The impact of facial pattern on esthetic evaluation of cheek size

O impacto do padrão facial na avaliação estética do tamanho das bochechas

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ABSTRACT

This research evaluates the facial esthetic related to cheek size changes in vertical facial patterns. The sample included 18 images of three female models with brachyfacial, mesofacial and dolichofacial patterns. Frontal facial photographs were taken at rest and smiling, and modified simulating bichectomy or cheek augmentation. A total of 76 evaluators were invited, including laypersons (LP) (n=25), professionals with experience in facial harmonization (HOFp) (n=25) and orthodontists (n=26), to judge the attractiveness of the face according to the Likert scale. The Kruskal-Wallis test for the evaluators and the Friedman test for the cheeks changes at a significance level (p<0.05) were used. In the brachyfacial pattern, resting photography with bichectomy simulation was preferred by HOFp and LP. According to LP, there is a tendency to assign higher grades to the brachyfacial smile photo, regardless of the alteration. In the mesofacial pattern, cheek augmentation, original and reduction, at rest and smiling, were similarly evaluated by the 3 groups. In the dolicho-facial pattern, LP gave higher scores than orthodontists for all cheek changes in smile photographs. It is concluded that facial esthetic in relation to cheek size in the different vertical facial patterns was assessed differently by orthodontists, HOFp and LP. However, it was not possible to identify a preferred size (original, -6mm or +6mm) for each facial pattern. The clinical relevance of this study is related to the orientation of patients in making decisions about the treatment plan, including aesthetics and multidisciplinarity, considering the facial pattern and the patient’s opinion.

Keywords: Esthetics; Face; Orthodontics; Diagnosis; Cheek
RESUMO

Esta pesquisa avalia a estética facial relacionada às alterações no tamanho das bochechas em padrões faciais verticais. A amostra incluiu 18 imagens de três modelos femininos com padrões braquifaciais, mesofaciais e dolicofaciais. Fotografias faciais frontais foram tiradas em repouso e sorrindo, e modificadas simulando bichectomia ou aumento de bochecha. Foram convidados 76 avaliadores, entre leigos (LP) (n=25), profissionais com experiência em harmonização facial (HOFp) (n=25) e ortodontistas (n=26), para julgar a atratividade da face de acordo com a escala Likert. Foram utilizados o teste de Kruskal-Wallis para os avaliadores e o teste de Friedman para as alterações nas bochechas em nível de significância (p<0,05). No padrão braquifacial, a fotografia de repouso com simulação de bichectomia foi preferida pelo HOFp e LP. Segundo LP, há uma tendência de atribuir notas mais altas à foto do sorriso braquifacial, independentemente da alteração. No padrão mesofacial, aumento, original e redução da bochecha, em repouso e sorrindo, foram avaliados de forma semelhante pelos 3 grupos. No padrão dolicofacial, LP deu pontuações mais altas que os ortodontistas para todas as alterações de bochecha nas fotografias de sorrisos. Conclui-se que a estética facial em relação ao tamanho das bochechas nos diferentes padrões faciais verticais foi avaliada de forma diferente pelos ortodontistas, HOFp e LP. Porém, não foi possível identificar um tamanho preferencial (original, -6mm ou +6mm) para cada padrão facial. A relevância clínica deste estudo está relacionada à orientação dos pacientes na tomada de decisões sobre o plano de tratamento, incluindo estética e multidisciplinaridade, considerando o padrão facial e a opinião do paciente.

Palavras-chave: Estética; Face; Ortodontia; Diagnóstico; Bochecha
INTRODUÇÃO

There are several theories about the essence of beauty that human society has created to quantify the esthetics and the development of perceptions of attractiveness, evolving from the geometry of facial harmony to the esthetic revolutions caused by fashion and the media (YEHEZKEL; TURLEY, 2004; GODINHO; GONÇALVES; JARDIM, 2020). In modern society, the esthetic criteria seem to have been defined in almost all cultures, yet several findings suggest that the perception of beauty can be innate, universal or intercultural (MATOULA; PANCHERZ, 2006).

