Occlusal features, perception of occlusion and orthodontic treatment need and demand among 13 years aged Baghdadi students Part II: (Cross sectional epidemiological study)

Zaynab Mohamed Ridha Al-Chalabi, B.D.S. [(1)]
Fakhri Abid Ali Al-Fatlawi, B.D.S., M.Sc. [(2)]

ABSTARCT

Background: The present study aimed to assess the distribution, prevalence, severity of malocclusion in Baghdad governorate in relation to gender and residency

Materials and Methods: A multi-stage stratified sampling technique was used in this investigation to make the sample a representative of target population. The sample consisted of 2700 (1349 males and 1351 females) intermediate school students aged 13 years representing 3% of the total target population. A questionnaire was used to determine the perception of occlusion and orthodontic treatment demand of the students and the assessment procedures for occlusal features by direct intraoral measurement using veriner and an instrument to measure the rotated and displaced teeth.

Results and conclusions: The presence of malaligned teeth was reported by 39% of the sample. The most prevalent reported types of malaligned teeth were spaced teeth (26.6%); Of the students who stated that they have malaligned teeth, 70.3% thought that it affected their appearance, 17.8% affected chewing, and 7.8% affected speech; The most common reasons for not seeking orthodontic treatment were the thought that treatment is not important or not possible (25.8%) and fear of pain (48.8%).One or more missing teeth due to extraction or trauma were found in 4.9% of the sample,the most common extracted tooth was the mandibular first molar. Crowding was more concentrated in the lower anterior segment while the spacing cases were higher and more concentrated in the upper anterior segment. A maxillary central diastema was found in 18.1 % of the sample with a mean of 0.306 mm. Anterior irregularities were found in (18.36 %maxillary and 26.84% mandibular),mean overjet 3.310 mm, mean overbite was 2.99 mm, Class I Angle class was found in 78.29%, class II in 19.5% and class III in 2.3%. Posterior crossbite found in 5.6%, anterior openbite (1.7%) and midline shift (54.34 %).Normal lip form was found in 86.6%, soft tissue impingement in 3.3%.The treatment need according to DAI show that 72.3% of the sample were found to have no or slight treatment need, 15.9% with treatment elective, 7.3% with treatment highly desirable, and 4.5% with treatment mandatory.Also increase the need and decrease demand for orthodontic treatment among adolescents in the Baghdad commune. This data will be useful for public oral health service and emphasize the need for orthodontic treatment among Baghdadi adolescents.

Key words: Occlusal features, perception of occlusion, treatment need. (J Bagh Coll Dentistry 2015; 27(3):179-186).

INTRODUCTION

Malocclusion is any deviation in the arrangement of the teeth exceeding the standards of normal occlusion. It may be associated with anomalies within the dental arches (i.e. crowding and spacing), malrelation of dental arches (i.e. anteroposterior, vertical and transverse anomalies) and skeletal discrepancies [(1)].

Many studies have reported on the prevalence of malocclusion in different populations [(2-4)]. The prevalence of malocclusion varies between different populations, ethnicities and age groups. Variations within the same population have also been noticed, especially in respect of both crowding and the sagittal dental arch relationship [(5,6)]. Moreover, the criteria for the recorded items (registration methods) seem to play an important role for the variation in the prevalence.

A thorough investigation of the occurrence of malocclusions among school–students would be of major importance in the planning of orthodontic treatment in the public dental health services. And moreover, an analysis of the need for orthodontic treatment in the different school classes [(7)]. Analysis of the prevalence rates of malocclusion in such groups may also contribute to understanding of the causes of malocclusion [(8)].

This study was carried out in Baghdad city since there no study has been done since 2002 on permanent dentition and it is designed to provide a base line data on the malocclusion of male and female sample during permanent dentition.

MATERIALS AND METHODS

The present epidemiological survey was conducted during the period between February to May 2014 in Baghdad cityand five small surrounding villages selected accordingto their geographical location and number of population.

(1)Master student. Department of Orthodontics. College of Dentistry, University of Baghdad.
(2)Professor. Department of Orthodontics. College of Dentistry, University of Baghdad.

