

## ORIGINAL ARTICLE

## PATIENTS' SATISFACTION WITH THE DENTAL CARE PROVIDED BY DENTAL STUDENTS

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**Background:** The success of an oral health service can be assessed by the degree of satisfaction of its patients. The objective of this study was to evaluate patient satisfaction following comprehensive dental treatment provided by final year dental students at college of dentistry, King Saud University, Riyadh, Saudi Arabia and to correlate the level of patient satisfaction with their post-treatment oral hygiene maintenance. **Methods:** The required information for this cross-sectional was collected from patients using a self-answered questionnaire. A five point Likert scale was used (Strongly agree, agree, neither, disagree and strongly disagree) to evaluate the level of patient satisfaction. Clinical examination included assessment of oral hygiene status using OHI-S (Oral Hygiene Index-Simplified). **Results:** Four hundred & forty-six patients who received comprehensive dental treatment at the student clinics during the past two years were contacted out of which 86 patient's (81% males and 19% females) participated. The overall patient's satisfaction score of  $68.67 \pm 6.85$  was highly satisfactory. The mean OHI-S score was  $2.21 \pm 1.68$ . This showed a good to moderate level of oral hygiene among the participating patients. No statistically significant difference was found for the overall patient satisfaction score in relation to the age, gender, nationality and educational level. The post treatment oral hygiene status was significantly better in female patients compared to males. There was no statistically significant difference in OHI-S scores in relation to age, nationality and education level. The patient satisfaction scores and OHI-S score showed no correlation. **Conclusion:** The patients treated by the dental students at college of dentistry were highly satisfied with their treatment. A good to moderate level of post treatment oral hygiene among the participating patients was recorded according to the OHI-S.

**Keywords:** Patient satisfaction; dental care; dental students; oral hygiene

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## INTRODUCTION

Patients seek dental treatment to alleviate pain, provide regular oral-health examinations, improve aesthetics and in many cases, provide full-mouth rehabilitation for normal function. Selection of dental clinics or dental hospitals for their treatment is based on accessibility, convenience and affordability. While most dental clinics help solve the dental problems of the patients, dental teaching schools and allied hospitals are the preferred choice for comprehensive dental treatments due to their reputation, affordability and professional competence of the clinicians.<sup>1-3</sup>

Dental schools are teaching facilities and the dental care delivered to the patients is primarily by the students under guidance of experienced faculty. The need to teach students about providing good quality dental treatment to the patients is a major concern for clinical training faculty. In spite of the difficulty in scheduling appointments and extended clinical sittings, dental schools cater to a large section of the population due to the lower costs of treatment and a perceived sense of high quality care. Thus it is imperative to inculcate high standards of professional conduct among dental students.<sup>4-6</sup>

Patient satisfaction regarding the dental treatment provided by the students at dental schools is a multidimensional concept and is critical for the

growth of oral health service and practice. Unlike the medical students, who are mainly involved in diagnosing the disease, during their training at medical school, the dental students provide definitive treatment to their patients in addition to diagnosis, as a part of their clinical training. Complaints made by these patients may cause a great deal of anxiety and stress among the students and faculty.

The success of an oral health service can be assessed by the degree of satisfaction of its patients. Instruments such as structured questionnaires which measure the patients' response to dental treatment are helpful in assessing the patient satisfaction with regard to dental care provided.<sup>7-10</sup> Several studies from around the world have reported about patient satisfaction following dental treatment from dental training centers.<sup>1,6-8</sup> However, studies regarding the patient satisfaction with comprehensive dental care provided by dental students are scarce.

The aim of this questionnaire based study was to evaluate patient satisfaction following comprehensive dental treatment provided by final year dental students at college of dentistry, King Saud University, Riyadh, Saudi Arabia and to correlate the level of patient satisfaction with their post-treatment oral hygiene maintenance.