The physical attractiveness in everyday life is undeniable and the face is the central point contributing to beauty. Studies on facial attractiveness are focused on defining which facial features are associated with beauty (GODINHO; GONÇALVES; JARDIM, 2020).

Plastic surgeons believe that cheek volume is an important determinant of facial beauty and youthful appearance (BRAZ; SAKUMA, 2012; FENG; YU; YIN et al., 2019). In dentistry, the morphological analysis of the face is a diagnostic resource to determine the facial pattern which refers to treatment protocols and specific prognoses in different age groups (SARVER, 2015). Improved esthetic appearance is consistently a primary treatment goal, thus not only the teeth and smile, but also soft tissue contour is important in orthodontic planning. Currently, one of the factors that most encourage the search for orthodontic treatment is aesthetic; thus, orthodontists have become increasingly focused on developing treatment plans to improve the facial esthetics (FENG; YU; YIN et al., 2019; SARVER, 2015; LIN, 2016).

In this context, scientific investigations on the criteria used by orthodontists and patients to define a smile or face as esthetically pleasant could build a solid basis to understand the differences between the perception of professionals and patients (STEVÃO, 2015).

In this context, the middle facial third occupies a central position in the facial profile and plays a relevant role in defining the personal image (STEVÃO, 2015). Since the current soft tissue analysis in orthodontics is mainly based on two-dimensional images, there is little evidence available on how the cheek changes can influence the perception of facial esthetics in orthodontic practice (FENG; YU; YIN et al., 2019).

Thus, this study aimed to evaluate the facial attractiveness perceived by laypeople, professionals with experience in facial harmonization and orthodontists in relation to cheek changes in different vertical patterns.
MATERIAL AND METHODS

The Institutional Review Board xx approved this study under protocol number 3.562.312.

For sample size calculation, three groups of examiners were included, considering a significance level of 5% (p<0.05) and power of 95% to detect an effect size of 1.0. A minimum of 21 examiners would be necessary in each group.

Initially, three young female models aged 25 to 30 years were selected (brachyfacial, mesofacial and dolichofacial) based on subjective analysis of the face (REIS, 2011). The eligibility criteria of selected models included absence of tooth loss, agenesis, dental prostheses, endosseous implants, lip asymmetry, facial surgeries and any facial harmonization procedures. Also, they could not have facial piercing, freckles and pimples, or skin blemishes. Frontal facial photographs were obtained in natural head position at rest and smiling. The photographs were exported to Adobe Photoshop 6.0 Software, version 13 (Adobe Systems, San Jose, California, USA) to change the original color to grayscale, so that facial features as skin tone and hair color did not influence the assessments, and then to modify the amount of the cheeks of each of the three models. The amount of variation in the middle third was based on a study that showed a buccal fat pad size of 6mm (AHARI, 2016). Thus, changes were made in the photographs ranging from minus 6mm (bichecktomy simulation) to plus 6mm on each side of the cheek (Figure 1). Thus, 18 photographs were obtained, 3 frontal photographs at rest and 3 frontal photographs smiling of each model, as shown in Figures 2, 3 and 4.

Figure 1 A and B. Simulation area with reduction and increase. A, simulation with 6-mm reduction in cheek volume; B, simulation with 6-mm increase in cheek volume (from left to right).

Figure 2: Frontal photograph at rest and smiling of the brachyfacial pattern model. A, simulation with 6-mm reduction in cheek volume (rest); B, original photo (rest); C, simulation with 6-mm increase in cheek volume (smiling).
with 6-mm increase in cheek volume (rest); D, simulation with 6-mm reduction in cheek volume (smiling); E, original photo (smiling); F, simulation with 6-mm increase in cheek volume (smiling) (from left to right).

Fonte: Pizzurno, 2020

Figure 3: Frontal photograph at rest and smiling of the mesofacial pattern model. A, simulation with 6-mm reduction in cheek volume (rest); B, original photo (rest); C, simulation with 6-mm increase in cheek volume (rest); D, simulation with 6-mm reduction in cheek volume (smiling); E, original photo (smiling); F, simulation with 6-mm increase in cheek volume (smiling) (from left to right).

