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Facial Profile Preferences Among Various Layers of Turkish Population

Hakan Türkkahraman, DDS, PhD;[a] Hatice Gökalp, DDS, PhD[b]

ABSTRACT

There are many criteria and methods used to constitute and determine a standardized esthetic concept in orthodontics. However, the subjectivity of the esthetic concept is the common opinion of the authors. Ethnic and racial differences play a major role in diversifying esthetic preferences. The aims of this study were to determine the general esthetic preference of a Turkish population and to find out whether this preference was affected by sex, age, education, social status, geographic location, or personal profile. Toward these aims, eight profile estimates for each sex were morphed by a video imaging technique and then scored by 400 participants. Analysis of variance (ANOVA) and independent sample *t*-tests were used to compare the preferences of the groups. The orthognathic profile in both sexes was selected as the most preferred profile whereas the convex profile with a prognathic maxilla and a retrognathic mandible were the least preferred. The public also admired fuller and protrusive lips in females and retrusive lips with a prominent nose and chin in males. Sex, age, education, social status, geographic location, and personal profile were also shown to affect the public's profile preferences.

KEY WORDS: Facial esthetics, Profile preferences, Turkish population, Video imaging.

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INTRODUCTION Return to TOC

From ancient societies and cultures to our modern society, a great emphasis has been placed on facial esthetics and physical attractiveness. The concept of esthetics is subjective, so it is very hard to determine objective criteria for defining the concept of beauty. However, since the 13th century, mankind has started to notice a common characteristic of beautiful things and named this mysterious attraction the “divine proportion.” It was also interpreted as an effect of mathematics on esthetic beauty. The secret of mysterious beauty in Leonardo de Vinci's Mona Lisa might have been an application of the divine proportion to the human face.

The aim of orthodontic treatment is to achieve a proper, functional occlusion together with a well-balanced and esthetic facial profile. Therefore, many studies on the ideal relationship of skeletal and soft tissues have been carried out.[1–6] Although a concept of “ideal orthodontic norms” has been accepted widely, public preferences sometimes do not concur with orthodontic standards.[7] A face with perfect esthetic ratios is not necessarily accepted as beautiful by society. Therefore, it can be erroneous to think that any esthetic object should necessarily be beautiful and attractive.

Ethnic and racial differences play a major role in diversifying esthetic preferences.[7–9] Several factors such as sex, age, education, socioeconomic status, and geographic location also affect the esthetic preferences of the public.[7,9–12]

The contributions of orthodontic and orthognathic treatment to the esthetic well being of individuals cannot be ignored. When planning an orthodontic treatment, orthodontic standards must concur with the public's esthetic perceptions and norms. This is very important because facial esthetics have been found to be an important determinant of self and social perceptions.[13–19]

Therefore, the aims of this study are:

- to determine general esthetic preference of Turkish population;
- to determine whether this preference is affected by sex, age, education, social status, geographic location, personal profile or not; and
- to determine clinical considerations for orthodontic treatment plan within the framework of these esthetic preferences.

MATERIALS AND METHODS Return to TOC

Color profile images and lateral cephalograms of a male and a female with well-balanced facial profile were obtained using an Olympus D-600 digital camera and a Siemens cephalometer. The profile photographs were standardized by positioning the patient five feet from the camera with the head in natural posture. Natural head posture was determined by the method described by Showfety et al.[20] Lateral cephalograms were scanned using an Umax Astra 1200 scanner. The scanned image and color digital photographs were transferred to a Macintosh Power G3 desktop computer.

Quick Ceph Image Pro cephalometric software (Quick Ceph Image Pro™) was used for generating profile distortions. First, color images were superimposed over lateral cephalograms. Seven more profiles were generated using skeletal and dental movements. Minor artifacts emerging from morphing were edited with Adobe Photoshop 5.0 software. A

scale with a total of 16 profile photos (eight male and eight female) was prepared. The profiles were coded from A to H (Figures 1 and 2), and descriptions of the profile distortions were as follows: normal maxilla and mandible but retrusive maxillary and mandibular dentoalveolar structures with prominent nose and chin; orthognathic profile; normal maxilla and mandible but protrusive maxillary and mandibular dentoalveolar structures with obscure nose and chin; normal maxilla and retrognathic mandible; prognathic maxilla and retrognathic mandible; normal maxilla and prognathic mandible; retrognathic maxilla, prognathic mandible with increased overbite; and prognathic mandible with posterior rotation and anterior openbite.

