

Level of Awareness of the Population about Dental Veneers in Jeddah, Saudi Arabia

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ABSTRACT

Introduction: The recent development of advanced techniques and technologies increased the interest in dental venues to improve esthetics, such as ceramics and veneers.

Aim: This cross-sectional study aimed to assess the level of awareness of dental veneers among the population in Jeddah, Saudi Arabia.

Materials and Methods: There was a total of 627 participants in the study. Data were collected using self-administrated questionnaires that were modified from previous studies. The collected data were analyzed using SPSS software for t-test, linear regression, Chi square, and ANOVA analyses.

Results: The mean total knowledge score of the participants was $m=13.58$ ($SD=3.35$) for a total of twenty-two dental veneers knowledge questions. The participants' knowledge of dental veneers significantly differed in relation to gender, level of education, family income, and marital status. A small portion of the participants (16.6%) knew about preparation-less veneers (commercially known as Lumineers), and an even smaller portion (14.7%) knew about clip-on veneers (commercially known as a Snap-On smile). Some participants (64.1%) stated that the main reason to seek dental veneers was to have a beautiful smile, while others (49.9%) stated that the main barrier to not have dental veneers was the satisfaction with their own smile.

Conclusion: The overall knowledge regarding dental veneers was moderate and needs to be improved. Social media was the main source of information which suggests that using social media networks in education by dental professionals will help increase population awareness of dental veneers.

Key words: Knowledge, Dental veneers, Preparation-less veneers, Clip-on veneers, Saudi Arabia

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INTRODUCTION

Smiles play a major role in the overall perception of physical attractiveness in the cosmetic world [1], as it is the first non-verbal communication venue between people [2]. In fact, there is a growing attraction in dental esthetics due to the high accessibility to media and internet content

[3,4]. The recent development of advanced techniques and technologies increased the interest in dental venues to improve esthetics, such as ceramics and veneers [5]. Studies indicate that the demand on teeth whitening and veneers increased by 77.8% and 54.8% respectively [4].

Ceramic veneers are considered one of the most esthetic and conservative treatment options with minimal removal of tooth structure [6-8]. Masking discolored teeth, diastema closure, correction of minor misalignments, rotations of the anterior teeth, and teeth reshaping

are all considered an excellent indication for veneers [7,9,10]. They provide the patient with maximum esthetics and a polished surface which provides less plaque accumulation, resistance to any external stains, and longer clinical longevity compared to other direct restorations [6,7,11]. Disadvantages of dental veneers include possible dentinal sensitivity, harder to repair when fractured, and gingival problems may occur if the veneers are over-contoured [7].

Two studies have been conducted in Saudi Arabia to define patient satisfaction with dental appearance [3,12]. One study indicated that around two out of five persons are not satisfied with their dental appearance, and one third are not satisfied with their teeth color and/or alignment [3]. Additionally, both studies indicated that many participants want to whiten their teeth using teeth whitening or veneers [3,12].

During the last two years there was a growing attention toward assessing the level of knowledge and attitude regarding dental veneers in Saudi Arabia. These studies indicated that the Saudi population has a general lack of knowledge regarding the side effects and lifespan of dental veneers [13-15].

However, in the literature, the data regarding population awareness toward dental veneers in Jeddah, Saudi Arabia, is limited [16]. Further, clip-on veneers [17], commercially known as a Snap-On smile, were not investigated previously in similar articles. Consequently, the aim of this study is to assess the level of awareness of dental veneers among the population in Jeddah, Saudi Arabia.

MATERIALS AND METHODS

A convenience sampling technique was used in recruiting the participants from five dental centers: King Abdulaziz University, King Fahad Hospital, King Fahad Armed Forces Hospital, Alfarabi College, and Primary Health Care of the Ministry of Health in Jeddah, Saudi Arabia. The inclusion criteria consisted of male and female Arab patients older than 18 years. Using a sample size calculation with a precision level of 5%, 50% as an estimated prevalence, and a confidence level of 90%, the minimum number of participants needed for this study was 385. To overcome an estimated non-response rate, the research team distributed

700 self-administered hard copy questionnaires in Arabic among potential participants who answered voluntarily and anonymously. Each participant signed the informed consent form before answering the questionnaire, completion of which took approximately five to six minutes. The questionnaire used in this study was derived from two validated questionnaires from previous studies [13,15] with modifications, and a pilot test was carried out among 14 participants to evaluate the questions in terms of syntax, organization, order, logical sequence, content, grammar, and clarity.

The questionnaire consisted of 35 questions organized into three sections: the first section included eight demographic questions regarding gender, age, nationality, level of education, marital status, family income per month, and occupation. This section also addresses whether their profession was in the dental field or not. The second section asked general knowledge questions regarding dental veneers, such as the indication for veneers and their pros and cons, with multiple choice answers. Correct answers were added to the total score regarding general dental veneers knowledge, and were derived from previous literature [13,15,18]. The third section asked for the participant's opinions and attitudes toward dental veneers.

