Ordinary People's And Professional Dentists' Point Of View Regarding The Beauty Of A Smile In Birjand City,Iran

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Abstract

Introduction and Purpose: The beauty of a smile is a very effective component in the beauty of a person's face. With the advancement of society and people's attention to their beauty, a beautiful smile has become a significant component in patients' lives, to the point where it is one of their main concerns and their primary reason for visiting an orthodontist. The purpose of this study is to investigate the opinions of people and professional dentists regarding the beauty of a smile in Birjand city,Iran.

Materials and Methods: This study was conducted in Birjand city,Iran and on two groups of non-dentists and dentists in such a way that a number of photographs of different smiles were prepared and the necessary changes were made in Photoshop software. Then the pictures were given to the participants, and they were asked to choose the most beautiful smile among the pictures on each page. The obtained data was then entered into the SPSS 19 software.

Findings: This study showed that there is a significant difference between the views of dentists and non-dentists on the components of smile beauty. In addition, a large difference was observed in the level of knowledge between non-dentists and dentists. According to this study, although dentists and non-dentists were the same in the first and second priorities regarding the beauty of the smile (diastema and minimal gingival display in the smile), in the following priorities, there were clear and large differences in choosing a beautiful smile between these two groups, which shows the difference in attitude between dentists and non-dentists.

Conclusion: Based on the results of this study, there is a significant difference between the views of dentists and non-dentists regarding the beauty components of a smile, and it shows that dentists should pay as much attention as possible to the opinions and views of patients in addition to scientific standards and their views to achieve a better relationship between the patient and the dentist, to optimize the result of the treatment, and to increase the satisfaction of the patient and the dentist.

Keywords: smile, beautiful smile, beauty, smile beauty

INTRODUCTION

Smile beauty is one of the major concerns of orthodontic patients and specialists. In fact, the beauty of the smile is the main reason for patients to undergo orthodontic treatment (1). The perception of beauty is related to the feeling of satisfaction when seeing an object, meeting a person, or hearing a sound. For this reason, beauty is a highly subjective feeling that originates from many individual factors, including gender, race, education, and personal experience (2). In addition, social factors such as the environment and media are increasingly responsible for the globalization of beauty concepts. Visual media have gradually set beauty standards by offering beautiful faces and attractive smiles to viewers, which has a direct impact on dentistry and cosmetic surgery. Therefore, evaluating beauty is a very subjective matter. For this reason, there will be differences of opinion on the beauty of a smile between people and dentists (3, 4).

Assessing the patient's smile allows the clinician to assess what needs to be done, what can be done, and what needs to be accepted because beauty has become an important issue for dentists and patients evaluate treatment results based on their smile and overall improvement in their facial appearance. Although orthodontic treatment is primarily based on occlusal relationships, nowadays more attention is paid to improving dentofacial features to create optimal facial beauty (5). Since an attractive and balanced smile is an important goal of modern orthodontic treatments, extensive studies have been conducted on normal facial features, which are used as a guide for orthodontists in assessing facial shape and guiding treatment (6). Smile analysis includes various features that focus on the geometric analysis of smiles and objective evaluations (2, 7). However, various factors such as culture may influence beauty patterns, so aesthetic perception varies significantly among different people and is influenced

by personal experience as well as the social environment around a person. As a result, in addition to evaluating the patient's smile geometrically and objectively, a scientific examination of the mental feeling and satisfaction created by the smile from the patient, orthodontist, or clinician's perspective is required (8-10). Studies have extensively covered the examination of smiles objectively; however, few studies have examined the pleasantness or unpleasantness of a smile from the patients' perspective (mental image). Therefore, the purpose of this study is to examine the beauty of a smile from the perspectives of people and professional dentists.

Method

The present study is a descriptive and analytical study. The population studied in this study included two groups of dentists and another group of non-dentists. The group of dentists included general dentists and specialists in orthodontics, restoratives, and prosthetics (11). The group of non-dentists was selected based on available samples from patients referring to the dental school and other available people. The sample size of the study was 60 people in the group of dentists and 120 people in the group of ordinary people. A census was used to sample all general dentists, 6th-year students, and dentists specializing in orthodontics, restorative dentistry, and prosthetics in Birjand City, as well as a sample of people from society drawn from among visitors to the dental clinic, medical students, and other people. In order to conduct the study, 16 photographs of a smile arch were prepared. In each of the images, changes were made using Photoshop software as described in Table 1.

