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Factors affecting utilization of dental health services and satisfaction among adolescent females in Riyadh City

Al Johara A. Al-Hussyeen

Department of Pediatric Dentistry and Orthodontics, King Saud University, College of Dentistry,
P.O. Box 60169, Riyadh 11545, Saudi Arabia

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KEYWORDS

Dental health services;
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Abstract *Objectives:* This study was conducted to determine factors affecting utilization of dental health services among intermediate female school students in Riyadh. In addition to assessing their satisfaction with the dental care received during the last dental visit.

Subjects and methods: Self-administered questionnaires were distributed among students attending eight public and four private schools. These schools were selected randomly to represent the four different administrative zones in Riyadh.

Results: Of 600 questionnaires distributed, 531 were complete and suitable for analysis. Nearly three quarters of the students visited the dentist more than once during the last 2 years. About 75% had their treatment in private dental clinics and 63% made their visits for routine treatment. The quality of dental care was found to be the most encouraging factor for utilization of dental services, whereas, far geographic location of the dental clinics was the most discouraging factor. For those who received treatment in the government clinics, the most discouraging factor was post operative complications ($P < 0.0001$), while the most encouraging factor was the availability of friendly staff ($P < 0.0001$). The high cost of dental care was the most discouraging factor for utilizing the dental services for those who visited private clinics ($P < 0.0001$), while the high quality of dental care was the most encouraging factor ($P < 0.009$). Students who made their visits because of pain highly considered modern clinics and those recommended by friends as highly encouraging factors ($P < 0.002$), while they considered the high cost of dental care as discouraging factor for using

E-mail address: aljohussy@hotmail.com

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dental services ($P < 0.038$). Students who visited the dentist for routine treatment gave the quality of dental care as encouraging for the use of dental clinics ($P < 0.0001$). Satisfaction with dental care was found to be significantly associated with high quality of dental care, convenient appointment, friendly staff, modern dental clinics and clinics recommended by friends.

Conclusion: Quality of dental care, reasonable fees for dental services and close location of dental clinics to students' homes are encouraging factors for utilization of dental services.

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1. Introduction

Patients concerns, desires and views of health care services need to be investigated carefully because of their potential impact on the utilization and satisfaction (Saeed and Mohamed, 2002; Roth and Schoolcraft, 1998). Quality assessment programs involve many methods of health care evaluation according to the type of information required. Most of these programs involve patient chart reviews, clinical examinations, dental clinics, and satisfaction with dental care (Butters and Willis, 2000; Albriecht and Hoogstraten, 1998).

Information through patients' surveys has proven to be a successful way of strategic evaluation and improving the quality of health services (Saeed and Mohamed, 2002; Roth and Schoolcraft, 1998). Recently patients' perceptions, views, and satisfaction with dental health care services, in addition to the professional judgment, became recognized measures of the quality and central component of quality assurance programs (Saeed and Mohamed, 2002; Butters and Willis, 2000). Previous studies concerning patient's satisfaction have concluded that satisfaction is a multidimensional concept involving many aspects of health care (Stouthard et al., 1992; Estabrook et al., 1980; Murray and Wiese, 1974). A review of dental patient satisfaction studies indicated that there is a generic list of five practice factors that influence patient satisfaction: technical competence, interpersonal factors, convenience, cost, and facilities (Newsome and Wright, 1999; Kress, 1988). It is evident that meeting patient's needs and expectations of dental care will affect patient behavior in terms of better compliance, fewer broken appointments and less pain and anxiety (Butters and Willis, 2000; Newsome and Wright, 1999). Other studies have indicated that dissatisfaction with quality and fees; have been associated with generally poor compliance with treatment recommendations, low utilization, or termination of treatment (Albriecht and Hoogstraten, 1998; Collet, 1969; Biro and Hewson, 1976).

