

Related to Oral Care and Oral Health Education of Implant Patients

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ABSTRACT

Objective: This study investigated oral management of implant patients through implant management education and attempted to analyze and investigate postoperative discomfort, oral disease, and oral care products of implant patients.

Subjects and Methods: From October to November 2021, a questionnaire survey was conducted on 97 patients undergoing management after implantation at Y Dental Clinic and I Dental Clinic in Gwangju Metropolitan City. After visiting the dentist in person, explaining the purpose of the study and how to fill out the questionnaire, it was self-filled and collected. SPSS 18.0 program was used for the collected data. The oral care level questionnaire was modified and used. In general, 6 questions were descriptive statistics and frequency analysis of age, gender, chronic disease, scaling, smoking, and drinking, and 8 questions were dental care, oral health education, use of oral aids, implant management, implant use period, implant procedure satisfaction, discomfort, disease, implant management, implant life span, implant management. Response sample-test, monomial variance analysis, and regression analysis were performed, and the significance level was $p < 0.05$.

Results: 1. Age was 11 in their 40s, 23 in their 50s, 29 in their 60s, and 34 in their 70s, with an average of 63.886 (1.019), Gender was man 54, and Feminine 43, with an average of 1.443 (499).

2. In the corresponding sample t-test, each Age 3 and Chronic disorder. Age and Extraction, Gender and Implant care, Gender and Original supplies Gender, Oral supplies. gender and period of use of implants Gender and Extension of implant life. Significant results have been shown.

3. There is a significant difference between age and period of use of implants at the significance level of $f=1.150$, $p=.333$, and period of use of implants at the significance level of .05. Subsequently, there is a significant difference in the significance level of $f=5.729$, $p=0.01$ in age and Extension of Life Expectancy for implants. There is a significant difference at the significance level of .05 as $f=3.014$, $p=0.034$ in the period of use of implants.

4. In the post-analysis according to age, the average difference between the 50s and 60s of Extending the life span of implant progress is. The significance level as .733, $p=.004$. There was a significant difference in 05. The average difference between those in their 50s and 60s in implantation. is -.427, $p=.004$, the significance level. There is a significant difference.

5. The average difference in oral health education for the disease, implant prosthesis after implant procedure, alcohol consumption, implant satisfaction, chronic disease, implant discomfort, implant disease main cause, gender, implant longest use period, smoking amount, and age $f=15.105$, $p=$ Significance level at 001. It was found to be significant in 05.

6. The regression analysis different from gender and oral health education is $f=4.474$ $p=.037$, which significantly explains oral health education at the significance level of .05 ($t=2.115$, $p=.037$) 45% (35% correction coefficient) of the total amount of change is explained by gender.

Conclusion: Effective oral health education for oral health promotion of implant patients and regression analysis through gender were significant.

KEYWORDS: Implants; Oral care; Oral health education; Oral hygiene aids; Implant inflammation; Implant life expectancy

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INTRODUCTION

In the case of uncontrolled systemic diseases, the rate of failure of implants increases, increasing the patient's economic, physical, and mental damage, and complications occur after implant procedures, especially due to lack of knowledge of management [1].

There are peripheral implants, and risk factors for implant treatment include poor oral hygiene, periodontal inflammation and infection, and diseases around implants. The main causes of complications are implant peripheral inflammation, and risk factors for implant treatment include poor oral hygiene, inflammation and infection related to periodontal disease, and diseases around the implant.

In implant treatment and maintenance, if the bacterial membrane is improperly managed, the surface of the implant is exposed to the oral cavity, making it difficult to self- and maintain the patient, and eventually acts as a factor in implant failure [2]. In addition, implants have several fundamental limitations compared to natural teeth, which do not have periodontal bands present in natural teeth, so they cannot utilize the regenerative and sensory functions of periodontal tissues resulting from periodontal organs, and physiological and orthodontic movements of implants are impossible [3].

The way to lead implant treatment to success is to prevent periodontal disease through self-management of bacterial membranes. However, in the patient's evaluation criteria for implant procedures, most tend to expect implants to be different from the lifespan of general prostheses. Therefore, it shows negligence in follow-up management. Oral care is an important factor for long-term use of implant prostheses, and implant prostheses are as important as the implant procedure.

Management should be continuously managed, evaluated, and educated. The main cause of dental loss in most people who treat implants is periodontal disease caused by dental flora, and these people are more likely to fail due to inflammation of the surrounding tissues of the implant [4].

Therefore, it is important to focus on oral hygiene and dental floss. The introduction of an effective oral hygiene management program will be necessary [5]. In addition, since oral hygiene management of prostheses, the upper structure of implants, plays an important role in implant success, it should be recognized that more careful management is needed than natural teeth through education.

Furthermore, through continuous maintenance and regular oral examination, oral examination. By identifying the health status and taking care of it accurately, I didn't fail the implant. It will be able to prevent it. Evaluation of the quality of life of patients with implant procedures, studies on the perception and perception of implants, and studies on satisfaction have been studied in advance.

However, studies highlighting the importance of oral hygiene management and self-management using oral care products that patients with implant procedures can practice on their own are insufficient.

Therefore, this study attempted to analyze and investigate the discomfort of implant patients after treatment and the management of oral aids for oral diseases in the oral management of implant patients through implant management education. Furthermore, effective oral health to promote oral health in implant patients. I

would like to present basic data for the development of educational programs.

