

# Assessment of satisfaction level among patients toward services provided by dental clinics: A cross-sectional study

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## Abstract

**Background:** Although, patient satisfaction is an important factor of the quality of health care, few studies have been conducted in Saudi Arabia to assess the satisfaction of patients toward health care services in dental clinics. Thus, in this study we aim to assess patient satisfaction with healthcare services in the dental clinics in Saudi Arabia using The Patient Satisfaction Questionnaire Short-Form (PSQ-18).

**Methodology:** This is a cross-sectional study that was conducted among patients who were admitted to dental clinics in order to assess the satisfaction level toward health services using The Patient Satisfaction Questionnaire (PSQ-18) that was distributed among the participants using online Google sheets.

**Results:** In this study, we were able to collect data from 300 patients who went to private and governmental dental clinics and who agreed to participate in this study. Among the participants, 37.3 % were younger than 30 years old and 71.0 % of the participants were females and 96.3 % of the participants were Saudi Arabian. In general, 54.3 % of the participants were satisfied with the health service provided by the dental clinics. The results of the study showed that age was a significant factor affecting the satisfaction level of the participants ( $P=0.001$ ) while there is no significant difference between genders considering satisfaction (55.42 vs 54.35).

Furthermore, higher education of the participants was associated with higher level of satisfaction ( $P=0.002$ ) where housewives reported the lowest level of satisfaction and students had the highest level of satisfaction ( $P=0.005$ ). There is no significant difference in satisfaction between participants depending on type of clinics ( $P=0.963$ ), type of the visit ( $P=0.841$ ), waiting time ( $P=0.45$ ), distance of the dentist ( $P=0.082$ ) or location ( $P=0.124$ ).

**Conclusion:** This study showed slightly more than half of the patients of dental clinics were satisfied with health services provided by the clinics especially considering technical aspects. Older patients, non-Saudi patients, less educated patients, and those with lower income showed lower level of satisfaction.

**Keywords:** satisfaction, dental clinics, Saudi Arabia

## Introduction

Patient satisfaction is a match of expectation of individuals with their experiences during the process of treatment [1]. Satisfaction of the patients has become one of the important indicators and is commonly associated with measurement of the quality of health care [2]. Patient satisfaction is defined as a patients' response to a significant aspect of his/her healthcare experience [3]. It correlates with direct correlation with clinical outcomes, patient loyalty, increased personal, profession satisfaction, improved patient retention and reduced risk of medical malpractice claims [2]. Donabedian showed that patient satisfaction is considered one of the essential measures of quality of care as it provides information considering success of the service provider in meeting the patients' values and expectations, based on the issues on which patients value. This satisfaction can be assessed according to the work process, user satisfaction, structure and results [4–6]. In general, satisfaction of the patients is a very important and effective indicator to measure the success of the doctors and hospitals [2]. Patient satisfaction with healthcare services can be assessed from different dimensions including general satisfaction, interpersonal aspects, financial, communication, technical quality, time spent in the clinics and access/convenience [7].

In the dental clinics, satisfaction of the patients is considered an important indicator of the quality of services as it could affect the pattern of service utilization [8]. Fulfillment of the demands of the patients, positive assurance, resolving confusion and doubts of the patients, and good response to the patients could provide better satisfaction and lead to future return of patients in order to receive subsequent good quality of treatment [9].

Good and effective dentist-patient communication is considered a central factor in the therapeutic physician-patient relationship which is the art and heart of medicine [10]. Most of the complaints represented by dissatisfied patients are because of the breakdown in the doctor-patient relationship [10]. However, most of the doctors and dentists tend to overestimate their ability to communicate with their patients [10]. Although, patient satisfaction is an important factor of the quality of health care, few studies have been conducted in Saudi Arabia to assess the satisfaction of patients toward health care services in dental clinics. Thus, in this study, we aim to assess patient satisfaction with healthcare services in the dental clinics in Saudi Arabia using The Patient Satisfaction Questionnaire Short-Form (PSQ-18).