There are several studies investigated the concerns, views and satisfaction of adult population towards health care services in Saudi Arabia as well as other parts of the world (Saeed and Mohamed, 2002; Roth and Schoolcraft, 1998; Albriecht and Hoogstraten, 1998; Collet, 1969; Biro and Hewson, 1976; Al-Mobeireek and Al-Hussyeen, 2003; Awliya, 2003). Studies assessing adolescents' concerns regarding dental care services are scarce and rather of general nature concerning mainly on their attitudes and satisfaction with oral health care (Okullo et al., 2004). Investigating patients' views about oral health delivery systems is important when it involves adolescent populations. Adolescence is a period when young people start to have control over their own lives and develop attitudes that affect their adult life styles including the use of dental health care services (Liddell et al., 1990; World Health Organization, 1977). In order to plan for a suitable dental health ser-

vice among Saudi adolescents, it is important to have information about their concerns, views and how they use and perceive the oral health care delivery services available to them (Klein et al., 1999; Franco et al., 2002). Study of this nature and scope in trying to evaluate adolescents' perspectives of factors affecting utilization of dental services was not assessed or documented previously. Therefore, the objectives of this study were to determine the factors affecting choosing/utilization of dental health services among intermediate female school children in Riyadh City. In addition, the study aimed to assess the overall participant's satisfaction with the last dental visit.

2. Subjects and methods

The study protocol was approved by ethics committee at the College of Dentistry Research Center, King Saud University and Ministry of Education, Saudi Arabia.

Eight intermediate public and four private schools were selected randomly from the four different administrative zones [north, south, east and west] in Riyadh City. The number of selected students for each zone was based on the number of schools and number of the students enrolled in them. Data for this study was obtained through the use of a self-administered Arabic questionnaire. The questionnaire was pretested to ensure items clarity and modifications were done accordingly. Six hundred questionnaires were distributed to the students. The students were requested to answer the questionnaire in their class rooms in the presence of their teachers and the investigator. However, participation in the study was voluntary. Questions from the students regarding the meaning of the words were allowed and answers of questions were loudly announced to other students. The questionnaire consisted of the following:

Socio-demographic variables including age, nationality and parental education.

Participant's self-rating of their own oral health status.

Frequency of use of oral health care services during the last 2 years.

Type of the dental clinic visited.

Reason for the dental visit.

Level of satisfaction with the last visit.

Factors determining their decision for choosing or encouraging their use of the dental clinic.

Factors determining their decision for dropping or discouraging their utilization of the dental clinic.

The data were coded and entered into a computer. Statistical Package for Social Science (SPSS ver. 13) was utilized to calculate descriptive statistics and statistical tests. *T*-test was used to determine if the observed differences between factors

Table 1 Distribution (%) of students according to socio-demographic, oral health and oral health care related variables ($N = 531$).

Variable	N (%)
<i>Age group</i>	
12–13	122 (23.0)
14	205 (38.7)
15	204 (38.3)
<i>School</i>	
Public	412 (77.7)
Private	119 (22.3)
<i>Nationality</i>	
Saudi	478 (90.0)
Non-Saudi	53 (10.0)
<i>Father's education^a</i>	
Secondary or below	87 (35.2)
University	208 (40.2)
Postgraduate education	128 (24.6)
<i>Mother's education^a</i>	
Secondary or below	269 (50.7)
University	218 (42.1)
Postgraduate education	38 (7.2)
<i>Self-rated oral health</i>	
Excellent or good	500 (94.1)
Poor	31 (5.9)
<i>Dental visit</i>	
Once in the last 2 years	145 (27.3)
>Once in the last 2 years	386 (72.7)
<i>Type of dental clinic</i>	
Government	130 (24.5)
Private	401 (75.5)
<i>Reasons of dental visit^a</i>	
Dental pain	190 (36.5)
Routine	331 (63.5)
<i>Last visit with pain^a</i>	
Yes	234 (44.5)
No	292 (55.5)

^a Some students did not answer all the questions.

encouraging/discouraging the participants for using dental services and other contributing factors were statistically significant. Contributed factors include: type of clinic, type of visit, frequency of visit and self-rated oral health. The significant level was set at 0.05.

3. Results

Of the 600 questionnaires distributed to the students, 597 questionnaires were returned. Three questionnaires were not filled due to the absence of the students. Sixty-six students (11.1%) were excluded from the study because they reported that they did not visit the dentist during the last 2 years. Therefore, 531 students were included in this study. Table 1 presents the socio-demographic characteristics of the study sample and the dental health care related variables.