The data were collected and analyzed using SPSS version 21 (IBM Corp., Armonk, NY, USA). T-tests, linear regressions, Chi square and ANOVA were used for statistical analysis, and a probability value of less than 0.05 was set to be statistically significant. Before conducting the study, ethical approval was obtained from the Institutional Review Board (IRB) of Umm Al-Qura University, Faculty of Dentistry, with number 170-20.

RESULTS

A total of 627 participants returned the questionnaire, yielding a 89.57% response rate. The mean (m) age was $m=32.72$, with a standard deviation (SD) of 11.09. Most participants 411 (65.6%) were female. Their occupations varied, and most were employees 347 (55.35%). The participant demographic variables are shown in Table 1. The participants' answers to the questions regarding dental veneers are shown in Table 2. After reviewing the answers of all 22 items, the total score regarding knowledge of dental veneers was $m= 13.58$, and $SD=3.35$, with the highest possible score of 22, and the lowest of zero.

Table 1: Participant demographical variables.

Variable	Number (N)	Percent (%)
Gender	Female	65.60%
	Male	34.40%
Occupation	Student	27.00%
	Employee	55.35%
	Non-employee	17.70%
Nationality	Saudi	77.00%
	Non-Saudi	23.00%
Are you employed in the dental field?	Yes	9.30%
	No	90.70%
Level of education	Illiterate	2.60%
	High school or less	24.40%
	University and higher	73.00%
Marital status	Single	41.60%
	Married	49.40%
	Divorced	6.70%
	Widow	2.20%
Family income per month	Less than 5,000 SR	19.80%
	5,000-20,000 SR	62.70%
	More than 20,000 SR	17.50%

Table 2: Participant answers to dental veneers knowledge questions.

Dental veneers knowledge questionS	Number (N) (%)	
When do you think dental veneers are indicated?		
1- Badly stained teeth not responding to bleaching	Yes*	515 (82.1%)
	No	112 (17.9%)
2- Correction of severely crowded teeth	Yes	252 (40.2%)
	No*	375 (59.8%)
3- Replace missing teeth	Yes	258 (41.1%)
	No*	369 (58.9%)
4- Anterior fractured teeth	Yes*	431 (68.7%)
	No	196 (31.3%)
5- Multiple stained anterior restorations	Yes*	477 (76.1%)
	No	150 (23.9%)
6- Dental fluorosis (produced by consuming highly fluoridated water).	Yes*	413 (65.9%)
	No	241 (34.1%)
What are the considered benefits of dental veneers?		
1-Change tooth color	Yes*	520 (82.9%)
	No	107 (17.1%)
2- Resist coffee/tea/smoking stains	Yes*	441 (70.3%)
	No	186 (29.7%)
3- Do not require teeth brushing and flossing	Yes	177 (28.2%)
	No*	450 (71.8%)
4- Change the tooth shape	Yes*	419 (66.8%)
	No	208 (33.2%)
5- Prevent tooth decay/caries	Yes	269 (42.9%)
	No*	358 (57.1%)
6- Closure of slight spaces between teeth	Yes*	434 (69.2%)
	No	193 (30.8%)
7- Correction of maligned teeth that require orthodontic treatment	Yes	275 (43.9%)
	No*	352 (56.1%)
What are the considered disadvantages of dental veneers?		
1- Require removal of the tooth structure	Yes*	459 (73.2%)
	No	168 (26.8%)
2- May present an unpleasant odor (over-contoured)	Yes*	411 (65.6%)
	No	216 (34.4%)
3- May negatively affect the gums (over-contoured)	Yes*	452 (72.1%)
	No	175 (27.9%)

4- May fracture due to specific way of eating	Yes*	411 (65.6%)
	No	216 (34.4%)
5- Require extensive care and hygiene	Yes*	454 (72.4%)
	No	173 (27.6%)
If you decide to remove your veneers, can we have the original teeth as they were before?	Yes	59 (9.4%)
	No*	314 (50.1%)
	I do not know	254 (40.5%)
Do you know how many visits are required before the cementation?	One	20 (3.2%)
	Multiple Visits*	263 (42.0%)
	I do not know	344 (54.9%)
Do you know what preparation-less veneers (Lumineers) are?	It is another name of veneers	58 (9.3%)
	It is another fixed method to improve the appearance and like veneers*	104 (16.6%)
	It is another removable method to improve the appearance and like veneers	70 (11.2%)
	I do not know	395 (63.0%)
Do you know what Clip-on veneers (Snap-on smile) are?	It is another name of veneer	79 (12.6%)
	It is another fixed method to improve the appearance and like veneers	71 (11.3%)
	It is another removable method to improve the appearance and like veneers*	92 (14.7%)
	I do not know	385 (61.4%)

* The correct choice.