## Methodology

### Study design:

This is a cross-sectional study that was conducted among patients admitted to dental clinics, in order to assess the satisfaction level toward health services using The Patient Satisfaction Questionnaire (PSQ-18) that was distributed among the participants using online Google sheets.

### Sample Size Calculation

The sample size was calculated using the formula of  $N = Z^2 \alpha.p.q / L^2$  where  $p$  = patients' overall satisfaction,  $q = 100 - p$ ,  $Z \alpha$  = confidence factor for type I error  $\alpha = 5\% = 1.96$ ;  $L$  = allowable error, i.e., 10% of  $p$ , Where  $p = 60\%$ , then  $q = 100 - 60 = 40\%$ ,  $Z \alpha = 1.96$ ,  $L = 10\%$  of  $p = 6$  then  $(1.96)^2 \times 60 \times 40 / 6^2 = 256$  subjects. The maximum sample size was attained from overall patient satisfaction and hence, rounded off to 300.

### Inclusion Criteria:

- Patient who finished their treatment and voluntarily agreed to participate in the study
- Patient above the age of eighteen years
- Of both genders

### Exclusion Criteria

- Patient who was not willing to participate in the study and unable to give informed consent.

### Survey Instrument:

The study depended on a validated questionnaire which was developed to assess the level of patient satisfaction called the short-form of The Patient Satisfaction Questionnaire (PSQ-18) which was used in previous studies [11,12]. The study included information of demographic factors including gender, age, education level, and occupation as well as visit factors as type, waiting time, location and distance. The short PSQ-18 questionnaire included 18 statements which focus on the quality of the provided healthcare service. Each statement is provided with a five-point Likert scale ranging from strongly agree to strongly disagree. Some of PSQ-18 statements are worded so that the agreement reflects satisfaction with medical care while others are worded so that the disagreement reflects satisfaction with medical care. Therefore, all statements should be scored so that high scores reflect higher satisfaction with medical care. Statements are divided into 7 subscales: General satisfaction (Q3 and Q17); technical quality (Q2, Q4, Q6, and Q14); Interpersonal aspects (Q10 and Q11); Communications (Q1 and Q13); Financials aspects (Q5 and Q7); Time spent with the doctor (Q12 and Q15); Access/convenience (Q8, Q9, Q16, and Q18). Based on the results of the class interval calculation found that the level of satisfaction ranged to not satisfied (18-54) and satisfied (55-90).

### Statistical Analysis:

MS Excel was used for data entry, cleaning and coding while SPSS version 26 was used for data analysis. Frequency and percent were used for describing of the categorical variables while mean and standard deviation were used for describing of the ongoing variables. T test, chi test and ANOVA were used when appropriate for connecting between different variables. P value of 0.05 or lower was considered significant.

## Results

In this study, we were able to collect data from 300 patients who went to private and governmental dental clinics and who agreed to participate in this study. Among the participants, 37.3 % were: younger than 30 years old while 29.7 % were between 41-50 years old and 20.3 % were between 31-40 years old. Moreover, 71.0 % of the participants were females and 96.3 % of the participants were Saudi Arabian. Considering educational level of the participants, we found that 84.3 % of them had high school or college while 10.3 % had primary school. Moreover, 31.0 % of the participants reported being private employees while 27.0 % of them were still students and 18.7 % were housewives. Furthermore, 68 % of the participants reported being married while 28 % were singles. Considering monthly income, 54.7 % of the participants reported having income between 10,000 and 20,000 SR and 29 % having lower than 10,000 SR and 16.3 % having higher than 20,000 SR (Table 1). Moreover, 54.3 % of the responses were from private clinics while 45.7 % were from governmental clinics. Most of the participants were visiting the clinics for the first time (74.0 %) and 52.0 % reported that they had on waiting time while 37.3 % reported that they had waiting time. Moreover, 60.7 % reported having a near distance to the dentist and 63.0 % of the responses were from urban regions (Table 2).