**MATERIAL AND METHODS**

This cross sectional descriptive study was approved by the ethical committee of the College of Dentistry Research Centre, King Saud University, Riyadh, Saudi Arabia. Four hundred & forty-six patients who had received comprehensive dental treatment under final year dental students in the past one year were approached for participation in the study. Patients were communicated by post and telephone regarding the study and its purpose. Participation in the study was purely voluntary and without any pre-conditions. Following informed consent from the respondents, the required information was collected through a self-answered questionnaire combined with oral examination. Based on a 95% confidence level, 10% confidence interval and 50% response distribution, the targeted sample size was 79 respondents (StatCalc, Epi Info 7; CDC, Atlanta, GA, USA).

The questionnaire was designed in English with Arabic translation for the sake of patients conversant only in Arabic. It was validated for reliability by testing it on a random sample of 15 patients derived from the outpatient clinic. The questionnaire was used to record the demographic information of respondents in addition to their level of satisfaction towards the dental treatment provided by students. Level of patient satisfaction was recorded using 15 questions scored using a five point Likert scale ranging from 1 to 5 (Strongly Disagree, Disagree, Neither, Agree and Strongly Agree). Patients were asked to evaluate their satisfaction towards treatment based on the items listed in the questionnaire and according to their own experience. The patient satisfaction score was obtained by summing the scores for the individual questions. Post-treatment oral hygiene status of the patients was recorded using the “Oral Hygiene Index – Simplified” (Greene and Vermillion, 1964).<sup>11</sup> Based on the OHI-S score, oral hygiene status was categorized as good (0–1.2), fair (1.3–3) and poor (3.1–6.0).

Patients, unable to complete the treatment were excluded from the study. Data from the satisfaction questionnaire and clinical examination for oral hygiene status were tabulated using spread sheet software (Microsoft EXCEL 2010; Redmond, WA, USA). Descriptive statistics were calculated for the individual questions, overall patient satisfaction and oral hygiene status. One-way ANOVA was performed to identify statistical differences in satisfaction scores and OHI-S scores in relation to the independent variables (gender, nationality and educational status). Moreover, Pearson correlation was used to identify any statistical correlation between the satisfaction scores and OHI-S scores. All statistical analyses were performed using SPSS-16 (SPSS; Chicago, IL, USA). A *p*-value of <0.05 was considered statistically significant.

**RESULTS**

A total of 86 patients responded to the communications sent and consented to participate in the study. The mean age of the patients was 41.21 years (range 19–72 years). Demographic characteristics of the respondents are presented in table-1.

The mean overall patient satisfaction score was 68.67 (range 39–75, S.D. 6.85). Tables-2 and 3 indicate the satisfaction level of the patients regarding the individual items in the questionnaire. One-way ANOVA revealed no statistically significant differences in mean overall patient satisfaction scores between males and females (*p*-value=0.816, *F*=0.054) and between Saudi and Non-Saudi patients (*p*-value=0.546, *F*=0.368). Post-Hoc Bonferroni analysis for satisfaction scores among patients of different age groups (*p*-value=0.899, *F*=0.016) and education levels (*p*-value=0.677, *F*=0.509) showed no statistically significant differences between the groups. Based on clinical examination of the responding patients, the mean OHI-S score was 2.21 (range 0–6, SD. 1.68). One way ANOVA revealed statistically significant difference in OHI-S scores between male and female patients (*p*-value=0.024, *F*=5.252). There was no statistically significant difference in OHI-S scores between Saudi and Non-Saudi patients (*p*-value=0.456, *F*=0.560). Similarly, post-hoc Bonferroni analysis revealed no significant differences in OHI-S scores between patients of different age groups (*p*-value=0.319, *F*=1.003) and education levels (*p*-value=0.820, *F*=0.307).

Patient’s oral hygiene practices after the dental treatment are presented in table-4. Brushing of teeth was the most common method of oral hygiene maintenance with almost two thirds of the patients brushing twice or at least once daily. Pearson correlation between overall patient satisfaction scores and OHI-S scores showed no statistical correlation (*p*-value=0.410, *R*=0.090).