Image Number	Description	Image
1	Three photographs of smiles with minimum buccal corridor space, medium buccal corridor space, and high buccal corridor space	
2	Three photographs of a smile with a midline diastema of zero mm, a midline diastema of 1 mm, and a midline diastema of 2 mm.	
3	Three photographs of smiles with asymmetry in the smile with a difference in the height of the central and lateral teeth of 1 mm, a difference in the height of the central teeth of 2 mm, and a difference of 3 mm in the height of the central and lateral teeth.	
4	Three photographs of smiles with minimal gingival exposure, moderate gingival exposure, and high gingival exposure	
5	Two images with light and dark teeth color	
6	Two photographs with matching and non-matching midline	

Then the images were shown to the participants, and they were asked to choose the one with the most beautiful smile. Besides that, a demographic questionnaire (including information on age, gender, and education) was prepared, and the participants were asked to complete it as well.

The album was divided into six pages, each of which examined a different aspect: the buccal corridor, the midline diastema, the height difference between the lateral and central teeth, the amount of gingival display in the smile, the color of the teeth, and the midline matching.In this method, for each component, two or three images of different values of the display of that component during a social smile were placed. One of the images on each page had the standard amount of that component in the smile according to the principles of aesthetics as the correct option or score 1, and the rest of the images on that page were considered to have a zero score (the wrong answer), and according to the total of zeros and ones selected by the participants on each page, an awareness score was obtained.

Due to the fact that we tried to examine different points of view in this research, in addition to the awareness score, the selection rate of each option for each component was also discussed. After collecting the data, it was entered in SPSS-19 software, and while providing descriptive statistics, it was analyzed by the chi-square statistical test or Fisher's exact test at the 90% level. To

compare the average age in two groups, an independent t-test and a Poisson regression model were used to control confounding variables.

Findings

The average age of the studied sample was 28.85 years, with a standard deviation of 4.75 years. In addition, the average age in the case of dentists was equal to 28.16 years with a standard deviation of 4.12, and in the case of ordinary people, it was equal to 29.22 years with a standard deviation of 5.01. No statistically significant difference was found in this variable between the two investigated groups. Table 1 shows the descriptive findings of the study. As it is clear from the table, the frequency of men in the whole sample was 39.46%; for the sample of ordinary people, it was 40.32%; and for the sample of dentists, it was 37.7%. Statistically, no significant difference was observed between the two groups. In terms of the workplace, in the sample of ordinary people, 18 people (14.52%) were working in public offices, 3 people (1.62%) were working in private offices, and 95 people (76.61%) were working in health care service centers. In dentists, 46 people (75.41%) were working in public offices, and 15 (24.59%) were working in health care centers, which statistically had a significant difference between the two groups (significance < 0.001). In addition, in terms of education, 22 people from the first sample had a bachelor's degree, 101 people had a master's degree, and the rest had a doctorate, and among dentists, 48 people were general dentists and the rest were specialists.

Table 1. Descriptive Findings of the Study

		Total Sample		**Sample Of Ordinary People**		**Sample Of Dentists**		**P-value**
Variable	dimension	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
gender	Man	73	39.46	50	40.32	23	37.70	
Workplace	Female	112	60.54	74	59.68	38	62.30	**0.732**
education	public offices	64	34.59	18	14.52	46	75.41	
Variable gender Workplace	Private offices	3	1.62	3	2.42	0	0.00	**<0.001**
	Health service center	110	59.46	95	76.61	15	24.59	
	Other cases	8	4.32	8	6.45	0	0.00	
education	Bachelor's degree	22	11.89	22	17.74	0	0.00	
	Master's degree (equivalent to general practitioner)	149	80.54	101	81.45	48	78.69	**<0.001**
	PhD (equivalent to specialist)	14	7.57	1	0.81	13	21.31	