**Table 1: The demographic factors of the participants (N=300).**

Variables	Count	Percent	
Age (years)	Less than 30	112	37.3%
	31-40	61	20.3%
	41-50	89	29.7%
	51-60	27	9.0%
	Greater than 60	11	3.7%
Gender	Male	87	29.0%
	Female	213	71.0%
Nationality:	Saudi	289	96.3%
	Non-Saudi	11	3.7%
Educational level	No schooling	4	1.3%
	Primary School	31	10.3%
	High School or College	253	84.3%
	Master and above	12	4.0%
Occupation:	Student/University Student	81	27.0%
	Government Employee/Police/Pensioners	53	17.7%
	Private Employee	93	31.0%
	Entrepreneur	12	4.0%
	Housewives	56	18.7%
	Others	5	1.7%
Marital status:	Married	204	68.0%
	Single	84	28.0%
	Divorced/ Widow	12	4.0%
Monthly income:	< 10,000 SR	87	29.0%
	10,000 -20,000 SR	164	54.7%
	> 20,000 ST	49	16.3%

According to PSQ-18 among the participants, the highest satisfaction score was reported in the technical quality while score of time spent was 6.81 (out of 10), financial (6.51 out of 10) and interpersonal aspect (6.61 out of 10). In total, the mean score was 55.14 (SD=12.52) (Table 3). In general, 54.3 % of the participants were satisfied with the health service provided by the dental clinics (Figure 1). The results of the study showed that age was a significant factor affecting the satisfaction level of the participants ( $P=0.001$ ) where older participants had the lowest satisfaction level (50.89, 18.2 % were satisfied) in comparison with those who were younger than 30 years (56.63, 64.3 % were satisfied). However, females reported slightly higher level of satisfaction. There was no significant difference between genders considering satisfaction (55.42 vs 54.35). Moreover, we found that Saudi participants reported higher level of satisfaction than non-Saudi participants (57.32 vs 53.31). Furthermore, higher education of the participants was associated with higher level of satisfaction ( $P=0.002$ ) where housewives reported the lowest level of the satisfaction and students had the highest

level of satisfaction ( $P=0.005$ ). Moreover, higher monthly income had reported a higher level of satisfaction ( $P=0.012$ ). There was no significant difference in satisfaction between participants depending on type of clinics ( $P=0.963$ ), type of the visit ( $P=0.841$ ), waiting time ( $P=0.45$ ), distance of the dentist ( $P=0.082$ ) or location ( $P=0.124$ ) (Table 4).

**Table 2:**

<b>Type of clinic:</b>	Private	163	54.3%
	Governmental	137	45.7%
<b>Type of Visit:</b>	First Visit	78	26.0%
	Not First Visit	222	74.0%
<b>Waiting Time</b>	Faster	32	10.7%
	On Time	156	52.0%
	Late	112	37.3%
<b>Distance to the Dentist</b>	Far	32	10.7%
	Moderate	86	28.7%
	Near	182	60.7%
<b>Location</b>	Urban	189	63.0%
	Rural	111	37.0%

**Table 3: The scores of the subscales of PSQ-18**

	Mean	Standard deviation
General Satisfaction	4.11	1.753
Technical Quality	13.04	2.926
Interpersonal Aspect	6.61	1.638
Communication	5.8	1.305
Financial	6.51	1.471
Time Spent	6.81	1.316
Access/Comfort	12.26	2.116
Total	55.14	12.525

**Figure 1: The level of satisfaction among the participants**

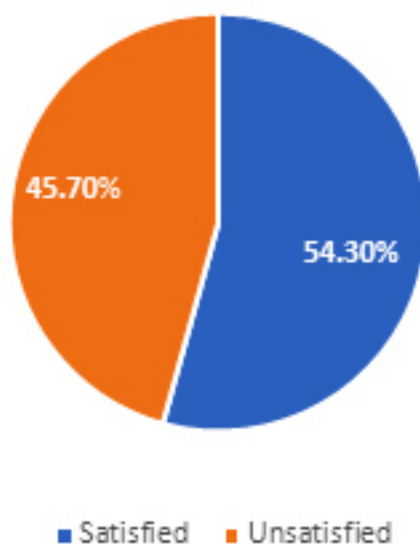


Table 4: The relation between satisfaction level of the patients and their demographic factors