A total of 400 raters (205 female, 195 male; mean age 30.61 ± 10.26 years) were asked to evaluate and rate the profiles. Detailed information regarding the sex, age, social status, education, geographic location, and soft-tissue profiles of the raters are shown in Figure 3. These six parameters were determined by the following criteria.

- Sex: classified as females and males.
- Age: raters under 20 were grouped as adolescents whereas raters over 20 as adults.
- Social status: raters were grouped as patients, parents, dentists, and orthodontists.
- Education: raters were grouped according to their education levels as primary, high school, and university graduates.
- Location: raters were grouped according to their location as Central Anatolia and Mediterranean region residents.
- Profile: raters were grouped according to their personal soft-tissue profiles as straight, convex, or concave. Soft-tissue profiles of the raters were determined by visual examination done by the authors.

A questionnaire was prepared for rating profile distortions. All raters were asked to evaluate male and female profiles separately and score them 1–8. They were not permitted to assign the same score to more than one profile and instructed to score 1 as the most attractive and 8 as the least attractive.

Statistical method

After surveying 400 raters, the scores and grouping criteria were entered into a SPSS 11.0 statistical package. Mean and standard deviations of the male and female profile scores were calculated. The *t*-test for comparing sex, age, and location groups and ANOVA for comparing social status, education, and profile groups were done.

RESULTS Return to TOC

Mean scores for each profile distortions are shown in Table 1. According to the results, all raters showed a clear preference for both orthognathic profiles B. Profile E with prognathic maxilla and retrognathic mandible was scored as the least attractive.

Effect of sex

The mean scores of the profiles according to the sex groups and the results of *t*-test comparison are shown in Tables 2 and 3. According to the results, orthognathic profile B was the most preferred and the retrognathic profile E was the least preferred profile in both sexes. But male raters preferred female profiles D and E more than female raters did ($P < .01$, $P < .05$, respectively). On the contrary, female raters preferred female profiles F and G more than male raters did ($P < .001$, $P < .05$, respectively). No significant difference was detected between groups in ratings of the male profiles.

Effect of age

The results of the statistical evaluation of the profile preferences according to the age groups are shown in Tables 4 and 5. In both age groups, the orthognathic profile B was the most preferred one whereas the retrognathic profile E was the least preferred. Adults preferred female profile B more than adolescents did, whereas adolescents preferred female profile C more than adults did ($P < .05$; $P < .01$, respectively). No significant difference was found between male profile preferences of adults and adolescents.

Effect of social status

Evaluations of the profile preferences of the raters belonging to different social status are shown in Tables 6 and 7. In all groups, female and male orthognathic profiles B were the most preferred ones whereas retrognathic profiles E were the least preferred. Parents preferred female profiles A and G more than did the orthodontists ($P < .01$ and $P < .05$, respectively), whereas orthodontists preferred female profile B more than patients did ($P < .05$). Also significant differences were detected in scores of female profile C between patients-parents and parents-dentists ($P < .001$). Significant differences were also found in ratings of the female profile D and F between parents-dentists and parents-orthodontists ($P < .001$ and $P < .01$, respectively). When evaluating male profile preferences according to social status, significant differences were noted in male profiles B and G. Orthodontists preferred male profile B more than patients did ($P < .05$). Parents preferred male profile G more than did the dentists and orthodontists ($P < .001$).

