

# 노인환자의 치과진료만족도 및 노인에 대한 치위생교육의 필요성에 대한 고찰

윤경옥 · 김진수 · 김숙향<sup>1</sup>

신성대학 치위생과, <sup>1</sup>한서대학교 치위생학과

## Satisfaction of the aged with their dental treatments and consideration of the necessity for dental hygienic education about the aged

Kyoung-Ok Yun · Jin-Soo Kim · Sook-Hyang Kim<sup>1</sup>

Shinsung University, <sup>1</sup>Hanseo University

### ABSTRACT

**Objectives :** 노인 환자들이 제공받고 있는 치과 의료서비스 만족도를 평가하여 노인 환자에게 양질의 구강보건진료 서비스를 제공하고 노인의 구강보건향상에 기여하기 위하여 실시하였다. 이와 같은 연구목적에 달성하기 위하여 노인관련 일반적 특성을 알아보고, 치과 병의원을 이용하는 노인 환자의 만족도에 미치는 요인 및 병의원 선택이유를 조사하였다.

**Methods :** 서울특별시와 경기도, 경상도, 전라도 일부지역의 치과병원 및 치과의원을 이용하는 노인 환자 300명을 편의추출 하였으며, 2009년 4월 1일부터 5월 8일까지 면접 및 자기기입법으로 설문조사를 실시하였다. 설문지는 4개영역으로 구분하여 치과 의료서비스 만족도 22문항, 치과위생사의 의료서비스 만족도 14문항, 재이용 · 권유의사 4문항 및 일반적 특성과 치과이용에 관한 8문항으로 구성하였다. 노인환자의 일반적인 특성에 따른 치과 의료서비스 만족도, 연구대상자의 병원인지경로, 치과선택이유에 따른 치과의료서비스 만족도는 일원배치분산분석(One-way ANOVA)을 실시하였다. 치과의료서비스 만족도 영향인자, 만족도에 미치는 치과위생사 요인 등은 다중회귀분석을 실시하였다. 연구대상자의 성별과 병원내원기간에 따른 치과선택이유는 카이제곱( $\chi^2$ ) 분포를 따르는 정확검정(exact test)을 실시하였다.

**Results :** 1. 노인환자들이 병원을 선택할 때 가족, 친척으로부터 추천을 받는 경우가 가장 많으며 이 경우 다른 인지경로에 비하여 치과에 대한 만족도가 가장 높았다. 2. 치과선택 이유에 따른 만족도를 비교하였을 때 첫째, 의사의 높은 진료수준, 둘째, 친절한 서비스에 만족도가 높았다. 또한 치과선택이유가 의사의 높은 진료수준과 친절함을 포함한 의사요인이 가장 중요한 것으로 나타났다. 3. 치과위생사의 높은 진료수준과 친절도는 치과의료서비스 만족도에 유의한 차이를 나타내었다. 노인환자들의 만족도를 높이기 위해 노인에 대한 치위생교육이 필요하고 노인에 대한 지식뿐만 아니라 태도에 대한 교육도 실시되어야 한다. 4. 동일한 치과를 계속해서 다니는 이유는 첫 번째 의사의 높은 진료수준, 두 번째 친절도로 의사요인과 관련이 가장 높은 것으로 나타났다. 또한 3-4년 이상의 장기내원환자는 의사의 높은 진료수준 다음으로 친절도를 중요한 이유로 선택하였다.

**Conclusions :** 이상의 결과로 노인 환자가 만족하는 치과는 치과의사와 치과위생사의 진료수준이 높아야 하겠고, 다음으로 친절 한 서비스가 중요함을 알 수 있었다. 또한 노인환자들의 만족도를 높이기 위해 노인에 대한 치위생교육이 필요하고 노인에 대한 지식뿐만 아니라 태도에 대한 교육도 실시되어야 한다. (J Korean Soc Dent Hygiene 2010 ; 10(4) : 765-775)

**Key words :** choice reason, dental hygiene, educate, older patient, satisfaction

**색인 :** 교육, 노인, 만족도, 선택이유, 치위생

### 1. Introduction

Recently, the proportion of the aged is rapidly

increasing in Korea. The number of the aged no less than 65 accounted for 3.8% of the whole population in the 1980s and more than 7.2% in 2000 when Korea

교신저자 : 김숙향 우) 356-706 충남 서산시 해미면 대곡리 360번지 한서대학교 치위생학과

전화 : 041-660-1571 E-mail : sookim@hanseo.ac.kr

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turned into an aging society. The aged population accounted for 9.1% of the whole population in 2005 and will account for 14.3% in 2018 when the country will be an aged society and 20.8% in 2026 when the country will be a super-aged society<sup>1)</sup>. UN defines that the aged no less than 65 account for no less than 7% of the whole population in an aging society and no less than 14% in an aged society, and no less than 21% in super-aged society<sup>2)</sup>.