Fonte: Pizzurno, 2020

Figure 4: Frontal photograph at rest and smiling of the dolichofacial pattern model. A, simulation with 6-mm reduction in cheek volume (rest); B, original photo (rest); C, simulation with 6-mm increase in cheek volume (rest); D, simulation with 6-mm reduction in cheek volume (smiling); E, original photo (smiling); F, simulation with 6-mm increase in cheek volume (smiling) (from left to right).

Fonte: Pizzurno, 2020

Image evaluation was performed by three groups of examiners divided into 25 laypeople (LP) (mean age 30.8 years, 12 males and 13 females), 25 professionals experienced with facial harmonization (HOFp) (mean age 36.2 years, 12 males and 13 females) and 26 orthodontists (mean age 36.5 years, 12 males and 14 females). After explaining the study, the examiners who agreed to participate signed an informed consent form.
The examiners were instructed to judge facial attractiveness in the three types of facial morphology. The 18 images were randomly presented in an album containing 3 images per page, being an original photo (unmodified), a photo with 6mm reduction in cheek area (-6mm) and a photo with 6mm increase in cheek (+6mm). The images were randomly organized and displayed on each page, in which each photograph had an A4 paper size (21 cm x 29.7 cm). A 5-point Likert scale was used to assess the degree of facial pleasantness (1: Very Unpleasant; 2: Unpleasant; 3: Acceptable; 4: Pleasant; 5: Very Pleasant), in which values from 1 to 5 were assigned to each answer.

Data were described in tables using median and percentile parameters. For comparison between categories (examiner scores), the Kruskal-Wallis test was used (p<0.05). To compare the changes (original photo, +6mm and -6mm), within each category, the Friedman test was used (p<0.05).

All statistical calculations were performed using SPSS version 26.

RESULTS

Concerning the method error, in the evaluation of orthodontists and LP there was moderate agreement (kappa = 0.56 and 0.49 respectively). In the HOFp group, a kappa index=0.64 was obtained, considered substantial according to the classification by Landis & Koch.

The values assigned by examiners in the alteration of the cheeks in the brachyfacial model are shown in Tables 1 and 2. In the group of HOFp, the lowest score was for the brachyfacial with +6mm cheek (p=0.010). In the assessment of LP, there is a tendency to assign higher scores to the brachyfacial photograph at rest with bichectomy simulation (-6mm) (p<0.042). In the group of orthodontists there was no statistically significant difference among original, -6mm or +6mm cheek (table 1).
Table 1: Median, Q1 and Q3 of scores assigned according to the category of examiner for photographs with 6-mm increase simulation, original photograph 6-mm reduction simulation in cheek volume, in the brachyfacial pattern for the photograph at rest

<table>
<thead>
<tr>
<th>Cheek volume</th>
<th>Ortho</th>
<th>HOF</th>
<th>Lay people</th>
<th>p (between examiners)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+6 mm</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3^a</td>
</tr>
<tr>
<td>0 mm</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3^a</td>
</tr>
<tr>
<td>-6 mm</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>p (volumes)</td>
<td>0.200</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Deviations (simulation of cheek volume) with similar lower case letters are not statistically significantly different from each other.

Evaluating the cheek increases and reductions, statistically significant difference was found only in smiling between the groups of examiners (Table 2). LP gave higher scores on the three cheek changes (+6mm p<0.001; original p=0.010; -6mm p=0.027). In the smiling photographs of the brachyfacial (table 2) there were no statistically significant differences in the groups of examiners individually.

Table 2: Median, Q1 and Q3 of scores assigned according to the category of examiner for photographs with 6-mm increase simulation, original photograph 6-mm reduction simulation in cheek volume, in the brachyfacial pattern for the photograph smiling

<table>
<thead>
<tr>
<th>Cheek volume</th>
<th>Ortho</th>
<th>HOF</th>
<th>Lay people</th>
<th>p (between examiners)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+6 mm</td>
<td>3^A</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>0 mm</td>
<td>3.5^A</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>-6 mm</td>
<td>4^AB</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>p (volumes)</td>
<td>0.190</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Deviations (simulation of cheek volume) with similar lower case letters are not statistically significantly different from each other.