Effect of education

The statistical evaluation of the profile preferences according to the education levels of the raters are shown in Tables 8 and 9. Orthognathic profile B in both sexes was the most preferred one whereas profile E was the least preferred profile in all groups. The only difference between groups was seen in female profile A. Primary school graduates preferred female profile A more than university graduates did ($P < .05$). In male profile preferences, significant difference between groups was found in male profiles B, D, and G. High school and university graduates preferred orthognathic profile B more than primary school graduates did ($P < .01$), whereas primary school graduates preferred male profiles D and G more than university graduates did ($P < .05$ and $P < .01$, respectively).

Effect of the location

The relationship between profile preferences and geographic location is shown in Tables 10 and 11. In both groups, male and female profiles B were the most preferred profiles whereas male and female profiles E were the least preferred ones. The raters from the Mediterranean region preferred the female profile A more than the raters from Central Anatolia did ($P < .05$). Besides, raters living in Central Anatolia region preferred female profile D more than raters from Mediterranean region did ($P < .01$). No significant difference between the groups was noticed in ratings of the male profiles.

Effect of personal profile

The relationship between profile preferences and rater's personal profile is shown in Tables 12 and 13. In all groups, male and female profiles B were the most preferred profiles, whereas profiles E were the least preferred ones. Raters with straight or convex profiles preferred female profile B more than the raters with concave profile did ($P < .001$). Raters with straight profiles preferred male profile D more than the raters with convex profile did ($P < .05$).

DISCUSSION Return to TOC

The aims of this study were to determine esthetic profile preferences of Turkish population and to find out possible effects of factors such as sex, age, education, social status, geographic location, and personal profile in these preferences. We also aimed to determine some clinical considerations for orthodontic treatment plans.

Physical appearance has been found to be an important determinant of an individual's social status.[13–16,18] The facial esthetics and functions of a patient are improved by orthodontic and orthognathic treatment. Allowing patients to view possible posttreatment results before treatment prevents disappointments in expectations. Thus, the patient gets informed about treatment limits. Video imaging method has been used for determining to what extent scientific and social esthetic criteria could be applied to patient. Thus, orthodontic and orthognathic treatment plans could be performed interactively.

Several methods have been used in the literature for determining profile preferences of populations.[7,9,21–23] In our study, we used color profile photographs to determine the esthetic preferences of the Turkish population. According to our results, the orthognathic profile was the most attractive and preferred one among both males and females whereas the retrognathic profile was the least attractive. Sex and ethnic differences affect profile preferences. It is reported that in a white women sample, profiles with increased vertical features or convex or Class II tendency profiles were judged as being the most unattractive.[24] In the Chinese population, a bialveolar retrusive profile in males has been found just as acceptable as a normal profile.[9] In the Asian populations, the bimaxillary dentoalveolar retrusion profile has been reported as attractive as the orthognathic profile.[7,25] Additionally, convex profiles with prominent upper and lower lips have been preferred by Africans.[8,26] Peck and Peck[27] evaluated facial profile of 52 young white adults who were professional models and beauty contest winners and reported that the public admires a fuller, more protrusive female profile than the norm. According to our results, in contrast with Erbay and Canikliogluʼs[28] results, bialveolar retrusion profile in males was the second most attractive and preferred profile. Thus, especially in orthodontic treatment of male borderline cases, premolar extraction and incisor retraction could be the preferred treatment plan.

In Turkish females, bialveolar protrusion and a slight convex profile has been selected as the second most attractive profile. Therefore, nonextraction treatment could be preferred in female borderline cases. It was also determined that retrognathic and prognathic profiles were not preferred. So, orthognathic treatment instead of camouflage is more indicated in females with skeletal dysplasias.

Conflicting results existed in literature evaluating the relationship between sex and profile preferences.[29–31] It is reported that sex has no effect in profile preferences,[29,30] but Cochrane et al[31] reported that females found orthognathic profile more attractive than others. Our results indicated that sex has an effect on profile preferences. Significant differences in female profile preferences were found between sexes. Although overall profile rankings of females and males were similar, males preferred convex female profiles D and E more than females did. Besides females preferred female concave profiles F and G more than males did.

