

Patients' Preferences on Different Types of Esthetic Treatment in Saudi Arabia

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ABSTRACT

Aim: Dental cosmetics have always had a large-scale impact on an individual's social life. A variety of dental treatment regimens ranging from composite resins to ceramics are available to enhance the oral esthetic appearance.

Materials and methods: The present study aimed to identify the preferred dental cosmetic treatment regimen used in Saudi Arabia. The sample included 434 patients, who were asked to mention their preferred esthetic treatment. A close-ended, predesigned questionnaire was used to collect the data. The questionnaire was made using the survey monkey which was distributed to the study participants using social networking sites like WhatsApp and E-mail. The response data were analyzed using SPSS.

Results: Out of 434 respondents included in the study, 140 were males and 294 were females. The majority of the participants had taken some form of esthetic dental treatment ($n = 230$); of these composite buildups were the most common ($n = 132$), followed by bleaching ($n = 84$), veneers ($n = 31$) and prepless veneers (lumineers) ($n = 11$). It was noted that a majority of the surveyed population preferred permanent treatment modalities ($n = 304$) rather than temporary treatment strategies ($n = 33$).

Conclusion: A significant proportion of participants preferred taking permanent treatment over the temporary treatment regimens.

Clinical significance: Understanding patient's perception regarding their dental esthetics helps the clinicians to plan treatments which are patient compliant and elicits a higher level of therapeutic satisfaction.

Keywords: Bleaching, Esthetic treatment, Veneers, Whitening.

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INTRODUCTION

Every individual aspires to have the best appearance for their lifetime. A beautiful smile not only changes the esthetics but also builds confidence. Cosmetic dentistry aims to bring in a positive change both in the smile and personality. One of the most popular dental cosmetic procedures available is tooth bleaching. Nowadays many patients prefer it to make their teeth look whiter. There are several options available for esthetic treatments; professionals have alternatives ranging from composite resins to ceramics. In the past, the composite resin was the material of choice for cosmetic and conservative procedures.¹ Low durability and need for constant maintenance led the search for a better esthetic option.² Porcelain is an outstanding option to avoid the numerous deficiencies of composite resin, and it significantly mimics the natural structure of dental foundations.³ When properly made in accordance with a precise clinical protocol, porcelain restorations have a long clinical life. Nowadays, development in adhesive technologies has made possible a variety of more conservative restoration techniques.²⁻⁴ One among them was the minimal or virtually no preparation veneers. But the lack of clarity regarding the extent of veneer preparation creates miscommunication with patients and also within the dental profession.^{5,6}

Numerous bleaching modalities are available for dental treatment like in-office bleaching, at-home bleaching, over-the-counter or combination technique either on vital or nonvital teeth.^{7,8} In-office bleaching is usually done using different concentrations of hydrogen peroxide bleaching agent (15%, 30%, or 35%) either heated or nonheated. Protection of soft tissue by using gingival dam gel is mandatory to avoid burning of gum. The merits of this technique are that it shows faster results and not having to wear the tray as in as at-home bleaching.^{9,10} In-home bleaching, dentist needs

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to take impression of teeth which is sent to laboratory to obtain a model. A special custom tray made of plastic (night guard) is used, on to which 10% carbamide peroxide (ADA), or 6-15% hydrogen peroxide is applied.⁹⁻¹² Combination treatment refers to the use of both techniques; in-office followed by at-home bleaching for 5 days for better results which also reduces chair time.⁹

Failure in esthetic treatments has been reported in recent years. In a 12-year retrospective survey, the most common complication noted (48%) was fracture.¹³⁻¹⁵ On the other hand, another study reported 93% of the sample had intact clinical survival of tooth structure, bonding to enamel, color stability and overall good esthetics even after 15 years.¹⁴ For conservative treatment, PLV is the chosen method, especially in the anterior teeth.¹³⁻¹⁵ It is an ultra-thin technique which allows the dentists to remove only 0.3 mm of tooth

structure.¹⁶ A meta-analysis published in 2013 reported that the preparation design determines the outcome of the treatment.^{17,18} To gain high esthetic and functional restorations, the mechanical resistance of porcelain veneers is of great importance.^{19,20} The longevity and the success of the porcelain veneers depend on better stress distribution.²¹⁻²³ Very few studies have focused on the impact of the preparation design, on the success and durability of the restoration, and at the same time, there are some very controversial results.²⁴⁻²⁶ The success of anterior indirect restoration depends on proper treatment planning and application of the operative protocol.²⁷

