INFLUENCE OF PERCEIVED PROVIDER PERFORMANCE ON SATISFACTION WITH ORAL HEALTH CARE SERVICES AMONG INTERMEDIATE FEMALE SCHOOL CHILDREN IN RIYADH CITY

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ABSTRACT

The objective of the study was to investigate the overall dental satisfaction with the dental health care received at the last dental visit among intermediate female school children and to correlate their satisfaction with a group of set variables including dentist's performance during the last dental visit. A total of 597 female students (mean age 14.1 years) completed a structured questionnaires in their class rooms. The questionnaires were distributed to 8 public and 4 private intermediate female schools which were randomly selected from four different academic regions in Riyadh. Eighty eight percent of the surveyed students reported attending the dental clinic at least once during the last two years. Overall satisfaction with dental health care was found to be positively correlated with students who perceived good and excellent oral health status (OR=5.83; P=0.044), had attended a dental clinic more than once (OR=4.45;P<0.0001), had follow up dental visits (OR=5.94; P<0.0001), had no painful experience at that visit (OR=2.62; P=0.036), were satisfied with the level of cleanliness / disinfection of dental instruments (OR=9.59; P<0.0001 and OR=7.88; P<0.0001) were satisfied with the level of communication with and information provided by the dentist (OR=6.12; P<0.0001 and OR= 6.46; P<0.0001 respectively). This study highlights the importance of the interpersonal interaction between the dentist and patient and also the satisfaction level with dental health care among female adolescents in Riyadh City.

INTRODUCTION

Patient satisfaction has been defined as a health care recipient's reaction to salient aspects of the context, process and result of their experience with dental health care services.[1] This view characterizes patient satisfaction as an evaluation of directly received service, comparing the individual's health care experience with a subjective standard.[1,2] The subjective standard needed for judging a health care experience may be one or a mixture of the subjective ideals, subjective average of past experience in a similar situation or some minimally acceptable level.[2]

Several studies have shown that patient's satisfaction with oral health care may also be influenced by characteristics of the delivery systems, outcome of care, availability, accessibility, financial aspects, continuity of care, interpersonal factors, technical quality and pain associated with care.[2-9] Other factors which may influence patient satisfaction or dissatisfaction with the oral health care received which include patients' preferences, treatment expectations, socio-demographic factors (especially age and education) and oral health status.[9-16] Burke and Croucher (1996)[15] concluded a study asking patients to evaluate sixteen criteria of "good practice" and the three highest selected by patients were: explanation of procedures; sterilization/hygiene and; dentist skills.

Patients satisfaction with dental care takes on added importance in light of the association between satisfaction with dental care and patients behavior in terms of compliance with clinical advice, less pain and anxiety, fewer broken appointments and more utilization of dental services.[1,2,10] Hence, patient satisfaction is critical for the growth and prosperity of any dental service or practice. This importance increase when the patients are in adolescence period where they start to assume control over their own lives and develop attitudes that determine their adult lifestyles and begin to self-direct all aspect of their life including the use of oral health care services.[18,19]

School children perception toward their dentist and factors affecting their satisfaction with oral health care in Riyadh City has not been assessed or documented by any researcher. Therefore, the aims of this study were to investigate satisfaction with received oral health care at the last dental appointment among intermediate female school children in Riyadh, Saudi Arabia, and to assess the association between overall satisfaction with socio-demographic factors including

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perceived provider performance and contentment with own oral heath condition.

METHODOLOGY

The study population was students from intermediate public and private female schools. Information from participants in the study was obtained through the use of a structured questionnaire modified from Okullo et al study (2004) which was translated into Arabic language. A pilot study was undertaken and 20 children were asked to complete the questionnaire to ensure item clarity and modifications were done accordingly. The questionnaire was distributed randomly to 8 intermediate public schools and 4 private schools in four different regions [north, south, east and west] of Riyadh City, the students were asked to answer the questionnaire in their class rooms in the presence of their teachers and the investigator to ensure complete participation of all the class. An informed written consent was obtained from participants' parents prior to the commencement of the study. The questionnaire consisted of the following:

- Socio-demographic variables including age, nationality and parental education
- Participant's perceived own oral health status
- Frequency of use of oral health care services during the previous two years
- Whether treatment was obtained in government or private dental clinics
- Reason for dental visit
- Level of satisfaction with the last visit
- If treatment caused pain
- Satisfaction with the level of cleanliness of dental office
- Satisfaction with the level of sterilization/disinfection of dental instruments
- Interpersonal relationship or provider performance which included communication skills and information provided by the dentist.

