

**SATISFACTION WITH DENTAL APPEARANCE AND DESIRED ESTHETIC  
TREATMENT IN SAUDI DENTAL PATIENTS**

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Article Received on 13/10/2016

Article Revised on 03/11/2016

Article Accepted on 24/11/2016

**ABSTRACT**

**Introduction:** Understanding of factors influencing patients' satisfaction towards their dental appearance could enhance treatment planning in a proper way that would improve the success of esthetic treatment. This study aimed to assess the satisfaction with dental appearance, desired treatments to improve dental esthetics and background factors influencing satisfaction with dental appearance. **Methods:** This is a cross sectional study included 172 patients attended public dental clinics in Albaha city. The data collected by interviews with a pretested structured questionnaire. The logistic regression modeling was conducted to assess the association between patients' satisfaction and background factors. **Results:** The majority of study participants were unsatisfied with their general dental appearance. About 62% of study participants were unsatisfied with the color of their teeth, and 23.8% felt that their teeth are crowded. The young participants in 18-34 age group were 3.7 times more likely to be unsatisfied with their dental appearance than participants who were  $\geq 55$  years old ( $P$  value = 0.001). The women were 2.6 times more likely to be unsatisfied with their dental appearance than men ( $P$  value = 0.009). The participants who had a post-secondary level of education were 1.3 more likely to be unsatisfied with their dental appearance, in comparison to those with primary/secondary level of education. **Conclusion:** The majority of the dental patients in Albaha city were dissatisfied with their dental appearance. This dissatisfaction was more expressed by young, women and highly educated patients.

**KEYWORDS:** Understanding of factors Albaha city.**INTRODUCTION**

Until recently, the significant reduction in the incidence of dental caries and its' consequent complications has shifted the dental care towards the esthetic dentistry.<sup>[1]</sup> Dental appearance is a key element of face attractiveness, which in turn affects social interaction and self-esteem.<sup>[2]</sup> Studies assessed the movement of eyes have found that there is a triangular scanning pattern which focusing in eyes, nose and mouth during face to face communication.<sup>[3]</sup> Furthermore, an attractive smile is mainly dependable on dental factors such as tooth color, alignment, shape, in addition to gingival exposure and visibility of the teeth.<sup>[4]</sup>

Generally, people demand the white teeth, thus studies found tooth color is the most important factor that affect dental appearance and self-satisfaction.<sup>[5]</sup> As the discoloration in the tooth color increase, the self-satisfaction was found to decrease.<sup>[6,7]</sup> In addition, the self-satisfaction of younger people was found more affected by the tooth discoloration.<sup>[8]</sup> Malocclusion was the second most reported factor of dissatisfaction of dental appearance, although orthodontic treatment demand was found to vary from population to another.<sup>[9-12]</sup>

<sup>[12]</sup> The socio-economic background factors were found as

important modifier factors that affect the association between dental factors and the satisfaction towards dental appearance.<sup>[13]</sup>

Treatment demands for patients who dissatisfy by their dental appearance were mainly tooth bleaching, porcelain crowning, and orthodontic treatment.<sup>[5]</sup> Although there are differences between the treatment needs indicated by the dentists and treatment demands required by the patients. The subjective demands of patients are determined by the esthetic factors rather than functional difficulties. The main causes for replacement of missing teeth, especially in anterior region, was found to be the esthetic considerations.<sup>[14]</sup> Dental professionals have to be aware of the psychological triggers of treatment demands of the patients, the effect of dental appearance in patients' satisfaction, and subsequently the impact of this satisfaction in treatment success.

In Saudi Arabia, a study found that more than half of the study participants rated their teeth as esthetically unacceptable.<sup>[12]</sup> In another study included Saudi students, about half of university students were found unsatisfied with their dental appearance.<sup>[15]</sup> Thus, this study aimed to assess the satisfaction with dental

appearance, desired treatments to improve dental appearance, and background factors that affect satisfaction with dental appearance among adult patients who attended the public dental clinics in Albaha city, Saudi Arabia.

