

Perception of Smile and Esthetic among Dental and Non-Dental Student.

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ABSTRACT

Background: To assess the self perception of one's own smile and its influence on their behavior and also their ability to rate different types of smiles from most attractive to least attractive on a visual analogue scale by dental and non dental students. **Methods:** This study was carried out by using structured questionnaire and booklet of visual analogue scale distributed to 276 students in Taif University that included Dental, Medical and Pharmacy students. **Results:** Medical (66%), Pharmacy (60%) and dental students (49%) agreed for confidence in their own smile. Observing smiles of others in photographs was significantly higher for dental students 60%, compared to medical 58% and pharmacy 41% students. 56% of both dental and medical students agreed that they recognized the minor defects in their own smile whereas for pharmacy students 40% agreed for the same [$p < 0.01$]. **Conclusion:** This survey showed that the dental and medical students were able assess their own smile and also other's smile better than pharmacy students. Dental students were able to detect minor defects in smile photographs better than medical and pharmacy students.

Keywords: Smile Perception, Aesthetics, Visual analogue scale, Dental.

INTRODUCTION

People pay more attention to their beauty and they are more concerned about their appearance than their health,^[1] and they provide more care to their face.

The face was reported to be determinant factor in perception of esthetic especially the mouth and the eyes, which are the most important area the persons focus on during social interaction.^[2-3]

The mouth considered the communication center of the face,^[4] therefore the people give more care to their mouth and smile, and this is one of the most important factors for patients to seek dental treatment,^[5] to increase their attractive appearance and self-confidence. The attractive individuals gain good verdicts, and achievement than do unattractive individuals according to some researchers.^[6]

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Perception of smile and aesthetic differ from person to person based on multiple factors as, age, gender, educational level, and economic status,^[7] also it is differ between the dentist and patients.^[8-10]

The self perception of one's own smile and its impact of their behavior is an important factor in understanding the influence of esthetic smile on their performance in day to day activities including both social and academic nature. The perception of esthetics as tested by viewing various levels of esthetic smiles in the form of colored photographs may help in understanding the ability of a person in rating the attractiveness of smile as per his understanding of ideal and altered smiles.

The present research is conducted with the aim to assess the self perception of one's own smile and its influence on their behavior and also their ability to rate different types of smiles from most attractive to least attractive on a visual analogue scale by dental and non dental students.

MATERIALS AND METHODS

The present research was approved by the Institutional Review Board, Faculty of Dentistry, Taif University. The study involved using of

questionnaire and visual analogue scale (VAS) in a pretested format that was distributed to total of 275 students of Taif University which included 75 dental, 100 medical and 100 pharmacy students.

Questionnaire

The questionnaire comprised of three printed pages with a catalogue that included the sets of the colored smile photographs. The questionnaire included 15 items covering different aspects perception of smile. The Items in the questionnaire is summarized in [Table 1]. The reliability of the questionnaire was carried out using Cronbach's Alpha for all the questions by testing on 10 participants. The correlation coefficients were high and ranging from 0.83 to 0.91.

Visual analogue scale was used as tool to assess smile and dental esthetic perception. The photographs of different manipulated smiles were presented in the catalogue [Figure 1] and evaluated by the study participants using the rating starting from 1 that indicating to the least attractive smile and ending at 10 indicating to the most attractive smile.

The color photographs displayed anterior teeth and lips with the smile. The nose, chin and cheeks were not displayed in an attempt to avoid their confounding influence in smile perception of the participants. The photographs included eight images starting with ideal smile and others obtained by alteration of ideal smile using adobe photoshop software to display common discrepancies of anterior esthetics in shade, shape, length of crown, size, midline shift, spacing and lip line [Figure 1].

Statistical Analysis

Data analysis was undertaken using the Statistical Package for Social Science (version 20.0; IBM). The mean and standard deviation (SD) of each group were calculated. Comparison between the groups was performed using the Kruskal-Wallis ANOVA and Man-Whitney U test with the significance level of less than $P < 0.05$.

RESULTS

Total number of participant was 276 students. 75 dental, 100 pharmacy and 101 medical student with 100 percent response rate.

The percentage of agree response for each of the item in the questionnaire and statistical test results is summarized in [Table 1]. Regarding self confidence about their own smile, Medical (66%) and Pharmacy (60%) students agreed more than that of dental students (49%), although results were not statistically significant. Covering the smile with hands showed less percentage for all the three

groups with 7%, 16% and 10% for Dental, Medical and Pharmacy students respectively.