Table 2 summarizes the study's findings regarding the number of correct answers to questionnaire questions provided by the examined sample as well as dentists and non-dentists. As shown, 49.73% of the total sample answered picture number one correctly, among which the correct answer rate of dentists was 62.3% and that of non-dentists was 43.55%. 99.46% answered Picture 2 correctly, which included 100% of the group of dentists and 99.19% of the group of non-dentists. In picture 3, 31.35% answered correctly, including 24.19% of non-dentists and 45.9% of dentists. In question 4, 90.32% of non-dentists and 77.05% of dentists answered correctly. In relation to question 5, 40.98% of the group of dentists and 20.97% of non-dentists answered correctly, and finally, in relation to the sixth question, 50.80% of the group of dentists and 20.16% of non-dentists answered correctly. In total, the knowledge score was obtained by summing up the answers to the questions, and it was found that the knowledge score in dentists was equal to 3.77 with a standard deviation of 1.31, and in the non-dentist group, it was equal to 2.983 with a standard deviation of 0.987.

Table 2. The rate of responding to each of the questions and pictures related to the questionnaires in general and by the investigated groups

Question	**Entire Sample**		**Non-Dentist**		**Dentist**	
Image 1	92	49.73	Image	43.55	37	**62.30**
Image 2	184	99.46	123	99.19	61	**100.00**
Image 3	57	31.35	30	24.19	28	**45.90**
Image 4	159	85.95	112	90.32	47	**77.05**
Image 5	51	27.57	26	20.97	25	**40.98**
Image 6	56	30.27	25	20.16	31	**50.80**
total	3.24 ±1.0985		2.983±.0.9875		**3.77± 1.31**	

Table 3 shows the findings of the study comparing the two investigated groups (dentists and non-dentists) after controlling the confounding variables of sex, age, education and workplace. As it is clear in the table, the IRR coefficient in the group of dentists compared to others was 1.35, which indicates that this group had 35% more knowledge than others after controlling the confounding variables. This coefficient was statistically significant at the 90% level. Other variables did not have a significant relationship with the knowledge score.

Table 3. The findings of the study comparing the two groups (dentists and non-dentists) after controlling confounding variables.

Variable	**IRR**	**Standard Deviation**	**Significance Level**	**Lower Limit**	**Upper Line**
Group of dentists (other)	1.35	0.23	0.072	0.97	**1.89**
Gender (female)	1.06	0.09	0.506	0.89	**1.26**
Education (Bachelor's Degree)					
Master's degree	1.07	0.16	0.64	0.80	**1.43**
Ph.d	0.82	0.25	0.501	0.45	**1.48**
Workplace (public offices)					

Private offices	0.80	0.32	0.57	0.36	**1.75**
Health service center	1.08	0.17	0.647	0.79	**1.47**
Other	0.91	0.24	0.703	0.54	**1.51**
Age	1.00	0.01	0.883	0.98	**1.03**
Fixed coefficient	2.48	1.10	0.041	1.04	**5.91**

Discussion

Beauty is a purely subjective phenomenon that is influenced by individual factors such as gender, race, education, personal experiences, and social factors such as environment and media. Media images of a good and perfect smile have led to an increase in demand for cosmetic treatments among people (12). The appearance of teeth affects other people's judgments about facial attractiveness and personal characteristics. However, little is known about patients' perceptions of the ideal smile and how these perceptions relate to their own smiles (13). Most patients seek orthodontic treatment for cosmetic purposes. Identifying the patient's problem is not always an easy task, and orthodontists' opinions about a beautiful smile may differ from those of non-dentists (14). According to the results obtained in this study, the awareness of the beauty of a smile in dentists was significantly higher than that in non-dentists.

In general, there was no difference between women and men in the awareness score in the studied sample. In addition, the workplace (private or public) of people had no effect on their understanding of the beauty of a smile, and no significant difference was observed in the knowledge score in different groups in terms of workplace. According to this study, dentists and non-dentists paid the most attention and were most aware of the absence of a diastema in the midline, and non-dentists pay more attention to tooth color than dentists, while dentists prefer the presence of a median buccal corridor to tooth color.

