

Smile perception amongst orthodontists and laypersons

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Abstract

Introduction: Smile is one of the most noticed feature in face. Facial aesthetics are integral to Orthodontic diagnosis and treatment plans are made keeping in mind the smile aesthetics. Hence the purpose of this study was to determine the smile perception of orthodontists and laypersons.

Material and Methods: This Prospective observational study was conducted at Dental Section, Liaquat University Hospital Jamshoro, from January to December 2016. Total 88 cases were selected and distributed amongst orthodontists and lay persons. The orthodontists were graduates and selected randomly. The lay person group consisted of those persons having no dental knowledge like business people, lawyers and teachers. Persons who refused to take the questionnaire e.g. dental attendants and technicians were not included in the sample. The participants were asked to score the attractiveness of each smile image separately using a visual analog scale (VAS), graded from least attractive to most attractive.

Results: The sample consisted of 88 patients with a male to female ratio of 1:1.25. The minimum age being 16 years and maximum being 55 years. Most of the patients were in the range of 25 to 40 years with mean age was 31.11 ± 2.1 years. In this study mean height of gingival margins in millimetres was measured to be 1.9 ± 1.1 mm which was observed in 16 to 35 year age bracket while 0 ± 2.1 mm in 36 to 55 years. In the present study, Orthodontists observed gingival display of 1 mm in 11 (25%) cases and 2 mm in 17 (38.63%) cases, while laypersons observed 0 mm in 15 (34.09%) cases and 2 mm in 11 (25%) cases.

Conclusions: It was concluded that there are differences in layperson's and orthodontists perception of smile on the basis of gingival show.

Keywords: Smile perception; orthodontists; laypersons

Introduction

Smile is an important aspect of one's personality and hence impacts one's social and psychological well-being. All of us dream of having an attractive smile. Media has significantly raised aesthetic concerns of smile. There is a wide difference in the perception of attractiveness of smile among layman and orthodontists. Orthodontists have different variables or numbers by which they assess smile however this is different with individuals from different backgrounds.

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Layman perception of smile depends on its society's beliefs and norms which differ among societies whereas orthodontists look for scientifically derived parameters which are almost same globally.¹ The scientific parameters are of no concern if the person undergoing orthodontic treatment due to aesthetic reasons is not satisfied with resultant outcome. Orthodontists perception of smile depends mainly on dentogingival display and transverse dimensions.

With the advent of time we have seen that the definition for beauty keeps changing constantly. Similarly dental beauty also differs with time, religion, nationality and demographics.^{2,3} There are four main aspects of aesthetic perception of smile: facial aesthetics, gingival aesthetics, micro-aesthetics and macro-aesthetics.⁴ Dentist's

perception of smile depends not only on concerns associated with teeth but also on the nearby soft tissues. These factors include gingival display, buccal corridors, smile arc, diastema and midline position. In a recent study, the three most important smile aesthetic variables associated with maxillary anterior teeth and age related changes were: the maxillary central incisor's edge position, maxillary gingival display and presence of black triangles between maxillary central incisors.⁵⁻⁷

Symmetrical alterations are difficult to detect and less unattractive as opposed to asymmetrical alterations. Majority of symmetrical alterations go un-noticed by laypersons and only orthodontist's eye is trained to record such minute details. It is therefore suggested that not every condition requires treatment because the resultant outcome may not be pleasing in the eyes of patient.

There are a lot of studies conducted on comparing perception of smile among orthodontists, laypersons and individuals from different age groups. Some researchers use closeup photographs of different smiles for reaching certain conclusions regarding smile aesthetics. Whereas others use full face photographs. It is observed that smile aesthetic perception differs when whole face is used in comparison to close up photographs. It is suggested that videos are better at understanding one's smile rather than photographs.

Material and Methods

This is a prospective observational study, conducted at Dental Section, Liaquat University Hospital Jamshoro, from January 2016 to December 2016. The sample consisted of 88 cases that fulfilled the inclusion criteria and was divided amongst orthodontists and laypeople. The orthodontists were graduates and selected randomly from the dental school. The layperson group consisted of

persons having no dental knowledge including business people, lawyers and teachers. Persons who refused to take questionnaire, dental attendants and technicians were not included in the sample. The participants were asked to score the attractiveness of each smile image separately using a visual analog scale (VAS), graded from least attractive to most attractive.

VAS was used for individual rating. The end of the scale on left having zero denomination depicts the least attractive and the far right with zero denomination depicts the most attractive smile. Each participant was asked to indicate the smile aesthetics on VAS based on their perception of smile aesthetics. Midline shift and gingival exposure were considered for evaluation. Each VAS label was measured with callipers and recorded.