Variables		Mean	Satisfied		Unsatisfied		P-value
			N	N %	N	N %	
Age (years)	Less than 30	56.63	72	64.3%	40	35.7%	0.001*
	31-40	54.23	35	57.4%	26	42.6%	
	41-50	53.25	42	47.2%	47	52.8%	
	51-60	53.01	12	44.4%	15	55.6%	
	Greater than 60	50.89	2	18.2%	9	81.8%	
Gender	Male	54.35	47	54.02%	40	45.98%	0.402
	Female	55.42	116	54.46%	97	45.54%	
Nationality:	Saudi	57.32	158	54.7%	131	45.3%	0.001*
	Non-Saudi	53.31	5	45.5%	6	54.5%	
Educational level	No schooling	51.15	1	25.0%	3	75.0%	0.002*
	Primary School	53.5	12	38.7%	19	61.3%	
	High School or College	55.6	142	56.1%	111	43.9%	
	Master and above	56.3	8	66.7%	4	33.3%	
Occupation:	Student/University Student	57.45	50	61.7%	31	38.3%	0.005*
	Government Employee/Police/Pensioners	53.44	29	54.7%	24	45.3%	
	Private Employee	53.86	53	57.0%	40	43.0%	
	Entrepreneur	54.71	6	50.0%	6	50.0%	
	Housewives	51.07	23	41.1%	33	58.9%	
	Others	53.4	2	40.0%	3	60.0%	
Monthly income:	< 10,000 SR	51.03	29	33.3%	58	66.7%	0.012*
	10,000 -20,000 SR	53.36	102	62.2%	62	37.8%	
	> 20,000 ST	55.56	32	65.3%	17	34.7%	
Type of clinic:	Private	55.35	89	54.6%	74	45.4%	0.963
	Governmental	55.12	74	54.0%	63	46.0%	
Type of Visit:	First Visit	55.02	42	53.8%	36	46.2%	0.841
	Not First Visit	55.25	121	54.5%	101	45.5%	
Waiting Time	Faster	55.43	17	53.1%	15	46.9%	0.45
	On Time	55.84	87	55.8%	69	44.2%	
	Late	54.09	59	52.7%	53	47.3%	
Distance to the Dentist	Far	55.75	18	56.3%	14	43.8%	0.082
	Moderate	55.84	49	57.0%	37	43.0%	
	Near	52.76	96	52.7%	86	47.3%	
Location	Urban	54.66	96	50.8%	93	49.2%	0.124
	Rural	56.73	67	60.4%	44	39.6%	



## Discussion

Quality of health services is a major concern of health care providers around the world. Assessment of patient satisfaction with the provided services is one of the important element of the quality of health [13]. Patient satisfaction has been investigated in many studies in different countries. It is important to identify weaknesses in the service system using patient's opinions to improve the quality of health care. This can be conducted using The Patients Satisfaction questionnaire short form (PSQ-18), which is a validated tool that can be applied to different situations and can compare interventions [12].

In this study, we found that 54.3 % of the patients of dental clinics in Saudi Arabia were satisfied with the services provided by these clinics. This is lower than reported in the study of Khan et al who reported that 89 % of the patients reported being satisfied with the overall services provided by the orthodontic department [6], study of Mohammed E et al, who reported that patients' level of satisfaction was 82 % [7] and the study of Subait AA et al, who reported that 77.8 % of the participants were satisfied with services provided by dental clinics [14]. In Egypt, Ehab A. et al showed that 55.9 % of the participants were satisfied with services provided by dental clinics [15]. This is near to the results of study of Al Sakkak et al in Saudi Arabia which showed that 64.2 % of the patients were satisfied [16], and the study of Metwally in Egypt which showed the prevalence of satisfaction was different among different cities and ranged between 46 % and 68 % [17]. Moreover, Al-Azmi et al in Kuwait reported that nearly one fifth of the participants were highly satisfied while 43 % were satisfied with the services provided by dental clinics and 38 % were dissatisfied [18]. The mean score of the PSQ-18 in this study was 55.14 (SD=12.525) which is similar to the results of Akbar F et al [19]. A previous study conducted by Samohyl M et al among patients of dental clinics in the Slovak Republic showed a mean of PSQ-18 total score of 48.51 [20]. This score is low when compared with scores of PSQ-18 reported in other health specialties other than dental clinics. In a previous study conducted by Ahmad E and Itrat M, the authors reported that the overall mean patient satisfaction score among patients admitted to Unani Medicine Hospital, Bengaluru was 86.76 [21]. The study of Saginela S et al, among patients of a general hospital in India showed that the mean total score of PSQ-18 was 71.5 [22] and the study of Poudel L et al, among 94 outpatients at a tertiary care center showed that the mean score of PSQ-18 was 67.3 [23]. This difference could be explained by the fact that these studies dealt with different patient samples, however it shows that more work in improving the services provided by dental clinics in Saudi Arabia should be conducted.

