

Satisfaction, Awareness and Attitude about Oral Aesthetics among Female High School Students in Riyadh, Saudi Arabia: A Cross-sectional Study

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Abstract

Introduction: Aim of the study is to determine the level of dental satisfaction, awareness, and attitude among 3rd year female high school students of Riyadh. As it is important to detect the level of awareness and attitude at young age so that they all can benefit more from the early treatment plan and as females are more conscious towards overall aesthetic we therefore aimed to recruit female participants only in order to evaluate the level of concerns regarding oral aesthetics.

Methods: A cross-sectional study was conducted among 501 female students in 6 different high schools of Riyadh. A structured questionnaire was used to identify the students' score about the level of satisfaction, awareness, and attitude towards their dental appearance. The results and statistics were carried out by using the SPSS software version 20.

Results: Among those surveyed, (82.2%) were satisfied with their dental appearance, (81.6%) had good awareness and (58.9%) had negative attitude. The most undergone treatment among the students was orthodontic treatments (62.6%). The most desired treatment was teeth whitening (52.8%) followed by orthodontic treatments (18.2%). The mother's level of education and income were significantly related to the awareness level (0.001 and 0.004 respectively).

Conclusion: Through this cross-sectional study conducted on 501 female students we concluded that more than three fourth of the students were satisfied with their dental appearance and are aware about the oral health; however, more than half had negative attitude towards the oral aesthetics. Mother's level of education and family income were related to awareness level of the students. Strategies should be formulated based on evidences to improve the attitude of young students towards dental aesthetics.

Keywords: Dental satisfaction, Dental awareness, Dental esthetics, Dental appearance, Oral health.

Introduction

As a general rule, people from all backgrounds want to be perceived as attractive or beautiful. Beauty has been considered a staple since ancient times as many have tried to accomplish and maintain it. Physical attractiveness, especially nowadays, is considered a trend among many societies. In fact, many careers, such as acting, have opened doors in cementing and internationalizing the concept of a beautiful smile and thus the awareness about aesthetic dental treatments such as crowns, orthodontic treatments, whitening, and tooth-colored restorations have been increased [1, 2].

In this time and age, what constitutes as attractive differs from one person to another, but what usually remains constant is the general appearance of a smile, which was also reported as a main finding in a study done in 2007 in Norway [3]. The beauty of the teeth doesn't only extend towards the appearance but also includes the health of the teeth and the way one preserves them. Many people already have a perception of what constitutes as healthy and attractive teeth, as shown in a study done in 1996 where people were subjected to a questionnaire involving pictures of teeth and were asked to order them in regards to their attractiveness, and most of them reported symmetrical light-colored natural teeth as most attractive feature, while the one regarded as least attractive was the picture that featured darker-colored asymmetrical teeth [4].

The appearance of one's teeth has always been regarded as important in shaping one's personality and how one acts, such as in a study done in Netherlands which revealed that people who perceived their teeth as unsatisfactory have shown to have low self-esteem. It has been revealed in many studies that the participants' satisfaction with the appearance of their smile, and its effect on their personality, is not only limited to the teeth but can also include the appearance of the gums. As it was reported that the participants with disproportional gingival display were regarded as unattractive and also had low self-esteem [5-7]. Some people seek aesthetic treatment for self-satisfaction and others for actually improving the general appearance [8, 9]. In a study done in Turkey in 2009, they found that more than half of those surveyed were dissatisfied with the color of their teeth and around one fifth of the people surveyed hide their teeth when they smiled [10]. A study done in 2000 by Almas K found that 35% of those surveyed had pain in their gums, 36.8% had bad breath, and almost 42% had bleeding gums even though 50% brushed their teeth twice a day [11]. Moreover, a study done in London showed that the dental appearance, especially in regards to the color of the teeth, influenced one's first impression of another person as well as the relationship between them [12]. Bad dental appearances, such as having chipped teeth, irregular tooth alignments, or apparent dental caries, have a strong impact on social judgments as they affect the overall facial attractiveness [13, 14].

