



EFFECTS OF GINGIVAL MARGIN ASYMMETRIES ON THE SMILE ESTHETIC PERCEPTION OF DENTAL PROFESSIONALS AND LAYPEOPLE IN KHAMMAM

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ABSTRACT **OBJECTIVE:** This study aimed to determine the smile esthetic perception of dental professionals and laypeople in Khammam on gingival margin asymmetries.
MATERIALS AND METHODS: A frontal close-up smile photograph of a female volunteer was captured and digitally altered in four stages of 0.5mm increments and final images were assessed by dentists and laypeople. A questionnaire was carried out to evaluate the attractiveness of images by using a visual analog scale. Collected data were analyzed using Mann – Whitney U test.
RESULTS: Smiles with 2mm gingival asymmetries were found to be less esthetic. Dentist's scores were significantly lower than patient scores.
CONCLUSION: As the amount of gingival display increased, esthetic scores decreased in both groups.

KEYWORDS : Esthetic smile, gingival margin asymmetry, perception

INTRODUCTION:

Dental appearance has been shown to influence an individual's judgment of a person's facial attractiveness as well as of personal characteristics. The media portrayal of the perfect smile might have led to an increased demand for esthetic treatment. However, there is little information about the patient's perception of the ideal smile.¹ Esthetics, in dentistry, is based on individual perception and is conditioned by culture, age, gender, experience, and life.²

There are no single criteria to define an esthetic smile, it should include symmetry and proportion between the anterior teeth, minimal gingival display, moderate to minimum buccal corridor spaces, ideal smile arc with the curvature of the maxillary anterior incisal edges parallel to the lower lip and adequate design of the gingival margins in the esthetic zone.³

Esthetic dentistry is more arousing interest and playing an important role in the dentist's clinical routine as well as in patients' lives.⁴ Possessing a beautiful smile boosts an individual's confidence, thereby having a significant impact on the person's quality of life, general health, development, and productivity.⁵

Knowing the dimensions of gingival asymmetry, which is not pleasant for laypeople, will help dentists with the treatment. Thus, clinicians will be able to understand patients' expectations in the treatment of dental and gingival asymmetries in the aesthetic region.⁶

METHODOLOGY:

Subject selection

The study was conducted in a total of 80 evaluators who were divided into two groups, dentists and laypeople of 40 each. Inclusion criteria for the laypeople were those who were not having dental education, not being in direct contact with dentists, dental technicians, or oral hygienists, having a college education; not being an artist or not associated with art, being older than 18 years.

Image Capture and Alterations

A frontal close-up smile photograph of a female volunteer with no apparent facial asymmetries, and with an attractive smile was captured by using a DSLR camera. Desired changes in the photograph were made with the help of Adobe Photoshop version 7.0. The photograph was digitally altered by increasing the amount of gingival display to 0.5 mm, 1mm, 1.5mm, and 2mm in the upper anterior tooth region and was then retouched to remove any discoloration in the skin and lips (Fig -1 to 5).

Questionnaire

A questionnaire was created using voluntary response questions such as age, gender, profession (Table-1) and by turning all the photographs

obtained into questions (Image-1) using an online survey program on a computer. Each participant was given a brief explanation of the study and was asked to rate the attractiveness of the smile in the images by using the Visual Analogue Scale (VAS). The subjective aesthetic value of each smile was determined using a 10-mm VAS. The individuals who participated in the study were asked to score each smile between 0 (non-attractive) and 10 (most attractive).

Statistical analysis

All statistical analysis was performed using SPSS version 20.0. The Mann-Whitney U test, Wilcoxon signed-rank test, and Z test were performed to know the effect of variables and to reveal the statistical significance.