It is reported that eight-year-old children's criteria for attractiveness are the same as those of adults.[32] To find out whether age affects profile preferences, the raters were grouped according to their age as adolescents and adults. Significant differences were found in female profile preferences between adolescents and adults. Adults preferred the orthognathic profile B more than adolescents did, whereas adolescents preferred bialveolar protrusive profile C more than the adults did. We can state that a preference transition occurs with age from bialveolar protrusion to orthognathic profile. No significant effect of age was noted in male profile preferences.

In the literature, conflicting results exist in evaluating the effects of social status in profile preferences. In some studies, an agreement was reached on profile preferences between the orthodontists and laypersons[8,29] whereas in some others significant differences were reported.[23,31,33,34] Hier et al[23] reported that laypersons admire fuller lips than do orthodontists. Arpino et al[34] reported that orthognathic patients had the lowest tolerance for deviation from the preferred profile image. In our study, we found significant differences between esthetic preferences of patients, parents, dentists, and orthodontists. Parents gave better scores for female profiles A, F, G and male profile G than orthodontists did. Besides, female profile D was preferred more by orthodontists and dentists. Except ratings of female and male profile B, fairly good agreement was found between patients and orthodontists. The only significant difference between patients and parents was found in rating of female profile C. Our results indicated perfect agreement between dentists and orthodontists but disagreement between parents and orthodontists. So, showing possible treatment results to parents is of great importance for better cooperation, especially in orthognathic treatments.

Education is an important determinant of the individual's quality of life and social relationships. To determine whether education level also affects the public's esthetic preferences, raters were grouped as primary, high school and university graduates. Significant differences were found between groups. Primary school graduates preferred female profile A and male profiles D and G more than university graduates did. They also gave worse scores for orthognathic male profile B than high school and university graduates did. These results indicated that primary school graduates could not notice skeletal dysplasias as well as university graduates did. So, we can state that the quality of esthetic preferences improves with education.

Geographic conditions affect a region's local culture. Culture has a great influence on public's esthetic concept. In our study, raters from the Mediterranean region gave better scores for female profile A, whereas raters from Central Anatolia gave better scores for female profile D. The two groups were in perfect agreement in male profile preferences.

Our results indicated that raters' personal profile also affects profile preferences. Except for female profile B and male profile D, a good agreement was found between groups. Raters with concave profiles gave worse scores for orthognathic female profile B. Raters with straight profiles gave better scores for male profile D than raters with convex profiles, but overall rankings of the profiles were the same for all groups. So we can state that personal profile has a little effect on one's esthetic preferences.

Both scientific language and art make many contributions in developing a common language between countries and cultures. When scientific criteria are applied to human beings, factors of individualism emerge. This is especially so in treatment plans of esthetic-based medicine. Individualism instead of direct application of scientific criteria provides more favorable results for both patient and doctor. Besides, the effects of education, social status, sex, geographic location, and personal profile in formation of personal preferences must not be ignored.

CONCLUSIONS Return to TOC

- In the Turkish population, the orthognathic profile in both sexes is the most preferred profile whereas the convex profile with prognathic maxilla and retrognathic mandible is the least preferred one.
- After the orthognathic profile, fuller and protrusive lips in females, retrusive lips with prominent nose and chin in males are admired. Therefore, female borderline cases can be treated without extraction, whereas extraction treatment can be used in male borderline cases.
- Males prefer convex female profiles more than females do, whereas females prefer concave female profiles more than do the males. No significant difference was found between male profile preferences of sexes.
- In the Turkish population's profile preferences, a transition from bialveolar protrusion to an orthognathic profile occurs by age. No significant effect of age on the male preferences was found.
- The quality of esthetic preferences increases with education.
- Significant differences between parents' and orthodontists' profile preferences were determined. On the other hand, a good agreement between dentists and orthodontists was found.
- A small, but significant effect of geographic location on profile preferences was found.
- People's own profiles can affect their profile preferences.