The Sample

The sample consisted of 13-year-old students attending first year intermediate schools.Baghdad were split into two sectors Karkh and Rusafa on either side of the Tigris River. Each sector was handled as a separate entity in respect to the distribution of examination clusters. However, in the data analysis Baghdad was handled as one governorate.

Permission was obtained from the directorate of education. The schools authorities were contacted and the purpose of the study was explained to them to assure full cooperation.A multi-stage stratified sampling technique implemented in this investigation and the planning was to be 2540 students included in thesurvey, half of whom (1270 students) urban and the otherhalf rural.Urban students were considered as students living inthe center of Baghdad city taken as clusters of 63 students from 10 randomly selected schools. Rural students were selected randomly from five small villages, two clusters of 63 students from each village.

Examination Area

Each student was seated on an ordinary chair taken from the host school with his or her head supported in an upright position against the wall directly facing the examiner [9]. When possible the examination area waspartitioned or arranged in such a way that student entered at one point and left atanother. Students were not permitted tocrowd around the examiner. Natural daylight was utilized as the light source for the examination, and a portable light was used to supplement natural daylight during examination when needed and in the absence of electricity, the portable light was connected to a 1.5V battery.

Questionnaire

Before any dental examination wasdone, the date of examination, governorate,location, schools name, school classand gender of the students was registered.Then the students were eachinterviewed individually to obtain firstdemographic information regarding theirname and birth date.The student was asked some questionsregarding his/ her perception of occlusion.This questionnaire was modified from Ingervall et al, Ng'ang'a et al. [10, 11].

Clinical Examination

Before the intraoral clinical examinationwas commenced, gross anomalies, cleft lipand/or palate, traumatic or surgical defectswere noted and described in the notessection.

The intraoral examination was derivedfrom the epidemiological index of Bjork et al.[7] and theFDI index [9], in additionto the Dental Aesthetic Index [12].The following variables were examined: Missing permanent teeth due toextraction or trauma, rotated tooth (>15 degrees),displaced tooth (>1mm), Angle`s classes of occlusion(class I molar occlusion, class II molarocclusion and classIII molar occlusion), overjet (mm), overbite(mm), anterior openbite (mm), posterior crossbite, scissors bite, midline displacement (>0.5mm), maxillary median diastema(≥0.5mm), Anterior irregularities (≥1mm), spacing and crowding (one anteriorsegment and two lateral segments of the botharches), soft tissue impingement, lip formperception of occlusion and treatment need was recorded according to the components of Dental Aesthetic Index (DAI). The DAI scores were dichotomized as "no need for treatment" (DAI < 25) and "in need of treatment" (DAI > 25).

Inter-and intra-examiner calibration was performed before the study, to ensure the consistent application of the diagnostic criteria. The results showed no statistically significant difference.

RESULTS AND DISCUSSION

The total number of examined students was 2738; from which 200casesheets were excluded because ofincomplete or inaccurate information or incorrect age orcurrently undergoing orthodontic treatment and those who have undergone extraction of permanent teeth to improve appearance, giving avalid sample of 2538; 635 males (317urbans and 318rurals) and 635 females (318urbans and 317rurals)(Table 1,2).

Table 1: Number and distribution of all the examined students.

Location	Gender	Baghdad		Total
		Karkh	Rusafa	
Urban	Males	347	347	694
	Females	347	348	695
	Total	694	695	1389
Rural	Males	337	337	674
	Females	337	338	675
	Total	674	675	1349
Total	Males	684	684	1368
	Females	684	686	1370
	Total	1368	1370	2738

Table 2: Number and distribution of case sheets included in the statistical analysis

Residency	Gender	Baghdad		Total
		Karkh	Rusafa	
Urban	Male	317	318	635
	Female	318	318	636
	Total	635	636	1271
Rural	Male	318	315	633
	Female	317	317	634
	Total	635	632	1267
Total	Male	635	633	1268
	Female	635	635	1270
	Total	1270	1268	2538

Missing teeth due to extraction or trauma were found in 4.9% of the sample, most commonly first molars. The results of the present study are in accordance with the studies by Rasheed [13].Rotated teeth (>15°) were found in 38.3% which slightly lower than that found by Hoffding and Kisling [14]; and displaced teeth (>1mm) in 19.6% of the sample which less than found by Rasheed [13].