  Communication factors include whether dentist:

  - Treated patient with respect
  - Gave patient enough time to explain her problem
  - Gave patient enough Information about causes of her dental oral/problem
- Factors related to information provided by the dentist about oral prevention which includes:
  - Relationship between sweets and dental caries
  - Relationship between tooth brushing and dental/oral health
  - Dental/oral health promotion

The data were coded and entered into the statistical package for Social Sciences (SPSS) version 12.0 for the statistical analysis. Descriptive and analytic approaches were used in the data analysis.

Statistical Analysis

The respondents who did not answer or failed to comment on satisfaction or dissatisfaction were excluded from the correlation analysis. The students' responses were rescaled as satisfied ("both very satisfied and satisfied) and dissatisfied" (both unsatisfied and very unsatisfied). Mother's education and father's education were rescaled into low education (secondary education or less) and high education (university or higher). Assessment of students' own oral health was also rescaled into good (including excellent, good) and bad (including bad) response. Type of chosen clinic was categorized as government hospital (include government hospitals; dental college) and private clinics (include private clinics).

The following questions (treated with respect, free to explain problems, sufficient time to explain problems, sufficient information about problem) were added into a sum score labeled ("communication with the dentist"). The remaining three items (information about sugar and tooth decay, information about oral hygiene and oral health, information about preventive measurements were added into a sum score labeled ("information from the dentist"). Odds ratios (OR) and mean scale scores with 95% confidence intervals (CI) analysis were performed to test the null hypothesis (Ho).

In the present study if OR = 1, it means that there is no difference between the two groups satisfied and non-satisfied, if the 95% CI include one then there is no significant difference at level of significant 0.05 between the two groups but if the 95% CI does not include OR under Ho (in this case OR=1) at 0.05 level of significance. Then we reject the null hypothesis. Using chi-square, the level of statistical significance was set at p £ 0.05.

RESULTS

Sample Characteristics:

A total of 600 questionnaires were distributed to the students and 597 questionnaires were returned, three questionnaires were not filled out due to the absence of the students. The response rate was 99.5%.

The age of the students ranged from 12-15 years, the mean age was 14.1 years, SD (0.80). Sixty-six students (11.1%) were excluded from analytical part of the study because they reported that they did not have any dental visit during the previous 2 years. The responses of the remaining 531 students were analyzed to investigate the overall dental satisfaction with the

study variables. Nearly 93% of those students who reported never been to the dentist in the last 2 years considered their oral health status to be excellent or good, and almost half of them are in 15 years of age. Moreover 47% and 76% of those students had fathers and mothers with education below university degrees.

Table 1 presents the descriptive data for the survey respondents. Over 75% were from government schools and 88.4% of the respondents were Saudi. About 60% of fathers and almost half of mothers (45.6%) had university degrees or higher. The majority of the students (94.1%) considered their oral health condition to be excellent or good and 88.9% of them visited their dentist once or more during the last 2 years. Nearly 62% of the participants visited their dentist for follow-up and 44.5% of them had experienced some pain at the last dental appointment. Moreover, 81.4% of the participants reported their overall satisfaction with dental care received at the last dental appointment. A large percentage (91.9%) of the participants reported satisfaction with the level of cleanliness of the dental clinic and with the level of instruments' sterilization and disinfection (93%).

Aspects of Oral Health Care Received at Last Dental Appointment

The factors most frequently answered positively among intermediate school children were: treating them with respect (95%); gave sufficient time to explain problems (81%); felt free to explain problems (80%) and provided with sufficient information about the problem (78%). The least frequently reported was given information about sugar and tooth decay (41.61) and about oral health care and oral health (53.7%) (table 2).

Overall Satisfaction with Oral Health Care Services Received at Last Dental Appointment

Table 3 shows that school children who considered their own oral health as good or excellent were found to be almost 5 times more satisfied about the dental care than those with bad oral health status (OR 5.82, CI=2.35-14.43; p>0.05) while overall satisfaction did not vary significantly with parental education, children of mothers with high education were found to be slightly more satisfied than those who had fathers with high education (odds ratio 2.41, CI=1.05-5.49; p>0.05) versus (OR 1.38, CI=0.62-3.06; p>0.05). Results also showed that those children who made frequent dental visits were more satisfied with the dental services compared to those who attended at most once during the last two years (OR 4.45, CI=2.13-9.30; p<0.0001) children who had follow-up visits in their last dental appointment were more likely to be satisfied compared to the children who made their dental visits because of pain or a dental problem (OR 5.95, CI=2.68-13.15; p<0.0001). Children who did not experience pain