It is known that an increase in aged lead to an increase in the use of medical services<sup>3)</sup>. According to Kim and others<sup>4)</sup>, the charges of the medical services for the aged no less than 65 accounted for 13.6% of the total charges shouldered by the National Health Insurance Corporation in 1996 and 23.8% in 2004. Also, it is expected that the number of the aged who turn to medical institutions for their medical services will increase and demands for high-degree medical services will rise<sup>3)</sup>. Kim contends<sup>5)</sup> that the medical market in Korea should be internationally competitive since external and internal environments have been changed including the opening of the medical market and permission of profit-making medical corporations. At a time when the management of hospitals is getting more difficult, dental clinics and hospitals will consider it very important to satisfy aged demand for medical services and to improve their health. According to a research conducted by Cohen<sup>6)</sup> and others, if patients are satisfied with their dental staff, their oral health will be improved but it will be deteriorated if they are not satisfied with their medical staff. Kim<sup>7)</sup> asserts that the quality of overall medical services has a statistically significant effect on the patients' satisfaction with their medical services, the value of the services, and their intention to reuse the services and that heightened qualities of dental services lead to improve patients satisfaction or value of the medical services.

which has a high effect on their willingness to reuse the services. In a word, the patients' satisfaction

with their dental services is very important from the perspective of the nation's oral health.

In recent researches, questionnaire investigations have been conducted into the causes for the patients' choosing medical institutions. Lee and Min<sup>8)</sup> investigated into students who attended the department of dental technology to understand why they choose the department and Han<sup>9)</sup> reported into common people to know how satisfied they are with their dental services. There are many of such existing researches<sup>10-19)</sup>, but few researched have been conducted into aged satisfaction with their dental services.

In this regard, this research aims to evaluate satisfaction of the aged with their dental services, with a view to providing good quality medical services for aged oral health and contributing to the improvement of aged oral health. To do that, the present author has investigated general characteristics of aged, how aged are satisfied with their dental clinics and hospitals, and why they choose their clinics and hospitals.

## 2. Subjects and Methods

### 2.1. Subjects

This research randomized 300 the aged who visited dental hospitals and clinics located in some parts of Seoul City, Gyeonggi Province, Gyeongsang Province and Jeolla Province in Korea. from April 1, 2009 to May 8, 2009, a questionnaire investigation was conducted into the subjects by using interviews and self-interviewing. Of the total 265 responses (the collection rate was 88.3%) to the questionnaire, 241 were finally analyzed after excluding all the unfaithful responses.

### 2.2. Methods

When preparing a questionnaire about the subjects' satisfaction with their dental services, references were

Table 1. General properties and satisfaction on dental care service of the aged

	Divisions	Frequency (N)	Percent (%)	Mean (M)	Standard deviation (S,D)	p
	Total	241	100			
Sex	Male	89	36.9	4.04	.95	.121
	Female	152	63.1	4.20	.68	
Age	56-60	107	44.4	4.08	.73	.436
	61-65	58	24.1	4.16	.91	
	66-70	34	14.1	4.09	.67	
	71-75	26	10.8	4.40	.56	
	Over 76	16	6.6	4.21	1.16	
Occupation	None	96	40.0	4.24	.73	.429
	Housewife	73	30.3	4.05	.80	
	In business for oneself	27	11.2	3.96	1.09	
	Company employee	23	9.5	4.16	.71	
	Profession	22	9.1	4.18	.64	

p-value by One-way ANOVA

made to the theses prepared by Han<sup>10)</sup>, Choi<sup>11)</sup>, Kim<sup>7)</sup> and Hong<sup>12)</sup>. The questionnaire is composed of four spheres: 22 questions about the patients' satisfaction with their dental services, 14 questions about the patients' satisfaction with their medical services offered by dental hygienist, 4 questions about the patients' intention to reuse and/or encourage others to use the services, and 8 questions about general characteristics of patients and their use of dental services. 5-point Likert scale was applied to analyze the answers to the questions about the satisfaction with dental services, about the satisfaction with the medical services offered by dental hygienist, and about the patients' intention to reuse and/or encourage others to use the services.