The most prevalent molar relationship in the malocclusion was Angle's class I occlusion in 78.29%of the sample, class II in 19.5% (17.2% division 1 and 2.3% division 2) and 2.3% had class III malocclusion (1.6% postural and 0.7% true). The distribution of the classes of occlusion according to gender was statistically significant for total sample which was in agreement with Rasheed [15] while The distribution of the classes of occlusion among urban and rural males was much alikewhile rural males showed more class II occlusion (25.7%) than urban males (19.9%). However, this was statistically insignificant for total sample that in agreement with that of Al-Huwaizi [16]. (Fig. 1)

The mean OJ was (3.31± 0.04) ranging from –5.0 to 14.0 mm. urban males had a statistically insignificantly higher mean overjet than urban females. This is in accordance with the findings of Al-Huwaizi [16] (Fig. 2).

The mean overbite of the sample was (2.99 ± 0.03). Males had a higher mean overbite (3.11± 0.05) than females (2.88± 0.04).This was statistically significant for total sample as shown in (Fig. 3).Urban males and females had a higher mean overbite (3.06± 0.04) than rural males and females (2.93± 0.04). However, these differences were statistically insignificant for total sample as shown in (Table 3.49) This is in accordance with the findings of Al-Huwaizi [16] (Fig. 3).

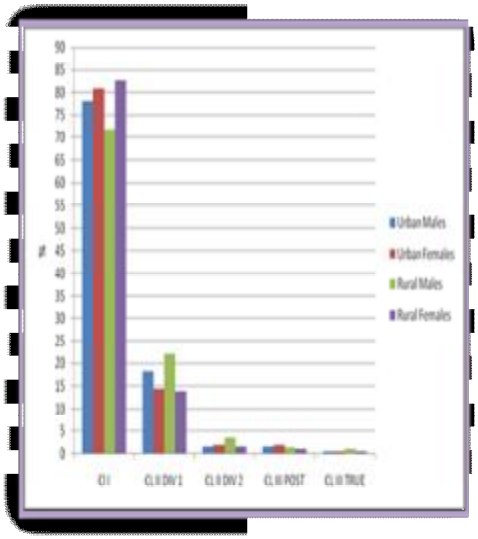

Figure 1: Distribution of the Angle's classification by residency and gender.

Prevalence of open bite was found to be 1.7%. A total of 5.6% had posterior crossbite ranging from unilateral involving one or several teeth to bilateral and complete which are in correlation with Al-Huwaizi [16](Table 3). Scissors bite was found to be 2.3%. Median diastema was present in 18.1%. The prevalence was similar in boys and girls (Table 4).

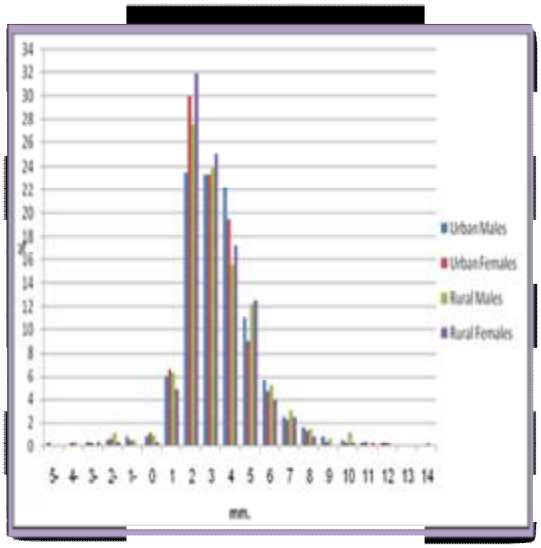

Figure 2: Overjet values of the total sample according to residency and gender.

