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Comparison of Facial Heights Between Iraqi Arab and Kurdish

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الخلاصة

أهداف الدراسة: كان الغرض من إجراء هذه الدراسة هو التحري عن وجود أي فرق في قياسات الارتفاع الوجهي بين الأحداث العراقين (العرب والاكراد). **المواد وطرائق العمل:** تم اخذ التصوير ألشعاعي الرأسي الجانبي لعينة تكونت من (42) من الأحداث العرب في مدينة الموصل و 43 من الأحداث الأكراد في مدينة اربيل. فقد تم قياس الارتفاع الوجهي الامامي والخلفي لكلا المجموعتين. **النتائج:** اظهرت النتائج عدم وجود فروق معنوية بين كلا الجنسين في جميع المتغيرات المدروسة لقياس الارتفاع الوجهي الامامي والخلفي ضمن مجموعة الأحداث العرب بينما كان الفرق معنوي ملحوظا بين كلا الجنسين ضمن مجموعة الأحداث الكرد. اظهرت النتائج أيضا وجود فرق معنوي ملحوظ في قياسات الارتفاع الوجهي بين الأحداث العراقيين (العرب والاكراد).

ABSTRACT

Aims: To investigate for any difference in facial height measurements between Iraqi Arabs and Kurds adolescents. **Materials and Methods:** lateral cephalometric radiographs Of 42Arabic adolescents in Mosul city and 43 Kurdish adolescents in Arbil city were assessed for anterior and posterior facial height measurements. **Results**: No significant difference was found in facial height measurements between Arabic males and females. In Kurds, males showed significantly higher facial measurements than females. Kurdish adolescents had significantly greater facial height measurements than Arabic counterparts. **Conclusions:** Our results revealed that there is an overall difference in the facial height measurements between Arabic and Kurdish Iraqi adolescents**.**

Keywords: Facial height measurements ,Arabs ,Kurds, Adolescents

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INTRODUCTION

Standards of facial esthetic have begun to change worldwide and orthodontists need a wide knowledge of skeletal and dental characteristics, specifically in untreated normal subjects. This valuable information assists in orthodontic treatment correlating normal developmental changes and treatment objectives[1-3]. Facial height is an important factor in facial balance[4].Orthodontic treatment must be in equilibrium with the normal growth process to be effective and stable and to compensate for unpleasant facial patterns.

Cephalometric norms don't apply to all patients; because of racial characteristics and miscegenation, specific cephalometric standards are required for various ethnic groups[5]. Iraq areas have diverse populations, many previous studies attempt to apply cephalometric analysis to Iraqi adolescents[6-8], but no one of these were attempted to compare the measurements between different ethnic groups . Because of the factors involved in ethnic facial features, it's important to study the Iraqi populations in all Iraq areas. In this study, we aimed to compare the facial height in two distinct ethnic groups; Arab and Kurd Iraqi subjects with normal occlusion, to establish the facial height pattern of each group. Additionally, Gender dimorphism was investigated.

MATERIALS AND METHODS

The sample consisted of 85 lateral cephalometric radiographs of Iraqi subjects living in Mosul and Arbil cities, who were attending the Peadodontic, Orthodontic, and preventive dentistry department, college of dentistry, at universities of Mosul and Hawler medical university.

Obaidi HA, Al-Dawoody AD, Hassan BAThe sample was divided in to two groups. Group one included 42 Arabic adolescents, 20 male and 22 female aged 12-16 years with a mean age of 13.3 years. Group two included 43 Kurdish adolescents, 21 males and 22 females aged 12-16 years with a mean age 13.2 years. Both groups having class one canine and molar relationship, no crowding or cross bite, normal overjet (2-4 mm) and normal overbite (1-4mm). All subjects with full complement of permanent teeth up to the second molars in both jaws with balanced faces and no history of previous orthodontic treatment.

