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Do Facial Photographs Help In The Evaluation of Self Perception of Patients Towards Dentofacial Attractiveness?

Reddy Dhiraj*, Gautam Rajaganesh, Mehta Kunal and Kalia Ajit

Department of Orthodontics, MA Rangoonwala Dental College and Research Centre, Pune, Maharashtra, India

Abstract

Objectives: To determine whether exposure to pre-treatment facial photographs influenced patients self perception of dentofacial attractiveness to undergo more comprehensive treatment.

Material and Methods: A total of 50 subjects of Indian population aged 18 years or older (25 in study group and 25 in control group) were selected. Photographs of the frontal and profile view of the face, both at rest and smiling were taken for each participant respectively. Only the study group subjects were given a printed copy of their own images to be examined at home between the initial observation period (T0) and 30 days later (T1). Each of the 50 subjects in the study completed a questionnaire at (T0) and (T1), regarding appreciation of their smiles and their facial profiles, as well willingness to undergo orthodontic treatment.

Results: In the Study Group 56% of subjects responded with a lower opinion of their facial profiles at (T1) than (T0), and 36% and 32% of subjects were willing to undergo more comprehensive procedures to change the appearance of their smiles and profiles respectively. In the Control Group no statistically significant change was seen in questionnaire answers between (T0) and (T1).

Conclusion: Unless exposed to photographs, patients generally are not aware of their facial profiles. Exposure to pretreatment smile and profile photographs influenced individual's self-perception of dentofacial attractiveness and willingness to undergo more comprehensive orthodontic treatment.

Keywords: Self perception; Patients; Attractiveness; Facial; Photographs

Introduction

In today's day and age there lie a strong emphasis on physical appearance, and the desire to improve dentofacial esthetics has been found to be the primary motivation for patients seeking orthodontic care, regardless of structural or functional consideration [1-3]. Therefore self perception of their own dentofacial attractiveness is a key motivation factor for patients seeking orthodontic evaluation and is an important factor in their expectation of treatment outcome [1]. However this self perception essentially is based on how individuals see themselves in the mirror with frontal views of the face and smile typically representing their primary concerns [2].

Orthodontists place major treatment planning emphasis on the esthetics of the face in profile. Most people cannot characterize their own profile. A difference does exist between orthodontic professionals and the public regarding perceptions of facial profile esthetics [4-9].

Aim

To determine whether exposure to pre-treatment facial photographs influenced patients self perception of dentofacial attractiveness to undergo more comprehensive treatment.

Material and Methods

Following material was used:

1) Questionnaire

2) Photographs

Frontal at rest

Frontal at smile

Profile at rest

Profile at smile

3) Camera digital SLR NIKON 3200

Inclusion criteria:

Patients included:

1. Were of Indian origin.

2. Were older than 18 years of age.

3. Those referred for orthodontic evaluation.

Exclusion criteria:

Patients excluded:

(1) With previous orthodontic treatment or plastic or orthognathic surgery.

(2) With any systemic medical condition.