Ceramic veneers involving the incisal edge, proximal areas and larger parts of the palatal surface have been recognized as an alternative to full crowns in the anterior dentition.^{28,29}

In the direct veneering technique, the composite resin is applied directly to tooth structure and artistically scalped to correct color and contour defects.^{30,31} The successful esthetic and functional results are dependent primarily on the operator's understanding of adhesive technology and the components of color, including their relationship to natural tooth structure and composite resin restorative materials.³²⁻³⁵ The aim of this study was to analyze the preferences of the patients towards esthetic treatments and to identify potential factors influencing their choices.

MATERIALS AND METHODS

A cross-sectional questionnaire (see Appendix) study was designed to evaluate patient's preferences toward esthetic treatment in Saudi Arabia. This was a cross-sectional study done on patients above 18-year of age.

A pilot study was conducted on 20 patients to assess the reliability of the questionnaire. This was tested using Cronbach's alpha coefficient. A definitive questionnaire was then prepared, which was sent to all the participants. Variables elicited were satisfaction with dental esthetics, cause of dissatisfaction, any previous dental esthetic treatment experience, type of treatment obtained and preference and any complications faced during or after the treatment.

Informed consent was obtained from the Institutional Review Committee of Riyadh Elm University. The study was conducted between February 2019 to July 2019 for 6 consecutive months, employing a convenient sampling technique, selecting both males

and females. The participants were patients attending OPD of Riyadh Elm University.

Informed consent was obtained from all respondents after explaining the purpose of the study. Individuals below 18-year were not included in the study.

The empirical sample size determination was employed to determine the sample size, which came up to 390. Considering a nonresponse rate of 10%, a sample of 434 was finalized for the study. The questionnaire was sent along with photos sent through emails.

A five-point Likert scale was used to evaluate attitude related questions in evaluating perception of patients ranging from 0 being most negative and four ratings to be most positive.

The data so obtained were transferred to spreadsheets and analyzed using SPSS 19.0 version. A Chi-square test was used to evaluate patient's perceptions towards dental esthetic therapy.

RESULTS

The sample comprised of 434 respondents (140 males and 294 females). A 100% response rate was obtained. The sample had significantly more Saudis ($n = 421$) compared to non-Saudis ($n = 13$) (Chi-square 63.21, $p < 0.001$). The sample comprised mainly of individuals in the 18–25 age group and 26–35 age group, including both males and females (Table 1). There was no significant difference noted in the numbers of males and females in either age group or nationality (Table 1).

The overall satisfaction with dental esthetics was measured on a Likert scale from 0 (most dissatisfied) to 4 (extremely satisfied). The overall satisfaction score was 2.36 (SD ± 1.3). There was no significant difference between the satisfaction scores of the males and females (Table 2).

When the reasons for dissatisfaction were tabulated, dental stains topped as the most common cause for dissatisfaction. A great proportion of the sample ($n = 188$) did not specify their reason for dissatisfaction (Fig. 1).

The majority of the population had taken some form of esthetic dental treatment ($n = 230$). Of these, composite buildup was the most common ($n = 132$), followed by bleaching ($n = 84$), veneers ($n = 31$) and prepless veneers (lumineers) ($n = 11$). The majority of the surveyed population preferred permanent treatment ($n = 304$) to temporary treatment ($n = 33$). There was no significant difference between males and females in their experience of dental treatment (Table 3).