## METHODS

This is a cross sectional study that included patients who attended public dental clinics from 15 September to 15 November 2016, in Albaha city. All included patients were > 18 years old and they were new patients who were not subjected to any dental treatment in the past 6 months. The calculation of the sample size was conducted by Gpower software with 0.05 error of estimation, 0.80 statistical, power and 0.3 effect size. The calculations showed that 143 subjects should be included in this study. Thus with an estimated response rate of 80%, 172 subjects were finally selected in this study with approximately 1:1 male to female ratio.

The data collected through face-to-face interviews with a structured questionnaire that consists of three sections (table 1). Section "A" contains questions (1-3) that investigated socioeconomic factors such as age, sex, and education. Section "B" contains question (4-11) that inquiring about patients' satisfaction with their dental appearance and section "C" contains question (12a-12e) about the treatment demands of the patients. This questionnaire was used in previous study<sup>[16]</sup> and pretested in 15 subjects to ensure the clarity of the questions and then those subjects were excluded from the study. The written consents were obtained from all study participants after assuring them about the confidentiality of the provided information.

Data were analyzed using Statistical Package for Social Science (SPSS) (version 20.0, SPSS Inc, Chicago). The descriptive statistics such as percentages, means and standard deviations were obtained to describe the studied sample. The inferential statistics including chi-square test and t-test were used to detect the significant differences. Level of alpha significance was considered at 0.05. The multivariate analysis was conducted by logistic regression modeling to assess the association between patients' satisfaction and background factors. Hosmer-Lemeshow goodness-of-fit was used to assess the fitness of logistic regression model.

**Table (1): Questionnaire of Survey on patients' satisfaction with dental aesthetic and demanded treatment to improve aesthetics**

1. Sex	<input type="checkbox"/> Male <input type="checkbox"/> Female
2. Age:_____ (years)	
3. Education level:	<input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> Post-secondary <input type="checkbox"/> Tertiary
4. Are you satisfied with the general appearance of your teeth?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Are you satisfied with your tooth color?	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Do you feel your teeth are crowded?	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Do you feel your teeth are poorly aligned?	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Do you feel your teeth are protruding?	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Do you have dental caries in your front teeth?	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Do you have non-aesthetic fillings in your front teeth?	<input type="checkbox"/> Yes <input type="checkbox"/> No

## RESULTS

A total sample of 172 participants were included in this study, of them 50.6% were females and 43.1% were in 18-34 age group. About 21% of study participants were 55 years old or above. The majority of the study participants had post-secondary level of education (table 2).

In regards to the questions of satisfaction about dental appearance, more than half of the study participants were unsatisfied with their general dental appearance. About 62% of study participants were unsatisfied with the color of their teeth and 23.8% felt that their teeth are crowded. In addition, 30.8% of the study participants perceived the poor alignment in their teeth and 17.4% felt a protrusion of the anterior teeth. Dental caries, non-esthetic restorations, and dental fractures in the anterior teeth were perceived by 27.9%, 15.7% and 12.2% of the study participants (table 3).

Concerning the desired dental treatment, tooth whitening was the most desired dental treatment, where 73.8% of the study participants said they need whitening of the teeth. Approximately, 56% of the study participants said they need orthodontic treatment to correct the alignment of their teeth. Dental crowns, tooth coloured restorations and dentures were the desired dental therapy in 28.4%, 16.3% and 9.3% of the study participants (table 3).

The logistic regression results showed the odds ratios of the associations between certain predictors such as age, gender, and educational level with the predicted variable (satisfaction with general dental appearance). In regards to age, the young participants in 18-34 age group were 3.7 times more likely to be unsatisfied with their dental appearance than participants who were  $\geq$  55 years old (P value = 0.001). The participants in 35-54 age group were more likely to be unsatisfied than older participants, however this association was not statistically significant (P value = 0.562). The women were 2.6 times more likely to be unsatisfied with their dental appearance than men (P value = 0.009). The participants who had a post-secondary level of education were 1.3 more likely to be unsatisfied with their dental appearance, in comparison to those with primary/secondary level of education (P value = 0.023).