Regionally few studies related to dental aesthetics have been conducted among young adults [15, 16]. Few studies were among the dental students that reported that facial aesthetic is important for self-image and self-esteem [17, 18]. Moreover Shiekh et al reported that female students were more dissatisfied with their dental aesthetics [18]. The aim of this study is to determine the level of dental satisfaction, awareness, and attitude among 3rd year female high school students of Riyadh. As it is important to detect the level of awareness and attitude at young age so that they all can benefit more from the early treatment plan and as females are more conscious towards overall aesthetic we aimed to recruit female participants only in order to evaluate the level of concerns regarding oral aesthetics.

Material and Methods

This cross-sectional study had been conducted in 6 high schools; three of them were private high schools (Al-Rowad private high school, Al-Tarbiya private high school, and Oloom Alriyadh private high school) and the other three were public (Public high school 25, Public high school 158, and Safia bint Hayee high school). The high schools were in the Northern and Eastern regions of Riyadh.

The questionnaire was in to Arabic language and included thirty three items designed to evaluate the demographic details and the dental satisfaction, awareness and the attitude of young schoolchildren regarding their oral aesthetics. Firstly, a letter was sent to each school's headmaster from King Saud bin Abdulazuz University for Health Sciences (KSAU-HS) to get approval for the distribution of the questionnaire in their associated high school. After receiving the approval investigators visited each school in order to explain questionnaire to the subjects.

Questionnaires were distributed by the staff and faculty members of each high school. Questionnaires were distributed randomly to total 842 female participants of 3rd year student after taking the

proper consent. The sample size was determined by considering the total number of female students in the third year of high school in all the high schools involved.

Subjects received detailed explanation of how to mark their responses. The questionnaire were collected in the course of 2 weeks between the periods of 25th of January till the 6th of February 2015 and during this time participants were encouraged to approach investigator if any clarification was required. In order to improve the quality and efficiency of the large study, a pilot study was conducted in prior. Results of the pilot phase showed an acceptable face validity of the questionnaire items.

The study had obtained ethical clearance from Institutional Review Board and Ethical Approval Committee at KMARC KSAUH and college of dentistry KSAUHS NGH.A.IBM SPSS 20 was used to analyses the data. Descriptive statistical analysis was employed to evaluate students' level of awareness, satisfaction and attitude. Results were depicted in frequency tables and bar charts. Chi square was calculated and p value of 0.05 and less was considered significant.

Results

In this study, 525 students (96% Saudi and 4% Non-Saudi) out of 842 students answered the questionnaire while 317 did not respond. The response rate in total was 62.35%; where the response rate of public schools was 66.6% and the response rate of private schools was 49%. A total of 3 incomplete questionnaires were excluded. The final number of questionnaires included in this study was 501 (45.7% public and 54.3% Private).

Table 1 shows the details of some of the variables related to oral aesthetics. Out of total 48.9% described their teeth condition as very good and only 2.6% marked it as bad. Only 3.6% students reported that they avoid smiling and 38.3% reported that sometimes they get concern about people judgment towards one's smile and 50.4% were doing brushing twice. (Table 1)

Variables	Frequency(%)	
Description of teeth	Excellent	122(24.5%)
	Very good	243(48.9%)
	Good	119(23.9%)
	Bad	13(2.6%)
Hide teeth while smiling	Always	18(3.6%)
	Sometimes	184(36.9%)
	Never	296(59.4%)
Concern about people's judgments towards one's smile	Yes, always	97(19.4%)
	Yes, sometimes	191(38.3%)
	Rarely	128(25.7%)
	Never	83(16.6%)
Frequency of brushing teeth	More than twice	135(27%)
	Twice	252(50.4%)
	Once	110(22%)
	Never	3(0.6%)
Yearly, frequency of visiting a dentist	Three times or more	185 (37.3%)
	Twice	105 (21.2%)
	Once	115 (23.2%)
	Never	91 (18.3%)