**Table-1: Demographic characteristics of the respondents**

Demographic Variable	n	%	Patient Satisfaction Score	OHI-S Score	
			(mean±SD.)	(mean±SD)	
Age (years)	Less than 30	19	22.1	69.74±5.93	2.49±1.79
	31–40	26	30.2	68.54±7.03	1.83±1.54
	41–50	23	26.7	66.13±7.69	2.37±1.75
	51–60	12	13.9	72.00±4.69	2.03±1.20
	Greater than 60	6	6.9	69.00±7.35	2.62±1.06
Gender	Male	70	81.4	68.76±7.11	2.40±1.68
	Female	16	18.6	68.31±5.75	1.36±1.45
Nationality	Saudi	42	48.8	68.21±8.30	2.35±1.48
	Non Saudi	44	51.2	69.11±5.16	2.08±1.85
Educational level	No schooling	12	14	66.67±10.4	2.34±1.08
	Primary School	54	62.8	69.28±6.21	2.29±1.67
	High School or College	16	18.6	68.38±6.48	1.86±1.44
	Master and above	4	4.7	67.75±4.03	2.08±1.87

**Table-2: Patients' satisfaction regarding the competence, communication and management skills of the dental students at college of dentistry, KSU**

	Questions	Mean	SD
1.	Explanation of the Complete Treatment Plan before the start of the treatment?	4.64	.50
2.	Opportunity to raise questions?	4.60	.60
3.	Explanation and permission before the start of each procedure?	4.60	.61
4.	Appearance to be competent and skillful in his/her work?	4.51	.66
5.	Completion of most of the treatment by him/herself and knowledge about what was doing?	4.49	.71
6.	The mannerism during the treatment was respectful and you felt comfortable while getting treated?	4.64	.63
7.	The communication was caring and polite?	4.63	.61
8.	The communication with the dental assistant and other staff members seemed to be satisfactory?	4.62	.65

**Table-3: Patients' satisfaction regarding the dental care delivered by the students at college of dentistry, KSU**

	Questions	Mean	SD
1.	Your personal requests e.g., regarding the treatment plan or timing of the appointments were accommodated?	4.66	.58
2.	The cross infection control measures taken seemed appropriate?	4.52	.73
3.	The quality of the treatment that you received seemed to be good and it is serving you until now?	4.59	.69
4.	The time taken for the overall treatment seemed to be satisfactory?	4.42	.88
5.	Post treatment oral hygiene and follow up instructions were explained to you in detail?	4.48	.77
6.	Are you satisfied with the treatment provided to you at the college of dentistry?	4.65	.54
7.	Would you recommend the treatment provided at College of Dentistry King Saud University to others?	4.62	.73

**Table-4: Patients' oral hygiene practices after the dental treatment by the students**

	n (%)	Occasionally n (%)	Once daily n (%)	Twice daily n (%)	Total n (%)	p-value
<b>Brushing</b>	14 (16.3)	13 (15.1)	27 (31.4)	28 (32.6)	81 (100)	.022
<b>Miswak</b>	52 (60.5)	19 (22.1)	4 (4.7)	7 (8.1)	81 (100)	.000
<b>Flossing</b>	49 (57)	16 (18.6)	9 (10.5)	8 (9.3)	81 (100)	.000
<b>MouthWash</b>	45 (52.3)	14 (16.3)	17 (19.8)	6 (7)	81 (100)	.000