* - statistically significant difference (p<0.05)
Categories of examiners with similar upper case letters are not statistically significantly different from each other.

In the mesofacial pattern (Table 3 and 4) the HOFp examiners presented statistically significant differences in the alteration of the cheek both at rest and smiling photographs.

Table 3: Median, Q1 and Q3 of scores assigned according to the category of examiner for photographs with 6-mm increase simulation, original photograph 6-mm reduction simulation in cheek volume, in the mesofacial pattern for the photograph at rest.

<table>
<thead>
<tr>
<th>Cheek volume</th>
<th>Ortho</th>
<th>HOF</th>
<th>Lay people</th>
<th>p (between examiners)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median</td>
<td>Q1</td>
<td>Q3</td>
<td>Median</td>
</tr>
<tr>
<td>Meso rest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+6 mm</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>0 mm</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>-6 mm</td>
<td>3.5</td>
<td>3</td>
<td>4.75</td>
<td>4</td>
</tr>
<tr>
<td>p (volumes)</td>
<td>0.566</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* - statistically significant difference (p<0.05)

Deviations (simulation of cheek volume) similar lower case letters are not statistically significantly different from each other.

Table 4: Median, Q1 and Q3 of scores assigned according to the category of examiner for photographs with 6-mm increase simulation, original photograph 6-mm reduction simulation in cheek volume, in the mesofacial pattern for the photograph smiling.

<table>
<thead>
<tr>
<th>Cheek volume</th>
<th>Ortho</th>
<th>HOF</th>
<th>Lay people</th>
<th>p (between examiners)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median</td>
<td>Q1</td>
<td>Q3</td>
<td>Median</td>
</tr>
<tr>
<td>Meso smiling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+6 mm</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>0 mm</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>-6 mm</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>p (volumes)</td>
<td>0.139</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

* - statistically significant difference (p<0.05)
Deviations (simulation of cheek volume) with similar lower case letters are not statistically significantly different from each other.

In the dolichofacial pattern (Tables 5 and 6) in the intragroup analysis, significant difference was observed only in the perception of LP in both photographs. At rest, statistically significant difference was observed between the original photograph (0 mm) and the bichectomy (-6 mm) (Table 5). In smiling photographs difference was observed between the +6 mm and -6 mm (Table 6).

Comparing the scores assigned by LP and orthodontists in the three cheek sizes at smile there was statistically significant difference, in which LP assigned higher scores (Table 6).

Table 5: Median, Q1 and Q3 of scores assigned according to the category of examiner for photographs with 6-mm increase simulation, original photograph 6-mm reduction simulation in cheek volume, in the dolichofacial pattern for the photograph at rest

<table>
<thead>
<tr>
<th>Cheek volume</th>
<th>Ortho</th>
<th>HOF</th>
<th>Lay people</th>
<th>p (between examiners)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Media</td>
<td>Median</td>
<td>Media</td>
<td>Q1</td>
</tr>
<tr>
<td>Dolicho rest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+6 mm</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>ab</td>
</tr>
<tr>
<td>0 mm</td>
<td>3.5</td>
<td>3</td>
<td>3</td>
<td>a</td>
</tr>
<tr>
<td>-6 mm</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>b</td>
</tr>
<tr>
<td>p (volumes)</td>
<td>0.822</td>
<td>0.291</td>
<td>0.042*</td>
<td></td>
</tr>
</tbody>
</table>

* - statistically significant difference (p<0.05)

Deviations (simulation of cheek volume) with similar lower case letters are not statistically significantly different from each other.
Table 6: Median, Q1 and Q3 of scores assigned according to the category of examiner for photographs with 6-mm increase simulation, original photograph 6-mm reduction simulation in cheek volume, in the dolicho-facial pattern for the photograph smiling