Table 3: Total dental veneers knowledge score in relation to the characteristics of the study subjects.

		Total knowledge about dental veneers		
		M	SD	p value
Gender	Male	13	3.61	0.003*
	Female	13.88	3.16	
Nationality	Saudi	13.64	3.37	0.398
	Non- Saudi	13.38	3.27	
Are you employed in the dental field?	Yes	15.86	3.34	<0.001*
	No	13.35	3.26	
Level of education	Illiterate	10.63	2.68	<0.001*
	High school or less	12.53	3.28	
	University and higher	14.03	3.26	
Occupation	Student	13.86	3.39	0.348
	Employee	13.54	3.38	
Family income per month in Saudi Riyal	non-employee	13.28	3.19	0.003*
	Less than 5,000 SAR	13.15	3.42	
	5,000-20,000 SAR	13.45	3.28	
Marital status	More than 20,000 SAR	4.53	3.37	0.015*
	Single	13.9	3.21	
	Married	13.53	3.39	
	Divorced	12.19	3.69	
	Widow	12.85	2.82	

*Significant at 0.05

Using t-test, ANOVA (Tukey post hoc test) and linear regression, the total knowledge score about dental veneers was tested against demographic variables as shown in Table 3. Using t-test, female participants had significantly higher total knowledge scores than males, $t(625)=3.161$, $p=0.003$. Moreover, participants who work in dentistry had a significantly higher total knowledge score than those who did not, $t(625)=5.582$, $p<0.001$. Using ANOVA, $F(2.624)=18.984$, $p<0.001$, participants who

attended university or other higher learning institutions had significantly higher total knowledge scores than both those who attended high school and those with less education and those who identified as illiterate; there was no significant difference between those with high school or less education and those identifying as illiterate. Total knowledge scores were higher among families whose income per month was more than 20,000 Saudi Riyal as compared to other categories with less income,

Table 4. Reasons for and against dental veneers and the differences between male and female participants using the chi square test.

		Total	Male	Female	P Value
		n (%)	n (%)	n (%)	
Why would you like to do dental veneers in the future?	To have a beautiful smile	402 (64.1%)	127 (58.8%)	275 (66.9%)	0.044*
	I do not want to veneer	192 (30.6%)	65(30.1%)	127(30.9%)	0.835
	Functional reasons	124 (19.8%)	42 (19.4%)	82(20.0%)	0.88
	Fashion	67 (10.7%)	23 (10.6%)	44 (10.7%)	0.982
	Other reasons	45 (7.2%)	17(7.9%)	28 (6.8%)	0.626
	I already have veneers	43 (6.9%)	16 (17.4%)	27(6.6%)	0.693
	To show people that I have money	37 (5.9%)	21(9.7%)	16(3.9%)	0.003*
Barriers that prevent you from getting dental veneers	I am satisfied with my smile	313 (49.9%)	110(50.9%)	203(49.4%)	0.715
	Fear of negative result on oral health	262 (41.8%)	75(34.7%)	187(45.5%)	0.009*
	Fear of pain	195 (31.1%)	54 (25%)	141(34.3%)	0.017*
	Fake smile look	144 (23%)	32 (14.8%)	112(27.3%)	0.001*
	Financial reasons	120 (19.1%)	50 (23.1%)	70 (17%)	0.064
	Needs multiple appointments	113 (18%)	44(20.4%)	69(16.8%)	0.267
	Causes lip protrusion	102 (16.3%)	29(13.4%)	73(17.8%)	0.162
	History of bad dental experience	88 (14%)	34(15.7%)	54(13.1%)	0.373
	Don't trust dentists in veneers treatment	83 (13.2%)	33(15.3%)	50(12.2%)	0.274
	Other	79 (12%)	33 (15.3%)	46(11.2%)	0.143
	Friend told me about their previous bad experience	62 (9.9%)	24(11.1%)	38(9.2%)	0.457

*Significant at 0.05 using chi-square test

F(2.624)=5.832, p =0.003. Those who identified as single were found to have higher total scores regarding dental veneer knowledge as compared to those who are divorced; there was no significant difference between single material status and other material status categories, F(3.623)=3.491, p=0.015, as shown in Table 3. Using t-test, ANOVA (Tukey post hoc test) and linear regression age, nationality, and occupation were found not to be significantly related to the total dental veneer knowledge score.

