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## Perception and satisfaction of the face and the need for aesthetic dental treatment in the college students

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### ABSTRACT

**Objectives:** The purpose of the study is to investigate the perception and satisfaction of faces and the need for aesthetic dental treatments in college students. **Methods:** A self-reported questionnaire was completed by 247 college students in Suncheon from August 29 to September 2, 2016. The questionnaire consisted of satisfaction of face (16 items), perception of the face (7 items), need for aesthetic dental treatment (3 items), and general characteristics of the study subjects (8 items). Tooth shade was measured using a shade guide (VITA classical shade guide, VITA North America, Chicago, USA). Data was analyzed using t test, ANOVA, and post hoc Scheffé test. **Results:** The students were satisfied with eye, mouth corner, and lip, but they were not satisfied with tooth shade, bilateral symmetry of face, and angle of jaw. The students tended to be conscious of perception of others. Their most common tooth shade was orange and yellow. They preferred to have a brighter tooth color. **Conclusions:** To satisfy the needs of patients, it is important to understand the perception and satisfaction of face and the need for aesthetic dental treatment.

**Key Words:** Aesthetic dental treatment, College students, Face

### Introduction

Human has a desire to look beautiful and most of the people want to be attractive. The face is an important part of the body and the jaw and tooth can be major elements to attract the attention of others. The concern for the appearance increases the aesthetic aspect of the face [1]. It is necessary to plan the dental treatment for the patient's need.

The aesthetic dentistry provide the patient with physical confidence and recover the function of missing tooth [2]. The need for oral health is influenced by the information and knowledge of aesthetic dentistry [3].

The patient tended to be very sensitive to aesthetic aspect [4]. So the aesthetic dentistry must fulfill the need of the patient. High smile line including maxillary first molar is the best appearance [5]. The expectation of the patients is high while the satisfaction of the patients is very low [6]. The higher fee for the dental service and treatment does not satisfy the patients. In comparison to

Koreans, the Japanese tend to prefer the retreated side face [7].

There are few study on the aesthetic aspect on the dental treatment satisfaction [1-6], so this study will focus on the evaluation of perception and satisfaction of the face, lips, chin, and tooth shade.

## Materials and methods

### 1. Subjects

The subjects were 247 college students in Suncheon who were selected by convenience sampling. After explanation for purpose of the study, the students were assigned to the study and institutional review board (IRB) was received by Korea National Institute for Bioethics Policy (KoNIBP; P01-201604-21-007).

A self-reported questionnaire was completed by 247 college students in Suncheon on September 2, 2016. Except incomplete 33 answers, data was analyzed by t-test, ANOVA, and post hoc Scheffé test using SPSS 18.0 program (IBM Co., Armonk, NY, USA).

The minimum number of study samples was calculated as 176 using G Power 3.0 program by t-test, 0.05 significance level, power of test 95%, and 0.50 effect size. Assuming elimination by 20%, 247 subjects were participated in the minimum sample size for analysis. The size effect was referenced the results of An [8] that compared the perception of the esthetics face.

### 2. Methods

The questionnaire was modified and adapted from Seo [6]. The questionnaire consisted of satisfaction of the face questions (16 items), perception of the face (7 items), needs of the aesthetic dental treatment (3 items), and general characteristics of the study subjects (8 items). The satisfaction of the face was measured by Likert 5 point scale, the perception was used 5 or 8 point scale, and the needs was used 8 point scale. In addition, the tooth shade was measured using a Shade guide (VITA Classical Shade Guide, VITA North America, Chicago, US). Cronbach's  $\alpha$  was 0.769 for the internal consistency of survey items.

### 3. Data analysis

The general characteristics of the study subjects were calculated the frequency, percentage, the satisfaction of the face was computed the mean and standard deviation, and the perception of the face was calculated the frequency and percentage or the mean and standard deviation. In addition, the needs of the aesthetic dental treatment were computed the mean and standard deviation. The data was analyzed using SPSS version 18.0 including t-test, one way ANOVA and post hoc Scheffé test.

## Results

### 1. General characteristics of the study subjects

The general characteristics of the study subjects are shown in <Table 1>. It was the conservative dentistry (34.7%), dental examination (24.9%), tooth scaling (15.0%) of 173 respondents visited a dentist during one year that was the chief complaint of the patient. In addition, 13.3% were receiving the orthodontic treatment, and 2.9% were the aesthetic dental treatment. 27.1% were the conservative dentistry, 22.6% were the dental examination, and 17.4% were the orthodontic treatment among 155 respondents who was to plan the dental treatment. Also 14.2% hoped for the aesthetic dental treatment <Table 2>.