Sample size

25 subjects (females and males; referred to as the Study Group) who were selected from patients who visited our institution for orthodontic treatment, and 25 additional age and sex matched subjects (the Control Group). The distribution of subject's ages and sexes presented in Figures 1 and 2 respectively.
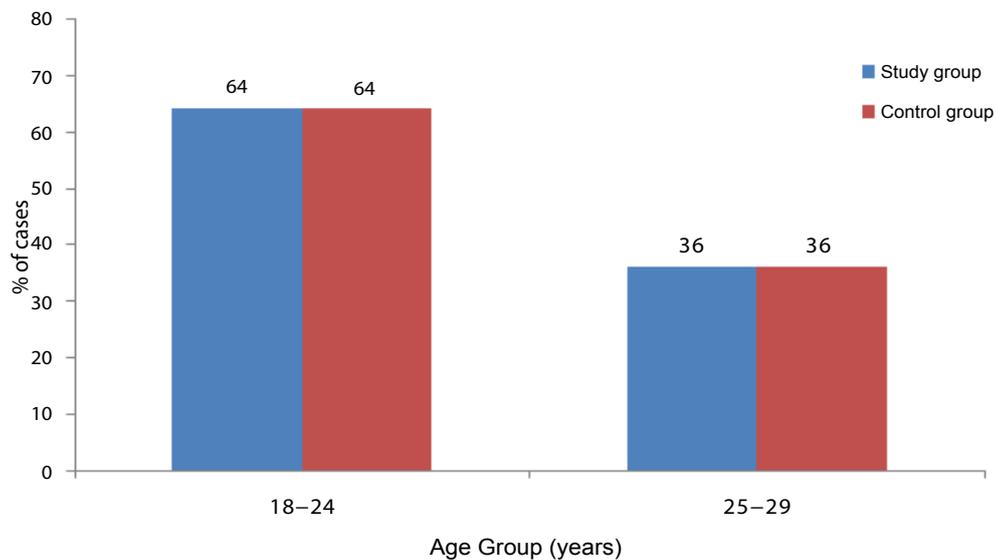
Figure 1: Age distribution of the cases studied between two study groups.
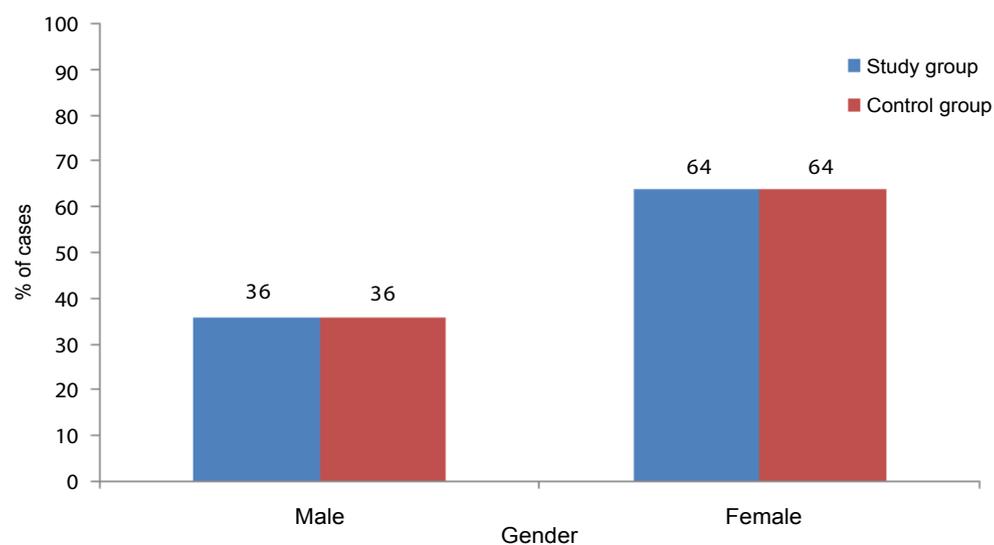

Figure 2: Gender distribution of the cases studied between two study groups.

Data collection

Each subject's self response was recorded using a specially designed questionnaire. The first section of the questionnaire focused on the demographic data of subject (Figure 3) and the second section included scoring by the subjects regarding the self perception of dentofacial attractiveness (Figure 4).

Verbal instructions were given to the participants. Each subject was given 10 minutes to complete the questionnaires at (T0) and they were seated in a quiet area apart from each other. Participants were informed that the information collected was confidential. They were also given the freedom to leave the study at any time. Two investigators were available to explain the questions and to check its completion.

Photographs of frontal and profile views of the face, both at rest and while smiling, were taken of each Participants. Nikon Digital SLR Camera D3200 was used. Several photos of each subject were produced, so that natural and unforced neutral facial expressions and smiles could be chosen and subsequently printed (Figure 5).

All subjects were asked to fill in the questionnaires again (T1) after an average interval of 30 days. Both questionnaires for a particular subject were identified by the same numeric code. During the period between T0 and T1, only participants in the Study Group were given a printed copy of their photographs and instructed to show that to their relatives and friends for their opinion.

Statistical analysis

Responses from both questionnaires were coded and the Kappa statistic (Cohen's Kappa, k) was used to assess reliability. As a preliminary analysis, the equivalence between Study and Control

Demographic Data of Participant		
1	Name	
2	Age	
3	Gender	
4	Marital Status	
5	Income Level	
6	Level of Education	

Figure 3: First section of questionnaires.

Questionnaire Rank Scores		
Question #1 Do you like the appearance of your smile?	Very Much (1)	
	Somewhat (2)	
	A little Bit (3)	
	Not at all (4)	
Question #2 Do you like the appearance of your face in profile?	Very Much (1)	
	Somewhat (2)	
	A little Bit (3)	
	Not at all (4)	
Question #3 Which treatment option would you seek to change the appearance of your?	None (1)	
	Removable Orthodontic Appliance (2)	
	Fixed Orthodontic Appliance (3)	
	Surgery (4)	
Question #4 Which treatment option would you seek to change the appearance of your face in profile?	None (1)	
	Removable Orthodontic Appliance (2)	
	Fixed Orthodontic Appliance (3)	
	Surgery (4)	

Figure 4: Second section of questionnaires.