Table 1: Oral hygiene behavior and attitude of study participants

The most undergone treatment among the students was orthodontic treatments (62.6%) followed by unspecified treatments (11.9%), teeth whitening (11.6%), both orthodontic treatments and teeth whitening (6%), and veneers (4%). The most desired treatment was teeth whitening (52.8%) followed by orthodontic treatments (18.2%), unspecified treatments (13.8%), both orthodontic treatments and teeth whitening (7%), and teeth fillings (3.8%). Figure 1 shows the results of the self-reported gingival descriptions of the participants. Fifty four percent reported their gingiva as red and puffy sore that always bleed followed by 40% who reported red and puffy appearance that's bleed while brushing.

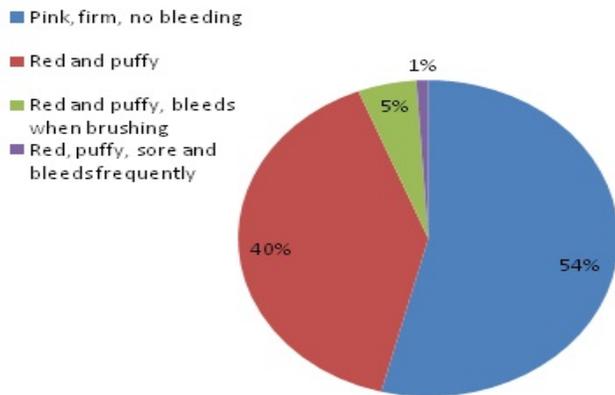


Figure 1: Pie chart showing percentages of self-reported gingival description.

We calculated over all percentages of satisfaction, attitude and awareness of students and we found 82.2% were satisfied with their oral aesthetics, 41.9% had positive attitude towards oral aesthetics and 81.9% had awareness about the importance of oral aesthetics. (Fig 2)

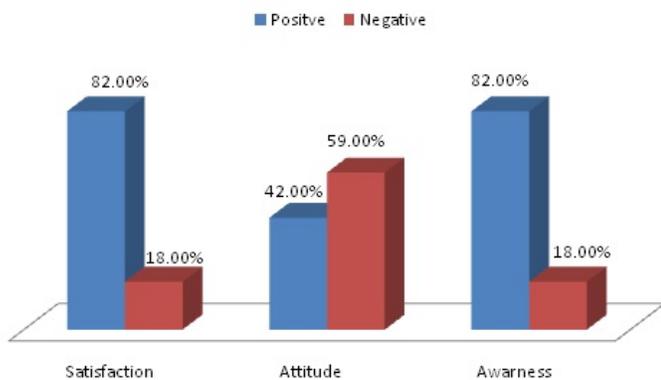


Figure 2: Bar graph showing level of satisfaction, attitude and awareness of study participants.

We further calculated chi square to see the difference in terms of type of school, family income and parental education with the level of student's satisfaction, awareness, or attitude. We found that level of mother's education and family income differed significantly among students having positive and negative attitude (P value = 0.001 and 0.004 respectively) while family income differed significantly among students having positive and negative

awareness (P value =0.048).

Mother's Education	University n(%)	High school n(%)	Middle school n(%)	Others n(%)	Total n(%)	P value
Satisfaction						0.397
Satisfied	221(54.7)	109(27.0)	38(9.4)	36(8.9)	404(100.0)	
Not Satisfied	53(61.6)	16(18.6)	10(11.6)	7(8.1)	86(100.0)	
Awareness						0.001
Aware	237(59.0)	93(23.1)	43(10.7)	29(7.2)	402(100.0)	
Not Aware	37(42.0)	32(36.4)	5(5.7)	14(15.9)	88(100.0)	
Attitude						0.076
Positive	122(59.8)	55(27.0)	15(7.4)	12(5.9)	204(100.0)	
Negative	151(53.2)	69(24.3)	33(11.6)	31(10.9)	284(100.0)	

Table 2: Difference in student's level of satisfaction, awareness and attitude with education level of mother.

