

# Index of orthodontic treatment need of 10-12 years Iraqi pupils

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## ABSTRACT

**Background:** Many orthodontic problems arise at the age of 10-12 years therefore the aim of this study was to detect the percentage of pupil at age 10-12 year that need orthodontic treatment and have not done it till now, and the possibility of motivating them.

**Materials and methods:** 1500 Iraqi pupil at school age of 10-12 year were examined according to grade designed by Sweden orthodontic board.

**Results:** 57% of the sample required no treatment, 23.3% required mild treatment, and 14% required moderate while 5.3% required great treatment & 0.3% require very great treatment.

**Conclusion:** Majority of pupils that need treatment didn't receive any motivation even from their dentist. There is a great shortage in dental health education programs. About half of pupil examined didn't need treatment although there is a large number of the sample who needs treatment.

**Keywords:** Index, orthodontic need, malocclusion. (J Bagh Coll Dentistry 2005; 17(3): 94- 97)

## INTRODUCTION:

Protruding, irregular, or maloccluded teeth can cause three types of problems for the patient: (1) psychosocial problems related to impaired dentofacial esthetics; (2) problems with oral function, including difficulties in jaw movement (muscle incoordination or pain, T.M.J. disturbances), and problem with mastication, swallowing or speech; and (3) problem of greater susceptibility to trauma, accentuated periodontal disease or tooth decay related to malocclusion. <sup>(1-5)</sup>

Demand for orthodontic treatment is indicated by the number of patients who actually make appointments and seek care. Not all patients with malocclusion, and those with extreme anatomic deviations from the normal, seek orthodontic treatment. Some don't recognize that they have a problem, and others feel that they need treatment but can not afford it or can not obtain it. <sup>(6)</sup>

The number of adults who seek orthodontic treatment has increased rapidly since 1970. In the 1960s 5% or less of all orthodontic patients were adults, by 1989 surveys indicated that for specialists, just over 25% of new patient were aged 18 or older. Many of these adult patients indicated that they wanted treatment earlier but did not receive it often because their families could not afford it.

Nowadays these patients can wear orthodontic appliances because it is more socially acceptable than it was previously.

Recently more older adults (40 and over), have sought orthodontics, usually in conjunction with other treatment to save their teeth, as the population ages, and this can be thought that this is likely to be the fastest – growing type of orthodontic treatment. <sup>(7)</sup>

Traditional orthodontic diagnosis is a qualitative descriptive procedure unsuited for quantitative evaluating systems of assessing malocclusion and evaluating treatment need have been developed in the last 50 year's. These indices are systems of procedures that summarize data about the malocclusion and return a numeric value. For index of treatment need, there is a point below which, the deviation from normal or ideal occlusion <sup>(8,9)</sup>.

Many authors used IOTN such as Jenny *et al.*, 1991, Ansai *et al.*, 1993 and Al-Huwaizi, 2002 <sup>(10-12)</sup>.

## MATERIALS AND METHODS

Most indices were constructed to measure treatment need measure various features of the occlusion award for each trait depending on the deviation from normal or ideal occlusion, multiply these points by a factor depending on the feature's importance and sum the points for all the features of malocclusion, most indices of treatment need are health based; i.e. the underlying assumptions are the malocclusion and it's features are associated with ill health later in life, some other indexes are based on esthetic impairment because the assumed psychosocial consequences of malocclusion are the most significant sequelae, <sup>(13,14)</sup>.

Representative indexes from each of these board categories have been shown to agree with

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professional orthodontic opinion about the need for orthodontic treatment <sup>(6,8)</sup>.

**Materials:**

- 1- Probe.
- 2- Mirror.
- 3- Tweezers.
- 4- Cotton.
- 5- Antiseptics.
- 6- Calibrated vernier.
- 7- Kidney dishes.
- 8- Light with 12 V Battery.

Permission was obtained from the general directorate of education in Baghdad. The school's authorities were contacted and the purpose of the study was explained to them to assure full cooperation. After exclusion of students who received any type of orthodontic treatment and those currently undergoing orthodontic treatment, the students were subjected to an interview and clinical examination, were seated in a chair with a high backrest with their head supported in an upright position and the examiner standing in front of the chair. The examination area was arranged in such a way that student entered at one point and left at another. Natural day light was utilized as the light source for examination and a portable light was used to supplement the natural day light during examination when needed. In the absence of electricity the potable light was connected to 12 V battery.

In this study 1500 pupils at primary school age 10-12 year were examined, the formula used based on the index used by the dental board in Sweden which designed to reflect the occlusal trait which could affect the function and longevity of the dentition the single worst

feature of malocclusion is noted (the index is not cumulative) and categorized in to one of the five grades reflecting need for treatment.

- \*Grade 1 – no need.
- \*Grade 2- mild need.
- \*Grade 3- Moderate need.
- \*Grade 4- Great need.
- \*Grade 5- very great need.