### 2.3. Analytical technique

The collected data was analyzed using SPSS-WIN 14.0. General characteristics of the research subjects were evaluated in their the frequency and percentage. One-way ANOVA was made of aged satisfaction with their dental services in consideration of their general characteristics, the channels through which

the subjects come to recognize their hospital, and the patients' satisfaction with their dental clinic they selected. A multiple regression analysis was made of the factors which have an effect on the patients' satisfaction with their dental services and of the dental hygienists who have an effect on the patients' satisfaction with their dental services. At the statistical significance level of 0.05, an exact test based on the  $\chi^2$  distribution was conducted on why the subject selected their dental clinic depending upon their sex and the period for them to have come to the clinic.

## 3. Results

### 3.1. The subjects' satisfaction with their dental services depending upon their general characteristics

This research has been conducted into a total of 241 subjects including 89 males and 152 females. 107 of the subjects or 44.4% of them are in their between 56 years old and 60 years old, 24.1% of them are in their between 61 years old and 65 years old, 14.1% of them are in their between 66 years old and 70 years

Table 2. Satisfaction according to the recognition route and choice reason of the dental clinic

	Divisions	Frequency (N)	Percent (%)	Mean (M)	Standard deviation (S.D)	t or F	p
Recognition route of a dental clinic	Family, relatives	97	40.2	4.29b	.75	2,201	.044*
	Friends, colleague	87	36.1	4.14ab	.73		
	Doctors of the other clinics	15	6.2	4.17ab	1.02		
	Signboards	12	5.0	3.67ab	.86		
	Advertisements	6	2.5	3.50a	.77		
	Internet	8	3.3	4.00ab	.75		
	Others	16	6.6	3.94ab	.94		
Choice reason of the dental clinic	Technical competence of the dentist	85	35.3	4.48b	.56	8,879	.000***
	The newest equipment and facility of the clinic	30	12.4	3.93a	.78		
	Friendly service for patients	31	12.9	4.41b	.83		
	Close distance	24	10.0	3.64a	1.11		
	Recommendation by a relation and neighborhood	60	24.9	3.90a	.64		
	Others	11	4.6	3.77a	.95		

p-value by One-way ANOVA, \* p:<0.05, \*\* p:<0.01, \*\*\* p:<0.001, a,b by Duncan's post-hoc test

old, 10.8% of them are in their between 71 years old and 75 years old, and 6.6% are over 75 years old. About 70.2% - 70.3% of them are housewives or unemployed while 29.8% are employed. A statistical analysis has found that the subjects' sex, age and occupation do not have a significantly important effect on their satisfaction with their dental services (표 1).

### 3.2. The subjects' satisfaction with their dental services depending upon the channels through which the subjects come to recognize their hospital and upon the reasons for them to choose the hospital

At the recommendation of their family members and/or relatives, 40.2% of the total subjects came to recognize their hospital. 35.3% of them chose their hospital because of a high level of medical techniques offered by the doctors in the hospital and 24.9% did

so because their family members and/or relatives recommended it. One-way ANOVA was applied to know the channels through which the subjects come to recognize their hospital, the reasons for them to choose their hospital and their satisfaction with their dental services. First of all, it is found that the channels through which the subjects come to recognize their hospital have a significantly important effect on their satisfaction with their dental services ( $p<0.05$ ). Also, the reasons for them to choose the hospital have a significantly important effect on their satisfaction with their dental services ( $p<.001$ ). Duncan's post-hoc test was conducted to know which of the variables of the said channels and reasons have a more significantly important effect.

It implies that when they came to recognize their hospital by means of their family members and/or relatives, they are the most satisfied with their hospital. Also, they are highly satisfied with their hospital because of a high level of medical techniques offered by the doctors in the hospital (표 2).