Income Level	<10000	10000-20000	30000-40000	>40000	Total n(%)	P value
Satisfaction						0.148
Satisfied	21(6.3)	82(24.6)	114(34.2)	116(34.8)	333(100.0)	
Not Satisfied	5(6.9)	27(37.5)	19(26.4)	21(29.2)	72(100.0)	
Awareness						0.048
Aware	8(4.7)	36(21.3)	58(34.3)	67(39.6)	169(100.0)	
Not Aware	18(7.7)	73(31.2)	73(31.2)	70(29.9)	234(100.0)	
Attitude						0.004
Positive	20(6.0)	78(23.4)	115(34.5)	120(36.0)	333(100.0)	
Negative	6(8.3)	31(43.1)	15(25.0)	17(23.6)	72(100.0)	

Table 3: Difference in student's level of satisfaction, awareness and attitude with family income.

Discussion

This study investigated the level of satisfaction with the student's dental appearance, attitude, and awareness. The percentage of the students who were satisfied with their dental appearance found in this study was 82.2%, while in a previous study conducted in Saudi Arabia, 50% of the population was satisfied with the appearance of their teeth [16]. Other studies showed that 57.3% of the population was satisfied in Turkey, 47.2% in Malaysia, 65.5% in Jordan, 65% in Palestine and 76% in the United Kingdom [2, 7, 8, 16,].

In this study, only 3.6% hide their teeth when smiling, however, in Turkey [10]. 23.3% do the same. The difference and the low percentage in this study might be due to the high satisfaction rates in this study. Almost 79.6% of the respondents in this study were satisfied with the color of their gingiva. Rate of satisfaction of our study is comparatively higher than the study conducted on female dental students in Sudan where 53.4% were satisfied with their gingival color while another study done in Turkey reported that 25% of the respondents of the study participants were bothered with the color of their gums. [15, 17].

Tooth whitening was found to be the most desired treatment by the participants; similarly, studies on female patients in London and in Malaysia showed that tooth whitening was also preferred over natural colored teeth [2, 18]. Also, in this study, the most dental aesthetic treatment that the participants underwent was orthodontics by a percentage of (62.60%), followed by teeth

whitening (11.60%), and veneers (4%); while in a study done in Turkey, the least dental aesthetic treatment done was found to be teeth whitening (9.1%), and orthodontics (8%) [19]. This might be due to the fact that in Saudi Arabia the aesthetic treatment is free for the population. Also, since Turkish people smoke a lot, they end up needing more prosthetic, periodontics, and endodontic treatment to fix their teeth instead of aesthetic ones [20].

In this study, the majority showed a negative attitude in practicing oral health behaviors, which showed a significant relation with the income ($p=0.048$), similarly, in USA, there was a study done among middle-aged and older dentate adults where they have also found that education level, income and other factors have a significant relation with oral health behaviors, too [12]. Therefore, the income appears to have an influence on oral health behavior in both studies conducted. Moreover, according to a study done in Al Hassa, there was a relation between the maternal working conditions and their children's dental health status and awareness which corresponds to the findings of this study as we found significant association with maternal educational status ($p=0.001$) [20].

A percentage of 58.5% of the students in our study stated that they visit the dentist twice, thrice or more in a year, while in a study conducted in the United States, only 24% stated the same [8]. In another study conducted in Sweden, 26% visited twice or more per year among 50-year-olds [21]. This reflects a better oral hygiene practiced in US and Sweden, therefore, they require less visit to the dentist. A percentage of 50.4% in this study has also reported brushing their teeth twice a day, which is the international recommendation of brushing that coincides with a study done by Hassan Suliman Halawany in four Asian countries (Saudi Arabia, United Arab Emirates, Yemen, and India) which reported that 71.8% of female students brushed their teeth twice a day [22]. Another study conducted in Turkey reported that 74% of participants brushed their teeth twice a day [19]. This might be due to the fact that in Saudi Arabia, there is a lack of oral awareness and the need for more parental guidelines.