**Table 1.** General characteristics of the study subjects

Characteristics	Division	N	%
Gender	Male	124	50.2
	Female	123	49.8
Age	<19	57	23.1
	19	78	31.6
	20	61	24.7
	>20	51	20.6
Grade	1	190	76.9
	>2	57	23.1
Department	Health	129	52.2
	Non-health	118	47.8
Visit to dental clinic	Yes	173	70.0
	No	74	30.0
Plan for dental treatment	Yes	155	62.8
	No	92	37.2
Total		247	100.0

**Table 2.** Chief complaint and dental treatment plan

Variables	Purpose of visit		Intention to treatment	
	N	%	N	%
Dental examination	43	24.9	35	22.6
Scaling	26	15.0	18	11.6
Conservative dentistry	60	34.7	42	27.1
Prostodontics	11	6.4	9	5.8
Aesthetic restorations	5	2.9	22	14.2
Orthodontics	23	13.3	27	17.4
Preventive dentistry	2	1.2	1	0.6
Oral medicine	3	1.7	1	0.6
Etc.	0	0.0	0	0.0
Total	173	100.0	155	100.0

## 2. Satisfaction of the face

The satisfaction of the face is shown in <Table 3>. The high score parts were the eyes (3.33), the mouth corner (3.26), and the lip (3.25), on the other hand, the tooth shade (2.86), the bilateral symmetry of the front face (2.94), and the jaw angle (2.99) were a low score.

**Table 3.** Satisfaction of the face

(N=247)

Variables	Purpose of visit	
	Mean	SD
Front face	3.20	0.91
45° angle face	3.22	0.89
Side face	3.11	0.86
Bilateral symmetry of front face	2.94	0.88
Eys	3.33	0.89
Forehead	3.23	0.85
Nose	3.15	0.92
Cheek	3.17	0.88
Lips	3.25	0.92
Mouth corner	3.26	0.96
Tooth	3.11	0.96
Tooth arrangement	3.07	1.02
Tooth occlusion	3.11	0.99
Tooth shade	2.86	0.90
Chin	3.05	0.88
Jaw angle	2.99	0.98
Total	3.13	0.63

### 3. Perception of the face and the need for aesthetic dental treatment

The perception of the face is shown in <Table 4>. The study subjects were more conscious of perception of others (3.43) than themselves (2.92). They were mainly conscious of the eyes and nose when observe themselves and others <Table 5>.

The chin was 3.33 that was the anteroposterior position of the side face, and the lips were 3.23. The position of the hoped chin was 3.15, and lips were 3.17. they was preferred to a slightly rearward position than a normal values which were the lips and the chin <Table 6>. The major most common tooth shade was orange and yellow, they also hope to them. But they preferred to have a brighter tooth color (1.66) than the brightness of their tooth (2.55)<Table 7>.

**Table 4.** Facial perception

(N=247)

Variables	Mean	SD
Others's perception	3.43	1.04
Self-perception	2.92	1.85
Total	3.17	0.70

**Table 5.** Perception of the face

Variables	Other's perception		Own perception	
	N	%	N	%
Eyes	138	55.9	93	37.7
Nose	41	16.6	48	19.4
Cheek	17	6.9	34	13.8
Forehead	8	3.2	14	5.7
Lips	12	4.9	13	5.3
Chin	10	4.0	22	8.9
Etc.	21	8.5	23	9.3
Total	247	100.0	247	100.0

**Table 6.** Side face

Variables	Self-perception		Side face perception	
	Mean**	SD	Mean**	SD
Chin*	3.33	0.89	3.15	0.91
Lip*	3.23	0.85	3.17	0.87
Total	3.96	1.19	3.74	1.03

\*mean of Korean was 4

\*\*Lower score means the rearward jaw

**Table 7.** Tooth shade

Variables	Self-perception		Tooth shade perception	
	N	%	N	%
Shade				
Orange	121	49.0	103	41.7
Yellow	91	36.8	99	40.1
Gray	20	8.1	27	10.9
Pink	15	6.1	18	7.3
Total	247	100.0	247	100.0
Brightness* (Mean±SD)	2.55	0.99	1.66	0.97

\*Lower score means the brighter tooth

#### 4. Satisfaction and perception of the face, need for the aesthetic dental treatment

It is shown in <Table 8> that is the satisfaction and perception of the face, needs for the aesthetic dental treatment by the general characteristics of the study subjects. The face satisfaction of the male (3.28) was higher than the female (2.98), the female (3.75) was more conscious of perception of others than the male (3.11), and the male (3.10) was more perceive the self-perception than the female (2.75). In addition, the female (3.59) was more posterior the lips than the male (4.09), the female (1.46) preferred to have a brighter tooth color than the male (1.85).