Table 3. Influential factors on dental care service satisfaction

Divisions	Frequency (N)	Mean (M)	Standard deviation (S,D)	Regression coefficient ( $\beta$ )	t	p	R2
Satisfaction	241	4.14	.79	-	-	-	-
Technical competence and kindness of the dentists	241	4.27	.66	.384	5.823	.000***	.602
The newest equipment and facility of the clinics	241	4.40	.60	.259	4.242	.000***	
Reasonable waiting time	241	4.02	.93	.155	2.554	.011*	
Cost of the treatment	241	3.94	.77	.081	1.238	.217	
Close distance	241	3.41	1.05	.047	1.125	.262	

p-value by multiple regression analysis, \* p:<0.05, \*\* p:<0.01, \*\*\* p:<0.001

Table 4. Hygienist factors which influence on satisfaction of dental care service

Divisions	Frequency (N)	Mean (M)	Standard deviation (S,D)	Regression coefficient ( $\beta$ )	t	p	R2
Satisfaction	241	4.14	.79				
Technical competence of the hygienists	241	4.33	.63	.458	7.188	.000***	.595
Kindness of the hygienists	241	4.24	.66	.331	4.422	.000***	
Education about oral health	241	4.19	.74	.063	.958	.339	
Explanation of the treatment and others	241	4.20	.76	.018	.275	.783	

p-value by multiple regression analysis, \* p:<0.05, \*\* p:<0.01, \*\*\* p:<0.001

### 3.3. Factors which have an effect on the subjects' satisfaction with their dental services

A multiple regression analysis was made of the dependent variable of the subjects' satisfaction with their dental services, which comprise dentists, facilities, waiting time for treatments, medical treatment charges and the location of the hospital. In analysis, the factor of dentists includes the level and kindness of the doctors' medical treatments and the factor of the facilities includes the waiting room, medical equipment, and convenience facilities. The analysis finds that dentists and facilities have a significant effect ( $p<.001$ ) and that the waiting time for treatments also has a statistically significant effect ( $p<.05$ ). The medical treatment charges and the

location of the hospital do not have a statistically significant effect on aged satisfaction with their dental services. The patients' satisfaction with their dental services is the most affected by the factor of dentists, whose regression coefficient is the highest, followed by the factors of the medical facilities and the waiting time for treatments (표 3).

### 3.4. Factors which have an effect on the subjects' satisfaction with their dental services offered by the dental hygienists

A high level of medical techniques offered by the dental hygienists and their kindness have a statistically significant effect on the patients' satisfaction with the dental hygienists' medical services ( $p<.001$ ). Education on oral health and kind

explanation do not have a significantly effect. The patients' satisfaction with the dental hygienists' medical services is the most affected by the factor of a high level of medical techniques, whose regression coefficient is the highest, followed by the factor of the hygienists' kindness <표 4>.

### 3.5. Reasons for the patients to choose their hospital depending upon their sex

An analysis was made of the reasons for the research subjects' choosing their hospital depending upon their sex and age, considering the fact described in the above 표 2 that a high level of medical techniques and kind medical services have a statistically significant effect on the reasons for the patients to choose their hospital. And it is found that their sex has a statistically significant effect on the said reasons ( $p < 0.05$ ). Both male and female patients choose such a dental hospital as offers a high level of medical techniques. Their age does not have a statistically significant effect on the reasons <표 5>.

### 3.6. Reasons for the patients to choose their hospital depending upon the period for them to come to their hospital

When the patients have come to their hospital for

less than one year, the majority of them choose their hospital at the recommendation of their family members and/or relatives. In contrast, when the patients have come to their hospital for 1-2 years, they choose their hospital primarily because of a high level of medical techniques and secondarily due to the recommendation of their family members and/or relatives. However, kind medical services are the second reason for the patients who have come to their dental hospital for 3-4 years to have chosen their hospital <표 6>.

## 4. Summary and Discussion

The purpose of this study is to the aged satisfaction with their dental services, with a view to providing aged with good quality medical services for their oral health and contributing to the improvement of aged oral health. To do that, the present author has analyzed a total of 241 subjects including 89 men and 152 women, to investigate how they are satisfied with their dental clinics and hospitals and why they choose their dental clinics or hospitals.