However, regarding oral hygiene aids, (83.9%) of the students in this study admitted not using dental floss, which was similar to Suliman Halawany's study and another study conducted in Peshawar which showcases a lack of knowledge of dental hygiene in general [23]. In contrast to our study, which found only 54% responding with bleeding gums at all times, a study conducted in Saudi Arabia found that 42% of the respondents had bleeding gums and a study conducted in Turkey showed a percentage of 25% [19, 24]. This could be due to the differences in sample size. In correspondence with a study done in the United States, which showed a percentage of 55.3% of respondents who regarded their gums as healthy, 40% of the respondents in this study regarded their gums as pink and firm, which means they regard their gums as healthy. This shows that generally people believe that their teeth are healthy.

The limitations found within this study are that neither the female population nor the types of schools are representative of the whole population thus we cannot generalize our finding. However, the aim was to conduct the study on female population only as they are more conscious about aesthetics need and to ensure variability we have recruited participants from different schools. Secondly no objective tool was used to assess the oral hygiene behavior

thus results should be concluded with caution. Although level of satisfaction and awareness can be best judged by questionnaire thus we used an efficient tool to estimate the level of satisfaction, attitude and awareness.

Conclusion

Through this cross-sectional study conducted on 501 female students we concluded that more than three fourth of the students were satisfied with their dental appearance and are aware about the oral health; however, more than half had negative attitude towards the oral aesthetics. Mother's level of education and family income were related to awareness level of the students. Strategies should be formulated based on evidences to improve the attitude of young students towards dental aesthetics [25-30].

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References

1. Samorodnitzky-Naveh GR, Geiger SB, d Levin L (2007) Patients' satisfaction with dental esthetics. *The Journal of the American Dental Association* 138: 805-808.
2. Tin-Oo MM, Saddki N, Hassan N (2011) Factors influencing patient satisfaction with dental appearance and treatments they desire to improve aesthetics. *BMC oral health* 11: 1.
3. Jørmung J, Fardal Ø (2007) Perceptions of patients' smiles: a comparison of patients' and dentists' opinions. *The Journal of the American Dental Association* 138: 1544-1553.
4. Dunn WJ, Murchison DF, Broome JC (1996) Esthetics: patients' perceptions of dental attractiveness. *Journal of Prosthodontics* 5:166-171.
5. Feng XP, Newton JT, Robinson PG (2001) The impact of dental appearance on perceptions of personal characteristics among Chinese people in the United Kingdom. *International dental journal* 51: 282-286.
6. Van der Geld P, Oosterveld P, Van Heck G, Kuijpers-Jagtman AM (2007) Smile attractiveness: self-perception and influence on personality. *The Angle orthodontist* 77: 759-765.
7. Younis A, Al-Omiri MK, Hantash RO, Alrabab'Ah M, Dar-Odeh N et al. (2012) Relationship between dental impacts on daily living, satisfaction with the dentition and personality profiles among a Palestinian population. *Odonto-stomatologie tropicale= Tropical dental journal* 35: 21-30.
8. Akarslan ZZ, Sadik B, Erten H, Karabulut E (2009) Dental esthetic satisfaction, received and desired dental treatments for improvement of esthetics. *Indian Journal of Dental Research* 20: 195.
9. Thomas M, D'Silva J, Kohli S, Sarkar S (2014) Lip designing: The need for a beautiful smile: An Indian perspective. *Indian Journal of Dental Research* 25: 449.
10. Montero J, Gómez-Polo C, Santos JA, Portillo M, Lorenzo MC et al. (2014) Contributions of dental colour to the physical attractiveness stereotype. *Journal of oral rehabilitation* 41: 768-782.
11. Khan F, Ayub A and Kibria Z (2013) Knowledge, Attitude and Practice about Oral Health among General Population of Peshawar. *Journal of Dow University of Health Sciences* 7.