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TABLES Return to TOC

TABLE 1. Mean Scores for Female and Male Profiles

Female Profile	Mean	±SD	Male Profile	Mean	±SD
A	5.13	1.64	A	2.45	1.28
B	1.24	0.70	B	1.34	0.64
C	2.18	0.90	C	2.95	1.07
D	4.24	1.69	D	4.42	1.32
E	7.71	0.76	E	7.46	0.98
F	4.73	1.28	F	5.06	1.20
G	6.20	1.18	G	6.87	1.02
H	4.58	1.35	H	5.45	1.20

TABLE 2. Comparison of Mean Scores for Female Profiles Re garding Sex

Female Profile	Females		Males		
	Mean	±SD	Mean	±SD	*P*
A	5.27	1.68	4.98	1.58	ns[a]
B	1.24	0.78	1.23	0.60	ns
C	2.16	0.87	2.19	0.93	ns
D	4.46	1.65	4.02	1.70	**
E	7.79	0.62	7.64	0.87	*
F	4.50	1.28	4.97	1.25	***
G	6.05	1.22	6.35	1.13	*
H	4.55	1.34	4.61	1.37	ns

* $P < .05$; ** $P < .01$; *** $P < .001$; ns indicates nonsignificant.

TABLE 3. Comparison of Mean Scores for Male Profiles Regard ing Gender

Male Profile	Females		Males		
	Mean	±SD	Mean	±SD	*P*
A	2.50	1.31	2.39	1.25	ns[a]
B	1.28	0.55	1.39	0.72	ns
C	2.98	1.11	2.93	1.04	ns
D	4.46	1.30	4.38	1.34	ns
E	7.52	0.88	7.40	1.08	ns
F	4.99	1.17	5.13	1.24	ns
G	6.85	1.06	6.89	0.98	ns
H	5.42	1.22	5.48	1.18	ns

[a] ns indicates nonsignificant.

TABLE 4. Comparison of Mean Scores for Female Profiles Re garding Age

Female Profile	Adolescents		Adults		
	Mean	±SD	Mean	±SD	*P*
A	5.13	1.47	5.13	1.67	ns[a]
B	1.46	1.05	1.19	0.59	*
C	1.90	0.62	2.24	0.94	**
D	4.30	1.74	4.23	1.68	ns
E	7.75	0.70	7.70	0.77	ns
F	4.77	1.35	4.72	1.27	ns
G	5.96	1.16	6.25	1.18	ns
H	4.72	1.61	4.55	1.29	ns

* $P < .05$; ** $P < .01$; ns indicates nonsignificant.

TABLE 5. Comparison of Mean Scores for Male Profiles Regard ing Age

Male Profile	Adolescents		Adults		
	Mean	±SD	Mean	±SD	*P*
A	2.58	1.54	2.42	1.22	ns[a]
B	1.45	0.95	1.31	0.55	ns
C	2.80	0.96	2.99	1.09	ns
D	4.55	1.27	4.39	1.33	ns
E	7.35	1.10	7.49	0.96	ns
F	5.07	1.19	5.05	1.21	ns
G	6.87	0.91	6.87	1.05	ns
H	5.33	1.51	5.47	1.12	ns

[a] ns indicates nonsignificant.

TABLE 6. Comparison of Mean Scores for Female Profiles Regarding Social Status

Female Profile	Patients		Parents		Dentists		Orthodontists			
	Mean	±SD	Mean	±SD	Mean	±SD	Mean	±SD	*P*	Significance Between
A	5.11	1.55	4.88	1.70	5.37	1.44	5.62	1.63	**	II and IV[a]
B	1.40	0.98	1.25	0.73	1.16	0.37	1.06	0.24	*	I and IV[a]
C	1.93	0.59	2.38	1.13	1.94	0.49	2.17	0.62	***	I and II, II and III
D	4.35	1.71	4.56	1.84	3.82	1.36	3.65	1.25	***	II and III, II and IV
E	7.75	0.66	7.74	0.71	7.69	0.82	7.61	0.91	ns	
F	4.70	1.34	4.48	1.33	5.07	1.08	5.11	1.11	**	II and III, II and IV
G	6.07	1.13	6.05	1.27	6.46	1.13	6.48	0.93	*	II and IV
H	4.69	1.49	4.66	1.40	4.48	1.21	4.30	1.14	ns	

[a] I indicates patients; II, parents; III, dentists; IV, orthodontists.
* $P < .05$; ** $P < .01$; *** $P < .001$; ns indicates nonsignificant.

