

Assessment of psychosocial impact of dental aesthetics

Sabana Haq^a, Nadia Khan^b, Owais Khalid Durrani^c

Abstract

Introduction: It is very important to ascertain the psychological impact of facial esthetics. Children are under immense peer pressure with facial disfigurements. Hence the present study evaluates the psychosocial impact of dental aesthetics by using 'Psychosocial Impact of Dental Aesthetics Questionnaire' (PIDAQ) and self-rated Aesthetic Component (AC) of the Index of Orthodontic Treatment Need (IOTN).

Material and Methods: A cross-sectional study was conducted at Islamic International Dental Hospital, Islamabad between November 16 to January 17 which included 310 adults without the provision of orthodontic treatment in the past. The subjects answered an Urdu version of Psychosocial Impact of Dental Aesthetics Questionnaire (PIDAQ) containing five variables namely 'Dental Self-confidence', 'Psychological Impact', 'Social Impact', 'Aesthetic Concern' and 'Self-perceived orthodontic treatment need' and self-rated their dental aesthetics using IOTN Aesthetic Component.

Results: Comparison between genders was found to be insignificant while between dentists and other professionals was found to be significant. All of the above mentioned variables of PIDAQ showed positive correlation with self-rated IOTN Aesthetic Component, with p-value of 0.00 except one variable i.e. 'Aesthetic concern'.

Conclusions: The results suggest strong correlation between self-perceived dental aesthetics and its psychosocial impact on an individual. Minor altered dental aesthetics may have significant psychosocial impact and hence increased self-perceived need for orthodontic treatment.

Keywords: Facial aesthetics; peer pressure; index of orthodontic treatment need

Introduction

Facial esthetics play a very important role in self confidence and self-esteem of a person. Teeth and smile esthetics are a crucial part of facial esthetics. In today's socially, economically and sexually competitive world, there is a general perception that the more esthetically pleasing a person is, the more successful his life is going to be.^{1,2}

The WHO defined malocclusion as an anomaly which causes disfigurement and malfunction requiring management, "if the disfigurement or functional defect was likely to be an obstacle to the patient's physical or emotional well-being". Malocclusion

negatively influences physical, psychological and social development of a patient,³ and is a highly prevalent health condition, although it affects function and oral health, most people seek orthodontic treatment for esthetic reasons. In the past, orthodontic treatment was focused on establishing ideal occlusion and dentition regardless of patient's self-perceived needs, making the treatment less patient-centered and more provider-centered. However, recent studies have suggested that patient's self-perceived needs, their idea of a beautiful smile and perfect esthetics is important for the successful outcome of the orthodontic treatment and patient satisfaction.⁴⁻⁶

Several scales like Index of Orthodontic Treatment Need (IOTN), the Dental Aesthetic Index (DAI) and the Index of Complexity Outcome and Need (ICON) were developed as screening system for malocclusion,⁷⁻⁸ but before mentioned scales fail to give

^{a,b} BDS; House Officer, Department of Orthodontics, Riphah International University, Islamabad

^b Corresponding Author: BDS, FCPS, MOrthRCSI, FFDRCSI. Associate Professor, Department of Orthodontics, Riphah International University, Islamabad. Email: owais.durrani@riphah.edu.pk

information about the psychosocial aspects of malocclusion and its repercussions.⁹

Malocclusion based on occlusal traits for oral health and esthetic impairment is categorized by IOTN scoring system. This scoring system has an Aesthetic component (AC) that is used to assess treatment need on the basis of esthetics evaluated by dentists i.e. operator rated and patients i.e. self-rated.^{10,11}

'The Psychological Impact Of Dental Aesthetic Questionnaire' (PIDAQ) and Self-rated Aesthetic Component (AC) of The Index of Orthodontic Treatment Need (IOTN) was used to assess the social and psychological effect of dental aesthetics on an individual. PIDAQ was written and developed for English speaking countries. Brazilian, Spanish and Chinese versions have been developed and published in the past but there has not been any Urdu version for this questionnaire.¹²⁻¹⁵ As this study was conducted in a region where English was not the mother language it was taken into account that in order to achieve reliable and consistent results there was a need to modify and translate this questionnaire into a language that was well understood and convenient for the population.

