

## Smile Aesthetics Acuity of Lay-persons verses Dental Professionals

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### ABSTRACT

**Objective:** To compare and evaluate the perception of smile aesthetics by lay-persons and dental specialists.

**Study Design:** Cross-sectional study

**Place and Duration of Study:** Department of Orthodontics, Bacha Khan College of Dentistry/Medical Teaching Institute, Mardan from 1<sup>st</sup> April 2020 to 31<sup>st</sup> July 2021.

**Methodology:** Eighty participants were assessed for their smiles through photographic imaging to assess each photographic image of smile (frontal view) and categorized them as very good, good, average or bad.

**Results:** The mean age was 20.59±3.1 years with 59 females and 21 males. The laypeople assessed smile under categories of very good (60%) or good with a least number of people categorizing it average or bad. Contrary to this the dentist perception about smile aesthetic was completely reverses.

**Conclusion:** There is an obvious variance between perception of laypeople and dentists with dentist being more analytical and judgmental.

**Key words:** Incisors, Smile, Aesthetic, Smile arc

### INTRODUCTION

Beautiful smile influences person's attractiveness and plays an important role to enhance facial beauty. Smile is usually defined as facial expression used to indicate amusement and pleasure. It can be classified into two forms: enjoyment smile and social or posed smile. Nowadays, smile is among one of the main reasons for seeking dental treatments. Demand of aesthetic treatments has immensely elevated in the past years due to reduced frequency of dental caries and problems and advancement in dental science. It is also noted that, perception of beautiful smile varies from culture to culture and also dependent on ethnicity.<sup>1</sup>

Dental researchers and medical practitioners have suggested several concepts and definitions for beautiful smile. Many times anterior teeth got the main focus for aesthetically beautiful smile both from dentist and patients thus maintaining its shape and restoration is most important.<sup>2</sup> Various components play a critical role in making beautiful smile including the golden ratio, visibility of teeth, a proper smile arc, teeth alignment, symmetry and proportionality of smile components, upper lip position, size of teeth and status of buccal corridors.<sup>3,4</sup>

On the other hand, concept of beautiful smile also varies depending on person perception, professions of individuals and also influenced by social characteristics.<sup>2</sup> Many studies find the factors that are crucial in attractive smile.<sup>3-6</sup> Minimal gum display upto 1mm is considered to be more esthetic.<sup>7,8</sup> Likewise, lay-person is also capable to distinguish characteristics of attractive smile.<sup>9-11</sup>

### MATERIALS AND METHODS

This study was designed as a cross sectional comparative analysis which was undertaken at OPD patients at Department of Orthodontics, Bacha Khan College of Dentistry/Medical Teaching Institute, Mardan from 1<sup>st</sup> April 2020 to 31<sup>st</sup> July 2021. The study was approved by review board. An informed consent was taken from each participant of the study before its initiation. A total number of 80 patients consented to participate in this research. Their age was between 15- 26 years. The study included class-I incisor associations as well as permanent entire dentition with 3<sup>rd</sup> molar exception, 2-3 mm overjet/overbite. Carnofacial anomalies were excluded from the study with spaces or crowded, canting maxillary teeth and any active passive ortho-dental disease. Photographical imaging was performed using Sony digital high resolution cameras under ample light by placing camera 4 feet a head on a tripod with manual adjustments of the Frankfort (horizontal – plane in parallel direction from floor). Photograph was taken by requesting patients to show their smile in a cheese call manner. Pictures were recorded on Photoshop editor cropping

them with vertical and transverse limits (Fig. 1). Sub nasal - pogonion distance was furtherly measured in each photo for excluding magnificational errors. The responses were recorded and analysed per 15 second of picture display. The documented data was then analysed by using SPSS version 24.0 through student 't' test where p value less than 0.05 was considered as significant.



Fig 1: Frontal view of ideal aesthetic smile

### RESULTS

The mean age of the participants was 20.59±3.1 years with 59 females and 21 males. The panel consisted of equal number of female and male assessors from laypeople and dentists professional who gave their perceptions in regard to smile aesthetic (Table 1).

VAS scoring was used for various 6 smiles aesthetics to laypeople and dentists as their primary choice which revealed P<0.05 for all other smiles except midline diastema and crown width (Table 2).

The laypeople assessed smile under categories of very good (60%) or good with a least number of people categorizing it average or bad. Contrary to this the dentist perception about smile aesthetic was completely reverses. They categorized majority of the smiles as average followed by 22% as bad (Fig. 2)

Table 1: Distribution of gender among participants and panelists (n=80)

Variable	No.	%
Gender		
Male	21	26.25
Female	59	73.75
Lay people		
Male	20	50.0
Female	20	50.0
Dentist		
Male	20	50.0
Female	20	50.0

Table 2: Comparison of smile perception between laypeople and dentists

Variables for smile	Dentist	Laypersons	p-value
Arc of smile	1.3±0.7	1.49±0.5	0.000
Buccal-corridor	0.88±0.82	0.8±0.1	0.000
Gummy-smile	1.3±1.5	1.8±1.7	0.022
Midline diastema	1.05±0.6	1.2±0.5	0.083
Crown length	1.04±0.1	1.4±0.8	0.049
Crown width	1.4±0.9	1.65±1.1	0.093

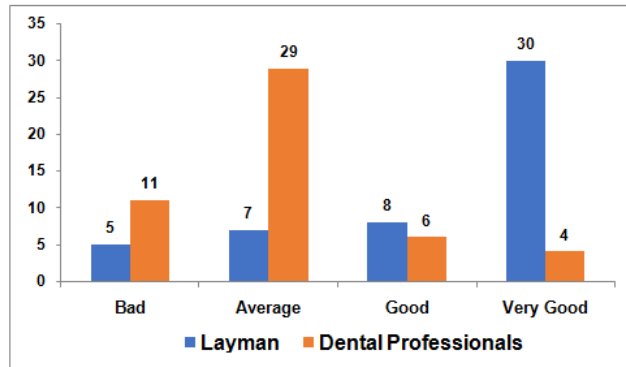


Fig. 2: Comparison of categories between layman and dental professionals

## DISCUSSION

Krishnan et al<sup>12</sup> and Abu Alhajja et al<sup>13</sup> suggested that smile characteristics can be measured by buccal corridor and smile arc. Parekh et al<sup>14</sup> and Kokich et al<sup>8</sup> assessed variations and described dental aesthetics. Barros et al<sup>15</sup> evaluated the gingival and tooth show when smiling and measured the variation and difference in opinion of lay-person and professionals in context with attractive smile aesthetics. No significant difference was found which is similar to our study.

Talic et al<sup>16</sup> determined the midline deviation effect and gingival display on smile characteristics on the basis of professionals and laypeople perceptions. This study reported great differences between these two groups, which is opposite to our study. These variations might be due to cultural differences but studies also proved that different conclusions were obtained even studies conducted in similar region and country.

Opinions of professionals and laypeople were different on the basis of gingival show. Lay-persons considered gummy smile in which gingival is >2mm is not beautiful or unaesthetic. Contrary, smile in which gums is not visible can also not be considered as attractive smile. Few studies also reported that papilla must be visible in ideally attractive and beautiful smile.<sup>12,14,15</sup> Few studies also showed that, smiles can be digitally modified but this may lead to artificial smile and change the results.<sup>15,17-20</sup>

## CONCLUSION

There is an obvious variance between perception of laypeople and dentists. Dentists were more analytically judgmental about smile arc and buccal corridor and categorized smiles as average or bad in context to their observations.

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