There was statistically significant response for the question which enquired whether students believed that someone has a better smile than themselves [$p < 0.01$] [Table 1]

Regarding the question which enquired if their eyes are drawn towards the smile when they see a picture of a person there was statistically significant agree response with 60%, 58% and 41% of dental, medical and pharmacy students respectively [$p < 0.01$] [Table 1].

56% of both dental and medical students agreed that they recognized the minor defects in their own smile whereas for pharmacy students 40% agreed for the same [$p < 0.01$] [Table 1].

The percentage of student wishing their teeth to be more whiter was highest for medical student with 76% and least for dental students (58%) [$p < 0.01$] [Table 1].

Conversely, 38 of pharmacy students were satisfied with their gum appearance when compared to 42 and 46% of dental and medical students respectively.

For visual analogue scale (VAS) Cronbach's alpha coefficient was measured for determination of the scale reliability and it was 0.85. So it is preferable with good internal consistency.

The VAS ratings given by the dental, medical and pharmacy students for different smile photographs is summarized in [Table 2,3 and 4] respectively.

Out of 276 participants 40% of dental student gave high rated (8 out of 10) to ideal smile, and 21.8%, 26% of pharmacy and medical students, respectively rated ideal smile as it the most attractive picture.

Altered crown shape picture get 7 marks from 26.7% of dental student, 3 to 8 marks from 15% of medical students and 7 marks from 16% of pharmacy students .

Altered crown shade was rated by 18.7% of dental students as it low attractive, 20.8% of medical student as it moderately attractive and 20% of pharmacy student as it not attractive .

22.7% of dental and medical students with 18% of pharmacy students gave moderate rated (4 to 6 out of 10) to picture of reduced maxillary laterals size.

Altered crown length was rated by 33.33% of dental students and 22% of pharmacy student as it moderately attractive and 19.8% of medical student gave it the highest rated (10 out of 10).

Mid line shift get moderate rated (4 to 6 out of 10) by 34.7%, 21.8%, 16% of dental, medical and pharmacy students, respectively.

Table 1: Perception of smile and esthetic among dental and non dental student: percentage of agree response.

Questions	Type of students			Kruskal-Wallis ANOVA, p value	Man-Whitney U test
	Dental number (%)	Medical number (%)	Pharmacy number (%)		
Are you self-confident about smiling?	49	66	60	0.20	NA
Do you ever put your hand over your mouth when you smile?	7	16	10	0.04	M > D
Do you photograph better from one side of your face?	21	29	32	0.37	
Is there someone you believe has a better smile than you?	63	75	50	0.0001	M > P, M > D
Do you look at magazines and wish had a smile as pretty as the model's smile?	46	44	48	0.06	
When you see a picture of person, are your eyes drawn to his\her smile?	60	41	58	0.0001	D > M, P > M
When you look at your smile in mirror, do you see any defects in your teeth or gums?	56	56	40	0.0001	M > P, D > P
Do you wish your teeth were whiter?	58	76	60	0.008	M > D, P > D
Are you satisfied with the way your gum look?	42	46	38	0.02	M > P
Do you show too many or too few teeth when you smile?	14	45	42	0.0001	M > D, P > D
Do you show too much or too little gum when you smile?	18	20	30	0.04	P > D1
Are your teeth too long or too short?	13	28	30	0.08	NA
Are your teeth too wider or too narrow?	23	22	40	0.04	P > M,
Are your teeth too square or too round?	11	26	18	0.19	NA
Do you like the way your teeth shaped?	49	55	50	0.29	NA

NA – Not applicable, D – Dental, M – Medical, P – Pharmacy, ANOVA – Analysis of variance.

Table 2: Response of Dental students regarding their opinion to different smile pictures.