TABLE 7. Comparison of Mean Scores for Male Profiles Regarding Social Status

Male Profile	Patients		Parents		Dentists		Orthodontists			
	Mean	±SD	Mean	±SD	Mean	±SD	Mean	±SD	*P*	Significance Between
A	2.46	1.47	2.48	1.30	2.46	1.13	2.35	1.14	ns	
B	1.46	0.90	1.38	0.62	1.22	0.46	1.18	0.39	*	I and IV[a]
C	2.85	0.99	3.03	1.22	2.91	0.95	2.92	0.85	ns	
D	4.44	1.24	4.36	1.43	4.28	1.10	4.71	1.27	ns	
E	7.36	1.09	7.50	1.00	7.36	1.00	7.61	0.74	ns	
F	5.10	1.17	5.12	1.31	5.04	1.12	4.85	1.01	ns	
G	6.85	0.92	6.67	1.18	7.25	0.79	7.06	0.70	***	II and III[a], II and IV
H	5.48	1.45	5.47	1.16	5.46	1.11	5.32	1.04	ns	

[a] I indicates patients; II, parents; III, dentists; IV, orthodontists.
* $P < .05$; *** $P < .001$; ns indicates nonsignificant.

TABLE 8. Comparison of Mean Scores for Female Profiles Re garding Education

Female Profile	Primary		High School		University			Significance Between
	Mean	±SD	Mean	±SD	Mean	±SD	*P*	
A	4.60	1.61	4.97	1.61	5.31	1.63	*	I and III
B	1.44	0.99	1.25	0.70	1.19	0.62	ns	
C	2.31	1.32	2.21	0.92	2.13	0.78	ns	
D	4.15	1.76	4.48	1.81	4.15	1.61	ns	
E	7.81	0.49	7.69	0.80	7.70	0.78	ns	
F	4.81	1.41	4.55	1.32	4.80	1.24	ns	
G	6.04	1.20	6.14	1.14	6.26	1.20	ns	
H	4.83	1.53	4.70	1.51	4.47	1.22	ns	

[a] I indicates primary; II, high school; III, university graduate.
* $P < .05$; ns indicates nonsignificant.

TABLE 9. Comparison of Mean Scores for Male Profiles Regarding Education

Male Profile	Primary		High School		University			
	Mean	±SD	Mean	±SD	Mean	±SD	*P*	Significance Between
A	2.67	1.72	2.57	1.32	2.35	1.15	ns	
B	1.63	1.02	1.32	0.63	1.28	0.52	**	I and II, I and III[a]
C	3.17	1.43	2.98	1.18	2.90	0.92	ns	
D	3.96	1.50	4.42	1.34	4.51	1.25	*	I and III
E	7.44	1.05	7.42	1.13	7.49	0.89	ns	
F	5.25	1.28	5.08	1.30	5.01	1.14	ns	
G	6.52	1.27	6.74	1.11	7.00	0.90	**	I and III
H	5.38	1.38	5.46	1.28	5.45	1.11	ns	

[a] I indicates primary; II, high school; III, university graduates.
* $P < .05$; ** $P < .01$; ns indicates nonsignificant.

TABLE 10. Comparison of Mean Scores for Female Profiles Re garding Location

Female Profile	Mediterranean		Central Anatolia		
	Mean	±SD	Mean	±SD	*P*
A	4.97	1.59	5.39	1.68	*
B	1.23	0.68	1.25	0.73	ns
C	2.16	0.92	2.21	0.87	ns
D	4.42	1.74	3.96	1.57	**
E	7.71	0.78	7.72	0.72	ns
F	4.70	1.26	4.78	1.32	ns
G	6.20	1.22	6.19	1.12	ns
H	4.62	1.38	4.51	1.32	ns

* $P < .05$; ** $P < .01$; ns indicates nonsignificant.

