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Original Research

Assessment of Perception of Acceptable Range of Smiles by Specialists, General Dentists and Lay Persons: an observational study

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ABSTRACT:

Background: Smile, a person's ability to express a range of emotions with the structure and movement of the teeth and lips, can often determine how well a person can function in society. Hence; the present study was taken for assessing the Perception of Acceptable Range of Smiles by Specialists, General Dentists and Lay Persons. **Materials & methods:** A total of 120 subjects were enrolled. Inclusion criteria included: Two photographs of each individual were clicked; one of the smile and another of the smile in conjunction with the frontal view of face. Impression was taken and casts were made. Three study groups were made as follows: Group A: Five Evaluators with post graduate degrees in the field of conservative dentistry, prosthodontics, and orthodontics or aesthetic dentistry, Group B: Five Evaluators were general dentists, and Group C: Five Evaluators were lay persons. All the photographs of smiles were distributed randomly among the evaluators of different study groups. **Results:** Significant results were obtained while assessing the individual smile analysis in between different study groups. In the present study, mean percentage of smiles in conjugation with face among subjects of group A, Group B and Group C was 54.23, 63.85 and 72.49 respectively. Mean width: height ratio was 0.693. Mean RED proportion and lateral incisor position was 73.12% and 0.936 mm respectively. **Conclusion:** Analysis of the smile should be done in addition with the face as it is impossible to dissociate the smile from the individual's other facial components.

Key words: Smile, Acceptable, Perception.

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INTRODUCTION

Smile, a person's ability to express a range of emotions with the structure and movement of the teeth and lips, can often determine how well a person can function in society. Of course, the importance given to a beautiful smile is not new.[1, 2]

The search for improved dentofacial esthetics persists in modern society. Thus, inspired by pretty faces and beautiful smiles, patients have sought treatment modalities to improve dentofacial esthetics and yield positive changes in their smile. With a view to achieving ideal esthetic outcomes, some reference parameters must be followed. During many years, these guidelines were based on experts' opinions, in which case special attention should be given to studies conducted by Camara, as they provide essential information on smile esthetics. On the other hand, these clinical guidelines are questionable, since esthetics is a subjective notion and tends to vary among different individuals and cultures.[3, 4] This fact is a drawback for clinicians who seek a treatment protocol that involves changes in smile esthetics because many articles on this theme were based on author's opinions rather than scientific evidence.[5] Hence; the present study was taken for assessing the Perception of Acceptable Range of Smiles by Specialists, General Dentists and Lay Persons.

MATERIALS & METHODS

The present study was conducted for assessing the perception of Acceptable Range of Smiles by Specialists, General Dentists and Lay Persons. Ethical approval was obtained from institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol. A total of 120 subjects were enrolled. Inclusion criteria included:

- Subjects within the age range of 18 to 25 years,
- Subjects with no missing anterior teeth,
- Subjects with absence of any gingival or periodontal pathology
- Subjects with negative history of any orthodontic treatment
- Subjects with angle's class I occlusion

Two photographs of each individual were clicked; one of the smile and another of the smile in conjunction with the frontal view of face. Impression was taken and casts were made. Three study groups were made as follows:

Group A: Five Evaluators with post graduate degrees in the field of conservative dentistry, prosthodontics, and orthodontics or aesthetic dentistry,

Group B: Five Evaluators were general dentists

Group C: Five Evaluators were lay persons

All the photographs of smiles were distributed randomly among the evaluators of different study groups. Evaluation of photographs was done based on the individual's subjective assessment For cast analysis, measurements of the width of the tooth (widest mesio-distal area) and height of the tooth (from incisal edge to zenith point) was done. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software.

RESULTS

In the present study, A total of 120 subjects were enrolled. Three study groups were formed as follows: Group A: Five Evaluators with post graduate degrees in the field of conservative dentistry, prosthodontics, and orthodontics or aesthetic dentistry, Group B: Five Evaluators were general dentists, and Group C: Five Evaluators were lay persons. Significant results were obtained while assessing the individual smile analysis in between different study groups. In the present study, mean percentage of smiles in conjugation with face among subjects of group A, Group B and Group C was 54.23, 63.85 and 72.49 respectively. Mean width: height ratio was 0.693. Mean RED proportion and lateral incisor position was 73.12% and 0.936 mm respectively.

