



INFLUENCE OF SYMMETRIC & ASYMMETRIC ALTERATIONS OF MAXILLARY CANINE POSITION ON THE PERCEPTION OF SMILE ESTHETICS BY DENTISTS & LAYPERSONS.

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ABSTRACT **OBJECTIVE:** The objective of this study was to evaluate the differences in the perception of smile esthetics in symmetric & asymmetric alterations of maxillary canine position by dentists and laypersons.

MATERIALS AND METHODS: A Close-up smile photograph of an Indian female was selected. The image was altered digitally & the canine vertical position was modified. A total of 9 images were obtained & were evaluated by 35 dentists and by 35 laypersons who determined the attractiveness of each smile using a Visual Analog Scale.

RESULTS: For both dentists and laypersons; the symmetric & asymmetric alterations in canine vertical positions had a statistically significant correlation ($P < 0.05$).

CONCLUSION: For both dentists and laypersons the most attractive smile was the standard smile and the smile that was least attractive was with bilateral 1 mm extrusion. Dentists were more critical in their assessment.

KEYWORDS : Canine vertical position, Dentists, Esthetics, Laypersons

INTRODUCTION:

A smile makes your life more beautiful and is true especially in the present world where attractive people have a much better chance of being successful.

Having a beautiful smile boosts up one's self-confidence and has an impact on one's quality of life and health¹. The pursuit of excellence in a smile and facial esthetics has become, in recent years, the main objective of patients consulting dental clinics for enhancing their smile.²

Designing a smile is a multi-factorial decision-making process that allows treating patients with an individualized approach.¹ Knowledge over factors that help or harm the attractiveness of a smile is a crucial step in creating attractive smiles.³

Smile perception depends not only on concerns associated with teeth but also on the nearby soft tissues. The perception of Dentofacial aesthetics is more objective by dentists than laypersons, whose perception depends on society beliefs and norms, which differ among societies.⁴

The purpose of the present study was to evaluate the perception of smile aesthetics in symmetric and asymmetric alterations of maxillary canine position by dentists & laypeople.

MATERIALS AND METHODS:

INCLUSION CRITERIA:

Natural maxillary anterior teeth, teeth with no size alterations, and absence of anterior restorations.

EXCLUSION CRITERIA:

Presence of spacing, crowding, and rotations, subjects who have undergone orthodontic treatment, and restorations.

Image capture:

A female volunteer had her smile photographed at rest position using a DSLR camera. The camera was positioned and adjusted to obtain a sharp image of the smile.

In addition, her mouth was slightly opened to minimize the display of mandibular incisors and to promote the contrast of the maxillary teeth with a darker background.

The photograph was modified and retouched in various ways to adjust

the color, brightness, and contrast to get an ideal symmetrical image using Adobe photoshop 7.0.

Starting from the standard smile (Image 1), few manipulations were made in the smile by changing the canine vertical positions symmetrically and asymmetrically, making them more intruded & extruded in increments of 0.5 mm to the tangent drawn to the central incisor edges.

A total of nine images were obtained (Figure 1) which includes standard smile (Image 1), unilateral 0.5 mm intrusion (Image 2), unilateral 1 mm intrusion (Image 3), bilateral 0.5 mm intrusion (Image 4), bilateral 1 mm intrusion (Image 5), unilateral 0.5 mm extrusion (Image 6), unilateral 1 mm extrusion (Image 7), bilateral 0.5 mm extrusion (Image 8), and bilateral 1 mm extrusion (Image 9).

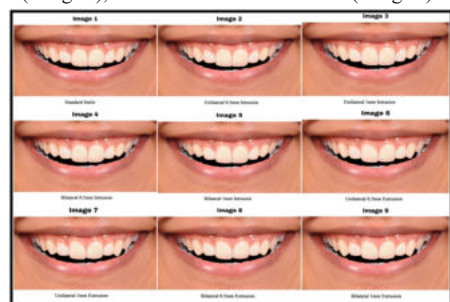


FIGURE:1

These images were assembled into Google forms and were put to dentists, laypeople and were asked to rate each smile using a Visual Analog Scale (Figure 2) which is rated from "0-10". 0 being least attractive and 10 being the most attractive. The data thus obtained was subjected to statistical analysis.