The results of our study were the same as Abu Alhaija's study, and in both studies, gender affects people's perception of the beauty of a smile. In this study, unlike our study, there was a significant difference in the level of knowledge between specialists and general dentists, although it should be noted that the group of specialists in this study were orthodontists, while in our study, the number of specialists and general dentists is far less than Abu Alhaija's study (15). El Aoumae's study, like ours, compared the knowledge scores of general dentists and orthodontists, but unlike ours, they concluded that the knowledge score of orthodontists was higher than that of general dentists, and they were more accurate and sensitive in evaluating smile changes. Due to the fact that in this study a larger number of people were studied than in our study and only orthodontic specialists were evaluated, this difference was evident (16).

In Rabia Bilal's study, unlike ours, no significant difference was observed between the two groups of ordinary people and orthodontists. In Rabia Bilal's study, there were fewer statistical groups in both groups, and for that reason, its results were different from our study. In this study, as in ours, non-dentists paid more attention to the bright color of teeth than dentists. In addition, in this study, dentists paid more attention to the presence of the middle buccal corridor than non-dentists, although, unlike our study, a higher percentage of dentists preferred the color of the teeth to the buccal corridor, which may be due to the small number of participants in this study (17). In Elaine's study, no significant difference was observed in the perception of a desirable smile between non-dentists and dentists. Since the participants in this study were less than the statistical population of our study, it affected the results of the study (18). In Sabrina's study, at 2% and 10% of the buccal corridor width, orthodontists and ordinary people did not have a difference in understanding it, but in another variation of the buccal corridor, as in our study, a significant difference was observed between the two groups. However, in this study, unlike ours, it is said that the buccal corridor has no effect on beauty unless it is very obvious. Since the images in this study are not cropped to show the smile but are a full view of the face, the precision in the design and beauty of the smile have decreased (14). A study conducted by Larissa et al evaluated the awareness score of general dentists, orthodontists, and non-dentists regarding the beauty of the smile. In the study, dentists and orthodontists obtained a higher awareness score than non-dentists (19). In Sérgio Pinho's study, as in our study, dentists were far more sensitive and accurate in understanding the principles of smile beauty than non-dentists. In our study, two groups of specialists and general dentists performed the evaluation, whereas Sérgio Pinho's study used two groups of prosthodontists and orthodontists, resulting in no difference between the two studied groups in our study. However, in this study, there was a difference in the knowledge score of orthodontic specialists and prosthetic specialists in understanding the principles of smile beauty, and this difference was due to the larger statistical populations of these two groups and the separation of orthodontic specialists from other specialists (20).

In Cotrim's study, unlike ours, there was no difference in the awareness score between ordinary people and orthodontists and general dentists. In fact, the high number of images in this study compared to our study, as well as the presence of images with craniofacial problems, caused ordinary people to gain higher knowledge scores, and no significant difference was observed between non-dentists and dentists (10). Non-dentists emphasized tooth color more in Dunn's study, as in ours (1).

In this study, the awareness score of dentists was significantly higher than that of non-dentists, and age did not affect the perception of smile beauty. In the group of dentists, gender had an effect on the knowledge score, and the knowledge of women was significantly higher than that of men, but this difference did not exist between the two genders in the group of non-dentists. In the non-dentist and dentist groups, the level of education did not affect the knowledge score. The awareness score of non-dentists working in medical science centers was higher than that of those working in other centers, and similarly, dentists working in public clinics have a higher awareness score than dentists working in private clinics. The first priorities of dentists in choosing a beautiful smile were the absence of a midline diastema, minimal gingival exposure, and moderate buccal corridor exposure. And the priorities of non-dentists in choosing a beautiful smile were the absence of a midline diastema, the amount of minimal gingival exposure, and the lighter color of the teeth, respectively. In the remaining factors, it was clear that dentists' and non-dentists' perspectives differed. This important result shows us that there was a difference in the viewpoints of dentists and clients in many factors of the smile, and it caused different understandings of dentists and clients and, in many cases, dissatisfaction in people.

Conclusion

Dentists should always be aware of the differences in views, consider the priorities of their clients, and have a proper interaction with them so that they can provide the best treatment plan. In the next studies, it is better to increase the number of dentists and divide them into two groups, general and orthodontist, with equal proportions; it is also suggested that dentists specializing in different fields be present in larger numbers.

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