TABLE 1: FREQUENCY DISTRIBUTION (%) OF STUDY PARTICIPANTS ACCORDING TO SOCIO-DEMOGRAPHIC AND ORAL HEALTH CARE RELATED VARIABLES +

Variable	n (%)
Age Group*	
12-13	141 (23.6)
14	224 (37.5)
15	232 (38.9)
School*	
Government	468 (78.4)
Private	129 (21.6)
Nationality*	
Saudi	528 (88.4)
Non-Saudi	69 (11.6)
Father's Education*	
Secondary or Below	226 (37.9)
University	234 (39.2)
Post graduate education	137 (22.9)
Mother's Education*	
Secondary or Below	325 (54.4)
University	232 (38.9)
Post graduate education	40 (6.7)
Oral Health Condition*	
Excellent	236 (39.5)
Good	326 (54.6)
Bad	35 (5.9)
Dental Visit*	
Never	66 (11.1)
Once in the Last 2 Years	145 (24.3)
> Once in the Last 2 Years	386 (64.6)
Place of Dental Clinic**	
Government Hospital	95 (18.2)
Private Hospital	401 (76.7)
Dental College	27 (5.1)
Reasons of Dental Visit**	
Dental Pain	190 (36.5)
Follow-up	331 (63.5)
Overall Satisfaction With Dental Service**	
Very Satisfied	190 (36)
Satisfied	239 (45.4)
No Comment	71 (13.5)
Unsatisfied	15 (2.8)
Very Unsatisfied	12 (2.3)
Last Visit with Pain**	
Yes	234 (44.5)
No	292 (55.5)
Satisfaction with Cleanliness of Dental Clinic**	488 (91.9)
Satisfaction with the Level of Instruments' Sterility and Disinfection**	494 (93)

*no = 597 **no = 531

+ some students did not answer all the questions

TABLE 2: PARTICIPANTS' EVALUATION OF THE PROVIDERS' PERFORMANCE AT THEIR LAST DENTAL APPOINTMENT

Quality Aspects of Providers' Performance	n (%)
Treated patients with respect	505 (95.1)
Gave sufficient time to explain problems	430 (81.2)
Felt free to explain problems	426 (80.2)
Gave sufficient information about the problem	417 (78.5)
Gave information about dental preventive measures	355 (66.9)
Gave information about oral hygiene and oral health	285 (53.7)
Gave information about sugar and tooth decay	221 (41.6)

during their dental visit were 2.6 times more satisfied than those who had pain (OR 2.62, CI=1.18-5-5.80; p≤0.05). The level of overall satisfaction was found to increase with the increase of age of the surveyed sample. Nearly 90% of the children aged 14, and 15 reported satisfaction about dental care (P=0.013) "data was not shown in the table".

The level of cleanliness of the clinic and disinfection of dental instruments were found to be the most important factors that caused overall satisfaction among respondents (OR 9.59, CI=4.29-21.39; p<0.0001) and (OR 7.88, CI=3.21-19.37; p<0.0001) respectively. Meanwhile, satisfaction with provider performance (communication skills and information provide by the dentist) was found to be another important factor in dental satisfaction among respondents (OR 6.12, CI=4.23-8.85; p<0.0001) and (OR 6.46, CI=3.85-10.86; p<0.0001) respectively.

TABLE 3: FACTORS ASSOCIATED WITH RESPONDENTS OVERALL SATISFACTION WITH ORAL HEALTH CARE SERVICES RECEIVED DURING THE LAST DENTAL APPOINTMENT

Variable	Total No.	Satisfied (%)	Adjusted OR (95 CI)	p-value*
Oral Health Status				
Good	429	95	5.83	0.044
Bad	26	77	(2.35 – 14.43)	
Father's Education				
High	291	95	1.38	0.553
Low	158	93	(0.62 – 3.06)	
Mother's Education				
High	221	96	2.41	0.327
Low	229	92	(1.05 – 5.49)	
Dental Attendance				
> once	347	96.5	4.45	0.0001
At least once	109	86	(2.13 – 9.30)	
Cause of Dental Visit				
Follow-up	292	97.6	5.94	0.0001
Pain	157	85	(2.68 – 13.16)	
Last Painful Visit				
No	251	96.4	2.62	0.036
Yes	203	91	(1.18 – 5.80)	
Cleanliness of Clinic				
Satisfied	429	93	9.59	0.0001
Dissatisfied	26	69	(4.29 – 21.39)	
Disinfection of Dental Instrument				
Satisfied	435	95	7.88	0.0001
Dissatisfied	21	71	(3.21 – 19.37)	
Communication with Dentist				
Satisfied	1572	96	6.12	0.0001
Dissatisfied	244	80	(4.23 – 8.85)	
Information from Dentist				
Satisfied	749	98	6.46	0.0001
Dissatisfied	611	89	(3.85 – 10.86)	

*Chi-square

DISCUSSION

The present study provides an opportunity to assess the intermediate female school children's satisfaction with oral health care services and perception towards their dentist's performance in Riyadh City.