The age of the students ranged between 12 and 15 years, with a mean age of 14.1 ± 0.80 years. Nearly 80% of the students were from public schools and 90% were Saudi. About

Table 2 Reasons encouraging the participants in selection of a dental clinic.^a

Variable	N (%)
Quality of dental care	387 (48.0)
Recommended by friend or relative	137 (17.0)
Convenient appointments	120 (14.9)
Modern and up-to-date dental clinic	114 (14.1)
Friendly staff	49 (6.1)

^a More than one reason selected.

Table 3 Reasons discouraging the participants in selection of a dental clinic.^a

Variable	N (%)
Far from home	172 (36.5)
Post operative complications	133 (24.0)
Treatment issues and lack of treatment alternative	113 (24.0)
Cost of dental care	73 (15.5)

^a More than one reason selected.

65% of fathers and almost half of the mothers (49.3%) had university degree or higher education. The majority of the students rated their oral health conditions to be good or excellent (94.1%), and 72.7% of them visited their dentist more than once during the last 2 years. Nearly 75% of the participants received their treatment in private dental clinics and 63.5% of them visited their dentist for follow up or routine treatment, while 44.5% reported having some pain at the last dental appointment. The most important factors affecting the participants' decision in choosing the dental clinic is the "quality of dental care" while being "located far from home" is the most discouraging factor (Tables 2 and 3).

Tables 4 and 5 present the relationship between factors affecting student's utilization of dental clinic and some associated variables such as clinic type, visit type, self-rated oral health status, and visits frequency. Participants who received treatment in government clinics reported that clinic with "friendly staff" highly encouraged utilization significantly more than those treated in private clinics ($P < 0.0001$). Having post operative complications was the most discouraging factor among students treated in government clinics ($P < 0.000$). Students who received treatment in private sectors stated that the "quality of dental care" was significantly more encouraging, while "high cost of dental care" was the most discouraging factor compared to those who received their treatment in government sectors ($P = 0.009$ and $P < 0.0001$, respectively).

Students who sought dental treatment due to pain highly considered "up-to-date clinic, recommended by friends or relatives factors" as highly encouraging factors ($P = 0.002$) and the "high cost of dental care" as a highly discouraging factor in the selection of dental services ($P = 0.038$). This was significantly more than those who had routine visits. Students who visited the dentist for routine treatment gave "quality of dental care" a significant effect on encouraging their choice and use of dental services compared to those who had their visit due to pain ($P < 0.0001$).

Table 4 Difference in ratios (%) between factors encouraging the use of dental clinic and some of the study variables.

Study variables	Modern dental clinic and up-to-date	Friendly staff	Quality of dental care	Recommended by friend or relative	Convenient appointment	Total
<i>Type of clinic</i>						
Government	19.7	27.9	63.9	23.0	20.5	130
Private	22.2	3.5	76.3	26.7	23.4	401
<i>P</i> -value ^a	0.644	0.000	0.009	0.484	0.585	
<i>Type of visit</i>						
Pain	29.5	10.5	55.8	34.2	22.1	190
Routine	17.5	8.8	82.8	21.5	23.1	331
<i>P</i> -value ^a	0.002	0.629	0.000	0.002	0.873	
<i>Self-rated oral health</i>						
Good	20.6	8.6	74.0	25.8	22.8	500
Poor	33.3	20.0	53.3	23.3	20.0	30
<i>P</i> -value ^a	0.156	0.077	0.03	0.929	0.895	
<i>Frequency of visit</i>						
Once	32.4	10.3	56.6	35.2	15.2	145
> One time	17.4	8.8	79.0	22.3	25.4	386
<i>P</i> -value ^a	0.000	0.716	0.000	0.017	0.078	

^a *T*-test (significant differences was set at 0.05).

Table 5 Difference in ratios (%) between factors discouraging the use of chosen dental clinic and some of the study variables.