The face satisfaction of 19 years (3.26) and greater than 20 years (3.28) were higher than the less than 19 years, the less than 19 years (3.70) was more conscious of perception of others than the 19 years (3.12), and the 19 years (3.01) and the greater than 20 years (3.37) were more perceive the

**Table 8.** Satisfaction and perception of the face, the need of the aesthetic dental treatment by characteristics of the study subjects

Characteristics	Division	N	Satisfaction			Others's eyes			Self-perception			Hoped chin			Hoped lip			Hoped tooth shade		
			Mean	SD	p*	Mean	SD	p*	Mean	SD	p*	Mean	SD	p*	Mean	SD	p*	Mean	SD	p*
Gender	Male	124	3.28	0.63	0.01	3.11	1.09	0.01	3.10	1.12	0.02	3.97	1.48	0.82	4.09	1.33	0.01	1.85	0.93	0.01
	Female	123	2.98	0.60		3.75	0.88		2.75	1.21		3.93	1.46		3.59	1.15		1.46	0.90	
Age	<19	57	2.87	0.66	0.01	3.70	0.99	0.01	2.39	1.16	0.01	3.68	1.62	0.43	3.58	1.38	0.24	1.19	0.51	0.01
	19	78	3.26	0.77	(b<a, d<a)	3.12	1.12	(a>b)	3.01	1.16	(b<a, d<a)	4.05	1.52		4.03	1.43		1.58	0.81	(c>a, d>a)
	20	61	3.07	0.38		3.44	0.90		2.93	1.07		4.08	1.32		3.82	1.11		1.92	1.11	
	>20	51	3.28	0.51		3.58	1.01		3.37	1.16		3.92	1.38		3.88	0.99		2.00	1.16	
Grade	1	190	3.09	0.66	0.09	3.36	1.08	0.06	2.84	1.15	0.05	3.99	1.52	0.41	3.80	1.33	0.34	1.57	0.91	0.01
	>2	57	3.25	0.53		3.66	0.85		3.19	1.26		3.81	1.27		3.98	1.02		1.95	1.09	
Department	Health	129	3.06	0.52	0.08	3.66	0.89	0.01	2.98	1.17	0.39	3.91	1.25	0.65	3.76	1.09	0.28	1.87	1.10	0.01
	Non-health	118	3.20	0.73		3.17	1.12		2.86	1.19		3.99	1.68		3.93	1.43		1.43	0.74	
Visit to dental clinic	Yes	173	3.18	0.59	0.06	3.44	1.02	0.83	3.00	1.17	0.11	3.88	1.42	0.26	3.76	1.27	0.13	1.66	0.98	0.98
	No	74	3.01	0.83		3.41	1.09		2.74	1.20		4.11	1.58		4.03	1.24		1.66	0.94	
Plan for dental treatment	Yes	155	3.09	0.58	0.17	3.49	0.87	0.24	2.96	1.18	0.51	3.83	1.41	0.09	3.75	1.22	0.16	1.65	0.98	0.75
	No	92	3.20	0.71		3.33	1.27		2.86	1.18		4.15	1.56		3.99	1.33		1.68	0.94	

\*by t-test or one-way ANOVA

self-perception than the less than 19 years (2.39). Also, the less than 19 years (1.19) preferred to have a brighter tooth color than the 20 years (1.92) and the greater than 20 years (2.00).

The self-perception of the senior class (3.19) was higher than the junior class (2.84), the junior class (1.57) preferred to have a brighter tooth color than the senior class (1.95).

Department of health science students (3.66) were more conscious of perception of others than department of non-health science students (3.17), department of non-health science students (1.43) preferred to have a brighter tooth color than department of health science students (1.87).

It was not showed statistically significant differences depending on the visit dental clinic and the plan for dental treatment that was the satisfaction and perception of the face, the need of the aesthetic dental treatment ( $p>0.05$ ).

## Discussion

Modern people growing the interest of the appearances in social activities, they want to attractive as possible. The face is an important element of the appearances, above all, the jaw and the tooth can be an major part to attract the attention [2]. So it is necessary to understand the aesthetic face in the view of the patient that is the perception and satisfaction of the face, the need of the aesthetic dental treatment. The study subjects were the college students, because they were often concerned about their appearance.