<table>
<thead>
<tr>
<th>Cheek volume</th>
<th>Ortho</th>
<th>HOF</th>
<th>Lay people</th>
<th>p (between examiners)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Media n</td>
<td>Q1</td>
<td>Q3</td>
<td>Median</td>
</tr>
<tr>
<td>+6 mm Dolicho smiling</td>
<td>3A</td>
<td>3</td>
<td>4</td>
<td>3AB</td>
</tr>
<tr>
<td>0 mm</td>
<td>3A</td>
<td>3</td>
<td>4</td>
<td>4AB</td>
</tr>
<tr>
<td>-6 mm</td>
<td>3A</td>
<td>3</td>
<td>4</td>
<td>4AB</td>
</tr>
<tr>
<td>p (volumes)</td>
<td>0.178</td>
<td>0.358</td>
<td>0.018*</td>
<td></td>
</tr>
</tbody>
</table>

* - statistically significant difference (p<0.05)

Categories of examiners with similar upper case letters are not statistically significantly different from each other.

Deviations (simulation of cheek volume) with similar lower case letters are not statistically significantly different from each other.

DISCUSSION

The middle region of the face is an important factor in facial esthetics, because the perceptions of facial attractiveness are largely based on the synergy of the eyes, nose, lips and cheekbones (central facial triangle) (COLEMAN; GROVER, 2006), and this study evidenced that facial pleasantness related to the middle third alterations in different vertical facial patterns was differently assessed by orthodontists, HOFp and LP.

Our research showed that LP assigned higher scores, regardless of cheek simulations, on photographs of brachy-facial smiles (Tables 1 and 2). This evidenced the great influence of the smile on the perception of beauty. This fact corroborates different investigations that used the Eye-tracking technology as a research method, which showed that the first fixation points were the mouth and eyes (FÖRSCHE, 2020; SHAFIEE, 2008). The HOFp noticed more changes in the models' faces, which may be explained by experience (CAI, 2019). They rated esthetics more thoroughly than less experienced examiners, as their attention is evenly distributed across the face, while LP have a less trained gaze and are quickly drawn to the central areas of the face that may be more influenced by the eyes, nose and mouth and less indicative of the change in the cheek.
which may also explain why they assigned higher scores to the smiling photographs (Table 1)

In the perception of LP and HOFp, there was a preference for photographs with bichectomy in the brachyfacial pattern (Table 1). This corroborates the literature, which mentions that the main indications for removal of oral fat are for rounded faces (brachyfacial pattern), in which the face has a predominantly transversal development (STEVÃO, 2015). Explaining the highest scores attributed to these photographs with bichectomy simulation in the brachyfacial. Although not statistically significant, orthodontists also gave higher scores to the bichectomy simulation and the original photo. In summary, it is worth mentioning that the preference in the brachyfacial pattern was the simulation of buccal fat removal (-6 mm), in photographs at rest with scores ranging from 3.5 to 4.

In photographs of the mesofacial model at rest and smiling, there was no difference between orthodontists, HOFp and LP. The three groups scored the photographs similarly (between 3 and 4). Only HOFp showed differences between scores, although it was not possible to clearly distinguish a preference for cheek size in this pattern. Medical aesthetic studies indicate that the decrease in volume in the middle third is associated with facial aging, given the avalanche of procedures that promise to improve facial aesthetics with fillers aimed at supporting the area (TAUB, 2012; KUROSUMI; MIZUKOSHI, 2018). Kurosumi and Mizukoshi observed that there is volume loss in the cheek region, increasing around the chin with age (KUROSUMI; MIZUKOSHI, 2018). In addition, Feng et al. observed that orthodontists rated the bichectomy simulation with lower scores and as an older-looking face (FENG, et al., 2019). This fact seems to disagree with our study, as HOFp tended to assign lower scores to photographs with cheekbones increased.

As for the mesofacial pattern, cheek size when smiling does not significantly change the examiners' perception of beauty, since no statistically significant differences were observed between the groups (Tables 3 and 4). Thus, these differences in cheek size do not interfere with facial pleasantness and it is also understood that a balanced (facial thirds) and harmonious face is universally considered pleasant (HON, et al., 2005).