Among subscales of the PSQ-18, the highest value of the health service satisfaction found in this study was in the technical quality subscale. Technical quality includes the competencies of service providers and adherence to high standard of diagnosis and treatment. This result was consistent with the results of other studies including study of Akbar F et al [19] and the study of Ziaei H et [24]. Moreover, the results of this study showed that the

lowest satisfaction score was found in the subscale of the general satisfaction and communication. Communication errors between the dentists and the patients may lead to some medical failures which affect the patient's condition. Therefore, communication-centered strategies between service providers and patients are considered a good strategy in creating relationships between patients and physicians and are considered a key to improving the quality of the provided health services. These results were similar to other studies including the study of Samohyl M et al [20] and Akbar F et al [19].

Considering the factors affecting the satisfaction of the patients toward health services of dental clinics, we found that the satisfaction of female patients was slightly higher than men however, there was no significant difference between gender. This is similar to some previous studies including the study of Ahmad E and Itrat M who reported no significant difference between the genders considering satisfaction score [21]. However, many previous studies showed that females had a higher level of satisfaction than males significantly where women are more conscientious about appearance while men do not care about it [11,15,20,25,26].

Moreover, this study showed that older patients had lower satisfaction level with the service than younger participants which is similar to the results of Akbar et al [19]. This is in disagreement with the results of other studies. Previous studies had shown that older patients have a higher level of satisfaction than younger participants [25,27]. In the study of Abo-Ali et al., the authors found that older age groups reported that they were more satisfied compared with younger ones [15] which was also reported in the study of Al-Sakkak et al in Al Riyadh [16], Alshammari in Hail city, Saudi Arabia [28]. These results may be associated with lower expectations of service quality among older patients. The current study showed that higher education was associated with better satisfaction. This may occur because patients with higher education may be more understandable of the conditions in the clinics. However, this is in disagreement with previous studies which showed that lower educated patients were more satisfied with health services [4,19].

Moreover, in this study, there was no significant difference between patients with first and second visits in their satisfaction level. This result is similar to the results of other studies which showed that there is no significant difference [3,4,6,29,30]. Furthermore, our results showed that waiting time did not significantly affect the satisfaction level of the patients however, those who reported services were on time showed slightly better satisfaction. Previous studies showed that long waiting time for treatment is one of the most considered problems for patient dissatisfaction [31]. Waiting time in the examination room has also more significant negative impact on patient satisfaction than the time spent in the waiting room as reported in study of Arain M et al [32]. Most importantly, longer waiting times can reduce the patient's perception of the ability of physicians and reduce the confidence in the provided care [33]. Moreover, in this study, we did not find a significant difference between those from rural and urban regions which is similar to previous studies [19,34].

This study had some limitations including depending on self-reported questionnaire. However, the used tool is validated and assessed the risk for personal bias is found where some patients may not answer all questions honestly. Moreover, this questionnaire was distributed using online mean which may lead to some bias toward younger participants and the more educated population. In conclusion, this study showed slightly more than half of the patients of dental clinics were satisfied with health services provided by the clinics especially considering technical aspects. Older patients, non-Saudi patients, less educated patients, and those with lower income showed lower level of satisfaction. More improvement especially considering communication between patients and dentist should be conducted in order to improve the health services provided by dental clinics in Saudi Arabia.

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