12. Kershaw S, Newton JT, Williams DM (2008) The influence of tooth colour on the perceptions of personal characteristics among female dental patients: comparisons of unmodified, decayed and 'whitened' teeth. *British dental journal* 204: E9-E9.
13. Karunakaran T, Gilbert D, Asimakopoulou K, Newton T (2011) The influence of visible dental caries on social judgements and overall facial attractiveness amongst undergraduates. *Journal of dentistry* 39: 212-217.
14. Somani A, Newton JT, Dunne S, Gilbert DB (2010) The impact of visible dental decay on social judgements: comparison of the effects of location and extent of lesion. *International dental journal* 60: 169-174.
15. Alkhatib MN, Holt R, Bedi R (2005) Age and perception of dental appearance and tooth colour. *Gerodontology* 22: 32-36.
16. Karasneh J, Al-Omiri MK, Al-Hamad KQ, Al Quran FA (2009) Relationship between patients' oral health-related quality of life, satisfaction with dentition, and personality profiles. *J Contemp Dent Pract* 10: E049-56.
17. Al-Zarea BK (2013) Satisfaction with appearance and the desired treatment to improve aesthetics. *International journal of dentistry*.
18. Al-Shiekh L, Muhammed MED, Muhammed AER, El-Huda MA, Hashim NT (2014) Evaluation of dental students' oral hygiene attitude and behavior using HU-DBI in Sudan. *S-PPJ* 1.
19. Peker I, Alkurt MT (2009) Oral health attitudes and behavior among a group of Turkish dental students. *Eur J Dent* 3: 24-31.
20. Wyne AH (2007) Caries prevalence, severity, and pattern in preschool children. *The journal of contemporary dental practice* 9: 24-31.
21. Davidson PL, Rams TE, Andfrsen RM (1997) Socio-behavioral determinants of oral hygiene practices among USA ethnic and age groups. *Advances in dental research* 11: 245-253.
22. Halawany HS, Abraham NB, Jacob V, Al-Maflehi N (2015) The perceived concepts of oral health attitudes and behaviors of dental students from four Asian countries. *The Saudi Journal for Dental Research* 6: 79-85.
23. Almas K, Albaker A, Felebam N (1999) Knowledge of dental health and diseases among dental patients, a multicentre study in Saudi Arabia. *Indian journal of dental research: official publication of Indian Society for Dental Research* 11: 145-155.
24. Albarakati SF (2007) Self-perception of malocclusion of Saudi patients using the aesthetic component of the IOTN index. *Pak Oral Dent J* 27: 45-51.
25. Al Shahrani I (2014) Self-perception of personal dental appearance among students of King Khaled University Abha, Saudi Arabia. *European Journal of General Dentistry* 3: 181.
26. Hassan AH (2006) Orthodontic treatment needs in the western region of Saudi Arabia: a research report. *Head & face medicine* 2: 2.
27. Hassan AH and Amin HES (2010) Association of orthodontic treatment needs and oral health-related quality of life in young adults. *American Journal of Orthodontics and Dentofacial Orthopedics* 137: 42-47.
28. Liu H, Singer RE, Winston JL, Hyde JD, Cerone CM (2002) March. Associations between periodontal health and demographics, self-reported oral hygiene practices and overall satisfaction with oral health. In *JOURNAL OF DENTAL RESEARCH* (Vol. 81, pp. A449-A449). 1619 DUKE ST, ALEXANDRIA, VA 22314-3406 USA: INT AMER ASSOC DENTAL RESEARCHI ADR/AADR.
29. Malik V, Grover S, Sidhu MS, Yadav P, Chaudhary P (2013) Evaluation of Orthodontic Treatment Need and Its Correlation with the Perception, Awareness and Satisfaction of Personal Dental Appearance among Dental Students. *Journal of Orofacial Research* 3: 5-11.
30. Newton JT, Prabhu N, Robinson PG (2003) The impact of dental appearance on the appraisal of personal characteristics. *International Journal of Prosthodontics* 16.

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