A comparison has been made between Sex, aged and occupation of the subjects' satisfaction but it is found that the characteristics do not have a statistically significant effect. Stege<sup>20)</sup> and others re

Table 5. Choice reason of the dental clinic by the sex and the age

Divisions	Choice reason of the dental clinic[Frequency(%)]							x <sup>2</sup>	p
	Technical competence of the dentist	The newest equipment and facility of the clinic	Friendly service for patients	Close distance	Recommendation by a relation and neighborhood	Others			
Sex	Male	36(40.4)	9(10.1)	5(5.6)	15(16.9)	19(21.3)	5(5.6)	15.244	.009**
	Female	49(32.2)	21(13.8)	26(17.1)	9(5.9)	41(27.0)	6(3.9)		
Age	56-60	37(34.6)	17(15.9)	13(12.1)	9(8.4)	22(20.6)	9(8.4)	29.156	.085
	61-65	18(31.0)	8(13.8)	4(6.9)	9(15.5)	18(31.0)	1(1.7)		
	66-70	13(38.2)	2(5.9)	5(14.7)	5(14.7)	9(26.5)	-		
	71-75	12(46.2)	3(11.5)	3(11.5)	-	7(26.9)	1(3.8)		
	Over 76	5(31.3)	-	6(37.5)	1(6.3)	4(25.0)	-		

p-value by exact test, \* p:<0.05, \*\* p:<0.01

Table 6. Choice reason of the dental clinic by periods being continuous with the dental clinic

Divisions	Choice reasons of the dental clinic [Frequency(%)]							x <sup>2</sup>	p
	Technical competence of the dentist	The newest equipment and facility of the clinic	Friendly service for patients	Close distance	Recommendation by a relation and neighborhood	Others			
Periods being continuous with the dental clinic	Less than 1 year	28(28.3)	15(15.2)	4(4.0)	12(12.1)	32(32.3)	8(8.1)	35.499	.018*
	1-2 years	26(44.8)	6(10.3)	7(12.1)	4(6.9)	14(24.1)	1(1.7)		
	3-4 years	9(27.3)	5(15.2)	7(21.2)	5(15.2)	7(21.2)	-		
	5-6 years	7(41.2)	1(5.9)	5(29.4)	2(11.8)	2(11.8)	-		
	More than 7 years	15(44.1)	3(8.8)	8(23.5)	1(2.9)	5(14.7)	2(5.9)		

p-value by exact test, \* p:<0.05, \*\* p:<0.01

port that compared to young patients, 60 year old or older patients tend to be more satisfied with their dental services. Gopalakrishna and Mummalaneni<sup>21)</sup> contends that women express higher satisfaction than men.

An investigation was made into the research subjects' satisfaction with their dental services, depending upon the channels through which the subjects come to recognize their hospital and the reasons for them to choose the hospital. And it is found that the channels and the reasons have a statistically significant effect on their satisfaction with their dental services.

They are highly satisfied with their dental services especially when they came to recognize their hospital at the recommendation of their family members and/or relatives. As is seen in a research made by Cohen<sup>6)</sup> and others, which argues that people's recommending a dental institution to others is clearly related to their satisfaction with it, the others will be also highly satisfied with a dental institution with which the people themselves are satisfied. Kim<sup>13)</sup> maintains that new patients visit a dental clinic most frequently at the recommendation of their family members and/or relatives. The same thing is demonstrated in this research as well. As a result, it

is found that word of mouth about medical services has an effect on the customers' decision making.

The patients are highly satisfied with a high level of medical techniques and choose their hospital. According to a research conducted by Kim<sup>14)</sup> and others, removing the patients' inconveniences has the greatest effect on their satisfaction with their dental hospital, the hospital's service system has the second greatest effect and the kindness has the third. Doctors are the most important factor for the patients to choose their hospital.

The subjects' satisfaction with their dental services is most affected by the level of the doctors' medical treatments and their kindness, followed by the medical facilities and the waiting time for medical treatments. A research conducted by Han<sup>15)</sup> finds that a high level of medical techniques is the greatest motive to choose a dental clinic, followed by the kindness of the dental workers, the recommendation of their family members and/or relatives, and the short distance between the patients' home and their clinic. It is also found that the quality of dental services has an effect on the patients' satisfaction with the services, the value of their services and their intention to reuse the services. A research made by Hong<sup>12,16)</sup> asserts that the research subjects' intention

to reuse their services is affected the most by their satisfaction with their dental services, followed by the procedures of medical treatments and an internal environment. These findings are corresponding to the results of this research.