Table 3: Distribution of the posterior crossbite according to type by residency and gender

	Urban						Rural						Total					
	M N=635		F N=636		T N=1271		M N=633		F N=634		T N=1267		M N=1268		F N=1270		T N=2538	
	N	%	N	%	N	%	N	%	N	%	n	%	n	%	n	%	n	%
Unilateral	16	2.5	14	2.2	30	2.4	10	1.6	17	2.7	27	2.1	26	2.1	31	2.4	57	2.2
Unilateral	9	1.4	15	2.4	24	1.9	11	1.7	16	2.5	27	2.1	20	1.6	31	2.4	51	2.0
bilateral	8	1.3	11	1.7	19	1.5	6	0.9	10	1.6	16	1.3	14	1.1	21	1.7	35	1.4
Total	33	5.2	40	6.3	73	5.7	27	4.3	43	6.8	70	5.5	60	4.7	83	6.5	143	5.6
Gender differences	$X^2 = 4.394$, d.f. = 3, p-value = 0.222, NS																	
Residency differences	$X^2 = 0.586$, d.f. = 3, p-value = 0.899, NS																	

N.S: No Significant difference at P > 0.05.

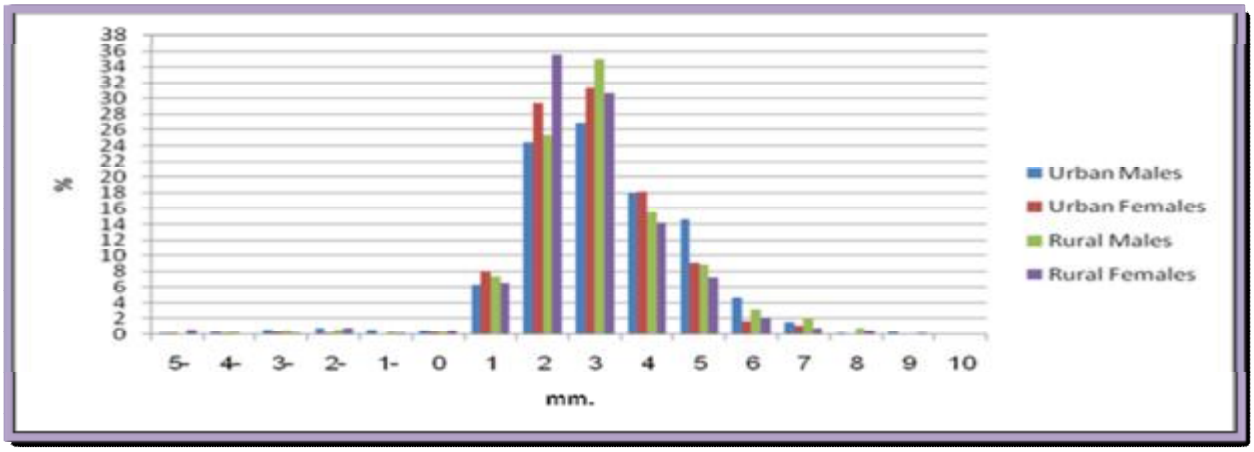

Figure 3: Overbite values of the total sample according to residency and gender.

Table 4: Distribution of the width (in mm) of the maxillary central diastema by residency and gender.

	Urban						Rural						Total					
	M N= 635		F N=636		T N= 1271		M N= 633		F N=634		T N= 1267		M N= 1268		F N=1270		T N= 2538	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1 mm	68	10.7	71	11.2	139	10.9	55	8.7	55	8.7	110	8.7	123	9.7	126	9.9	249	9.8
2 mm	30	4.7	35	5.5	65	5.1	26	4.1	29	4.6	55	4.3	56	4.4	64	5.0	120	4.7
3 mm	15	2.4	26	4.1	41	3.2	19	3.0	18	2.8	37	2.9	34	2.7	44	3.5	78	3.1
4 mm	1	0.2	2	0.3	3	0.2	6	0.9	2	0.3	8	0.6	7	0.6	4	0.3	11	0.4
5 mm	1	0.2	0	0.0	1	0.1	0	0.0	1	0.2	1	0.1	1	0.1	1	0.1	2	0.1
Total	115	18.1	134	21.1	249	19.6	106	16.7	105	16.6	211	16.7	221	17.4	239	18.8	460	18.1
Mean	0.287		0.357		0.322		0.297		0.284		0.290		0.292		0.321		0.306	
S.E.	0.028		0.031		0.021		0.030		0.029		0.021		0.021		0.021		0.015	
Gender differences	t-test = -0.966, d.f. = 2536, p-value = 0.334, NS																	
Residency	t-test = 1.056, d.f. = 2536, p-value = 0.291, NS																	