A total of 127 participants (20.3%) advised others to receive veneers, while (17.9%) advised others not to receive dental veneers, and more than half of the population (61.9%) had a neutral opinion. Most of the participants, 81.7%, believed that dental veneers are currently overused, while 18.3% believed otherwise. The main source of information regarding dental veneers for the participants was the internet and social media (56.3%), followed by friends and relatives (38.6%), then their dentists (30.9%), television (16.4%), and finally other sources (5.3%). However, 10.7% of participants never heard of dental veneers. There were different reasons and barriers to receive and not receive dental veneers among participants, as shown in Table 4.

DISCUSSION

Currently, most people are seeking dental clinics for excellent aesthetic appearance which

increases the interest for them to receive dental veneers [19]. Consequently, addressing the level of knowledge and the attitude of dental veneers, its uses, benefits, disadvantages, and real indications is considered important to dental practice. The results showed that the overall total dental veneers knowledge was just higher than the midpoint, indicating a moderate level of knowledge. This result is higher than the previously reported studies in the Arab population from different Middle Eastern nationalities [13]. For example, in the Al-Qassim region, [14] and Saudi Arabia [15] the total level of knowledge regarding dental veneers was insufficient. However, our result showed that a small portion of the participants (16.6%) knew about preparation-less veneers, and an even smaller portion (14.7%) knew about clip-on veneers and could not differentiate between them and dental veneers. Previous studies [13,14,15] didn't address the level of knowledge about these two esthetic treatment options. This might be because such types of veneers are still new, [17,18] and not everyone knows about it.

There was a direct relationship between knowledge level and education level. Participants who had a university or higher education had higher total knowledge scores, which was found consistent with previous studies [13,14,20]. In fact, this also aligned with other studies in dentistry in general, such as the findings of

Sabbagh et al. [21] that showed that participants with higher education showed significantly higher mean knowledge scores regarding caries preventive methods. Moreover, a study stated that parents with higher education had a higher frequency of dental health care for their children [22].

Female participants found to have higher knowledge scores compared to males. This agrees with the findings of Alfouzan et al's. [13] study, but contrasts Alharbi et al's. [14] study which stated that male participants were more aware of possible bacterial infections caused by food accumulation between veneers and the original teeth, while female participants were more knowledgeable of gingival infections caused by veneers. Such differences might be due to cultural differences between cities in Saudi Arabia, as this previous study was conducted in the Al-Qassim region.

Similar to previous studies [21,23,24], our also found that participants of higher family income had higher levels of knowledge about dental veneers. This is more logical as veneers aren't usually a cheap treatment modality, leading to the fact that higher income participants would be more interested to know about it. Furthermore, the nationality and occupation of the participants were not found to be significantly different in knowledge level. This agrees with the findings of Alfouzan et al. [13]. This also provides external validity to such results in Saudi Arabia.

The main source of information regarding dental veneers for more than half of the participants was the internet and social media. This finding agrees with previous studies in Arab populations from different Middle Eastern nationalities [13], and Saudi Arabia [15]. This contrasts another study that reported the internet as the main source of health-related information among the general Dutch population [25]. This is very important as many articles [26,27] indicated the growing trend for social media and its use in dental marketing. This should be taken with care, as false claims can be promoted in such venues by non-professional or commercial advertisement. Social media cannot be trusted to be a reliable source of information unless given by formal scientific organization.

There were multiple reasons that encouraged participants to have dental veneers. Similar to previous studies [14,15,28], the major reason

was "to have a beautiful smile," especially among females. This might be clarified by the results obtained from previous studies [29,30,31] that females are more critical in their dental appearance than males.

The present study showed that (49.9%) were satisfied with their smile, a finding that is lower than studies performed in Riyadh, Saudi Arabia (55.5%) [32], Turkey (57.3%) [33], the U.K. (76%) [34], Palestine (65%) [35], Nigeria (79.4%) [36], and Jordan (69.3%) [37]. However, it is higher than a study reported by Tin-Oo et al., (48.2%) [29] and another study performed in Malaysia (47.2%) [38]. The most convenient explanation, that such status varies from country to another, cannot be verified by our results. Further studies are needed to investigate such a point further.

Barriers that prevent participants from receiving dental veneers vary. One of the main barriers was the fear of pain. This barrier was significantly higher in female participants, which was found consistent with a previous article [39] that stated females' fear of pain is the main reason not to visit dentists.

Several limitations were encountered in this study, including the use of a self-reported questionnaire, which increased the chance of self-reported bias, lack of external validity (because it was conducted only in Jeddah). Further studies are needed to assess the knowledge and attitudes to give these results more generalizability. In addition, conducting public educational campaigns and continual societal education about dental veneers should be provided in various areas in Saudi Arabia.

CONCLUSION

The results showed that the knowledge of the population regarding dental veneers in Jeddah, Saudi Arabia, was moderate and needs to be improved, especially given the overuse of dental veneers nowadays. Social media was the main source of information which suggests that using social media networks in education by dental professionals will help increase population awareness of dental veneers.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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