Another investigation finds that dental hygienists' level and kindness of medical treatments have a statistically significant effects on the subjects' satisfaction with their medical services. A research conducted by Tamaki<sup>17)</sup> finds that what is significant includes the level of dental hygienists' technology, an appropriate waiting time, and explanations about medical treatments. A research conducted by Han<sup>9)</sup> finds that the role of dental hygienists are the most important to the patients' satisfaction and their intention to revisit and/or recommend others to visit their hospital. A research conducted by Hong<sup>12,16)</sup> also finds that dental hygienists' kindness and professional management of the patients have an effect on the patients' satisfaction and that their kindness has the most statistically significant effect. It is also analyzed that the quality of dental hygienists' medical services is very closely related with the patients' satisfaction and their intention to revisit and/or recommend others to visit their hospital. In particular, Tamaki<sup>17)</sup> and others assert that the role of dental hygienists is very important for regular medical checkups. These research results obtain consent to the findings of this research that the professionalism of dental hygienist and their kindness to the patients have an effect on the patients' satisfaction.

This result implies that the aged will give more points to the medical staff with a higher level of education. It calls for training dental staff in aged in order to improve the staff's kindness, which has an effect on the patients' satisfaction with their dental hygienists. Also, the previous research finds that the highest points for expertise are given to the dental hygienists serving in Gyeongsang Province while the lowest points for kindness are given to them. It does

not mean that the aged, who give high points for the expertise of their dental hygienists, will surely do the same for the kindness of the medical staff. Therefore, dental hygienic education about the aged must include not only their knowledge of aged but their attitude toward aged as well.

This research finds that sex has a statistically significant effect. A research made by Tamaki<sup>17)</sup> and others asserts that men are highly satisfied with the cleanness and orderliness of the waiting room. This research proves that when choosing their dental clinic, women give a higher priority to the newest facilities and environment than men do. In particular, this research finds that women are attracted more by kind medical services and that men by a close distance between their home and the clinic.

An investigation was made to know the reasons for the research subjects to choose their hospital depending upon the period of their having come to it, or why they come to their dental clinic continually. The investigation finds that when the patients have come to their hospital for less than one year, the majority of them choose their hospital at the recommendation of their relatives and/or neighbors. In contrast, when the patients have come to their hospital for 1-2 years, they choose their hospital primarily because of a high level of medical techniques. It implies that the patients who have long come to their dental hospital have consistently chosen their hospital because of the doctors' high level of medical techniques. What is to be noted here is that the patients who have come to their dental hospital for 3-4 years attach greater importance to kind medical services.

As a result, this research finds that dentists high level of medical techniques most satisfies their patients, who are consistently attracted by their services and that for the aged, when they have come to their hospital for more than three or four years, a high level of medical techniques is the most important



factor, followed by kind medical services.

As is contended in a research conducted by Jang<sup>18)</sup>, it is necessary to go beyond a manager-centered or staff-centered management & operation system into a patient-centered management & operation system. In this line, it is also necessary to enhance the level of medical treatments so that aged may be satisfied with it and to intensify kind medical services.

Yet, this research has its own limits. First, when an investigation is made into the patients' satisfaction, candid answers may be difficult to get since not professional questioners but hospital workers read the questionnaire to aged for getting answers. Second, it may be that positive answers to the questionnaire are drawn from the patients who are receiving dental services. Third, the generalization of the investigation may be hard since the subjects are randomized. Despite these limits, this research is meaningful in that it has investigated into the reasons why aged choose their dental clinic to treat their oral health and into their satisfaction with their medical services.

## 5. Conclusion

This research has investigated into the factors which have an effect on aged satisfaction with their dental services and on their choosing their dental clinic. The following are the findings of the research.

1. In most cases, aged choose their hospital at the recommendation of their family members and/or relatives. In this case, they are the most satisfied with their dental clinic, compared to other cases when they came to know their clinic through other channels.
2. The subjects choose their dental clinic firstly because of the doctors' high level of medical techniques and secondly because of their kind medical services. In a word, the most important factor for them to choose their dental clinic is the

doctors themselves including their high level of medical techniques and their kind medical services.

3. Dental hygienists' high level of medical techniques and kindness have a significant effect on the patients' satisfaction with their dental services. In order to increase aged satisfaction with their medical services, it is necessary to educate aged in dental hygiene and to train dental hygienists in aged and in their attitude toward aged.

4. The patient consistently come to the same dental clinic firstly because of the doctors' high level of medical techniques, secondly due to the doctors' kindness. And the patients who have come to their dental hospital for 3-4 years attach the greatest importance first to the doctors' high level of medical techniques and then to their kindness.

Therefore, it is concluded that aged are satisfied with such dental clinics and/or hospitals as have dentists and dental hygienists, whose medical treatment level is high and who offer kind medical services.

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