N.S: No Significant difference at P > 0.05.

The maxillary anterior region showed the highest prevalence (15.2%) of spacing (≥2mm) and the mandibular anterior region showed the highest prevalence (12.6%) of crowding (≥2mm). The presence of crowding and spacing in the dental arches may be due to dentoalveolar and tooth size and jaw size discrepancies. The high prevalence of crowding may also partly be explained by the occurrence of caries and molar extraction, which causes the migration of the first permanent molar, inclinations and rotations.

Anterior irregularities (≥1mm) were found in (18.36 %maxillary and 26.84% mandibular), the results compared with the Chauhan et al. [17] found that their result quite low as compared to the present study.Midline shift (54.34 %) that close to Abdulla [18].

Of the sample, 3.0% had palatal soft tissue impingement, and 0.3% had labial soft tissue impingement that revealed close percentage that recorded by Al-Huwaizi[16].Considering gender and residency difference, soft tissue impingement was statistically insignificantly distributed between them (Table 5).

Of the sample, (86.60%) had a normal lip form, (10.13%) had a contracting lip form and 83 students (3.27%) had lip trap.

Considering gender difference, lip form was statistically significantly distributed between both genders for total sample; Lip form was also statistically significantly distributed between urbans and rurals for total sample as shown in table (Table 6).

Table 5: Distribution of the soft tissue impingement according to type by residency and gender

	Urban						Rural						Total					
	M N=635		F N=636		T N=1271		M N=633		F N=634		T N=1267		M N=1268		F N=1270		T N=2538	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Palatal	16	2.5	19	3.0	35	2.8	26	4.1	14	2.2	40	3.2	42	3.3	33	2.6	75	3.0
Labial	1	0.2	2	0.3	3	0.2	3	0.5	1	0.2	4	0.3	4	0.3	3	0.2	7	0.3
Gender differences	$X^2 = 1.28$, d.f. = 2, p-value = 0.527 (NS)																	
Residency differences	$X^2 = 0.511$, d.f. = 2, p-value = 0.775 (NS)																	

N.S: No Significant difference at P > 0.05.

Regarding perception of occlusion; the presence of malaligned teeth was reported by 39% of the sample. The most prevalent reported types of malaligned teeth were spaced teeth (26.6%); Of the students who stated that they have malaligned teeth, 70.3% thought that it affected their appearance, 17.8% affected chewing, and 7.8% affected speech; The most common reasons for not seeking orthodontic treatment were the thought that treatment is not important or not possible (25.8%) and fear of pain (48.8%), similar to that of Al-Huwaizi [16] and Al-Zubair [20].

The treatment need according to DAI show that 72.3% of the sample were found to have no or slight treatment need, 15.9% with treatment elective, 7.3% with treatment highly desirable, and 4.5% with treatment mandatory.This study showed close levels of orthodontic treatment need to that of Al-Huwaizi[16], Tak et al.[19].

Considering gender differences, males showed high mean DAI score (23.67± 0.171) to that of females (22.803± 0.161). This was statistically significant for total sample as shown in (Fig 4,5).

The rurals showed a slightly higher mean DAI score (24.050 ± 0.252 for males and 22.778 ± 0.227 for females) than for the urbans (23.246± 0.232 for males and 22.829 ± 0.227 for females). This was statistically insignificant for total sample (Fig 4,5).