Study variables	Far from home	Cost of dental care	Post operative complications	Treatment issues and lack of treatment alternative	Total
<i>Type of clinic</i>					
Government	36.9	3.3**	32.8	26.2	130
Private	31.2	17.2	18.0	20.2	401
<i>P</i> -value*	0.283	0.000	0.000	0.199	
<i>Type of visit</i>					
Pain	28.4	18.4	22.1	24.7	190
Routine	35.0	11.5	21.5	19.9	331
<i>P</i> -value*	0.147	0.038	0.961	0.242	
<i>Self-rated oral health</i>					
Good	32.4	13.0	21.8	20.8	500
Poor	30.0	26.7	13.3	30.0	30
<i>P</i> -value*	0.979	0.054	0.382	0.334	
<i>Frequency of visit</i>					
Once	26.2	13.8	22.8	20.7	145
> One time	34.7	13.7	20.7	21.5	386
<i>P</i> -value*	0.078	0.911	0.683	0.935	

* *T*-test (significant differences was set at 0.05).

** Government hospitals charge for some dental materials such as crowns and implants.

Participants who rated their oral health status as poor considered “high cost of dental care” as most discouraging factor compared to those who perceived good oral health status ($P = 0.05$). Participants who perceived their oral health status to be good thought that “quality of dental care” had significantly more encouraging effect on their decision on choosing dental clinic than those who perceived their oral health to be poor ($P = 0.03$).

Frequent visitors to the dental clinics gave more weight to “quality of dental care” as highly encouraging for the utilization of services in their chosen dental clinic compared to irreg-

ular visitors ($P < 0.0001$). Students who visited their dentist once at most during the last 2 years thought that “up-to-date clinic and those recommended by friend or relative” were highly encouraging factors in choosing and utilizing the dental services compared to the frequent visitors ($P < 0.0001$ and $P = 0.017$, respectively).

The level of satisfaction with dental services among participants according to their perceived encouraging factors in choosing and utilizing the dental clinic is presented in Fig. 1. Significant high level of satisfaction was observed with all encouraging factors; quality of dental care (87.1%),

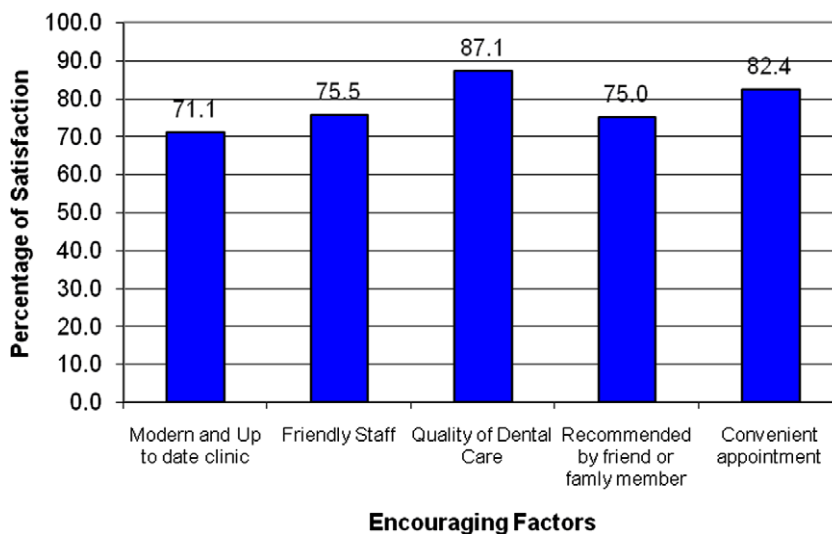


Figure 1 Percentage of satisfaction according to factors encouraging utilization of dental services.

convenient appointment (82.4), friendly staff/clinic recommended by friend or relative (75.0%), and modern and up-to-date clinic (71.1%).

4. Discussion

Investigating patients' views, desires, opinions, and satisfaction with dental care may provide useful information to those who are interested in understanding or predicting patients' behavior and opinion about the dental services. This study included five factors (access, availability/convenience, cost, pain and quality) which represent the main sources of satisfaction or dissatisfaction with dental services. The participants were asked to evaluate the factors which encourage/discourage their use of the dental services in addition to the level of satisfaction with the dental services.

In this study the quality of dental care was found to be the most important factor in seeking and encouraging continuous utilization of services in the chosen clinic. The quality of dental care and competences of the operators have been always used synonymously. They were frequently cited as patients' concern in many countries including Saudi Arabia (Saeed and Mohamed, 2002; Butters and Willis, 2000; Albrieht and Hoogstraten, 1998; Collet, 1969; Biro and Hewson, 1976; Lahti, 1996). Several studies found that the quality of dental care is a determinant factor in seeking or dropping out of care at dental clinics (Saeed and Mohamed, 2002; Butters and Willis, 2000; Lahti, 1996; Gurdal et al., 2000; Esa et al., 2006; Lafont et al., 1999; Ierardo et al., 2008; Stacey et al., 1978). This is not surprising because the outcome of the treatment depends largely on the quality of dental care received and the operators' competence.