Table 1: Demographic profile of the sample

		Gender		Chi-square	Sig.
		Male count	Female count		
Age group	18–25 years	40	92	4.491	0.213
	26–35 years	52	90		
	36–45 years	21	65		
	>45 years	27	47		
Nationality	Saudi	135	286	0.236	0.627
	Non-Saudi	5	8		

Table 2: Comparison of overall satisfaction between males and females

	Gender	Mean	Std. deviation	T	Sig.
Satisfaction with current dental esthetics	Male	2.3286	1.12168	0.390	0.697
	Female	2.2823	1.17070		

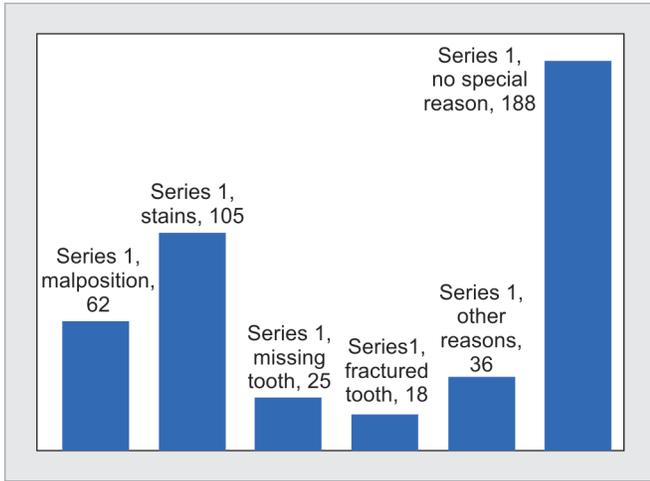


Fig. 1: Causes for dissatisfaction with esthetics

When complications following esthetic dental treatment were summarized, it was observed that 92 of the 159 participants who had undergone esthetic dental treatment reported some form of complication. The complications ranged from bad odor ($n = 29$) and sensitivity ($n = 58$) to serious complications such as swellings and abscess ($n = 23$). There were no significant differences in the incidence or pattern of complications between males and females (Table 4).

There were two questions in the survey pertaining to the attitude of the respondents towards dental treatment. These questions were scored on a five-point Likert scale with 0 being the most negative and 4 being the most positive. The scores for these questions were added to obtain an overall attitude score. This attitude score was used as the dependent variable in a regression model to analyze factors affecting the respondent's attitude towards esthetic dentistry (Table 5). The model showed that factors like person's gender (females more positive than males) regarding their perception of esthetics and previous history of

Table 3: Esthetic dental treatment experience of the surveyed population

		Gender		Chi-square	Sig.
		Male	Female		
Underwent esthetic treatment	No	69	135	0.432	0.511
	Yes	71	159		
Type of esthetic treatment	Composite buildup	45	87	5.229	0.156
	Bleaching	19	65		
	Veneers	12	19		
	Prepress veneers (lumineers)	5	6		
Type of treatment preferred	Temporary treatment	7	26	1.255	0.263
	Permanent treatment	93	211		

Table 4: Complications following esthetic treatment

		Gender		Chi-square	Sig.
		Male	Female		
Complications after treatment	No	74	150	0.408	0.523
	Yes	27	65		
Type of complications	Sensitivity	22	36	2.314	0.678
	Bleeding from the gingiva	3	10		
	Bad odor	8	21		
	Swelling	9	14		
	Broken restoration	6	16		

Table 5: Regression model showing the attitude of the respondents towards esthetic dentistry^a

Model	Unstandardized coefficients		Standardized coefficients		T	Sig.*
	β	Std. error	β			
1 (Constant)	5.496	0.425			12.934	0.000
Age group	0.155	0.079	0.111		1.957	0.051
Gender	-0.414	0.176	-0.132		-2.351	0.019**
Satisfaction with current dental esthetics	-0.205	0.071	-0.163		-2.870	0.004**
Underwent esthetic treatment	0.417	0.182	0.133		2.297	0.022**
Complications after treatment	-0.044	0.190	-0.014		-0.233	0.816

^aDependent variable: attitude

*Calculated using linear regression modeling

**Associations significant at $p < 0.05$

esthetic treatment had a significant positive association with the overall perception of esthetic dental care. Gender and past history of complications following dental treatment had no significant association with the attitude towards esthetic dentistry.

DISCUSSION

Out of the 434 subjects investigated, 67.7% were females and 32.2% males. Respondents were divided into four age groups for the sake of analysis. The first group was between 18 years and 25 years constituting 30.4%, the second group was between 26 years and 35 years making 32.7%, the third group was between 36 years and 45 years forming 32.7% and the last group was more than 45 years which formed 17.1% of the sample. Based on the study results, 56.7% (246 of subjects) of participants were not satisfied with their own smile for the following reasons: 42.7% (105 subjects) complained of dental stains; 25.2% (62 subjects) complained of malposition of teeth, 5.7% (25 subjects) had some kind of tooth loss, 4.1% (18 subjects) had fractured tooth and 8.3% of subjects cited other reasons like diastema, calculus or gum problem.

