Original article

Patients' Satisfaction with Dental Services in the Eastern Province Military Hospitals, Saudi Arabia.

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Abstract

Background:
The quality of services provided by a dental specialist is a major concerned. The level of anxiety and stress among dental specialists has increased due to patients complaint.

Aim:
The purpose of this research is to measure the overall patients' satisfaction with the quality of dental services provided at Eastern Province Military Hospitals, Saudi Arabia

Methods:
The researcher has conducted a cross-sectional analytical study at dental clinics of three military hospitals. A stratified random sampling technique was employed in the data collection from pre-tested questionnaires. Descriptive statistics were followed by inferential statistics. Chi-square test (X2) and Fischer's exact test were also used to assess the male and female satisfaction levels.

الملخص

الخلفية:
ان جودة الخدمات المُقدَّمة من قبل أخصائي طب الأسنان هي أمرٌ جدير بالإهتمام. لقد إرتفع مستوى القلق والضغط عند أخصائيي طب الأسنان نتيجة لشكاوى المرضى.

الهدف:
إن الغرض من هذا البحث هو قياس الرضا الشامل للمرضى بما يتعلق بجودة خدمات طب الأسنان العلاجية المتوفّرة في المستشفيات العسكرية في المنطقة الشرقية في المملكة العربية السعودية.

طريقة البحث:
لقد أجرى الباحث دراسة مقطعية تحليلية والتي شملت ثلاث عيادات للأسنان في ثلاث مستشفيات عسكرية. لقد تم إعتماد تقنية أخذ عينات عشوائية شرائحية لتجميع المعلومات بواسطة إستبيانات تم إختبارها مسبقاً. الإحصاء الوصفي تبعه إحصاء إستنتاجي. لقد تم ايضاً إستخدام كل من إختبار (Chi-square (X٢ وإختبار Fisher الدقيق لتقييم مستويات الرضا لدى الذكور والإناث.

النتائج:
كان عدد المشاركين في هذه الدراسة ٢٤٧ مريضاً، منهم ٦٩,٦٪ إناث و ٣٠,٤٪ ذكور. أظهرت العوامل المرتبطة برضا المرضى نسبة مئوية تُعادل ٧١,٠٪ SD ± ١٤,٣١، وتشير المجالات الأربع للرضا إلى مستوى متوسط من الرضا.

Results:
The number of participants in this study was 247 patients, in which 69.6% were female and 30.4% were male. The factors associated with patient satisfaction disclosed a mean percentage of 71.0% SD ± 14.31, for the four domains of satisfaction indicate an average level of satisfaction. The results also show a significant difference in male and female patients' satisfaction in specific areas such as asking personal questions during the visit, or prolonged waiting time for appointments and maintaining confidentiality ($P < 0.05$).

Conclusion:
Patient-dentist interaction and system/ administrative efficiency are the factors that have the most significant effect on patients' satisfaction at these three sites. It is recommended that hospital administration arranges awareness sessions to enlighten dental service providers about professional conduct, sessions on how to avoid long waiting periods for dental appointments, and on how evening or weekend clinics could accommodate more patients.

Keywords:
Military Hospital; Dental services; Satisfaction; Saudi Arabia

ايضاً أظهرت النتائج فرقاً واضحاً في الرضا بين المرضى الذكور والمرضى الإناث في نقاط محددة مثل الأسئلة الشخصية خلال الزيارة أو طول وقت الإنتظار قبل المعاينة والحفاظ على السّرية. (P < ٠,٠٥)

الخلاصة:
إن التفاعل بين المريض والطبيب وفعالية النظام الإداري كانا عاملين مؤثرين جداً على رضا المرضى في تلك المواقع الثلاثة. يوصى بالإقتراح على إدارة تلك المستشفيات بأن تقوم بتنظيم دورات توعية لتثقيف الممارسين في حقل طب الأسنان حول السلوك المهني وبدورات حول كيفية تجنّب فترات الإنتظار الطويلة للمواعيد إضافة إلى كيف ان العيادات المسائية وعيادات عطلة نهاية الأسبوع قد تستوعب المزيد من المرضى.

