence of malocclusion in Iraq populations is limited. Therefore the aim of our present study is to determine the prevalence of malocclusion, in a selected sample of 9-12 years old school children in Tikrit City.

Subjects and Methods

The sample consisted of 558 children (294 boys and 264 girls) were selected from 2 different schools from Tikrit city in Iraq.

The criteria for selection were:

(1) The child is 9-12 years old.

(2) The child free of any serious illness.

(3)Have no history of trauma or surgery that could affect occlusion .

Its preferable to use cast in angle's classifications not clinical examiners.

All subjects were interviewed and clinically examined at the schools they attended. Orthodontic diagnosis was made in this study on purely clinical basis, i.e. using no X-rays or casts. Every subject was examined clinically by an experienced orthodontist.

The materials used for examination included:

. Disposable mirrors and probes.

. Portable spot light.

Angles classification was recorded:

-Angle Class I: 1/4or1/2cusp normal not post relation.

-Angle Class II: at least in one side 1 cusp-post normal relation.

-AngleClassII:1:ClassII with proclined upper incisors.

-Angle ClassII:2:ClassII with retroclined upper incisors.

-Angle ClassIII: 1/4,1/2,1 cusp prenormal relation.

Intra –arch relation ,crowding and spacing were estimated in the area of upper and lower incisors and of the upper and lower posterior teeth .Central diastema was recorded .Midline displacement was recorded to the left or right. Rotation and tilt of teeth was registered.

Results

Only 59 (10.5%) children(pupils) were judged to have almost criteria for ideal occlusion of the remaining 499 (89.4%) subjects with malocclusion ,data for Angles relationship were collected from 558 subjects as seen in (table1)and (table 2)showed occlusion and space anomalies distribution in percentage and (table 3) showed occlusion anomalies compared with other ethnic groups.

Discussion

The reported prevalence of malocclusion varies from 39% to 93%.The prevalence of different types of malocclusion may show great variability even in a population of the same origin .Determining the criteria for normal changes from one examiner to the other and definitely affects the results of studies .Clearly , the evaluation of referred patients and the distribution of malocclusion types may give valuable information for planning an orthodontic service. The high malocclusion prevalence of 88% in this study is similar to that reported in Kuwait and Colombia. Other studies have shown slightly lower prevalence figures in American Caucasians , African ,African – Americans ,and European Caucasians According to our results, Class I malocclusion was found in 385(68.9%)of the 558 patients examined .These results are similar to that found by Sayin (1),They reported that 64% of the patients had class I malocclusion. Seri et al (13), evaluated 1602 patients treatment in the Department of Orthodontics ,Turkey, they reported that 615 of the patients had Class I malocclusion .Angles Class II malocclusion was found in 18.5% of the total sample (17.5%division 1and 1%division 2).These results are similar to those found by Saleh (7) and Sayin (1).

Angles Class III malocclusion was found in only about 2% of the samples studied .This low result disagrees with Seri et al (13). They reported that 10.2% had Class III malocclusion . In this study ,we found a high prevalence of crowding reaching to 23.8%. Although this frequency of crowding disagrees with Kievan (1),which crowding was 51% of the patients ,But agree with Thilander , Ingerall and Hanuksela as seen in table(3).In this study we found 11.8% of the sample have rotation ,also 10.3% of the samples have diastema which agree with Kievan that found the diastema in 13% of the sample . To distinguish between those whose malocclusion is severe enough to require orthodontic treatment and those with minor deviations ,one needs to establish certain criteria to rank patients properly according to the severity of the case, and to develop a prevalence only in this study, but not treatment. priority index relevant to the resources available (14).In summary ,our study revealed that there is a higher need for orthodontic care in 9 –12 year old children in Tikrit city in Iraq. Further study plan of orthodontic appliances (treatment).

References

1- Sayin M , Hakan Turkaa-haraman, malocclusion and crowding in an orthodontically referred Turkish population .Angle orthod .2004:74(5):634-39.

2-Lauc T, Oropfacial analysis on the padriatic islands:an epidemiological study of var Island.Eur J orthod .2003:25 :273-278 .

3- Faraj B. , jon A. ,Badria A. ,Prevalence and severity of malocclusion in adolescent Kuwait's.Med princ pract 2005 ;14:390-395.

4- Espeland L , Stenvik A: Residual need in orthodontically untreated 16-20 – years – olds from areas with different treatment rates .Eur J Orthod 1999: 21: 523-531.

5- Thilander B ,penal,Infant C,:Prevalence of malocclusion and orthodontic treatment need in children and adolescent in Bogotá ,Colombia .Eur J Orthod 2001:23:153-167.

6- Angle EH.Classification of malocclusion, Dental cosmos, 1899 ,4, (18) : 248- 63;350.

7- Saleh .F.K. ,Prevalence of malocclusion in a sample of Lebanese schoolchildren :an epidemiological study , volume 5,issue 2 ,1999,page 337-343.

8- Richmond Setal . The development of the PAR Index (Peer assessment rating) .European J Orthod ,1992 ,14:123-39.

9- Tannus D.A. ,Cristina .Assessment of treatment for functional posterior cross-bites in patients as the deciduous dentition phase , Brazilian Dental Journal ,v 15 n.1.2004.

10- Onyeaso Co :prevalence of malocclusion among adolescents in Ibadan ,Nigeria.Am J Orthod Dent facial ,2004 ;126:604-607.

11- Otuyemi OD , Ogunyinka A , Cons Nc , Jenny d . Malocclusion and orthodontic treatment need of secondary scholl students in Nigeria according to the dental aesthetic index .Dal. Int Dent J .1999.

12- Probands enrolled in the study of Health in Pomerania (SHIP)in the age group from20 to49years.J.Orofac Orthop .2003;64 :157-166.

13- Seri Z ,Uysal T ,Karaman AL .orthodontic malocclusions and evaluation of treatment alternatives :an epidemiological study .Turkish J Orthod .2003 ; 16: 119-126.

14– Chukwudi O .Emotional effects of malocclusion in Nigerian orthodontic patients. The J C DP.2005.