The anatomic tracings and location of the dentoskeletal landmarks were manually carried out by one investigator, these data were then stored on a computer and analysed with SSPS soft ware (version 11.5). Cephalometric points, planes and measurements (Figure 1) were obtained according to the analysis of Biggerstaff [9] and DeFreits et al [10]. The following measurements were used: TAFH: Total anterior facial height: linear distance between Nasion (N) and Menton (Me). UAFH: Upper anterior facial height: linear measurement between Nasion (N) and anterior nasal spine (ANS). LAFH: Lower anterior facial height: linear distance between ANS and Me. TPFH: Total posterior facial height: linear distance between Sella (S) and Gonion (Go). UPFH: Upper posterior facial height: linear distance between Sella (S) and posterior nasal spine (PNS). LPFH: Lower posterior facial height: linear distance between Articulare (Ar) and Gonion (Go).

The data were analysed by using the descriptive analysis including the means, standard deviations, minimum and maximum values for each variable in both groups. The student's t test at 0.05 significant levels to reveal the gender variations of these parameters within and between the two groups.

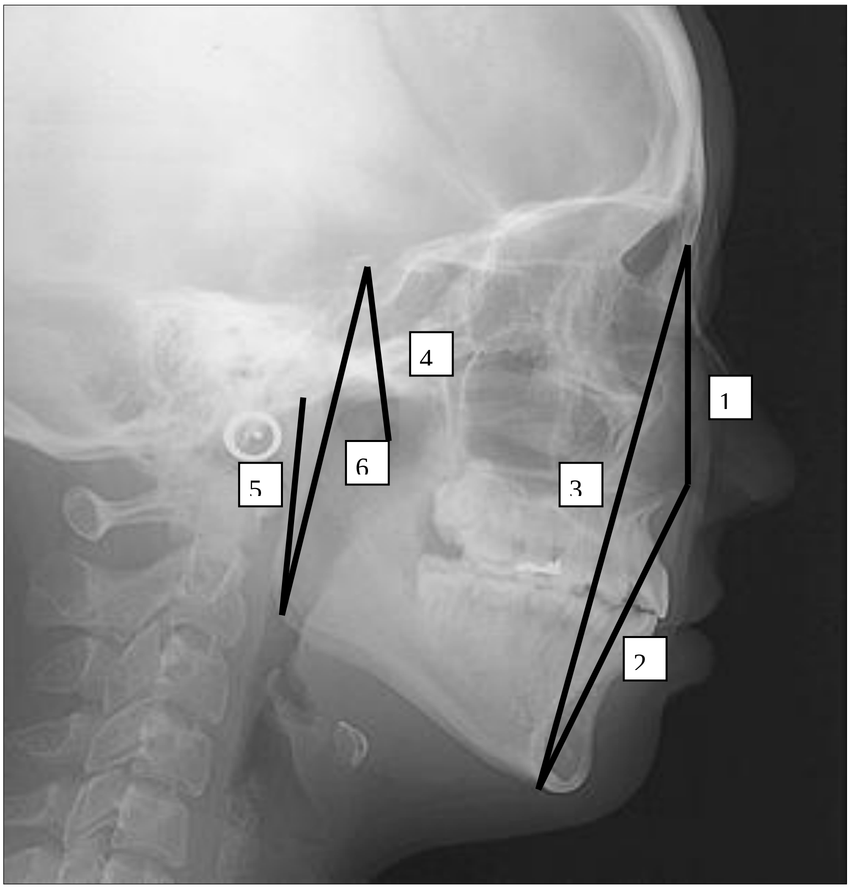

Figure (1): Cephalometric measurements. 1- UAFH,2-, LAFH,3-TAFH,4-UPFH,5-LPFH,6-TPFH.

RESULTS

Descriptive statistics (means, standard deviations, minimum and maximum values) and gender variation analyses of the facial height parameters for Iraqi Arab and Kurd groups are presented in Tables (1, 2). In Arabic adolescents, all facial height parameters showed no significant differences between males and females, with slightly higher mean value in TAFH and TPFH for males than females.

Meanwhile all facial height parameters (except for UAFH measurement) appeared significantly higher mean value in males than females for Kurdish adolescents.

Table (1): Descriptive and gender's variation analysis of facial height measurements of Iraqi Arabic adolescents.