**RESULTS:**

The result of this study reveals that majority of the pupils required no need for treatment; on the other hand high percentage requires treatment (Fig. 1).

The percentage of each grade is as the following:

*Grade 1 – (no need):	57%	(855)
*Grade 2- (mild need):	23.3%	(349)
*Grade 3- (Moderate need):	14%	(210)
*Grade 4- (Great need):	5.3%	(79)
*Grade 5- (very great need):	0.3%	(7)

**DISCUSSION**

After working with the general public for a short period of time, it can readily be appreciated that demand for treatment does not necessarily reflect need for treatment. Some patients will complain bitterly about mild rotations of the upper incisors. While other are blithely unaware of markedly increased over jets. It has been demonstrated, that awareness of tooth alignment and malocclusion, and willingness to under go orthodontic treatment are greater in (females, higher socio-economic families and in areas which have a smaller population to orthodontist ratio. Presumably because appliances become more accepted) <sup>(12,16)</sup>.

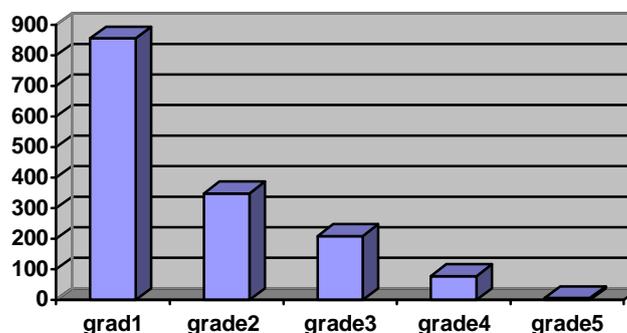


Figure 1: Statistical percentages of five grades

**Grade 1 (None)**

1= Extremely minor malocclusions including displacements less than 1 mm

**Grade 2 (Little)**

2a = Increased overjet 3.6-6 mm

2b = competent lips Reverse overjet 0.1-1 mm

2c = Anterior or posterior crossbite with up to 1 mm discrepancy between retruded, contact position and intercuspal position

2d = Displacement of teeth 1.1-2 mm

2e = Anterior or posterior open bite 1.1-2 mm

2f = Increased overbite 3.5 mm or more without gingival contact

2g = Prenormal or postnormal occlusions with o other anomalies: includes up to half a unit discrepancy.

**Grade 3 (Moderate)**

3a= Increased overjet 3.6-6 mm with incompetent lips

3b= Reverseoverjet 1.1 -3.5mm

3c= Anterior or posterior crossbites with 1.1-2 mm discrepancy

3d= Displacement of teeth 2.1-4 mm

3e= Lateral or anterior open bite 2.1-4 mm

3f= Increased and complete overbite without gingival trauma

**Grade 4 (Great)**

4a = Increased overjet 6.1-9 mm

4b = Reversed overjet greater than 3.5 mm with no masticatory or speech difficulties

4c = Anterior or posterior crossbites with greater than 2 mm discrepancy between retruded contact position and intercuspal position

4d = Severe displacement of teeth, greater than 4 mm.

4e= Extreme lateral or anterior open bites, greater than 4 mm.

4f= Increased and complete overbite with gingival palatal trauma

4h= Less extensive hypodontia requiring pre-restorative orthodontic space closure to obviate the need for a prosthesis

4l= Posterior lingual crossbite with no functional occlusal contact in one or both buccal segments

4m= Reverse overjet 1.1-3.5 mm with recorded masticatory and speech difficulties

4t= Partially erupted teeth tipped and impacted against adjacent-teeth.

4x= Supplemental teeth

**Grade 5 (Very Great)**

5a= Increased overjet greater than 9 mm

5h= Extensive hypodontia with restorative implications (more than one tooth missing in any quadrant) requiring pre-restorative orthodontics

5i= Impeded eruption of teeth (with the exception of third molars) due to crowding, displacement, the presence of supernumerary teeth, retained deciduous teeth, and any pathological cause

5m= Reverse overjet greater than 3.5 mm with reported masticatory and speech, difficulties

5p= Defects of cleft lip and palate

5s= Submerged deciduous teeth

According to this study, it was found that 57% of the primary school pupil (10-12) year requires no treatment, 23.3% requires little need, 14% requires moderate treatment, 5.3% requires great need, and 0.3% very great need. On comparing these result with the previous studies, Al-Huwaizi, (2002) found that 65.8% requires no or slight need, 16.8% with moderate need, 10.2% requires great need and 7.2% with very severe need (Handicapping). On the other hand, Iraqi sample has been found to require the lowest need for treatment on comparing with Jenny *et al.*,(1991) who found that 46% requires no treatment, 26% requires moderate treatment and Ansai *et al.*, (1993) who found that 32% require no treatment & 21% requires moderate treatment.

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