Picture Type	Visual analogue scale scores									
	Dental student [n(%)]									
VAS rating	1	2	3	4	5	6	7	8	9	10
Picture A	0	0	2 (2.7)	0	2 (2.7)	7 (9.3)	7 (9.3)	30 (40)	8 (10.7)	19 (25.3)
Picture B	0	2 (2.7)	3 (4)	8 (10.7)	8 (10.7)	8 (10.7)	20 (26.7)	15 (20)	11 (14.7)	0
Picture C	4 (5.3)	13 (17.3)	14 (18.7)	10 (13.3)	11 (14.7)	11 (14.7)	8 (10.7)	4 (5.3)	0	0
Picture D	0	3 (4)	8 (10.7)	14 (18.7)	17 (22.7)	11 (14.7)	7 (9.3)	7 (9.3)	8 (10.7)	0
Picture E	2 (2.7)	4 (5.3)	3 (4)	17 (22.7)	25 (33.3)	10 (13.3)	4 (5.3)	6 (8)	0	4 (5.3)
Picture F	2 (2.7)	10 (13.3)	11 (14.7)	26 (34.7)	20 (26.7)	3 (4)	0	1 (1.3)	2 (2.7)	0
Picture G	29 (38.7)	10 (13.3)	15 (20)	16 (21.3)	0	1 (1.3)	2 (2.7)	2 (2.7)	0	0
Picture H	4 (5.3)	7 (9.3)	14 (18.7)	5 (6.7)	6 (8)	5 (6.7)	12 (16)	5 (6.7)	8 (10.7)	10 (13.3)

Table 3: Response of Medical students regarding their opinion to different smile pictures.

Picture Type	Visual analogue scale scores									
	Medical students [n(%)]									
VAS rating	1	2	3	4	5	6	7	8	9	10
Picture A	3 (2.9)	0	5 (4.9)	6 (5.9)	10 (9.9)	14 (13.9)	14 (13.9)	8 (7.9)	19 (18.8)	22 (21.8)
Picture B	3 (2.9)	1 (0.9)	16 (15.8)	5 (4.9)	14 (13.9)	15 (14.9)	13 (12.9)	16 (15.8)	6 (5.9)	12 (11.9)
Picture C	6 (5.9)	10 (9.9)	14 (13.9)	20 (19.8)	21 (20.8)	5 (4.9)	12 (11.9)	6 (5.9)	4 (3.9)	3 (2.9)
Picture D	3 (2.9)	9 (12)	7 (9.3)	17 (22.7)	8 (10.7)	17 (22.7)	16 (21.3)	11 (14.7)	8 (10.7)	5 (4.9)
Picture E	7(6.93%)	0	4 (3.9)	15 (14.9)	18 (17.8)	11 (10.8)	9 (8.9)	4 (3.9)	13 (12.9)	20 (19.8)
Picture F	14 (13.9)	14 (13.9)	14 (13.9)	6 (5.9)	22 (21.8)	6 (5.9)	14 (13.9)	2 (1.9)	6 (5.9)	3 (2.9)
Picture G	50 (49.5)	19 (18.8)	6 (5.9)	10 (9.9)	2 (1.9)	6 (5.9)	0	4 (3.9)	0	4 (3.9)
Picture H	3 (2.9)	4 (3.9)	10 (9.9)	14 (13.9)	7 (6.9)	2 (1.9)	15 (14.9)	3 (2.9)	15 (14.9)	28 (27.7)

Table 4: Response of Pharmacy students regarding their opinion to different smile pictures.

Picture Type	Visual analogue scale scores									
	Pharmacy students [n(%)]									
VAS rating	1	2	3	4	5	6	7	8	9	10
Picture A	0	8 (8)	6 (6)	8 (8)	10 (10)	6 (6)	10 (10)	14 (14)	12 (12)	26 (26)
Picture B	0	6 (6)	8 (8)	14 (14)	6 (6)	12 (12)	16 (16)	14 (14)	14 (14)	10 (10)
Picture C	20 (20)	16 (16)	12 (12)	6 (6)	10 (10)	10 (10)	12 (12)	8 (8)	4 (4)	2 (2)
Picture D	2 (2)	2 (2)	4 (4)	18 (18)	12 (12)	16 (16)	10 (10)	14 (14)	8 (8)	14 (14)
Picture E	2 (2)	2 (2)	6 (6)	10 (10)	22 (22)	8 (8)	20 (20)	18 (18)	4 (4)	8 (8)
Picture F	2 (2)	2 (2)	15 (15)	16 (16)	15 (15)	16 (16)	10 (10)	14 (14)	6 (6)	4 (4)
Picture G	36 (36)	16 (16)	14 (14)	8 (8)	6 (6)	2 (2)	6 (6)	6 (6)	6 (6)	0
Picture H	4 (4)	8 (8)	8 (8)	10 (10)	16 (16)	4 (4)	12 (12)	12 (12)	8 (8)	18 (18)