الكلمات المفتاحية:
المستشفى العسكري، خدمات طب الأسنان، الرضا، العربية السعودية

Introduction

Patients' satisfaction is crucial for all dental specialists and has been shown to impact compliance and the success of treatment in both developed and developing countries[1]. The degree of patients' satisfaction is the major factor in determining the achievement of the services provided by oral health clinics. Also, it plays a huge role in the improvement of all services provided by dental specialists [2]. The reputation of all dental clinics is based on patients' satisfaction. Patient's satisfaction feedback used as a tool to measure the quality of all dental services. In this manner, patient satisfaction is a significant part of oral health care, which can affect treat-

ment outcomes[3].

The level of anxiety and stress among dental specialists has increased due to patients complaint[4].

The perception of a patient's family and friends about dental practice can be an effect due to unhappiness of dental services. Therefore, professional conduct should be promoted among all dental care providers. Moreover, patients' concerns about dental service should not be ignored and took immediate appropriate action[5].

Patients' attitude toward dental treatment is highly impacted by their satisfaction in dental services. According to Öhrn and Jönsson [6], satisfied patients are always attending their appointment, less fear of dental treatment, and pain perception. Establishing rapport between dentists and patents will enhance patients' commitment to dental appointments and advice. In order to evaluate the quality of dental services, patient satisfaction and contentment need to be appropriately addressed [7]. It also affects clinical outcomes and patient retention[8].

The health care sector is rapidly developing in Saudi Arabia. The government recognizes it together with an educational sector to be the top priority of its inner policy spending, a large amount of money on its growth and functioning. The positive tendency can be recognized. Namely, the quality and quantity of health care services have significantly improved in the past view decades[9]. However, this is still not the top positive outcome that can be reached. Therefore, a thorough investigation of patients' satisfaction with dental services is necessary as it can further improve the quality of health care services. Dental care was chosen to be researched as this sphere is among one of the most rapidly developing ones, and it is still not able to cover the demand for dental services. It is worth mentioning that Saudi Arabia might become the top dental, medical care destination in the Middle East region. As for now, dental medicine in Saudi Arabia is on the rise, with the prices cheaper here than in the Western and European countries. In turn, it makes it possible to suggest that the improvement of the quality of dental services might make Saudi Arabia the world's top destination for dental health medicine. Therefore, this study seeks to define the key factors influencing patients' satisfaction and the need to develop some further recommendations on how to enhance the standard of dental care services in Saudi Arabia.

This study focus on measuring overall patients' satisfaction levels towards the quality of dental services provided at Eastern Province Military Hospitals of Saudi Arabia. It also aims to measure the difference

in satisfaction levels concerning male and female patients.

Materials and methods

A cross-sectional analytical study was done at the dental clinics of the three military hospitals. The numbers of participants in this study were 300. The targeted hospitals were King Abdul-Aziz Airbase Hospital, Dhahran, King Fahd Military Medical Complex, Dhahran, and King Abdul-Aziz Naval base Hospital, Jubail from October to December 2018.

For sample size, a stratified random sampling technique was used, which based on a number of patients with a 95% confidence level (±0.05). Approximately 100 patients were selected equally from each hospital.

The study included patients having the privileges and legality to be treated within these military hospitals. One of the prerequisites of the survey was that the respondents had to be 18 years of age or older.

For data collection, a previously validated questionnaire based on a Mahrous and Hifnawy[10] study were used to measure patients' satisfaction. A granted written permission was received via email from the authors.

The questionnaire consists of 19 questions, which were designed to evaluate the factors affecting patients' satisfaction. The questionnaire consists of socio-demographic characteristics
(age, gender, and nationality); the questionnaire consisted of four sections. The first section of the questionnaire was about patient-dentist personal interaction (9 questions). The second section was related to patient satisfaction with technical competency (4 questions). The third section was about administrative efficiency
(4 questions), and the last section was about the clinical setup environment
(2 questions).

The survey was distributed to all participants with guidance. The responses were collected at the end of a dental care session to cover all factors included in the questionnaire. Some participants were excluded from the study due to their incomplete treatment or refused to participate in this study.

The English and Arabic questionnaires were used with a Likert scale (5 points) ranging from 1 to 5
(Strongly Disagree, Disagree, Uncertain, Agree, and Strongly Agree). For data analysis, the 5-point scale was afterward converted to a 3-point response scale ranging from 1 to 3.
(1 = Strongly Disagree & Disagree, 2 = Neutral and 3 = Strongly Agree & Agree). In the questionnaire, the standard pattern

for answering was avoided by using negative and positive statements. Therefore, meticulous reading of all questions by participants has been maintained.