Facial measurements*	Sex	Minimum	Maximum	Mean	±SD	t-value	Significance
UAFH	Male	51	58	55.27	2.08	-1.87	NS**
	Female	53	59	56.36	1.67		
LAFH	Male	59	82	66.92	6.07	-0.65	NS
	Female	58.5	74	67.93	3.79		
TAFH	Male	113	138.5	124.30	13.48	0.63	NS
	Female	115	130	122.38	4.09		
UPFH	Male	43.5	52	47.60	2.35	0.08	NS
	Female	43.5	51	47.54	1.99		
LPFH	Male	39	60	46.70	4.49	-0.97	NS
	Female	44	53	47.84	2.98		
TPFH	Male	69	93	79.20	5.43	0.93	NS
	Female	72.5	86	77.88	3.60		

UAFH: upper anterior facial height, LAFH: lower anterior facial height. TAFH: total anterior facial height, UAFH: upper posterior facial height, LAFH: lower posterior facial height, TPFH: total posterior facial height. * Measurements in millimeter, **NS not significant (*p* value >0.05).

Table (2): Descriptive and gender's variation analysis of facial height measurements of Iraqi Kurdish adolescents.

Facial* measurements	Sex	minimum	maximum	Mean	±SD	t-value	Significance**
UAFH	Male	54	68.5	61.50	3.45	1.53	NS
	Female	46.5	69	59.54	4.78		
LAFH	Male	70	89	80.95	6.38	2.88	S
	Female	69	90	76	4.81		
TAFH	Male	127	159	139.85	7.48	2.75	S
	Female	125	144	134.34	5.55		
UPFH	Male	48	64	56.35	3.83	2.69	S
	Female	47	60	53.22	3.79		
LPFH	Male	47	73	57.61	5.82	2.78	S
	Female	46	62	53.31	4.22		
TPFH	Male	80	109	95.85	6.48	3.22	S
	Female	81	96	90.27	4.80		

UAFH: upper anterior facial height, LAFH: lower anterior facial height. TAFH: total anterior facial height, UAFH: upper posterior facial height, LAFH: lower posterior facial height, TPFH: total posterior facial height.* Measurements in millimeter, **NS not significant (*p* value >0.05), S significant (*p* value ≤0.05.

The student t-test analysis comparing the cephalometric measurements for both groups (Table 3) showed that all skeletal linear parameters demonstrated significant difference with greater mean values for Kurdish adolescents in comparison with Arabic adolescents.Facial height measurements were significantly greater in Kurdish males and females than in their Arabic counterparts (Tables 4,5).

Table (3): Comparison between Arabs and Kurds for facial height measurements.

Facial* measurements	Group (no.)	Mean	±SD	t-value	Significance**
UAFH	Arabs(42)	55.84	1.93	6.46	S
	Kurds(43)	60.50	4.25		
LAFH	Arabs(42)	67.45	4.97	9.06	S
	Kurds(43)	78.41	6.10		
TAFH	Arabs(42)	123.29	9.68	7.48	S
	Kurds(43)	137.03	7.06		
UPFH	Arabs(42)	47.57	4.08	10.10	S
	Kurds(43)	54.75	2.15		
LPFH	Arabs(42)	47.29	3.77	7.95	S
	Kurds(43)	55.41	5.45		
TPFH	Arabs(42)	78.51	4.55	12.14	S
	Kurds(43)	93	6.28		

UAFH: upper anterior facial height, LAFH: lower anterior facial height. TAFH: total anterior facial height, UAFH: upper posterior facial height, LAFH: lower posterior facial height, TPFH: total posterior facial height. * Measurements in millimeter, **S significant (*p* value ≤0.05).

Table (4): Comparison between Arabic and Kurdish males for facial height measurements.

Facial* measurements	Group (no.)	Mean	±SD	t-value	Significance**
UAFH	Arabs(20)	55.27	2.08	6.93	S
	Kurds(21)	61.50	3.45		
LAFH	Arabs(20)	66.92	6.07	7.19	S
	Kurds(21)	80.95	6.38		
TAFH	Arabs(20)	124.30	13.48	4.59	S
	Kurds(21)	139.85	7.48		
UPFH	Arabs(20)	47.60	2.35	8.75	S
	Kurds(21)	56.35	3.83		
LPFH	Arabs(20)	46.70	4.49	6.69	S
	Kurds(21)	57.61	5.82		
TPFH	Arabs(20)	79.20	5.43	8.89	S
	Kurds(21)	95.85	6.48		

* Measurements in millimeter, **S significant (*p* value ≤0.05).