11. Do you have fractures in your front teeth?	<input type="checkbox"/> Yes <input type="checkbox"/> No
12. Do you wish to undergo these treatments to improve the appearance of your teeth?	
a. Orthodontic treatment to realign teeth	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. Tooth whitening	<input type="checkbox"/> Yes <input type="checkbox"/> No
c. Dental crowns	<input type="checkbox"/> Yes <input type="checkbox"/> No
d. Tooth coloured fillings	<input type="checkbox"/> Yes <input type="checkbox"/> No
e. Dentures	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Table (2): Distribution of study participants according to background characteristics**

Background characteristic	Frequency	Percentage
Male	85	49.4%
Females	87	50.6%
<b>Age groups</b>		
18 - 34	74	43.1%
35 - 54	61	35.7%
≥ 55	37	21.2%
<b>Educational Level</b>		
Primary/secondary	42	24.4%
Post-secondary/ tertiary	141	75.6%
<b>Total</b>	<b>172</b>	<b>100%</b>

**Table (3): Distribution of the study participants by the answer of questions about satisfactions with dental appearance**

Question	Yes (%)	No (%)
1. Are you satisfied with the general appearance of your teeth?	79 (45.9%)	93 (54.1%)
2. Are you satisfied with your tooth color?	66 (38.4%)	106 (61.6%)
3. Do you feel your teeth are crowded?	41 (23.8%)	131 (76.2%)
4. Do you feel your teeth are poorly aligned?	53 (30.8%)	119 (69.2%)
5. Do you feel your teeth are protruding?	30 (17.4%)	142 (82.6%)
6. Do you have dental caries in your front teeth?	48 (27.9%)	124 (72.1%)
7. Do you have non-aesthetic fillings in your front teeth?	27 (15.7%)	145 (84.3%)
8. Do you have fractures in your front teeth?	21 (12.2%)	151 (87.8%)
9. Do you wish to undergo these treatments to improve the appearance of your teeth?		
a. Orthodontic treatment to realign teeth	96 (55.6%)	76 (44.1%)
b. Tooth whitening	127 (73.8%)	45 (26.2%)
c. Dental crowns	49 (28.4%)	123 (71.5%)
d. Tooth coloured fillings	28 (16.3%)	144 (83.7%)
e. Dentures	16 (9.3%)	156 (90.7%)

**Table (4): shows the results of logistic regression modeling where age, gender and level of education were predictors to patients general satisfaction with dental appearance**

Background variable		Odds Ratio	P value	Confidence Interval of Odds Ratio	
Age <sup>(a)</sup>	18 – 34 years old	3.7	0.001*	1.91	4.43
	35 - 54 years old	1.2	0.562	0.84	1.79
Gender <sup>(b)</sup>	Female	2.6	0.009*	1.73	3.46
Educational level <sup>(c)</sup>	Post-secondary	1.3	0.023*	1.22	2.71

(\*) Significant P value

(a) Reference group is ≥ 55 years old

(b) Reference group is male group

(c) Reference group is primary/ secondary level of education group

## DISCUSSION

The concepts and attitudes about the dental appearance differ from community to another and even from individual to another in the same community.<sup>[17]</sup> Concepts and attitudes about dental appearance is

affected by many cultural determinants and personal preferences which changing over time.

