

Esthetic preferences of orthodontists, oral surgeons, and laypersons for Persian facial profiles

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Introduction: The patient's perception of facial esthetics is not necessarily consistent with that of the practitioner. The aim of this study was to compare the perceptions of Persian orthodontists, oral surgeons, and laypersons with regard to facial profile attractiveness and the most favorable mandibular position. **Methods:** Software (Dolphin Imaging and Management Systems, Chatsworth, Calif) was used to alter the mandibular position depicted on profile photographs of a young man and a young woman. Nine construction profile photos were produced with incremental changes of the G'-Sn-Pg' angle at 2° intervals (6° to 22°). Thirty-two orthodontists, 32 maxillofacial surgeons, and 32 laypersons were asked to score all 18 profiles on a 1-to-10 visual analog scale. They also evaluated whether each profile needed orthognathic surgery for improvement of facial esthetics. Actual agreement and intraclass correlation coefficient tests were used to assess reliability. The data were analyzed using 2-way repeated measures analysis of variance and Wilcoxon signed-rank tests. **Results:** The intraparticipant reliability was acceptable (intraclass correlation coefficient >72%; actual agreement, >79%). The sex of the participants was not a significant factor influencing the scores, although the sex of the models was a discriminating factor for the most acceptable mandibular horizontal position. The scores given by the 3 groups were different, especially for the female model. The orthodontists had similar opinions and preferred a slightly more protrusive mandible (G'-Sn-Pg', 12°-14°). Laypersons' scores were the most inconsistent, and they generally preferred a retrusive profile (G'-Sn-Pg', 14°-18°). There was no significant correlation with regard to the necessity of orthognathic surgery for G'-Sn-Pg' angles over 20° in men and below 8° in women. **Conclusions:** Although the laypersons' perceptions were slightly different from those of the clinicians, most participants preferred a more protrusive mandible for male models compared with female models. (Am J Orthod Dentofacial Orthop 2018;154:412-20)

Establishment of a proper occlusal relationship and the best possible facial esthetics are the goals of modern orthodontics.¹ There are several occlusal indexes, such as the 6 keys of optimal occlusion by Andrews.² However, achieving the best esthetic results and a well-balanced facial appearance are more challenging due to the subjectiveness of esthetics, leading to different facial evaluations. This has great importance

when managing patients who seek cosmetic treatment.³⁻⁵ The patient's perception of facial esthetics is not necessarily consistent with that of the orthodontist or the oral surgeon. This disparity between the patient and clinician could cause patients to be dissatisfied with treatment outcomes and make treatment procedures more complicated. On the other hand, the orthodontists' and oral surgeons' evaluations regarding the most pleasing profile for the patient affect both the orthodontic and surgical treatment plans.⁵⁻⁸ Thus, orthodontists and oral surgeons should reach consensus on a plan that addresses the patient's facial esthetic concerns. Otherwise, even a highly standard and professional treatment may fail to achieve patient satisfaction.⁹ There is no definite index or gold standard for facial profile attractiveness because esthetics is highly affected by race and culture, and its related concepts are influenced by many factors such as ethnicity, nationality, sex, age, education, and profession. Research has shown that although science and technology have

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decreased intercultural variations in modern societies, the evaluations of facial attractiveness still vary. This can be attributed to the variations in skeletal and soft tissue patterns of various ethnic groups.¹⁰⁻¹³ Mejia-Maidl et al¹¹ compared the concepts of 2 ethnic groups relative to profile attractiveness and found that Mexican Americans preferred more retruded lips, particularly in female profiles, compared with white subjects. Nomura et al¹² reported that Hispanic Americans and Japanese also preferred retruded lip profiles compared with Africans.