Material and Methods

A cross-sectional study was conducted from November 2016 to January 2017 at Islamic International Dental Hospital, Islamabad consisting of a sample of 310 subjects. The study group consisted of dental students, house surgeons, post-graduate trainees, faculty and patients visiting the hospital who met the inclusion criteria of age 16 years or above and lacking any history of orthodontic treatment in the past. The exclusion criteria included people with craniofacial anomalies, and who couldn't read/understand the questionnaire.

Klages et al.¹⁶ developed the 'Psychosocial Impact of Dental Aesthetics Questionnaire' (PIDAQ) which was somewhat adapted and translated into Urdu for the convenience and

understanding of general population for this study. Grzywacz developed the subjective orthodontic treatment need which was also determined by incorporating it into this questionnaire.¹⁰

The questionnaire was filled by the participants and Likert scale was used to rate the statements from 0 to 4, 0 being total disagreement and 4 being total agreement. The questions were divided into five variables 'Dental Self-confidence', 'Psychological impact', 'Social impact', 'Aesthetic concern' and 'Self-perceived orthodontic treatment need'.^{10,16} IOTN Aesthetic component (AC) was used to assess the dental esthetics.¹⁷ 10 colored photographs of anterior dentition from IOTN scale were shown to the participants and they were requested to specify the photograph which most closely resembled their dentition. Participants were divided into different groups on the basis of gender, occupation and IOTN-AC grading.

Results

The sample size consisted of 310 participants (predominantly females 71%) with the age limit of 16 years and above, out of which 22% were dentists and 78% were non-dentists. The difference of psychosocial impact of dental esthetics was assessed on the basis of gender, occupation and self-rated IOTN-AC grades.

IOTN-AC was divided into four groups. Participants grading themselves from grade 4 to 10 was considered a single group owing to its small distribution. Statistical analysis was done using SPSS for windows version 21.0. The Kruskal-Wallis test was applied to compare means of IOTN-AC groups with questionnaire variables. P value equal to or less than 0.05 was considered statistically significant.

The differences between gender were insignificant (P value >0.05) except for the question "I sometimes hold my hand in front of my mouth to hide my teeth" which was found to be significant (P value=0.032).

The differences between occupation were statistically significant (P value < 0.05) except for questions "Sometimes I think people are staring at my teeth" (P value = 0.067) and "I like to see my teeth in photographs" (P value = 0.051) which were found to be statistically insignificant.

The PIDAQ questionnaire was divided into five groups for this study. The first group named 'Dental self-confidence' compared with the IOTN-AC group 1-4+ which showed statistically significant results between the groups (p value 0.000) shown in Table I.

Table I: Mean Scores Showing 'Dental Self-Confidence' of Groups

Self-rated IOTN-AC grade	N	1	2	3
IOTN-4 to 10	52	8.7308		
IOTN-3	54	8.8889		
IOTN-2	60		10.9167	
IOTN-1	144			13.4931
Significance		.996	1.000	1.000

Table II: Mean Scores Showing 'Psychological Impact' of Groups

Self-rated IOTN-AC grades	N	1	2
IOTN-1	144	4.6806	
IOTN-2	60		7.8500
IOTN-3	54		7.8519
IOTN-4 to 10	52		8.3077
Significance		1.000	.930

Table III: Mean Scores Showing 'Social Impact' of Groups

Self-rated IOTN-AC grade	N	1	2
IOTN-1	144	3.8889	
IOTN-2	60		6.4667
IOTN-3	54		8.3148
IOTN-4 to 10	52		8.3462
Significance		1.000	.142

Table IV: Mean Scores Showing 'Self-perceived Orthodontic Treatment Need' of Groups

Self-rated IOTN-AC grade	N	1	2	3
IOTN-4 to 10	52	4.2885		
IOTN-3	54	4.5370	4.5370	
IOTN-2	60		4.8000	4.8000
IOTN-1	144			5.2014
Significance		.555	.506	.148

Table V: Mean Scores Showing 'Aesthetic Concern' of Groups

Self-rated IOTN-AC grade	N	
IOTN-1	144	5.9444
IOTN-2	60	5.6333
IOTN-3	54	6.3519
IOTN-4 to 10	52	5.7500
Significance		.360

When 'Psychological impact', 'Social impact' and 'Self-perceived orthodontic treatment need' were compared with IOTN-AC group 1 - 4+ the results were found to be statistically significant (p value 0.000) as shown in Tables II, III and IV respectively.