Table (5): Comparison between Arabic and Kurdish females for facial height measurements.

Facial* measurements	Group (no.)	Mean	±SD	t-value	Significance**
UAFH	Arabs(22)	56.36	1.67	2.94	S
	Kurds(22)	59.54	4.78		
LAFH	Arabs(22)	67.93	3.79	6.17	S
	Kurds(22)	76.00	4.81		
TAFH	Arabs(22)	122.38	4.09	8.12	S
	Kurds(22)	134.34	5.55		
UPFH	Arabs(22)	47.54	1.99	6.21	S
	Kurds(22)	53.22	3.79		
LPFH	Arabs(22)	47.84	2.98	4.96	S
	Kurds(22)	53.31	4.22		
TPFH	Arabs(22)	77.88	3.60	9.67	S
	Kurds(22)	90.27	4.80		

* Measurements in millimeter, **S significant (*p* value ≤0.05).

DISCUSSION

A single standard of facial esthetics is not appropriate for all racial and ethnic groups, and normative data of facial measurements are essential for precise determination of the degree of variation from the normal [11].

There are many studies on vertical dimensions in both ethnic groups, but none compares facial height in normal Arab and Kurd Iraqi subjects. The groups we evaluated were compatible regarding sample size &age, selection criteria, distribution of the sexes and type of analysis.

The findings of this study showed no significant differences in all facial height parameters between Arabic males and females, although the Arabic female showed slightly high mean values for LAFH&LPFH than Arabic males. The present finding come in agreement with observations of Obaidi and Abdul Qadir [12], they found that there is no significant differences between sexes with females showing larger LPFH dimension than males in 11,12 and 13 years groups. The phenomenon of lack of inter-gender differences from11 to13 is likely attributable to the earlier onset of growth spurt in girls than boys[13].

On other hands, this study showed statistically significant differences between Kurdish males and females for five of six facial height variables.

Posterior, Total and Lower anterior facial heights demonstrated significant inter-gender differences with higher value in males indicating that the vertical skeletal dimensions are relatively larger in Kurdish males than females.

This finding come in accordance with the conclusion of Bjork[14] ,who reported that the skeletal gender variation probably due to the fact that males grow at faster rate and over long period of time than females.

The present findings come in agreement with those of Wu J et al [15] who found statistically significant gender difference for facial height in Chinese adolescents. Dreversek et al [16], who examined 42 boys and 46 girls with ideal occlusion& found highly significant inter gender difference for facial height measurements. However, this result disagree with the findings of Gasgos [17], who found significant change between males and females in upper facial height only at age 18-25 years, this difference in the result may be attributed to the ethnic variation.

In this study, comparison of facial height measurement between Arabic and Kurdish subjects demonstrated a significant difference between the two ethnic groups for all parameters.

The posterior facial height measurement appeared to be significantly higher for Kurdish males and females as compared to Arabic counterpart. Many authors showed that PFH has less influence in determining facial type [10,18]. Our findings also revealed that the Kurdish subjects have greater AFH (upper, lower and total) than Arabic subjects. The LAFH is the component of total anterior face height which presents the most variability[19,20]. Orthodontically, features of the lower face are more important than UFH because orthodontic changes are limited to this area[21].Excessive LAFH is a frequent characteristic of many patients presenting with anterior open bite. However, not all long faced patients have open bite and not all open bite patients are long faced [22]. On the other hand, short lower anterior face height is a frequent characteristic feature of patients who have deep over bite [23].

The results demonstrated that Kurdish subjects have greater facial height measurements. This mean that Kurds tend to have a slightly more vertical facial pattern than Arabs. This implies that the prognosis for orthodontic treatment of patients with increased vertical dimension of the face will not be as favorable as horizontal pattern and must be considered during treatment planning for this ethnic group [24].

CONCLUSIONS

Our results revealed that there is an overall difference in the facial height measurements between Arabic and Kurdish Iraqi adolescents, at least as they are presented by the present samples.

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