In this study, the percentage of study population who were dissatisfied with their esthetics was higher than studies of REU in KSA conducted by Aldajj et al.³⁶ in which 44.5% of 1,147 subjects were not satisfied with dental appearance,³⁶ 42.7% of 1,014 subjects dental school in Ankara, Turkey in the study of Akarslan et al.³⁷ were dissatisfied with teeth appearance, and 38.4% of 1,129 subjects who were not satisfied with their smile in a study conducted by Majed et al.³⁸ The same findings were reported in yet another study conducted in Tamil Nadu, India by Thiyagarajan et al.³⁹ wherein, 31% of 206 subjects were not confident with their smile.³⁹

Most of the studies conducted in this regard were consistent with our study findings of obtaining no significant difference between esthetic satisfaction scores between males and females. The Likert scale was chosen to evaluate the response owing to its ease of use.

In our sample, 29.1% reported that they suffered from some sort of complication following their esthetic treatment. This number represents a much higher percentage in comparison with the majority of previous studies, where the reported complications ranged from 4 to 7%.^{40–44,49} The higher complication rate in our sample could be explained by many factors that were not assessed in our study, and have been shown to have significant effect on the outcome of the treatment. Those factors include the design of the restoration, proper dental preparation, the use of conventional treatment as opposed to the all-ceramic restorations, type of ceramics, the experience of the operators, and bruxism habits.^{40,41,45–48} Another aspect of the complications that were not assessed was their timing after the treatment because it has been reported that failures increase from 5% at 5 years and remain well under 10% at 10–13 years.⁴⁸ Lastly, many studies assessing the survival of the restorations and the complications rate do differentiate between failures such as fractures, and complications such as hypersensitivity.^{40,41,49} Almost half of the reported complications in our sample were due to hypersensitivity 53.1%, followed by bad odor 31%, swelling 18.6%, broken or fallen down 17.9% and lastly followed by bleeding in 17.2%. In a previous study, sensitivity was experienced by patients only in the first 2 weeks,⁴⁴ and the rest of the complications needed further questioning to clarify their effect on the treatment.

In our study 71.8% of our study participants recommended the use of dental esthetic treatment. This is in concordance with the

reported increasing trend of using veneers.⁵² Although previous national studies reported low knowledge and awareness of veneers,^{50,51} 86.9% of our sample chose veneers as a favorite choice for esthetic treatment.

The study result gives an overall view of the patient's perception of dental esthetic treatment but has to be interpreted with caution because it does not represent the whole population of this age group.

CONCLUSION

Based on the results that were obtained from our research, we concluded that majority of the participants preferred permanent treatment over the temporary one; unlike for prepress veneer which got very few responses. A greater number of female participants got esthetic treatments than male participants. A major proportion of the sample ($n = 188$) did not specify their reason for dissatisfaction ($n = 188$).

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APPENDIX: QUESTIONNAIRE

(Kindly answer all questions)

Name:

Age:

Nationality:

Gender:

Area of residence:

1. Are you satisfied with the current dental esthetic treatment? Yes/No
2. What is the cause for dissatisfaction with esthetics?
 - a. Malposition
 - b. Stains
 - c. Missing teeth
 - d. Fractured teeth
 - e. Other reasons
 - f. No specific reason
3. Have you undertaken any previous dental esthetic treatment? Yes/No
4. If yes to question 3, then what type of treatment was obtained?
 - a. Composite buildup
 - b. Bleaching
 - c. Veneers
 - d. Prepress veneers (lumineers)
5. Which type of esthetic dental treatment is preferred?
 - a. Temporary
 - b. Permanent
6. Did you encounter any complications after getting the esthetic treatment done? Yes/No
7. What was the type of complication?
 - a. Sensitivity
 - b. Bleeding from gums
 - c. Bad odor
 - d. Swelling
 - e. Broken restoration