Microsoft Excel was used for data tabulation and then analyzed by Statistical Package for the Social Sciences (SPSS, V.23, Chicago, Illinois USA). All results were calculated for qualitative and quantitative data. The association between patient satisfaction and gender were evaluated by Chi-square (X2) and Fisher's exact test. A P-value <0.05 was considered statistically significant.

Ethical approval was attained from the Institutional Review Board office at Prince Sultan Military College of Health Sciences, Dhahran (Ethical approval No. IRB-2019-DOH-036). The details regarding the objectives and benefits of this research were explained to participants, and informed consent was obtained before filling in the questionnaire. All information was kept classified and used only for statistical analysis.

Results

The response rate was 82.3 %, as 247 out of 300 questionnaires were returned. The patient's age ranged from 18 to 65 years (mean age= 31.86 years ±SD 9.8). The gender distribution showed 69.6% females and 30.4% males. More than 90 % of the respondents were Saudi nationals (Table no.1).

Table no. 1 Demographic characteristics of the respondents

Demographical Variable		N	%
Gender	Male	75	30.4
	Female	172	69.6
Nationality	Saudi	231	93.5
	Non Saudi	16	6.5
Age (years)	Less than 30	41	16.2
	31 – 40	80	32.4
	41 – 50	70	28.3
	51 – 60	42	17.0
	Greater than 60	16	6.1

Table no. 2 displays the overall average percent mean score of 71.0 (range 29.4 – 89.0, ±SD 14.31) for all four disciplines indicate an average level of patients' satisfaction. The mean percentage of agreement with regard to the satisfaction of four disciplines was done by calculating the level of satisfaction. It also shows the mean satisfaction for each discipline.

Table no. 2 Overall satisfaction for the four main discipline

Item	Minimum % (Agree)	Maximum % (Agree)	Mean % (Agree)	SD
Patient dentist interaction (PDI) (9 items)	29.4	86.3	72.3	±17.96
Technical Competency (TC) (4 items)	66.8	89.0	76.5	±9.22
Administrative efficiency (AE) (4 items)	56.6	68.0	60.5	±5.38
Clinical setup environment (CS) (2 items)	66.6	83.8	75.7	±12.16
Overall average percent mean score (19 items	29.4	89.0	71.0	± 14.31

Table no. 3 indicates satisfaction with regard to individual items in the questionnaire. It was noticed that 86.3 % of responded patients agreed on the item that dentists did not ask a question about personal life during treatment, and 85.8 % agree on their friendly behavior. However, this table also shows that only 29.4% of the patients agree that they were not compelled to get dental care from a student. Table no. 3 also showed 89% reported that dental instruments used were sterilized. In the administrative efficacy domain, 56.6 % of patients were satisfied because they do not have an extended appointment wait time and treatment. In the clinical setup environment, 66.6 % of patients agreed about comfortable waiting areas.

Table no. 3: Patients' satisfactions regarding individual item in the questionnaire.

Item	Disagree *N* (%)	Neutral *N* (%)	Agree *N* (%)
Patient dentist interaction (9 items)			
Dental Staff did not talk with each other while providing treatment	40 (16.2)	59 (23.9)	148 (59.9)
Dental Staff were concentrating on their work.	19 (7.7)	28 (11.3)	200 (81.0)
Dentist was friendly with me.	19 (7.7)	16 (6.5)	212 (85.8)
Dentist explained the procedures before start of treatment.	25 (10.1)	27 (10.9)	195 (78.9)
Dentist gave me advice after treatment.	24 (9.7)	22 (8.9)	201 (81.4)
Dentist facial's expression was cheerful with a smile.	30 (12.1)	24 (13.8)	183 (74.1)
Dentist did not criticize my oral condition or compared it with others.	33 913.3)	29 (11.7)	182 (74.9)
Dentist did not ask personal question during offering care.	19 (7.7)	15 (6.1)	213 (86.3)
I was not obliged to receive dental care by a student	99 (40.1)	68 (27.5)	80 (29.4)
Technical Competency (4 items)			
Treatment offered was not painful.	27 (10.9)	36 (14.6)	184 (74.5)
Thorough dental examination.	22 (8.9)	38 (15.4)	187 (75.7)
I received good quality treatment; e.g. Filling did not get dislodged or broken.	47 (19.0)	35 (14.2)	165 (66.8)
Dental instrument used were sterilized.	4 (1.6)	23 (9.3)	220 (89.0)