'Aesthetic concern' was determined to be insignificant between groups (p value 0.45) shown in Table V.

Discussion

When a standardized questionnaire is used in a country other than the place of origin, it should be translated for better understanding and results.¹²⁻¹⁵ PIDAQ used in this study was translated in Urdu and slightly modified but the structure and domains described by Klages et al¹⁶ were essentially the same with the addition of variable 'Self-perceived orthodontic treatment need'.¹⁸

The IOTN-AC grading (self-rated) showed that greater number of subjects categorized themselves under IOTN-AC grade 1 (46.5%),

followed by IOTN-AC grade 2 (19.4%), IOTN-AC grade 3 (17.4%) and minimum raters categorized themselves under IOTN-AC grade 4 or above (16.8%). Munizeh et al demonstrated that more subjects placed themselves under IOTN-AC group 2 (35%) and minimum subjects placed themselves under IOTN-AC group 4 and higher.¹⁸ Klages et al showed results similar to ours with greatest numbers in IOTN-AC group 1 (33.5%) and least numbers in IOTN-AC group 4 or higher.¹⁶ Kerosuo et al indicated (70.1%) subjects to be happy or somewhat happy with their teeth arrangement. The results of these studies can be comprehended to stipulate lower levels of dental esthetic impairments in majority of individuals.¹⁹

We compared the psychosocial impact of dental aesthetic between gender and the results were found to be insignificant. Carlos et al and Klages et al also found no differences between genders in their study.^{16,20} Females (71%) were outnumbering males that might be considered as a limitation of this sample.

Psychosocial impact of dental esthetics when compared between dentists and non-dentists, the results were determined to be significant. It is seen that dentists are more aware of dental esthetics as compared to other professionals.^{21,22} As the sample size included only people who haven't had any orthodontic treatment before while most of the dentists had their orthodontic treatment done hence non-dentists were outnumbering the dentists. Regarding IOTN-AC groups (1 to 4+) and their comparison between variables namely 'Dental self-confidence', 'Psychological impact', 'Social impact', 'Aesthetic concern', and 'Self-perceived orthodontic treatment need' state profound psychosocial impact of dental esthetics between groups.

'Dental self-confidence' stipulates degree of contentment an individual has with one's smile and has a significant emotional impact on an individual. Good dental esthetics can boost self-confidence, makes oneself feel good

and confident while altered dental aesthetics have exactly the opposite effect. The results of this study showed decreasing level of dental self-confidence with increasing self-rated IOTN-AC groups which shows strong correlation of self-perceived dental esthetics with self-confidence. Munizeh et al and Klages et al showed the same results corroborating the fact that good self-perceived dental esthetics and satisfaction with one's dental attractiveness results in greater self-perspective.^{16,18}

'Social impact' refers to issues an individual faces with the society when he has altered dental esthetics. People suffer from decreased level of self-esteem that directly affects their way of socializing with people. It is a general concept among people that the ones having pleasant dental esthetics can socialize better as a result of which they are comparatively more successful.^{1,2} The results of this study demonstrated a strong correlation between the social impact of dental esthetics and self-perceived IOTN-AC groups. It showed a high level of social impact in the participants grading themselves as IOTN-AC grade 4+ which clearly demonstrates the negative impact of unpleasing dental esthetics. The previous studies Munizeh et al and Klages et al showed the same results.^{16,18}