Groups was investigated with respect to all examined variables. The Kruskal-Wallis nonparametric equality-of populations rank test was used to compare the two groups. The differences between T0 and T1 were evaluated for each response and compared between groups using a chi-square test.

Results

Reliability of the questionnaire

The questionnaire exhibited excellent reliability, based on Kappa values above 80 for all questions.

Responses to the questionnaire

Questionnaire rank scores at T0 and at T1 are illustrated graphically in Figures 6 and 7, respectively, for both groups. With respect to Questions #1 and #2, a positive value for the differences between ratings at T0 and at T1 was considered to be indicative of a decrease in patients' opinions regarding the appearance of their smiles or facial profiles. A value of 0 indicated no change, and a negative value suggested an improved opinion. Because only a few improved opinions were found at T1, unchanged and improved opinions were grouped together (Figure 8).
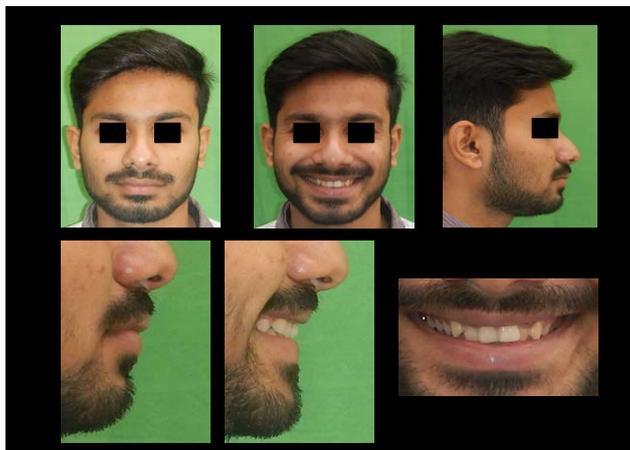
Figure 5: Photographs of frontal and profile views of the face, both at rest and while smiling.
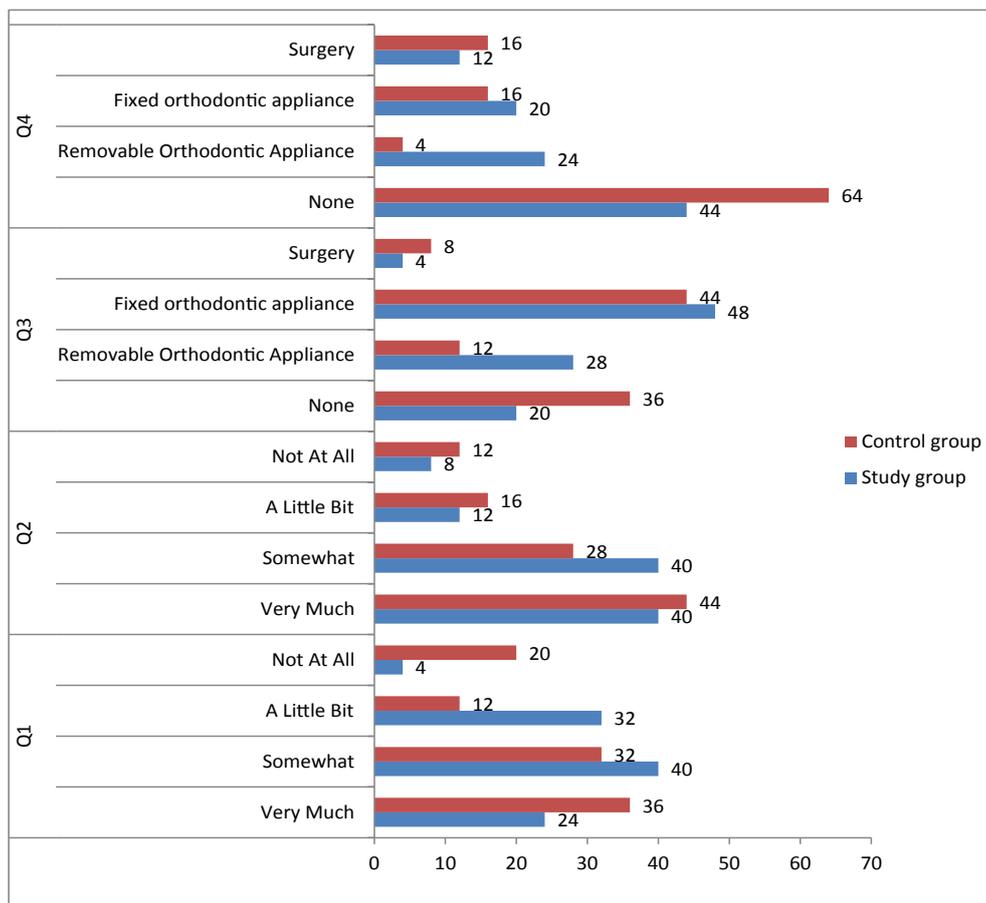

Figure 6: Distribution of self perception of dentofacial attractiveness across two study groups (T0).