Administrative efficiency (4 items)			
Working hours of the clinic were suitable for me.	69 (28.0)	28 (11.30	150 (60.8)
I did not wait for long time to have an appointment.	85 (34.4)	38 (15.4)	140 (56.6)
Short waiting time to get the treatment.	60 (24.3)	47 (19.0)	140 (56.6)
Complete dental treatment.	45 (18.2)	34 (13.8)	168 (68.0)
Clinical setup environment (2 items)			
Comfortable waiting area.	55 (22.3)	28 (11.3)	164 (66.6)
Privacy of treatment was insured.	23 (9.3)	17 (6.9)	207 (83.3)

Table no. 4 shows the relationship between the patients' gender and the features of the four disciplines of satisfaction. The study reveals significant differences between Male and Female in 1 issue within the patient-dentist interaction ''Dentists did not ask personal questions while offering care'', 1 item within the Administrative efficiency: ''I did not wait for long time to get an appointment,'' and 1 item within Clinical setup environment ''Privacy of treatment was insured'' are shown by the P-values.

Item	Gender		Total	*P* value
	Male *N* = 75 (30.4%)	Female *N* = 172 (69.2%)	*N* = 247	
Patient dentist interaction (9 items)				
Dental Staff did not talk with each other while providing treatment.	48 (64.0)	100 (58.2)	148	0.333
Dental Staff were concentrating on their work.	60 (80.0)	140 (81.3)	200	0.537
Dentist was friendly with me.	60 (80.0)	152 (88.4)	212	0.235
Dentist explained the procedures before start of treatment.	59 (78.7)	136 (79.1)	194	0.679
Dentist gave me advice after treatment.	61 (81.3)	130 (81.40	191	0.699
Dentist facial's expression was cheerful with a smile.	56 (74.6)	127 (73.8)	183	0.329
Dentist did not criticize my oral condition or compared it with others.	58 (77.3)	127 (73.8)	185	0.837
Dentist did not ask personal question during offering care.	66 (88.0)	147(85.40	213	0.009*
I was not obliged to receive dental care by a student	34 (45.3)	65 (37.7)	99	0.246
Technical Competency (4 items)				
Treatment offered was not painful.	61 (81.3)	123 (71.6)	184	0.448
Thorough dental examination.	55 (73.3)	132 (76.7)	187	0.312
I received good quality treatment; e.g. Filling did not get dislodged or broken.	47 (62.7)	118 (68.7)	165	0.497
Dental instrument used were sterilized.	67 (89.4)	153 (89.0)	220	0.509

Administrative efficiency (4 items)				
Working hours of the clinic were suitable for me.	46 (46.3	104 (60.5)	150	0.529
I did not wait for long time to have an appointment.	44 (58.6)	96 (55.9)	140	0.009*
Short waiting time to get the treatment.	45 (60.0)	95 (55.2)	140	0.702
Complete dental treatment.	50 (66.7)	118 (68.6)	168	0.419
Clinical setup environment (2 items)				
Comfortable waiting area.	52 (66.7)	114 (66.3)	166	0.967
Privacy of treatment was insured.	58 (77.3)	140 (88.6)	207	0.048*

Only those who agree on each of these are represented in table
*Significant at 0.05 level (Fischer's exact test used)

Discussion

The patients' satisfaction is not based on the treatment quality but other factors such as staff behavior, facilities, and basic environmental needs[11]. One of the primary targets of dental treatment is to attain the patients' satisfaction, and it is a vital benchmark for deciding the outcome and the quality of the dental care delivered[12]. The current study seeks to measure the patients 'satisfaction with dental care services in Eastern Province Military Hospitals in Saudi Arabia. The outlined topic was chosen for scientific research as the investigation of the positive aspects, as well as the shortcomings in the provision of dental services in the Eastern Province military hospitals. They may be extremely useful for the situation analysis of elements affecting patients' satisfaction with the direct effect of the quality of dental healthcare received by patients and the enhancement of the performance of the dental staff.

The response rate was 82.3%,which is almost comparable to the respondent of studies conducted by 80.2 % of Mahrous and Hifnawy [10] , 81.9 % of Balhaddad et al. [13]but higher than the study conducted in the United Kingdom by Bedi, Gulati and McGrath [14] of 69 %.