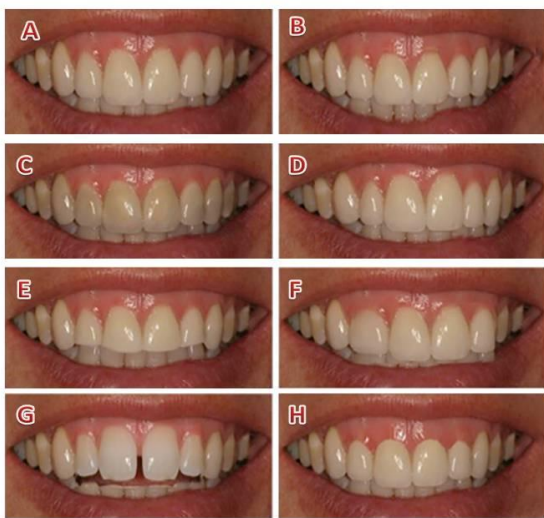


Figure 1: Different smiles for Visual analogue scale rating

DISCUSSION & CONCLUSION

Aesthetics has become more important factor than health and function nowadays.^[1]

Perception of the smile and aesthetic vary between the people depending on their age, gender, socioeconomic status, level of education, occupation.^[11,12] Therefore, trying to screen the esthetic-perception is a challenge for a given population, and the results comparison, which rarely present similarities.

Our study showed that 63% of dental, 75% of medical and 50% of pharmacy students believed that someone has a better smile; conversely, 49%, 66% and 60% of dental, medical and pharmacy students, respectively, they are confident about their smile.

16% of medical, 7% of dental and 10% of pharmacy students have already covering the smile with the hands which is approximately near to the result has been found in Gabrielle de Carli et al study.^[13]

The wish to having whiter teeth was revealed for most students which supports that an increase in the tooth whitening demand as an option for smile improving.^[14,10]

In our study, the level of satisfaction was low in term of gingival display, crown with and length, number of teeth showed during smiling and whiter teeth appearance were considerably lower among dental student in comparison to non dental student. One can be expected that the knowledge of the physiological process of color and shape change, normal characteristics of dental structures and the natural tooth appearance by dental students may increase the level of esthetic assessment and reduce the request for tooth whitening. At most, dental students more aware due to their understanding of the natural appearance of the teeth. In a previous study, Carlsson et al.^[15] revealed a higher preference for teeth to be whiter by non-dental than dental student.

Visual analogue scales have been widely used in dental aesthetics assessment and it is suitable for discriminating the levels of self-satisfaction.

Dental students showed broad-mindedness to the seven pictures of altered dental smiles as they assessed them significantly lower than the picture of ideal smile.

Dental students indicated in those results as they were sensitive to aesthetic factors influencing the smile more than non dental students. Similar to that results obtained in studies that assessed the perception of dental professionals and laypeople.^[16,17]

The higher rating indicates that dental students have enough knowledge about dental factors that might affect the smile and to their theoretical and clinical background in relation to dental esthetics.

Regarding the results, the image that showed alternation in dental shade was rated as it low to moderately attractive, controversy Grososky et al study revealed that alternation in teeth shade did not affect the ratings of smile attractiveness.^[18]

The image that displayed the smile with midline space (diastema) was the image least accepted by all dental and non-dental students. Mid line shift was rated as it moderately attractive.

The result about mid line space and shift according to present study agree with results obtained by Rosenstiel and Rashid, where they reported that people showed strong preference concerning midline spacing and shifting.^[19]

Non-dental students rated increased gingival display higher than dental students.

Gingival display considered as one of the factors influencing the smile detected in the literature with varying results.^[16,20,21]

Other images that showed alternation of crown shape, length and size was rated by all dental and non-dental students as they moderately to highly attractive.

Dental students have to discuss these differences with their patients when planning esthetic treatments. Understanding the presence of differences in the esthetic and smile perception between dentists and laypeople is important to address patient's demands and expectations according to esthetics.

To conclude, from the data available from the present study esthetic perception of one's own smile among dental, medical and pharmacy students showed that although majority of them are confident about their own smile they felt someone else has better smile than themselves. Dental students observed smile in photographs and peoples while communication more than medical and pharmacy students. The rating of different smile photographs through Visual analogue scale showed that dental and medical student noticed the minor variations in smile better than pharmacy students.

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