Results

A total of 88 patients, both males and females were included in the study. 39 (44.31%) out of 88 subjects were males and rest 49 (55.68%) were females. The male to female ratio was 1:1.25. The minimum age was 16 years and maximum was 55 years but most of the patients were in the range of 25 to 40 years with mean age being 31.11 ± 2.1 years (Table 1). In this study mean gingival margins in mm of 1.9 ± 1.1 was observed in 16 to 35 year old patients while 0 ± 2.1 in 36 to 55 year old patients (Table II). Orthodontists observed gingival display of 0 mm in 11 (25%) and 2 mm in 17 (38.63%) cases, while layperson group observed 0 mm in 15 (34.09%) cases and 2 mm in 11 (25%) cases (Table III).

Table I. Demographics of Patients

Variable	No. Patients	Percentage
Gender		
• Male	39	44.31%
• Female	49	55.68%

Age		
• 16-25 years	19	21.59%
• 26-35 years	22	25%
• 36-45 years	27	30.68%
• 46-55 years	20	22.72%

Table II. Gingival Display According to Age Group

Gingival display	Age group			
	16-25 years	26-35 years	36-45 years	46-55 years
-4mm	2	1	6	8
-2mm	1	4	3	5
0mm	9	7	7	3
2mm	6	8	10	4
4mm	1	2	1	0

Table III. Gingival display as noticed by rthodontists and Laypersons

Gingival display	Orthodontists N=44		Laypersons N=44	
	-4mm	8	18.18%	9
-2mm	6	13.63%	7	15.90%
0mm	11	25%	15	34.09%
2mm	17	38.63%	11	25%
4mm	2	4.54%	2	4.54%

Discussion

Kanwal et al in her study evaluated the effects of changes in gingival display, midline and their interactions on perception of smile attractiveness as judged by orthodontists, dentists and laypersons. She concluded that there was significant difference among these

three groups on perception of smile. Orthodontists were found to be most discriminating of all alterations in comparison to dentists and laypersons. There were no significant differences among perception of males and females.⁸

Studies on Saudi population revealed that Saudi dentists were more sensitive to midline deviations and not to excessive gum show upon smiling. Machado et al in his study found that the most attractive smile according to laypersons was the one associated with gingival show of 1-2 mm whereas in King et al study this was 0.6 mm.^{10,11} It was observed that asymmetrical discrepancies were easily noticed by laypersons whereas symmetrical discrepancies went un-noticed. Larceda et al compared smile attractiveness of various sized buccal corridors. It was observed that older age group were found to be less critical when evaluating different smile images compared with the young ones.¹²

In the present study, 0 mm gingival display was reported by 25% orthodontists and 34.09% laypersons, 2 mm gingival display by 38.63% orthodontists and 25% laypersons, 4 mm gingival display by 4.54% orthodontists and 4.54% laypersons. Majority of our individuals from our study were females with male to female ration of 1:1.25.

Peck concluded that, amongst orthodontists; gummy smile is considered to be unattractive whereas Frecker described that gingival display of greater than 2 mm was found to be unattractive among orthodontists.¹³ Among laypersons, gummy smile is considered attractive and youthful. It is therefore suggested that it should not be followed by aggressive treatment as this feature will diminish overtime.¹⁴ M B Dutra et al compared perceptions of smile aesthetics amongst orthodontists, clinicians and laypeople. They were asked about the attractiveness of smile and according to them, the most attractive smile was observed when the upper lip rested on gingival margins of maxillary incisors.¹⁵

Kokich and Shapiro in 1999 and Thomas in 2003 agreed that as midline deviation increases the appreciation of aesthetics by specialists and patient decreases. Another study concluded that orthodontists accept 2 mm gummy smile whereas lay people can accept gingival exposure up to 3mm.^{16,17} Barros et al made an attempt in his study to determine how many millimeters of crowns of maxillary incisors would be needed to be covered by the upper lips in order for the smile to be pleasing. It was observed that women's smile was considered pleasing with up to 4mm of upper incisor crowns covered by upper lip, whereas male smile was considered unpleasing with such 4 mm of exposure. It can be concluded that low smiles with no gingival display and partially covered crowns were more acceptable among females.¹⁸

The vertical position of maxillary incisors have a lot of influence on smile aesthetics because of the smile arc. Smile arc is considered very attractive among dentists. As a person ages, the smile arc flattens. Early flattening of smile arc is associated with worn out dentures.^{19,20}

Black triangle is of immense importance when considering the attractiveness of smile. It arises from decreased papilla length at the point of contact between central incisors. This space is common among adults especially those who have undergone orthodontic treatment in the past. When asked about the perception of smile about black triangle, it was considered more attractive among older age group.²¹

Conclusions

Imperfections are not always unattractive and every imperfection needs not to be treated. Before undergoing treatment, orthodontists should talk to patients and ask for concerns regarding his / her smile. This is important as over treatment can bring no good to patient's aesthetic values. Orthodontists might

consider the resultant outcome as good whereas patient may not because there are differences in layperson's and orthodontists perception of smile. Ideal smiles in the eyes of orthodontists may not be the ideal ones in the eyes of laypersons.

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