DAI scores where there is severe malocclusion and treatment is highly desirable or mandatory were found more in the rural sample (13.3%) than in the urban sample (10.3%) this was in agreement with Al-Huwaizi[16],Hemapriya et al. [21]and contradicts the findings of Ansai et al.[22] who found that in his sample urban students had significantly higher DAI scores than rural students and this may be attributed to racial differences.

This study suggests that there is need for intensified oral health education in rural areas, targeted at both parents and school children to enable them benefit from interceptive orthodontic care which has numerous benefits.

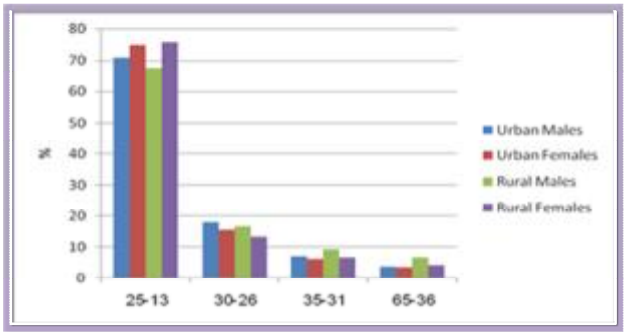

Figure 4: Distribution of the total sample according to their DAI scores residency and gender.

Table 6: Distribution of lip form according to type by residency and gender

	Urban						Rural						Total					
	M		F		T		M		F		T		M		F		T	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Normal	526	82.8	562	88.4	1088	85.6	538	85.0	572	90.2	1110	87.6	1064	83.9	1134	89.3	2198	86.6
Contract	87	13.7	60	9.4	147	11.6	53	8.4	57	9.0	110	8.7	140	11.0	117	9.2	257	10.1
Trap	22	3.5	14	2.2	36	2.8	42	6.6	5	0.8	47	3.7	64	5.0	19	1.5	83	3.3
Total	635	100	636	100	1271	100	633	100	634	100	1267	100	1268	100	1270	100	2538	100
Gender differences	$X^2 = 28.684$, d.f. = 2, p-value = 0.000, HS																	
Residency differences	$X^2 = 6.999$, d.f. = 2, p-value = 0.030, S																	

HS: Highly significant p <0.01. S: significant p<0.05

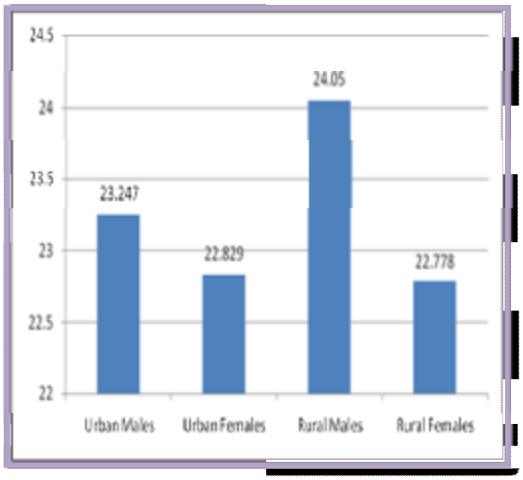

Figure 5: Distribution of the mean of the total sample according to their DAI scores residency and gender.

Perception of occlusion

First of all, we will discuss the three questions regarding the past and present orthodontic treatment of the students.

Of the sample, 4.8% did or were doing orthodontic treatment, 1.2% had undergone extractions to improve appearance, and 1.7% reported that their treatment was postponed by a dentist for a later time; giving a total of 7.7% of the sample who have had some type of orthodontic treatment or consultation.

- Regarding the self-evaluation of the students to the alignment of their teeth, 39.1% of them answered that they have malaligned teeth.
- Concerning the type of malaligned teeth, the children reported their malocclusion type as follow with descending sequence of prevalence spaced, crowded, rotated and displaced teeth Awareness of spacing was a highly significant relation between the positive answers to this choice and the presence of spacing. This sequence different from Al-Huwaizi[13]. (Table 7).
- Of the 991 students who stated that they have malaligned teeth; 70.3% thought that it affected their appearance, 17.76% affected chewing, and 7.77% affected speech, while 4.14% answered that malaligned teeth did not affect appearance or speech. This result is comparable to that found by Al-Huwaizi[13]andAl-Zubair[20](Table 8).
- The most common reason for not seeking orthodontic treatment was that the students thought that treatment is not important, fear of pain, treatment is expensive, and treatment is not possible. The predominance of fear of pain is similar to that of Al-Huwaizi [13] and Al-Zubair [20]. (Table 9).