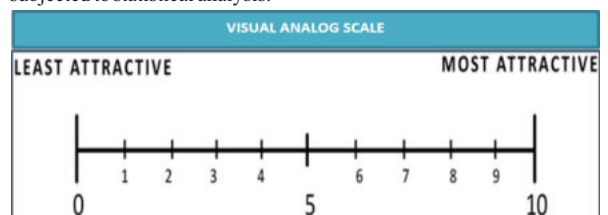


FIGURE:2

Statistical analysis:

The data thus obtained was subjected to statistical analysis using SPSS software (Version 20.0; SPSS Inc.) The results were statistically analyzed by paired t-test followed by one-way analysis of variance (ANOVA).

RESULTS:

The Visual Analog Scale scores (VASs) for different alterations of smiles were given by both the group of evaluators. The sample of evaluators comprised 35 dentists & 35 laypersons.

Based on the analysis of smiles the highest scores were given to standard smiles by both dentists & laypersons, whereas the least scores were given to bilateral 1 mm extrusion smiles by both groups of evaluators (Figure 3).

ANOVA was used to investigate a possible association between sex and perception of discrepancy (Figure 4). No significant differences were seen across the groups (Figure 5). However, the women were more particular about esthetics. Figure 3: Comparison of dentist and others with mean ratings of all images

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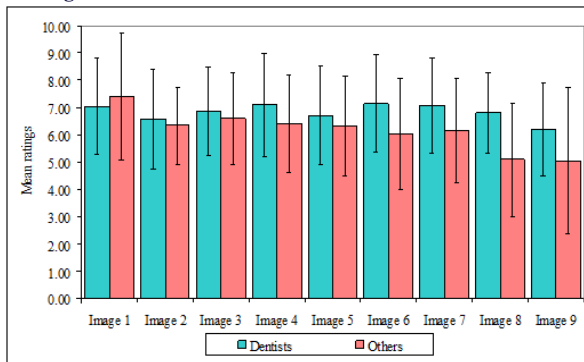


Figure 4: Comparison of male and females with mean ratings of all images

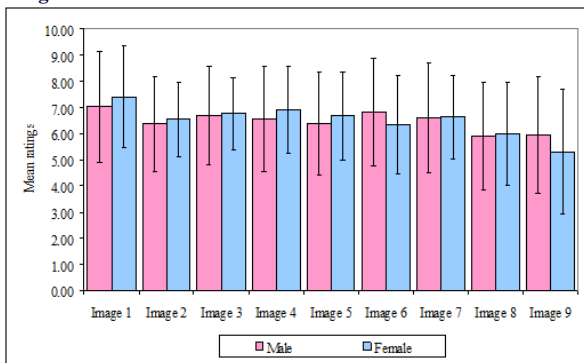
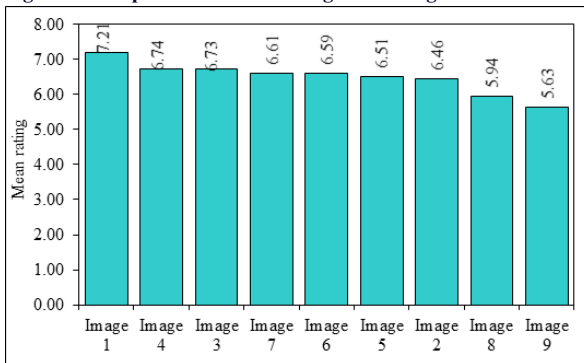


Figure 5: Comparison of mean ratings of all images



DISCUSSION:

The canine is the cornerstone of dentition and plays a vital role in smile designing. Most often, these are misaligned and their corrections offer challenges to the clinicians. The main important criteria to be

considered is the symmetry between the right & left sides of the dentition.⁵ Therefore this study emphasized the symmetric & asymmetric alterations in the maxillary canine vertical position.