This study also shows a high percentage of females, 69.6% as compared to the male, which were 30.4 %. The reason for this higher female patient percentage is that all three hospitals provide cosmetic dental treatments such as veneers, bleaching, and orthodontic services. These services are popular among women. Similarly, transportation is often an issue for Saudi women, who are now allowed to drive cars in their country. All three hospitals are located near military housing, which makes transportation easy for Saudi women. The ease of transportation can be an important factor in female patient percentages. Non-Saudis were almost not represented in this study, because military hospitals

offer services only to non-Saudi staff who work inside the hospitals.

The levels of patient satisfaction were measured at three targeted military hospitals in the Eastern Province, namely the Armed Forces Hospital, Dhahran, King-Fahad Military Medical Complex, Dhahran, and King Abdul-Aziz Naval Base Hospital, Jubail. The overall average percent mean score of 71.0 (±SD 14.31), as shown in table 2, denotes an average level of patients'' satisfaction. But it was still lower reported by a study of dental patients conducted by Hossain, Fageeh and Elagib[15] at King Khalid University's College of Dentistry in Saudi Arabia, which revealed a high level of patient satisfaction (87%) and better than the satisfaction (61.7 %) reported by Othman and Abdel Razak[16].

In the present study, the high level of patient satisfaction at the three hospitals is attributed to the following factors: treatment is provided free of charge, dental care is easy to access in each hospital, and high-quality materials are used in clinics similar to the highly reputed clinics offering the same dental care and services.

Among the factors that were examined in this study, the technical competency of the dental staff had the highest satisfaction levels (76.5%), followed by Clinics set up/ environment (75.7%) and Patient-dentist interaction (72.3%). System/administrative efficiency was the lowest-scoring factor of influence on the patient's satisfaction level, scoring only (60.5 %.).

The reason behind a high level of satisfaction was staff competence, cleanliness, and having up-to-date equipment being military hospitals. These findings are harmonious to other studies conducted by Saudi Arabia[10, 12, 13, 17].

Lower patient satisfaction with system/administrative efficiency and clinic set up/environment can be attributed to the fact that the clinic hours are during weekdays from 7:30 am to 8:30 pm, the same hours that most military personnel must work. This means that patients must miss work to attend dental appointments. This negatively impacts their level of satisfaction. Besides, it is difficult to schedule an appointment because of the high demand for services and the shortage of dental providers at all three sites. That is why patients who have difficulty in obtaining an appointment conveniently reported a low degree of satisfaction as reported by Stepurko, Pavlova, and Groot[18].

In this study, among the association between gender and of the four disciplines of satisfaction, the question related to ''Dentists did not ask personal questions during offering care'' showed a significant statistical difference between female and male

students ($p< 0.05$) This attributed to the fact that females don't like to discuss their personal matter with unknown health care providers.

There was also a significant statistical difference between the female and male regarding the privacy of the offered treatment, which may be attributed to the design of clinic or females need, extended privacy during dental treatment.

Concerning the administrative efficiency domain, there is also a statistical difference between females and males regarding a long time to get an appointment. In fact, both males and females are dissatisfied regarding long waiting times. The possible reason for this is the high demand for services and the shortage of dental service providers in all three sites.

Conclusion

The study demonstrates that the average number of patients were satisfied with the overall dental service, such as patient-dentist communication, professional competency, administrative efficiency, and a clinical setup environment. With regard to gender, there is a significant difference among females and males in the privacy of offered treatment, the dentist asking a personal question, and long waiting time for an appointment.

Technical competency and patient-personnel interaction are the factors that have the most significant effect on patient satisfaction levels at these sites. On the other hand, the clinical setup environment is the fact that it has the most impact on levels of dissatisfaction.

Recommendation

It is recommended that hospital administration arrange awareness sessions in order to enlighten the dental service provider about professional conduct. In addition, to avoid long waiting periods for the dental appointments, evening or weekend clinics would accommodate more patients. In addition, attention is essential to improve the waiting area for the patients.

Limitations of the Research

Although the satisfactory response rate was achieved in the study, however, patients' satisfaction is a broad area and requires further research with large sample size and involving several military hospitals.

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Conflict of interest:

In this paper, the author did not declare any conflicts of interest.

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