TABLE 11. Comparison of Mean Scores for Male Profiles Regard ing Location

Male Profile	Mediterranean		Central Anatolia		
	Mean	±SD	Mean	±SD	*P*
A	2.46	1.26	2.44	1.33	ns[a]
B	1.37	0.70	1.28	0.53	ns
C	2.88	1.09	3.07	1.03	ns
D	4.46	1.30	4.36	1.34	ns
E	7.42	1.06	7.54	0.84	ns
F	5.15	1.21	4.91	1.18	ns
G	6.84	1.00	6.91	1.06	ns
H	5.43	1.27	5.47	1.06	ns

[a] ns indicates nonsignificant.

TABLE 12. Comparison of Mean Scores for Female Profiles Regarding Personal Profile

Female Profile	Straight		Convex		Concave			
	Mean	±SD	Mean	±SD	Mean	±SD	*P*	Significance Between
A	5.08	1.61	5.39	1.61	5.04	1.78	ns	
B	1.16	0.40	1.24	0.82	1.60	1.28	***	I and III, II and III[a]
C	2.19	0.88	2.13	0.81	2.19	1.09	ns	
D	4.22	1.67	4.25	1.71	4.33	1.77	ns	
E	7.68	0.81	7.85	0.67	7.70	0.57	ns	
F	4.76	1.28	4.73	1.21	4.56	1.38	ns	
G	6.29	1.13	5.93	1.12	6.12	1.44	ns	
H	4.63	1.36	4.47	1.31	4.49	1.39	ns	

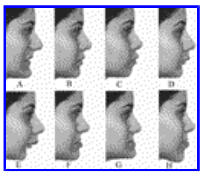
[a] I indicates straight; II, convex; III, concave profile.
*** $P < .001$; ns indicates nonsignificant.

TABLE 13. Comparison of Mean Scores for Male Profiles Regarding Personal Profile

Male Profile	Straight		Convex		Concave			
	Mean	±SD	Mean	±SD	Mean	±SD	*P*	Significance Between
A	2.40	1.20	2.40	1.42	2.75	1.44	ns	
B	1.34	0.68	1.33	0.55	1.34	0.58	ns	
C	2.98	1.03	3.00	1.21	2.77	1.10	ns	
D	4.32	1.33	4.76	1.11	4.43	1.43	*	I and II[a]
E	7.43	1.04	7.64	0.73	7.39	0.99	ns	
F	5.13	1.23	4.76	1.14	5.09	1.13	ns	
G	6.88	1.02	6.80	1.13	6.93	0.87	ns	
H	5.51	1.13	5.31	1.17	5.30	1.49	ns	

[a] I indicates straight; II, convex profile.
* $P < .05$; ns indicates nonsignificant.

FIGURES Return to TOC



Click on thumbnail for full-sized image.

FIGURE 1. Female profile distortions

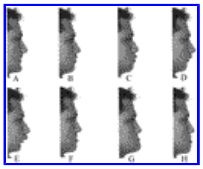


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FIGURE 2. Male profile distortions

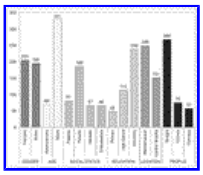

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FIGURE 3. Distribution of the raters according to sex, age, social status, education, location, and personal profile

[a]Assistant Professor, Department of Orthodontics, Faculty of Dentistry, Suleyman Demirel University, Isparta, Turkey

[b]Associate Professor, Department of Orthodontics, Faculty of Dentistry, Ankara University, Ankara, Turkey

Corresponding author: Hakan Turkkahraman, DDS, PhD, Suleyman Demirel Universitesi, Dishekimligi Fakultesi Ortodonti Anabilim Dali, Cunur 32260 Isparta, Turkiye (E-mail: kahraman@med.sdu.edu.tr)