'Psychological impact' of dental esthetics shows how a person feels inferior when he compares himself to others with better dental esthetics. It represents the level of inferiority, lack of confidence and depression that people face due to altered dental esthetics. The present study showed highly statistically significant differences between groups that shows a strong correlation between psychological impact of dental esthetics and self-perceived IOTN-AC groups. The previous studies Munizeh et al and Klages et al have shown the same results demonstrating increasing psychological impact of dental esthetics among participants with increasing IOTN-AC grade.^{16,18}

'Aesthetic concern' is related to what the person feels when he sees his smile in photographs and how a better smile can change their appearance and help them grow more successful. This variable was found to be statistically insignificant between groups. 'Self-perceived orthodontic treatment need' evaluates the subjective orthodontic treatment need and results indicate that it was found to be highest in IOTN-AC group 1 progressively decreasing towards group 4+. It showed that despite grading themselves as IOTN-AC grade 1, the participants were found to be unsatisfied with their dental esthetics.²³ It should be emphasized that IOTN-AC photographs showed to the subjects demonstrating anterior malocclusion were limited to only ten pictures while many subjects found them not resembling to their dentition and it makes no sense to limit the subjects choice to limited number of pictures. Diastema, anterior cross bites, class III malocclusion, open bite and increased overjet were not present in the pictures thus limiting the subjects' choice to photographs slightly resembling their malocclusions. Previous studies used black and white photographs^{16,18} while in this study colored photographs were used which made it easier for the participants to identify their malocclusion.

Conclusions

The association between self-perceived altered dental aesthetics and its psychosocial impact on an individual remains strong. Minor changes in "perfect" dental aesthetics may have significant psychosocial effects on an individual, hence it becomes prudent to assess treatment need based on evaluation by orthodontist as well as patient's subjective perception.

In future, a study can be done to compare subjects who had no orthodontic treatment done in the past with those having some kind of treatment done.



Figure 1: IOTN- Aesthetic Component used in the study

- 8- میں اپنے دانتوں کی وجہ سے اپنے آپ کو زیادہ تعلقات بنانے سے روکتا ہوں
- 9- میں ڈرتا ہوں کہ دوسرے میرے دانتوں کے متعلق ہمارا مذاق تبصرے نہ کریں
- 10- میرے دانتوں کے متعلق تبصرہ مجھے تکرتا ہے خواہ مذاق میں کیوں نہ ہو
- 11- مجھے کبھی کبھار لگتا ہے کہ لوگ میرے دانتوں کو گھور رہے ہیں
- 12- میں کبھی کبھار پریشان ہوتا ہوں کہ مخالف جنس میرے دانتوں کے بارے میں کیا سوچتی ہوگی
- 13- میں دوسروں کے اچھے دانتوں پر رشک کرتا ہوں
- 14- مجھے لگتا ہے کہ میرے جاننے والوں میں سے زیادہ تر لوگوں کے دانت مجھ سے اچھے ہیں
- 15- میں سوچتا ہوں کہ کاش میرے دانت بہتر دیکھتے
- 16- میں سوچتا ہوں کہ کاش میری مسکراہٹ ٹی وی میں آنے والے اداکاروں جیسی ہوتی
- 17- میں تصویروں میں اپنے دانت دیکھنا پسند کرتا ہوں
- 18- کیا آپ سوچتے ہیں کہ صحت مند اور اچھی ترتیب والے دانت آپ کی ظاہری حالت کے لیے اہم ہیں
- 19- کیا کوئی ایسی چیز ہے جو آپ دانتوں کے بارے میں بدلنا چاہتے ہیں۔
 ہاں نہیں
 اگر ہاں تو کیا بدلنا چاہتے ہیں۔
 رنگ سائز ترتیب کچھ اور (وضاحت کریں)
-
- 20- کیا آپ سمجھتے ہیں کہ آپ کے دانت بہتر ہونے سے آپ زیادہ کامیاب ہو سکتے ہیں
- 21- کیا کبھی کسی نے آپ کو دانتوں کو سیدھا کرنے کے علاج کا مشورہ دیا ہے۔
 ہاں نہیں
- 22- کیا آپ سوچتے ہیں کہ آپ کو دانتوں کو سیدھا کرنے کا علاج کرانا چاہئے۔
 ہاں نہیں

Figure 2: Questionnaire used in the study

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