Far location of the dental clinic from students' homes was found to be the main factor discouraging the adolescents from continuing utilization of service in their chosen dental clinic. This is not unexpected knowing that the study was conducted in Riyadh, the capital of Saudi Arabia, which is a very large city with crowded streets and jammed traffic. Comparable studies reported that the utilization of dental services as well

as satisfaction increased by travelling shorter distances and within a relatively small geographic area (Saeed and Mohamed, 2002; Mussard et al., 2008). This, however, is in contradiction to the finding of other study where there was no effect of distance on satisfaction (Natabaye et al., 1998).

High cost of dental care was found to be an important factor in discouraging students from continuing the utilization of their chosen dental clinic among those who received their treatment in the private sectors. This is in accordance with the findings of previous studies (Lafont et al., 1999; Ierardo et al., 2008; Hashim, 2005; Chu et al., 2001; Goedhart et al., 1996). This finding necessitates the importance of reviewing the cost of dental services in private dental clinics to make treatment fees more affordable to public.

Post operative complications were found to have a determinant effect on discouraging participants from utilizing services in the government dental clinics. In this study, the government clinics included dental clinics in large hospitals, primary care centers and the dental college. The government dental clinics provide totally free of charge services to public. Most of these clinics, however, are operated by general dentists or dental students under the supervision of faculty members in case of the dental school. Patients were treated by specialists only in difficult cases. This finding is in agreement with studies conducted by Butters and Willis (2000) and Matee et al. (2006) who reported that low quality of dental care was among the top reasons of dropping out of care among their study samples. This finding, however, is contrary to the results of Awliya (2003) who found that up-to-date care was the primary reason for participants coming to the dental college. Efforts should be made for further improvement of delivery systems in these centers to insure high quality of dental care and to reduce any negative outcome of treatment.

This study showed that students who visited the dentist for routine treatment were more concerned about the quality of dental care compared to those who made their visits due to pain. Regular attendants visit the dentist more frequently; consequently, they are more experienced and demand high quality of dental care. While those who visit only in case of pain are pleased by having the pain relieved, these findings

are consistent with previous studies (Lahti, 1996; Hashim, 2005; Goedhart et al., 1996).

Satisfaction of the students with their chosen dental clinic was found to increase significantly with their perception of receiving high quality of dental care and going to modern equipped dental clinics, possibly, linking between modern equipped clinics with high quality of dental care. The same findings were reported in other studies (Saeed and Mohamed, 2002; Butters and Willis, 2000; Natabaye et al., 1998; Hashim, 2005; Mussard et al., 2008; Chu et al., 2001; Mascarenhas, 2001). These studies concluded that patient satisfaction with received care was found to be a useful measure to evaluate dental care including the quality and outcome of the treatment. Availability of friendly staff and convenient appointments in addition to these clinic recommended by friend or relative were also found to increase students' satisfaction. Several studies reported that understandable communication, humanness and friendly conduct of health team were important factors for patients with direct effect on utilization patterns (Saeed and Mohamed, 2002; Smith et al., 1999). Too long to get appointments and difficulty in getting appointments were found to be among the most issues causing dissatisfaction in other studies (Al-Mobeireek and Al-Hussyeen, 2003; Awliya, 2003; Gurdal et al., 2000).

Knowing adolescents concerns and views about the availability of the dental services and insure their satisfaction with dental care will ultimately increase the utilization and level of compliance with dental regimen, which in turn will promote the desired dental health among this population.

5. Conclusions

Findings of this study indicated that adolescent's choice and utilization of dental service can be improved if dental clinics were located closer to their homes and if they provided high quality of dental care with reasonable fees.

High quality of dental care, modern equipped dental clinic which recommended by a relative or a friend and have friendly staff, in addition to getting convenient appointments were found to increase students' satisfaction significantly.

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