With respect to Questions #3 and #4, a value of 0 for the difference between ratings measured at T0 and at T1 indicated no change in subjects' opinions. A positive difference revealed that subjects were willing to undergo a more comprehensive procedure to change their appearance, and a negative score suggested that they were unwilling. Because only a few subjects were unwilling to undergo a more comprehensive procedure at T1, 0 values and negative scores were grouped together (Figure 8).

Kruskal-wallis equality-of-populations rank test

The P values for rank tests are reported for all examined variables, the differences between the two groups were not statistically significant.
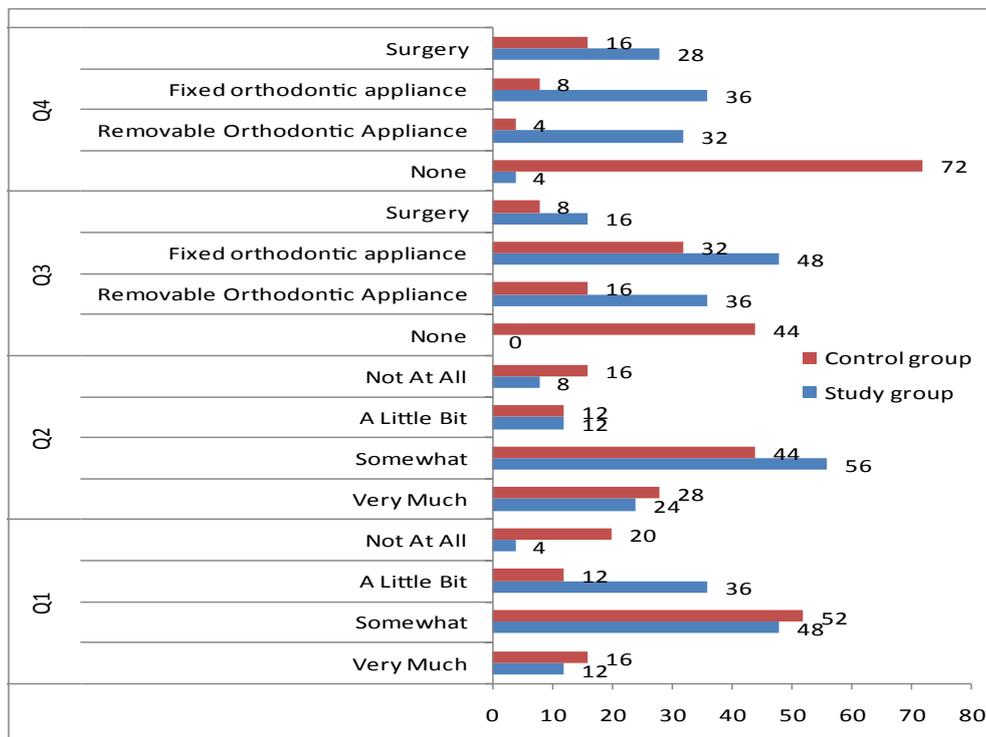
Figure 7: Distribution of self perception of dentofacial attractiveness across two study groups (T1).
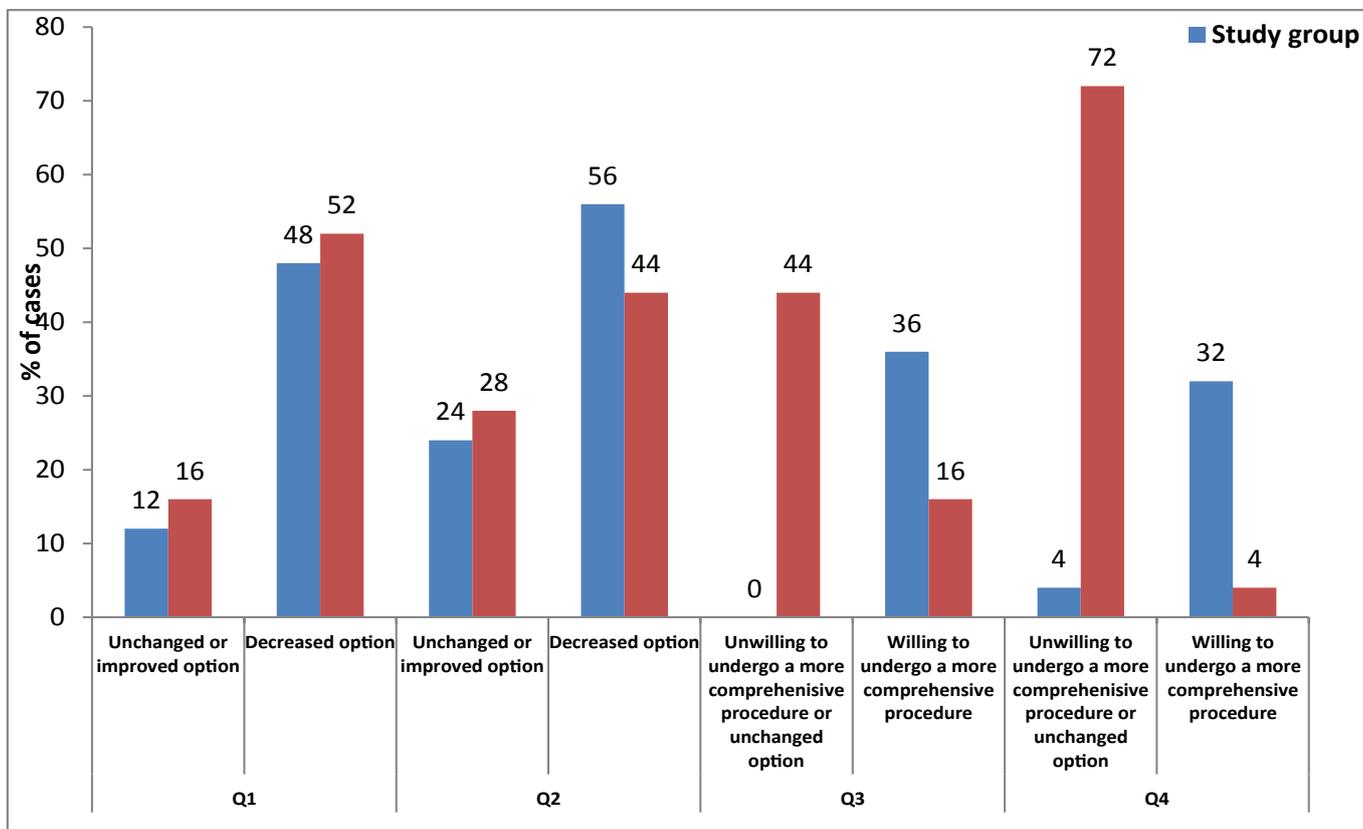