## DISCUSSION

The present study has provided information about the patients' satisfaction with the dental care provided to them by the final year dental students at college of dentistry, King Saud University, Riyadh, Saudi Arabia. The research also investigated the patient's oral hygiene status and practices following completion of the treatment. The response rate among patients who were contacted (446 patients) for the study was 19.28% (n=86). The relatively low response rate could be attributed to the non-availability of the patients to participate in the study in spite of repeated reminders

but it do not affect our study results as we achieved the desired sample size. One of the primary aims of dental treatment is to win the patients' satisfaction and it is an important criterion for judging the success and quality of dental care delivered. Health care providers all over the world consider patient satisfaction as a major concern in their treatment delivery systems.<sup>12</sup> Numerous instruments have been developed to measure healthcare service quality, but the precise meaning of quality of care remains ambiguous. Measurement of patient satisfaction is therefore seen as a vital aspect of evaluating the overall quality of care. Patient satisfaction as a concept is complex and it is related to the patient's personality, past experience, future expectations and also to the health care provider.<sup>13-15</sup> The present study employed a self-administered questionnaire pertaining to the above mentioned aspects of patients' satisfaction towards the dental care provided by the dental students. The questionnaire method was adopted owing to its simplicity, speed, efficiency and effectiveness in collecting information.<sup>6</sup>

Patient satisfaction towards dental treatment has been investigated by various researchers at several institutes worldwide. In most of the reported studies the ages of patients attending for treatment in the dental training institutes were between 30-40 years of age.<sup>16</sup> The mean age of the participating patients in the present study was 41.21 years (range 19-72 years). Not only dental treatment requirements vary between patients of different age groups, but also their satisfaction levels. While this was evident in the present study (Table-1), there was no statistically significant difference in satisfaction levels between patients of different age groups as measured by their overall satisfaction scores.

Owing to improvements in standards of living of patients, there is an overall increased healthcare awareness among patients. As a result of which the demand for quality medical/dental services is high. Medical and dental training institutes are not only involved in preparing future doctors to face the health care challenge, but also provide public healthcare services. In comparison to medical schools, dental schools also train the students in delivering dental care on patients. Hence, most of the dental schools are constantly endeavouring to improve the quality of training and subsequently dental treatment delivery by students.<sup>1,17</sup>

Provision of good dental treatment requires knowledge and technical skills in addition to the ability to communicate effectively with patients. While knowledge and technical skills could be imparted to the students in the regular dental school training programs, communication and patient management skills requires effective contribution from the students themselves. Over and above the actual dental treatment, effective two way communication, handling emotional sensitivity

of patients, ethical awareness and professionalism are critical to achieve patients satisfaction.<sup>18,19</sup> In the current study the patients seemed to be highly satisfied with the communication abilities of the dental students who treated them (Table-2). Furthermore, the patients were also highly satisfied with the actual dental care delivered to them by the students (Table-3).

More important than providing appropriate dental treatment to patients, is to reinforce to the patients the importance of personal oral care, hygiene and maintenance. In this study an attempt was made to quantify the oral hygiene of the patients upon follow up and to correlate it with their levels of satisfaction. While the post treatment oral hygiene status of the patients in general was fair, there was no statistical correlation between the patients' level of satisfaction and their oral hygiene status as measured by OHI-S scores.

In the current study, although the overall patient satisfaction with the dental care provided by the students was highly satisfactory (mean= 68.67±6.85) and the post treatment oral hygiene was fair (mean= 2.21±1.68), long term follow up of the patients is essential. This would help to address the patients' complaints, as well as provide useful information for improving the dental care services delivered by students. Even though the present study is the first of its kind to be reported from Universities in Saudi Arabia, patient satisfaction with the treatment by the dental students is a complex issue and requires further research utilizing a larger sample size and involving multiple dental training centres.

## CONCLUSION

The information gathered from the current research is useful for developing future plans for patient care but there is a need for further studies to develop explanatory conceptual models about the patient satisfaction with the dental care. Within the limitations of the present study it can be concluded that, the patients treated by the final year dental students at College of Dentistry, King Saud University, Riyadh, were highly satisfied with their treatment and the patients maintained a good to moderate level of post treatment oral hygiene.

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