IMAGE -1

Questionnaire:

- Age
- Sex
 - Male
 - Female
3. Profession
 - Dental professional
 - Others
4. When you see yourself in a picture how would you describe yourself?
 - I rarely smile
 - I smile a lot although I don't have a perfect smile
 - My smile affects my self-confidence in a negative way
 - My smile does not bother me at all
5. Would you like your gums are visible while smiling or having a conversation?
 - Yes, I would like if it is visible
 - Yes, It should be partially visible
 - No, it should not be visible
 - Visibility of gums does not bother me at all

RESULTS:

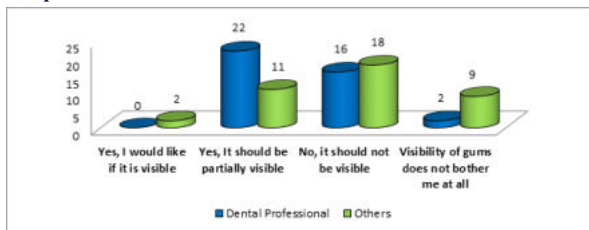
No significant difference was found between Dental Professionals and Others concerning Q4 (P>0.05) as illustrated in graph-1.

Statistically, a significant difference found between Dental Professionals and Others concerning Q5 (P<0.05) as illustrated in graph-2.

No statistically significant difference was found in the mean scores between dental professionals and others concerning Q6-Q10 (P>0.05). Lay people's esthetic scores were higher than dentists in all degrees of asymmetries. As the gingival asymmetry increased scores given by both groups were decreased as illustrated in chart-1



Graph-1



Graph-2

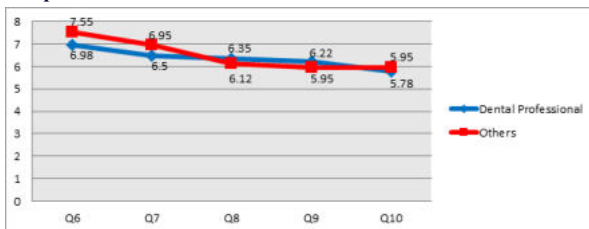


Chart-1

DISCUSSION:

Providing esthetic dental treatment often involves a multidisciplinary approach. The subjectivity of what a beautiful smile looks like may create a mismatch between the dental care provider and the patient. Therefore, several attempts were made to recognize the disparity in recognizing these esthetic aspects of smiles between laypeople and dental care providers.¹⁰

According to Miller, a well-grounded eye will be able to detect something unbalanced, out of harmony and out of symmetry.⁴

The perception of an esthetic smile varies from individual to individual. A professional's opinions regarding esthetics may not coincide with the perceptions and expectations of patients or laypersons. Keeping this in mind, two groups of evaluators were selected: laypersons and dentists.⁵

Perfect smiles rarely occur in nature and therefore digital manipulations were performed on a set of photographs.⁹ Hunt et al. and Geron et al used manipulated images with variations in the amount of gingival exposure when smiling to evaluate the esthetic perception of the gingival smile.⁸

Among each group of evaluators, both males and females were included in this study. The VAS scores of the male and female evaluators were clubbed together.⁵

Images with fewer gingival asymmetries had higher esthetic scores than those with more gingival asymmetries. According to the results of this study, 0.5 mm gingival asymmetries were found to be more esthetic, while 2 mm asymmetries were less esthetic and all groups. As the amount of gingival display increased, esthetic scores decreased. This is similar to the study of Koseoglu M and Bayindir F (2020).⁶

Laypeople and dentists cannot recognize small gingival margin discrepancies as unesthetic in the maxillary anterior region. Kokich et al. have reported that asymmetric alterations may make teeth more unattractive to not only dentists but also laypeople.⁷

The limitation of this study is that it was conducted on a small group population. Perception of smile esthetics may vary among different individuals. Hence, we recommend that a study comparing the perception of smile esthetics be undertaken in a large group population.

CONCLUSION:

Within the limitations of the present study, dentists may notice asymmetries in smaller amounts in comparison with laypeople. As the amount of gingival asymmetries increased, esthetic scores decreased in both groups. Variations of perception among individuals will always prevail; hence overall assessment of smile esthetics should be done by keeping the basic requirements of the general population in mind.

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