Thus, before treatment planning, the clinician ought to be aware of the patient's preference and his or her esthetic concerns. Most studies regarding esthetic perceptions have been conducted on white subjects; limited information is available in Asian and Middle Eastern populations. Furthermore, even in 1 ethnic population, the esthetic perception may be influenced by professional background and may vary between clinicians. Lines et al¹⁴ reported significant differences in perceptions of facial profile esthetic evaluations among orthodontists, oral surgeons, other dental professionals, and laypersons. Prahl-Anderson et al¹⁵ studied the perceptions of different professional groups regarding dento-facial morphology and found no significant difference between the perceptions of orthodontists and general dentists; however, there were significant differences between those of parents and professionals. Facial esthetics is multifactorial. Orthodontists typically base their judgments of facial esthetics on profile, full-face, and smile evaluations of the patient. The soft tissue profile affects the attractiveness of the whole face and has been studied extensively in various populations. Mandibular position as a contributing factor to profile esthetics has been largely studied using skeletal (eg, cephalometric technique) or soft tissue measures.^{16,17}

The aims of this study were to determine and compare the perceptions of orthodontists, oral surgeons, and laypersons with regard to facial profile attractiveness and the most favorable mandibular position in a Persian population.

MATERIAL AND METHODS

In this study, a 17-year-old girl and a 21-year-old man were selected as role models. The criteria for choosing them included a well-balanced face; normal eyes, lips, and nose; Class 1 skeletal relationship; and normal vertical skeletal pattern according to, the Holdaway soft tissue analysis,¹⁸ the Z-angle,¹⁹ and the Ricketts' esthetic planes.²⁰ Most measurements of the profiles were in the normal ranges. All parameters were confirmed by 2 experienced orthodontists (E.S.,

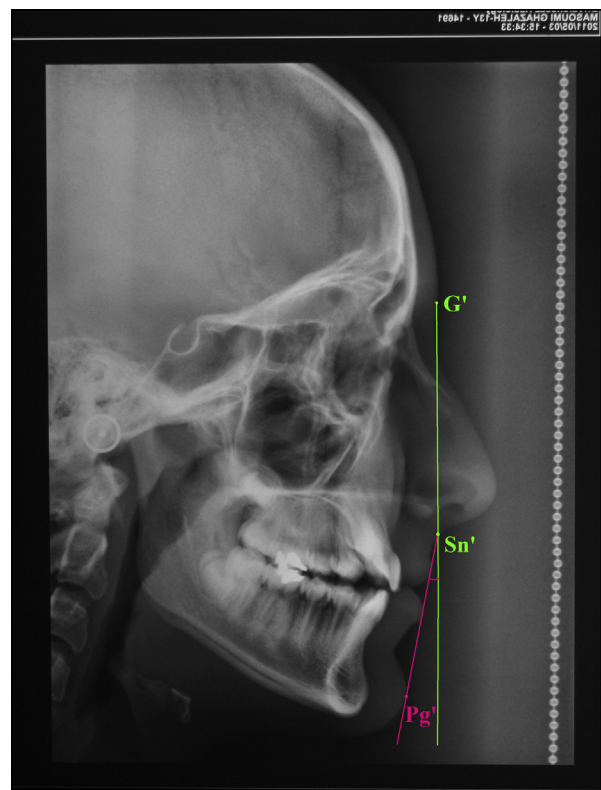


Fig 1. Soft-tissue facial angle of convexity (G'-Sn-Pg').

E.A.N.). Consent forms were signed by the 2 models, and high-resolution standard color photographs with a white background and proper brightness were obtained. Lateral cephalograms based on the Frankfort horizontal plane were traced using software (Dolphin Imaging and Management Systems, Chatsworth, Calif). Fifty-one anatomic landmarks (14 soft tissue, 37 hard tissue) were identified. The 2 profile photographs were inserted into the Dolphin software and linked to their respective cephalograms via superimposition of 4 anatomic landmarks.

The profile of each model was traced, and the soft tissue convexity angle (G'-Sn-Pg') based on the analysis of Legan and Burstone²¹ was defined. The facial profile angle was measured by drawing lines from the soft tissue glabella (G') to subnasale (Sn) and to soft tissue pogonion (Pg') (Fig 1). The G'-Sn-Pg' angle of the original picture was 12°. The images were digitally manipulated by changing the mandibular position by 2° increments of the G'-Sn-Pg' angle (-8°, -6°, -4°, -2°, 0°, +2°, +4°, +6°, and +8°) using the Dolphin software; thus, a set of 9 profiles was created for each model.

The profile with the G'-Sn-Pg' angle of 4° was then omitted, and a profile with the G'-Sn-Pg' angle of 22°

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