Figure 8: Distribution of changes in self perception of dentofacial attractiveness across two study groups (T1-T0), percentages.

It was, therefore, possible to assume that subjects in the Study and Control Groups were from the same population.

Comparison between groups

No differences were noted between groups with respect to participants' opinions regarding the appearance of their smiles between T0 and T1. However, a significant difference was found between groups with respect to subjects' opinions regarding the appearance of their facial profiles and the types of treatment they would seek to change their smiles or facial profiles between T0 and T1.

In the Study Group, 56% of subjects responded with a lower opinion of their facial profiles with T1 than T0 and 36% and 32% were willing to undergo more comprehensive procedures to change the appearance of their smiles and profiles, respectively. In the Control Group, No statistically significant change was seen in questionnaire answers between T0 and T1.

Discussion

Tufekci E et al. [2] investigated the self-perception of the attractiveness of the face and the ability of patients to recognize their profiles from among various photographs [2,10-26]. Johnston C et al. [5], Investigated whether subjects requiring orthognathic surgery had seen their own facial profiles, and investigators assessed, using a questionnaire, whether subjects were happy with the appearance of their profiles. In the present study, a large sample of patients who were referred for orthodontic evaluation were selected. Exposure to the pretreatment profiles and smile photographs, as well as discussions with relatives and friends, represented the 'treatment variable' in the Study vs Control Group [6].

The Study and Control Group were matched with respect to age and sex distribution (Figures 4 and 5) respectively because Wedrychowska-Szulc B et al. [6] studied that above factors influence subjective esthetic judgment and perception of orthodontic treatment need.

- **In the study group:**

I. **56%** of subjects responded with a lower opinion of their facial profiles with T1 than T0.

II. **36%** and **32%** were willing to undergo more comprehensive procedures to change the appearance of their smiles and profiles, respectively.

- **In the control group:**

No statistically significant change was seen in questionnaire answers between T0 and T1.

Conclusion

1. Unless exposed to photographs, patients generally are not aware of their facial profiles.

2. Exposure to pretreatment smile and profile photographs influenced individuals, self-perception of dentofacial attractiveness and willingness to undergo more comprehensive orthodontic treatment.

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