In the present study, only 45.9% of patients attended dental clinics in Albaha city were satisfied with their general dental appearance. This is in agreement with the

satisfaction rate found in adult patients attended dental clinics in Malaysia, where 47.2% were satisfied with their general dental appearance.<sup>[18]</sup> A higher satisfaction rate was found by a Turkish study included patients attending dental school, which found 57.3% of these patients satisfied with the dental appearance.<sup>[19]</sup>

Tooth color is an important factor that has a major effect in satisfaction towards smile attractiveness. In the present study, the majority of study participants were unsatisfied with their teeth color, and the item of teeth color had the lowest satisfaction rate among all items in the questionnaire. Similar findings were reported by many studies in different countries<sup>[7,18,19]</sup>, which reflecting the essential role of tooth color in the satisfaction with dental appearance. This role was confirmed by the findings of the present study that highlighted the teeth whitening as the most desired cosmetic treatment. Similar findings also reported by other studies<sup>[5,18,20]</sup>, but different results found by a German study where facial attractiveness was not associated with tooth color or even with dental appearance.<sup>[21]</sup>

Although the high prevalence of malocclusions in Saudi Arabia<sup>[22]</sup>, the perception of teeth crowding, poorly aligned teeth and anterior teeth protrusion were reported in small proportions of the study participants. This may reflect a low level of awareness and less impact of teeth misalignment in patients' satisfaction. While there are several studies found that perception of teeth malalignment affected satisfaction about dental appearance.<sup>[5,23]</sup> In the present study, dental caries in the anterior teeth was perceived by about a quarter of the study participants. Other studies found perceived dental caries in the anterior teeth to have a significant effect on satisfaction about dental appearance and facial attractiveness.<sup>[5,20]</sup>

In the present study, the young participants in 18-34 age group were 3.7 times more likely to be unsatisfied with their dental appearance than participants who were  $\geq 55$  years old. The participants in 35-54 age group were more likely to be unsatisfied than older participants, however this association was not statistically significant. Similar association between old age and satisfaction with dental appearance was reported by several studies<sup>[8,19]</sup>, reflecting greater importance of dental appearance in young people than in old people in Saudi community. It can be considered as a part of overall importance towards general body appearance at this age stage. Different findings reported by the Malaysian study, which found no effect of age in satisfaction towards dental appearance.<sup>[18]</sup> In addition, the findings of a study, conducted in USA, revealed that no association was present between age groups and satisfaction towards tooth color.<sup>[24]</sup> However, different methods used in this USA study may affect its ability to detect the significant associations, where a five-grade scale was used and only satisfaction towards tooth color was assessed. In

addition, it could be attributed to the community culture, where modern communities usually appreciate the importance of dental appearance regardless of age.<sup>[25,26]</sup>

Generally, women are known to be more interested in their beauty including dental esthetics. Thus, in the present study, women in Albaha city were found more likely to be unsatisfied with their dental appearance than men. This is consistent with the results of the studies<sup>[5,18]</sup>, while the other studies found this difference was not significant.<sup>[7,19]</sup>

In the present study, the participants who had a high level of education were more likely to be unsatisfied with their dental appearance, in comparison to those with low level of education. This negative association between level of education and satisfaction rate was in disagreement with the findings of other studies where positive association was identified<sup>[7,19]</sup>, while the Malaysian study found no significant association.<sup>[18]</sup>

The limitations of this study included the dependence on patients' perceptions only without comparing them to the actual treatment needs from professional view. Furthermore, the patients attended the dental clinics, who surveyed in this study, are expected to have more interest in their dental appearance than that in general population. In another hand, the strength point of this study to include patients from public clinics, which expected to yield more reliable results than those in private clinics.

## CONCLUSION

The majority of the dental patients in Albaha city were unsatisfied with their dental appearance. This dissatisfaction was more expressed by young, women, and highly educated patients. The most prevalent cause of patients' dissatisfaction was the teeth color with the majority of patients reported teeth whitening as the desired dental treatment. These findings could guide dentists during planning of esthetic treatment in an efficient way that satisfy patients' demands.

## CONFLICT OF INTEREST

The author declared no conflict of interests.

## ACKNOWLEDGEMENT

Great thanks to whom helped in this research, especially the helpful and cooperative staff in the public dental clinics in Albaha city.

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