Table 7: Distribution of the answers to question 2 regarding the type of malalignment of teeth by residency and gender

	Urban						Rural						Total					
	M N=221		F N=270		T N=491		M N=215		F N=285		T N=500		M N=436		F N=555		T N=991	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Crowded	63	28.5	61	22.5	124	25.1	60	27.9	74	26	134	26.8	123	28.2	135	24.3	258	26
Spaced	61	27.6	88	32.6	149	30.2	36	16.7	79	27.7	115	23	97	22.2	167	30.1	264	26.6
Protruded	39	17.6	63	23.3	102	20.6	58	27	62	21.8	120	24	97	22.2	125	22.5	222	22.4
Rotated and displaced	59	26.7	60	22.2	119	24.1	65	30.2	71	24.9	136	27.2	124	28.4	131	23.6	255	25.7
Gender differences	X^2 = 9.267, d.f. = 3, p-value = 0.026, S																	
Residency differences	X^2 = 7.239, d.f. = 3, p-value = 0.065, NS																	

S: significant p<0.05N.S: No Significant difference at P > 0.05.

Table 8: Distribution of the answers to question 3 regarding the effect of the malalignment of teeth by residency and gender

	Urban						Rural						Total					
	M N=221		F N=270		T N=491		M N=215		F N=285		T N=500		M N=436		F N=555		T N=991	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Appearance	133	60.2	222	82.2	354	72.2	134	62.3	208	73.1	343	68.5	267	61.2	430	77.5	697	70.3
chewing	60	27.1	29	10.8	89	18.2	48	22.3	39	13.6	87	17.4	108	24.8	68	12.3	176	17.8
speech	23	10.4	15	5.6	38	7.7	13	6.0	26	9.1	39	7.8	36	8.3	41	7.4	77	7.8
No effect	5	2.3	4	1.5	9	1.8	20	9.3	12	4.2	32	6.4	25	5.7	16	2.9	41	4.1
Gender differences	X^2 = 35.736, d.f. = 3, p-value = 0.000, HS																	
Residencey differences	X^2 = 13.1, d.f. = 3, p-value = 0.004, HS																	

HS: Highly significant p <0.01.

Table 9: Distribution of the answers to question 4 regarding the reason for not seeking treatment by residency and gender

	Urban						Rural						Total					
	M N=221		F N=270		T N=491		M N=215		F N=285		T N=500		M N=436		F N=555		T N=991	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Treatment is not important	67	30.3	55	20.4	122	24.8	77	35.8	57	20	134	26.8	144	33.0	112	20.2	256	25.8
Treatment is not possible	29	13.1	21	7.8	50	10.2	15	7	24	8.4	39	7.8	44	10.1	45	8.1	89	9
Fear of pain	93	42.1	151	55.9	244	49.7	87	40.5	153	53.7	240	48	180	41.3	304	54.8	484	48.8
Fear of extraction	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Treatment is expensive	17	7.7	12	4.4	29	5.9	20	9.3	31	10.9	51	10.2	37	8.5	43	7.7	80	8.1
Postponed by dentist	4	1.8	7	2.6	11	2.2	2	0.9	4	1.4	6	1.2	6	1.4	11	2	17	1.7
No time for treatment	10	4.5	5	1.9	15	3.0	7	3.3	8	2.8	15	3	17	3.9	13	2.3	30	3.0
Fear of crosscontamination	2	0.9	4	1.5	6	1.2	0	0	0	0	0	0	2	0.5	4	0.7	6	0.6
Hope for spontaneous improvement	1	0.5	0	0	1	0.2	2	0.9	1	0.4	3	0.6	3	0.7	1	0.9	4	0.4
Difficult to used it	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Poor esthetics of appliances	2	0.9	2	0.7	4	0.8	0	0.0	0	0.0	0	0.0	2	0.5	2	0.4	4	0.4
Don't know	10	4.5	13	4.8	23	4.7	5	2.3	7	2.5	12	2.4	15	3.4	20	3.6	35	3.5
Gender differences	X^2 = 29.972, d.f. = 9, p-value = 0.000, HS																	
Residency differences	X^2 = 23.909, d.f. = 9, p-value = 0.004,HS																	