Some authors claimed that the other components of the face don't influence the perception of the smile & other studies suggested that perception of smile details are considered more relevant when close-up images are taken & this may also decrease the distractions of facial parameters and lead to a better focus on dental alterations.^{6, 7} Nascimento et al.⁸ in his study found that there was no difference in smile scores for full-face & close-up views, hence in this study, we opted only for close-up images.

The perception of smile esthetics varies from person to person. As reported in the literature, a professional's opinions regarding facial esthetics may not coincide with the patients/laypersons.⁹ Due to this reason; two groups of evaluators were selected: Dentists & Laypersons.

Both male & female evaluators were included in this study. The VAS scores thus obtained were clubbed together as there was no significant difference among them.

The present study results revealed that extreme changes were considered more unpleasant, i.e., extrusion alterations received the lowest scores. For both the group of evaluators the standard smile was given the highest scores followed by bilateral 0.5 mm intrusion, which was similar to the result obtained in a study conducted by Paiva et al. The least scores were given to bilateral 1 mm extrusion smile.

According to Davis,¹⁰ most studies based on esthetic evaluation of anterior teeth showed a more careful perception by dentists that may be because of more discerning of occlusal aspects, whereas laypersons may evaluate more general aspects of smiles such as form, proportion, and tooth color.

Variables such as shape & size of teeth and lips, inclinations & the color of the tooth, aspects of gum tissue can influence the normal perception of a smile. Therefore, more studies addressing this topic are needed.

CONCLUSION:

As clinicians, we must remember that not everything that we believe should be corrected in the name of esthetics will be perceived by most laypeople. Our concluding word should probably be: alter tooth position and restore with caution.

REFERENCES:

- Katiyar S, Gandhi S, Sodawala J, Anita G, Hamdani S, Jain S. Influence of symmetric and asymmetric alterations of maxillary canine gingival margin on the perception of smile esthetics among orthodontists, dentists, and laypersons. Indian J Dent Res 2016; 27:586-91.
- Thais Teixeira de Paiva, Ricardo Martins Machado, Alexandre Trindade Motta, and Claudia Trindade Mattos Rio de Janeiro, Brazil. Influence of canine vertical position on smile esthetic perceptions by orthodontists and laypersons. Am J Orthod Dentofacial Orthop. March 2018;153(3): 371-376
- Caroline de Deus Tupinamba Rodrigues, Romeu Magnani, Maria Salete Candido Machado, Osmic Batista Oliveira; The Perception of Smile Attractiveness: Variations from Esthetic Norms, Photographic Framing, and Order of Presentation. Angle Orthod 1 July 2009; 79 (4): 634-639.
- Khalid Aldhorae, Basema Alqadasi, Zainab M. Altawili, Ali Assiry, Anas Shamalah, Salahaddin Al-Haidari. Perception of Dental Students and Laypersons to Altered Dentofacial Aesthetics. J Int Soc Prev Community Dent 2020 Jan-Feb; 10(1): 85-95
- Rosa M, Olympo A, Fastuca R, Caprioglio A. Perceptions of dental professionals and laypeople to altered dental esthetics in cases with congenitally missing maxillary lateral incisors. Prog Orthod 2013;14:34
- Flores-Mir C, Silva E, Barriga MI, Lagravere MO, Major PW. Lay person's perception of smile aesthetics in dental and facial views. J Orthod 2004; 31:204-9.
- Nascimento DC, Santos ER, Machado AWL, Bittencourt MAV. Influence of buccal corridor dimension on smile esthetics. Dental Press J Orthod 2012; 17:145-50.
- Correa BD, Vieira Bettencourt MA, Machado AW. Influence of maxillary canine gingival margin asymmetries on the perception of smile esthetics among orthodontists and laypersons. Am J Orthod Dentofacial Orthop 2014; 145:55-63.
- Zachrisson BU. Esthetic factors involved in anterior tooth display and the smile: vertical dimension. J Clin Orthod 1998; 32:432-45.
- Davis NC. Smile design. Dent Clin North Am 2007; 51:299-318.