Looking at dolichofacial, we had statistical differences in smiling photographs between the LP and orthodontist groups (Table 6), and LP attributed higher scores, corroborating the studies by Lima et al. and Jørnung and Fardal (LIMA, et al., 2019, JØRNUNG; FARDAL, 2007). This situation can be explained by the fact that orthodontists are more used to facial assessment (ZANGER, et al 2012). In laypeople's
perception, the smile influenced the pleasantness of the face in dolichofacial, as they assigned scores of 4 for all options (+ 6 mm, 0 mm and –6 mm). Therefore, facial expression greatly influences visual attention during pleasantness assessment. Also corroborated by Godinho, Gonçalves, Jardim, who found a significant correlation between smile and smiling face when evaluated by laypeople (GODINHO; GONÇALVES; JARDIM, 2020).

In the assessment of LP regarding dolichofacial (Tables 5 and 6), statistically significant differences were observed in photographs at rest and smiling. At rest, there was a difference between the original photograph (0 mm) and the bichectomy simulation (-6 mm) (Table 5). In the smiling photographs, there was a statistically significant difference between augmentation (+6 mm) and bichectomy (-6 mm), with a slight preference for cheek reduction (Table 6). The preference for smiling photographs in this pattern was evident. Disagreeing with the research by KAWASHIMA et al. 2018 and OH et al. 2009, who concluded that unattractive smiles belong to women with a hyperdivergent pattern. Perhaps this can be explained by the ethnic difference in the sample.

Despite the statistical differences between scores given by LP, it was not possible to distinguish a preference for cheek size. This confirms the fact that subjective analyzes have limitations.

The change in the size of the cheeks was little noticed, even in the evaluation of health professionals who work with aesthetics. The facial attractiveness studied represents an enigma, because despite much research in the areas of psychology, medicine, dentistry and neuroscience, its determinants, including inter and intrapersonal variability, resist a satisfactory understanding, evidencing an intrinsic subjectivity. This subjectivity condition is believed to have influenced the current results, in which even aesthetic specialists had difficulty in consecutively evaluating the attractiveness of faces at different times. Despite the homogeneity of the examiners (individuals from the same professional/layman group), subjectivity must be considered for scientific understanding, as heterogeneous groups would only make this subjective perception even more evident (IBÁÑEZ-BERGANZA; AMICO; LORETO, 2019).

In the context of scores, it is important to note that it was around the acceptable (score 3) in most cases, with very subtle differences, maybe also because the models have different patterns yet within what could be considered as pleasant faces, since they did not have marked brachyfacial or dolichofacial patterns. Another factor that could be
emphasized is age; young models were selected, and would these changes be perceived in the same manner in older individuals? The literature mentions that, with the increase in age, the facial structure changes and could also be different according to the needs, as well as the perceptions of beauty.

The clinical relevance of this study is related to the guidance of patients in decision-making regarding the treatment plan. It is noteworthy that, to achieve the esthetic goals, a multidisciplinary treatment should be proposed, including various procedures of facial esthetics. It is also recommended to individualize the therapeutic goals not only according to the facial pattern, but mainly considering the patient's opinion.

Future studies should focus on the long-term effect of buccal fat removal to know its implications on the face, especially in patients with brachyfacial pattern. The importance of investigating the opinion of examiners about male models is also highlighted, since the perception of esthetics might be assessed differently in these models.

CONCLUSION

1. Facial esthetic related to cheek size in different vertical facial patterns was assessed differently by orthodontists, facial harmonization professionals and laypeople. However, it was not possible to identify a preferred size (original, -6mm or +6mm) for each facial pattern.

2. In the brachyfacial pattern, the photograph at rest with bichectomy simulation was preferred by HOFp and laypeople.

3. In the mesofacial pattern, cheek augmentation, original and reduction, at rest and smiling, was similarly assessed by orthodontists, HOFp and laypeople.

4. In the dolichofacial pattern, laypeople assigned higher grades than orthodontists for all cheek size in smiling photographs.
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REFERÊNCIAS


