



Perception of oral and maxillofacial surgeons, orthodontists and laypersons in relation to the harmony of the smile



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ABSTRACT

Objective: Harmony is one of the main objectives in surgical and orthodontic treatment and this harmony must be present in the smile, as well as in the face. The aim of the present study was to assess the perceptions of professionals and laypersons in relation to the harmony of the smile of patients with or without vertical maxillary alterations.

Materials and methods: Sixty observers (oral and maxillofacial surgeons, orthodontists and laypersons) reported the degree of harmony of six smiles using an objective questionnaire and the participants indicated if there was a need for corrective surgery or not. The classification of observers was recorded on a Likert scale from 1 to 5. Mixed regression was used to determine differences between the three groups. *Results:* Statistically significant differences were found only for the harmony of the smile between the oral and maxillofacial surgeons and laypersons, with laypersons being more critical when assessing the smile. There was no statistical difference between the other groups for the harmony of the smile or the indication of corrective surgery. The patterns of greater or lesser harmony determined by observers during the smile were similar to those found in the literature as the ideal standard in relation to vertical maxillary positioning.

Conclusions: Laypersons had a tendency to be more critical in relation to facial harmony than surgeons, although no statistical differences were found in the other groups in relation to the harmony of the smile or indication for the corrective surgery. In addition, the patterns of greater or lesser harmony of the smile determined by the participants were similar to those found in the literature as the ideal standard in relation to vertical maxillary positioning. Overall, the present study demonstrates that adequate interaction between surgeons, orthodontists and laypersons is essential in order to achieve facial harmony with orthodontic and/or surgical treatment.

Clinical relevance: Opinion of specialists and laypersons about the smile in relation to the vertical positioning of the maxilla.

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1. Introduction

The lower third of the face, which extends from the base of the nose to the soft tissue of the chin, is extremely important for the diagnosis and treatment planning of dentofacial deformities since the need for surgical and/or orthodontic correction is often dependent on the appearance of this region (Arnett and McLaughlin, 2004).

In dentofacial deformities involving the jaw, there are abnormalities in the three facial planes (vertical, transverse and antero-posterior) that can modify the harmony of the face of the individual, even when seen in isolation. Vertical maxillary deficiency may cause a feeling of edentulism in the patient whereas vertical maxillary excess involves a convex profile with excessive exposure of the gum tissue and the resting lip and smile (Obwegeser, 2007).

A general assessment of facial balance and symmetry must be performed to assess the aesthetics of the face, including a detailed analysis of specific esthetic relationships (Epker et al., 1978) such as the smile. The harmony of the face affects social status and is important in interpersonal connections, stimulating a positive effect for the individual (Matoula and Pancherz, 2006). The smile is

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clearly a significant signal of reliability and is important in facial appearance features such as attractiveness (Grammer et al., 2003). Many positive qualities are associated with being physically attractive (Schmidt et al., 2012).

Taking into consideration the importance of the smile adds additional information when treatment planning vertical maxillary problems (Arnett and Mclaughlin, 2004). Several criteria for the assessment of its placement are used. One of these involves the exposure of the upper central incisors and gum tissue in the smile. Ideally, the exposure of the central incisors in a spontaneous smile should stay in the range of three quarters of the length of the crown of the central incisors (approximately 8 mm) and up to 2 mm of gum tissue (Arnett and Mclaughlin, 2004; Proffit et al., 2005; Reyneke, 2003). Women tend to have greater exposure of the central incisors due to a shorter lip length than men (Arnett and Mclaughlin, 2004).

Esthetic corrections require knowledge of the factors that affect attractiveness and the extent of the modifications required (Khosravanifard et al., 2013). The three-dimensional nature of dento-osseous aspects of deformities is of great importance to the treatment plan and satisfactory esthetic and functional results (Epker et al., 1978).

A combination of orthodontic and surgical treatment aims to bring a more harmonious relationship to the face, which should be based on the opinion of the surgeon or orthodontist, as well as the patient's goals. In the patient's view, surgery usually produces an improvement in body self-image, particularly in terms of facial attractiveness (Lovius et al., 1990). In a study of the perceptions of clinicians and orthodontists regarding the need for orthognathic surgery based on facial appearance, Juggins et al. (2005) found that orthodontists and oral and maxillofacial surgeons do not always share the same clinical goals. The surgeons had a greater tendency to indicate surgical treatment than orthodontists, whereas patients have a minor complaint in relation to the changes in their facial appearance.

The aim of the present study was to determine the perceptions of professionals and laypersons regarding the harmony of the smile of patients with and without vertical maxillary abnormalities, and the indication for surgical treatment to correct it.

2. Material and methods

The present study determined the perceptions of 20 oral and maxillofacial surgeons, 20 orthodontists and 20 laypersons in relation to the harmony of the smile through an objective questionnaire, in which the observers reported the degree of harmony of the smiles exposed and indicated corrective surgery.

The Research Ethics Committee of the School of Dentistry of Piracicaba – Unicamp, Piracicaba, São Paulo, Brazil, approved the present study under protocol number 034-2013.

2.1. Images

Six (06) smiles from the frontal view of Caucasian females, between 20 and 30 years of age, were selected. These women had no prior orthodontic treatment. The smiles were selected according to the exposure of the central incisors and gum tissue, showing the presence of vertical maxillary excess, proper vertical positioning and vertical maxillary deficiency (Fig. 1A–F). The smiles were photographed using a Canon EOS T2i camera, with a dual circular flash, at a distance of 15 cm from the object in natural light. The photographs were later included in the questionnaire for the examiners to assess the smiles.

2.2. Questionnaire and observers

Smiles were exposed on the frontal view, where the observer selected its degree of harmony (extremely harmonious, harmonious, neither harmonious nor disharmonious, disharmonious and



Fig. 1. A and B – Smiles with vertical maxillary excess; C, D and E – Smiles with proper vertical maxillary positioning and F – Smile with vertical maxillary deficiency.

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