13.3% were the orthodontic treatment and 2.9% were the aesthetic dental treatment among 173 subjects who were received the dental treatment during one year. Also, 17.4% hoped for the orthodontic treatment, and 14.2% want to receive the aesthetic dental treatment in 155 subjects who were to plan the dental treatment. It can be seen the high interest that is the dental treatment related to the aesthetic face, such as the orthodontic treatment, the aesthetic dental prosthetics. Especially, it was considerable difference between the patients with the aesthetic dental treatment and the patients with wish the treatment. In a study of Choi [9], 20.3% of the subjects wanted to be educated about the orthodontic treatment and tooth bleaching treatment. The orthodontic treatment was the height with 33.2% which was the treated patients and the patients with wish the treatment [10]. The study subjects and methods are slightly different, but the study results are similar to previous studies [9,10].

The satisfaction of the face was 3.13. There were higher the eye (3.33), the mouth corner (3.26), and the lips (3.25), but the tooth shade (2.86), the bilateral symmetry of the front face (2.94), and the jaw angle (2.99) were lower. The subjects can be seen low satisfaction of the oral and maxillofacial region. In a study of Seo [7], there were high the eye, the tooth arrangement, and the tooth, but the side face, the front face, the smile, the jaw angle, and the bilateral symmetry of the front face were lower satisfaction. According to the study of Lee [11], the ears, the eyebrow, the

occlusion of the molar, the lips, the eye, the eyelid, and the cheek were higher, but the side face, the bilateral symmetry of the front face, the jaw angle, and the chin were lower satisfaction. The results of the study also appear similar to previous studies [7,11].

The study subjects were more conscious of perception of others (3.43) than themselves (2.92). They were mainly conscious of the eyes and nose when observe themselves and others. Lee [11] reports that the perception of the face was higher than the satisfaction, Seo [7] report that the subjects more conscious of perception of others. Lee and Lee [12] report that the orthodontic patients were higher perception and lower appearance satisfaction. The study results were similar to the previous studies [7,11,12], but a more variety study may be necessary.

The chin was 3.33 that was the anteroposterior position of the side face, the lips were 3.23, but the position of the hoped chin was 3.15, lips were 3.17. The subjects were preferred to a slightly rearward position. In the some previous studies [7,11,13,14], the subjects were preferred the retreated lips and chin. But, Tourenoa et al. [15] and Denizea et al. [16] reported that the subjects were preferred a slightly protruded position. In another study [17,18], the preferred side face was varied by race, country, and gender. The study results also were similar with the previous studies [7,11,13,14].

The most common tooth shade was orange and yellow, they also hope to them. But they to preferred a brighter tooth color (1.66) than the brightness of their tooth (2.55). Lee and Jeon [19] report that the most subjects were orange (B type) and yellow (A type), Kim *et al.*, [20] repoert that an overwhelming majority of the examined teeth were found to possess shades belong to group A (orange). Shulman *et al.*, [21] prefer that the female was more sensitive the tooth shade than the male. The study results also were similar with the previous studies [18-20].

Unlike previous studies, the study provides a basis to understand the aesthetic face when the dentist plan a dental treatment of the college student who is interested in appearance. If the dentist reference the study results, they can understand the aesthetic face in the view of the patient. Also they can maybe increase the treatment satisfaction of the sensitive college student.

But the aesthetic face is multifactorial and subjective depending on the patient. Therefore, a follow-up study is needed in order to understand the needs of various patients.

## Conclusions

The purpose of the study is to investigate the perception and satisfaction of the face, the need of the aesthetic dental treatment of the college students. A self-reported questionnaire was completed by 247 final data from August 29 to September 2, 2016. The data analyzed by t test, ANOVA, and post hoc Scheffé test using SPSS 18.0 program.



1. The high parts of the face satisfaction were eye (3.33), the mouth corner (3.26), and the lips (3.25), while the tooth shade (2.86), the bilateral symmetry of the front face (2.94), angle of jaw (2.99) were lower.
2. The subjects were more conscious of perception of others than the self-perception, and were mostly consider the eye and the lips.
3. the lips and the chin of the side face were preferred to a position slightly rearward, and the most common tooth shade was orange (41.7%) and yellow (40.1), preferred to have a brighter tooth color (1.66).
4. The face satisfaction of the male (3.28) was higher than the female (2.98), the female (3.75) was more conscious of perception of others than the male (3.11), and the female (3.59) was more the posterior lips than the male (4.09). In addition, the female (1.46) wished the brightening tooth than the male (1.85).
5. Department of health science students (3.66) were more conscious of perception of others than department of non-health science students (3.17), department of non-health science students (1.43) were the hopper the brightening tooth than department of health science students (1.87).

The study provides a basis to understand the aesthetic face. The study results maybe increase the treatment satisfaction in the view of the patient when a dental treatment is planned. But a follow-up study is needed to target the various subjects.

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