Table 1: Intergroup comparison for individual smile analysis

Groups	p- value
Group A versus Group B	0.00*
Group A versus Group C	0.00*
Group B versus Group C	0.01*

*: Significant

Table 2: Mean value for the percentage of agreeable smiles during smile anlaysis in conjugation with the face

Group	Mean	SD
Group A	54.23	8.46
Group B	63.85	6.22
Group C	72.49	4.98

Table 3: Mean value for width: height ratio, RED proportion and other parameters

Aesthetic paradigm	Mean
Width: height ratio	0.693
RED proportion	73.12%
Lateral incisor position (above Occlusal surface)	0.936 mm

RED: Recurrent Esthetic Dental proportion

DISCUSSION

The goal of an esthetic makeover is to develop a peaceful and stable masticatory system, where the teeth, tissues, muscles, skeletal structures and joints all function in harmony. It is very important that when planning treatment for esthetics cases, smile design cannot be isolated from a comprehensive approach to patient care. Achieving a successful, healthy and functional result requires an understanding of the interrelationship among all the supporting oral structures, including the muscles, bones, joints, gingival tissues and occlusion.[6- 8] Hence; the present study was taken for assessing the Perception of Acceptable Range of Smiles by Specialists, General Dentists and Lay Persons.

In the present study, A total of 120 subjects were enrolled. Three study groups were formed as follows: Group A: Five Evaluators with post graduate degrees in the field of conservative dentistry, prosthodontics, and orthodontics or aesthetic dentistry, Group B: Five Evaluators were general dentists, and Group C: Five Evaluators were lay persons. Significant results were obtained while assessing the individual smile analysis in between different study groups. Saha MK et al identified the acceptable range of several smiles (alone and in conjunction with the face) by specialists, general dentists as well as lay persons; and to identify the values of different criteria i.e., the Golden Proportion (GP), the Recurrent Esthetic Dental proportion (RED), Width to Height ratio (W/H ratio), the Apparent Contact Dimension (ACD), and lateral incisor position in a smile. Hundred photographs of 50 subjects were taken, 50 of the smile alone and 50 of the individual's frontal view of face. The photographs

of the smiles and the faces were assessed for the aesthetic acceptability by 30 evaluators including 10 specialists with advanced training, 10 general dentists and 10 lay persons. Irreversible hydrocolloid impressions were made of the dentitions of all the individuals using stock trays and were poured in dental stone. More number of smiles were considered agreeable by the general dentists when compared to the specialists and the number even increased in case of evaluation by lay persons. Greater number of smiles was found to be agreeable when they were evaluated in conjunction with the face. Rather than assessment of individual numeric parameter that defines an ideal aesthetic smile, a smile to be aesthetic should harmonize with the composition of the face.[9]

In the present study, mean percentage of smiles in conjugation with face among subjects of group A, Group B and Group C was 54.23, 63.85 and 72.49 respectively. Mean width: height ratio was 0.693. Mean RED proportion and lateral incisor position was 73.12% and 0.936 mm respectively. Vineet S Agrawal et al investigated the existence of the golden proportion, recurring esthetic dental (RED) proportion and golden percentage between the frontal view widths of the maxillary anterior natural dentition among students of Indian origin by the aid of digital photography. This study was conducted with 80 dental students (41 female and 39 male), with ages ranging from 20 to 23 years. Students whose natural smile did not develop any visual tension with regard to the study's and their own criteria were selected as having an esthetic smile. Photographs were taken, and the mesiodistal widths of six maxillary anterior teeth were measured digitally using software. Once the measurements were recorded three different theories of proportion were applied and statistical analysis was done. The golden proportion, i.e., 62% RED proportion and golden percentage were not observed in the subjects. According to the subjects evaluated, the average width of the maxillary lateral incisor was 72% of the frontal view width of the central incisor. The average width of the canine was 84% of the frontal view width of the lateral incisor. The golden proportion and RED proportion were not observed in the natural smiles of subjects who were deemed to have an esthetic smile.[10] Huang Shiyan et al determined the effect of varying the transverse cant of the anterior teeth on orthodontists' and laypeople's perceptions of smile aesthetics, and the influence that smile height has on this perception. A 20-year-old Chinese female with an aesthetic smile and normal occlusion was chosen and agreed to participate. Digital pictures of her posed smile were taken and manipulated to create three smile height variations: low, medium, or high. Each variation was further manipulated to create varying degrees of transverse anterior tooth cant. Fifty-six laypeople and 40 orthodontists participated as raters of the dental and facial impact of the altered smile images. The orthodontists more commonly and precisely identified the transverse cants of the anterior teeth and the detracting influence on smile aesthetics compared with laypersons. Transverse cants of anterior teeth can affect orthodontists' and laypeople's perceptions of smile aesthetics.[11]

CONCLUSION

From the above results, the authors conclude that analysis of the smile should be done in addition with the face as it is impossible to dissociate the smile from the individual’s other facial components.

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