HS: Highly significant p <0.01.

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الخلاصة

الخلفية: هدف هذه الدراسة تقييم التوزيع والانتشار، شدة سوء الاطباق في محافظة بغداد على أساس نوع الجنس والاقامة.

المواد والطرق: طريقة الانتخاب متعددة المراحل تراصفية قد استعلمت في هذا البحث كي تجعل العينـه 2700 طالب (1349طالب و 1351 طالبة) من المدارس المتوسطة بعمر 13 سنة يمثلون 3% من مجموع الطلاب بهذا العمر.

شمل البحث استمارة استبيانية لمعرفة ادراك الطالب لاطباقه والطلب على المعالجة التقويمية تمتعملية التقييم لخواص الأطباق بواسطة الفحص السريري المباشر بأستعمال veriner وآلة لقياس الأستدار هو الأنحراف في الأسنان.

النتائج والاستنتاجات: (39.1%) من الطلاب أجابوا بأن عندهم أسنان غير منتظمة. الاجابة الاكثر انتشارا حول نوع عدم انتظام الاسنان كانت الاسنان المتباعدة بنسبة (26.6%). فيما يتعلق بالأجوبة حول تأثير الاسنان غير المنتظمة 70.3% أجابوا بأن أسنانهم تؤثر على مظهرهم و17.7% تؤثر على مضغ الطعام و 7.7% تؤثر على النطق. الأسباب الأكثر شيوعا لعدم طلب المعالجة التقويمية كان اعتقاد الطلاب بأن العلاج ليس مهم(25.8%) والخوف من الالم (48.8%).(4.9%) من العينة كان لديها سن أو أكثر مفقود بسبب القلع أو التعرض الى صدمة خارجية والسن المقلوع الأكثر شيوعا كان الضرس الاول في الفك السفلي. أكثر منطقة شملت أسنان متباعدة كانت المنطقة الامامية العلوية وأكثر منطقة شملت أسنان متزاحمة كانت المنطقة الامامية السفلية. الفتحة العلوية الوسطية وجدت في 18.1% من العينة بمعدل 0.306.التراكبات السنية الامامية (18.36% في الفك العلوي و 26.84% في الفك السفلي).معدل بروز الاسنان الامامية للعينة كان 3.31 ملم. معدل العضة للعينة كان 2.99 ملم. صنف الاطباق الاول وجد في 78.29% من العينة والصنف الثاني في 19.5% من العينة والصنف الثالث في 2.3% من العينة. العضة الخلفية المعكوسة وجدت في 5.6%. العضة الامامية المفتوحة في 1.7%. انحراف الخط الوسطي وجد في 54.3%. (86.6%) من العينة كان لديهم شكل شفة طبيعي.اصطدام القواطع باللثة وجدت في 3.3% من العينة.نتيجة الDAI التي سجلت في هذه الدراسة 72.3% من العينة لديهم حاجة قليلة الى المعالجة التقويمية و 15.9% لديهم حاجة اختيارية الى المعالجة التقويمية و 7.3% لديهم حاجة شديدة الى المعالجة التقويمية و4.5% لديهم حاجة الزامية الى المعالجة التقويمية. أيضا زيادة في الحاجة وقلة في الطلب على المعالجة التقويمية بين المراهقين في مجتمع بغداد.وهذه البيانات تكون مفيدة لخدمة صحة الفم العامة وللتأكيد على ضرورة المعالجة التقويمية بين المراهقين في بغداد.