Over all, about 89% of the participants visited their dentists at least once during the previous two years. Considering that 63% of the responding students reported that their visits were for follow up and not due to pain, one may speculate that some of them attended for regular check-up.[20] The attendance pattern shown in this study is higher than the findings (44% and 52%) reported by Gkullo et al (2004)[1] and Astrom et al (2004)[20] among Ugandian adolescents, and similar (62%) to that reported by Hawley et al in the same age group among English adolescents. Maintaining the childhood attendance level into adulthood is crucial and should be encouraged as one could benefit from preventive procedures and reduce complex treatment intervention.

The findings also revealed that three quarter of the sampled students had their treatment in the private sectors and only 23% had it in government hospitals and dental college. This may be attributed to the fact that the government hospitals and dental college are open during the day time only and the students are not willing to take time off from schools, especially for asymptomatic treatment (follow up or check-ups). Another possible reason is that it may indicate the high socio-economic status among the study sample knowing that 62% and 45% of them have highly educated fathers and mothers who hold university degrees or higher respectively. Same finding reported from other previous studies[15,22,23].

Adolescents participating in the present survey contributed to the evaluation of oral health care system by assessing the performance of the dental provider or the interpersonal relationship with the treating dentists and expressing their overall satisfaction with dental care received. The results showed that the overall satisfaction among participants with dental care received is very high (80.8%), ranging from very satisfied (36%) to satisfied (45%).

Although the factor most positively reported among all the participants in this study and that were found to be strongly associated with overall satisfaction was provider high quality performance, namely communication skills and information by the oral health care provider. However, the findings of this study showed that the two items of the information aspect were reported to have the least satisfaction score among study sample: information given about sugar and tooth decay (41.6%) and receiving information about oral hygiene and dental health (54%). This may be attributed to the lack of the dentists' time or due to the fact that most of the participants reported that their oral health status is excellent or good and had their dental visits for follow-up care so the dentists assumed that they did not need such information. Providing patients with preventive measures is as important as treatment intervention and dentists should be aware of this.

Several studies reported the importance of communication and information giving in developing patient satisfaction with dental health care and reducing patient dissatisfaction, thus preventing liability claims and increasing loyalty to the dental practice[26,27,28]. In addition, explaining the nature of treatment of the dental problem gives the patient a sense of control over the situation. The findings of this study regarding the association between overall dental satisfaction and communication skills and information by the dentist was in accordance with previous studies[1,3,9,10,15,20-24,29-31].

Level of cleanliness/sterilization of dental clinic and instruments were found to be strongly associated with satisfaction with the dental care among the study sample. About 93% of the respondents felt comfortable with the precautions taken to protect them from the spread of infectious diseases and 92% were satisfied with the cleanliness of the dental clinic. Which may suggest that the respondents link between the perceived cleanliness of the dental clinic and asepsis. Similar results have been shown in other studies.[3,24]

Participants who perceived their oral health status to be excellent or good dental health status, reported visiting the dental clinic more than once for follow-up treatment and did not have pain during their visits were found to have high level of overall satisfaction. This confirms the findings of other studies which indicated that high level of satisfaction is associated with increased compliance, increase use of dental care services, fewer broken appointment and lower perceived dental pain.[1,2,4] No significant association was found between the overall satisfaction and parents education, while significant finding was observed with age, the older students were found to be more satisfied with the dental care provided. Several studies reported the same results about parents education[1,3,4,8,10,24] and about age.[4,32]

Although the findings showed that there are several factors affecting the satisfaction/dissatisfaction of intermediate female school children toward dental health care, the importance role of the dentist performance in establishing satisfaction with dental care among intermediate female school children in Riyadh was stressed in this study.

CONCLUSION

The study gives an insight about the importance of the dental care provider performance which is ex-

pressed by information-giving about different aspects of oral health, effective communication and caring to the adolescent patients. Information and effective communication are crucial and important skills that the dental health care providers should master in order to increase their patient satisfaction with dental treatment and promote compliance and regular use of dental health care facilities, eventually leading to a successful outcome for both dentists and patients.

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