SUBJECTS AND METHOD

Subjects

This study was approved by the Institutional Bioethics Committee of Honam University (1041223-20211-HR-24). From October to November 2021, a questionnaire survey was conducted on 97 patients undergoing management after implantation at Y Dental Clinic and I Dental Clinic in Gwangju Metropolitan City. After visiting the dentist in person, explaining the purpose of the study and how to fill out the questionnaire, it was self-filled and collected. The questionnaire for this study was modified and used by Kim [6] oral care level questionnaire. In general, 6 questions are age, gender, chronic disease, scaling, smoking, drinking, etc., and 8 questions are about oral care, such as extraction, oral health education, use of oral aids, implant management, number of implants, duration of use of implants, Implant procedure satisfaction, discomfort, and oral disease were four questions for implant management, and a total of 18 questions were performed for implant prosthesis management, extension of prosthesis life, implant salt, and implant disease.

Data Analysis

SPSS 18.0 program was used for the collected data. The oral care level questionnaire was modified and used. In general, 6 questions were analyzed for age, gender, chronic diseases, scaling, smoking, and drinking, descriptive statistics and frequency. The 8 questions of oral care are tooth extraction, oral health education, use of oral aids, implant management, number of implants, duration of use of implants, implant procedure satisfaction, discomfort, and disease. Implant management 4 questions, implant prosthesis management, extension of prosthesis life, for implant salts and implant diseases, Response sample-test, one-way variance analysis, and regression analysis were performed, and the significance level was $p < 0.05$.

RESULTS

In Table 1, Age was 11 in their 40s, 23 in their 50s, 29 in their 60s, 34 in their 70s, with an average of 63.886 (1.019), Gender was man 54, and Feminine 43, with an average of 1.443 (.499). High blood pressure 35 people, Diabetes 32 people, and Liverpool 7 people. Heart disease 5 people. None 18 people showed an average of 2.371 (1.481). The average of Scaling I don't 1 person, 6 months 29 people, 1 year 52 people, and Over 2 years. 15 people is shown as 3.822 (.721). In Smoking, there are 55 I don't smoke, 26 Half the price, 10 One pack, and 6 Two packs, with an average of 1.659 (.900). From Drinking, "I Don't 56", "Once a day 20", "Once a week". There were 15 people, 3 times a week. 6, and the average was 1.701 (.948). In Extraction, there were 31 Tooth decay, 64 Periodontal disease, and 2 Teeth fractures, with an average of 1.721 (.572).

Response Sample T-Test

In the Table 2 corresponding sample t-test, each Age 3.886 (1.019) and Chronic disorder 2.371 (1.481). $t=7.792$, $p=.000$. Age 3.886 (1.019) and Extraction 1.71 (.572) $T=19.284$, $p=.000$, Age 3.886 (1.019) Original health education 1.618 (.728), $t=16.638$, $p=0.000$. Response 4 Age 3.886 (1.019) Impact care 1.608 (.621), $t=16.809$, $p=.000$ and Age 3.886 (1.019) Extension of implant life 3.474 (.751) $t=3.671$, $p=$ in Response 5.000 is Response 6 Age 3.886 (1.019) Original supplies. 2.597 (1.296) $t=6.805$, $p=0.000$. Response 7 showed that each Gender was 1.443 (.499) oral health education 1.618 (.621), $t=-2.183$, and $p=-.031$. In Response 8 Gender was 1.443

(.499), implant care 1.608 (621), $t=-2.313$, $p=.023$, and at Response 9, Gender was 1.443 (.499) Oral components 1.618 (621), $t=-2.493$, $p=.014$. The period of use of implants. 3.340 Gender was 1.443

(.499) (1.009) at Response 10 and $t=-15.203$, $p=.000$ and Gender was 1.443 (.499) Extension of implant life.3.474 (751), $t=-20.333$, $p=.000$

Table 1: General characteristics-----($n=97$).

Item	Sub-Item	Frequency	The Percentage	Mean	SD
Age	40	11	11.3	63.886	1.019
	50	23	23.7		
	60	29	29.9		
	70	34	35.1		
Gender	Man	54	55.7	1.443	0.499
	Feminine	43	44.3		
Chronic Disease	High blood pressure	35	36.1	2.371	1.481
	Diabetes	32	33		
	Liver Disease	7	7.2		
	Heart Disease	5	5.2		
	None	18	18.6		
Scaling	I don't	1	1	3.822	0.721
	6 months	29	29.9		
	1 year	52	53.6		
	Over 2 years	15	15.5		
Smoking	I don't smoke	55	56.7	1.659	0.9
	Half the price	26	26.8		
	One pack	10	10.3		
	Two packs	6	6.2		
Drinking	I don't	56	57.7	1.701	0.948
	Once a day	20	20.6		
	Once a week	15	15.5		
	3 Times a week	6	6.2		
Extraction	Tooth decay	31	32	1.721	0.572
	Periodontal Disease	64	65		
	Teeth Fracture	2	2.1		

Table 2: Response sample t-test-----($n=97$).

Item	Sub-Item	Mean	SD	T	P
Response 1	Age	3.886	1.019	7.792	0
	Chronic Disease.	2.371	1.481		
Response 2	Age	3.886	1.019	19.284	0
	Extraction	1.721	0.572		
Response 3	Age	3.886	1.019	16.638	0
	Oral Health Education	1.618	0.728		
Response 4	Age	3.886	1.019	16.809	0
	Implant Care	1.608	0.621		
Response 5	Age	3.886	1.019	3.671	0
	Extension of Implant Life	3.474	0.751		
Response 6	Age	3.886	1.019	6.805	0
	Oral Supplements	2.597	1.296		
Response 7	Gender	1.443	0.499	-2.183	-0.031
	Oral Health Education	1.618	0.728		
Response 8	Gender	1.443	0.499	-2.313	0.023
	Implant Care	1.608	0.621		

Response 9	Gender	1.443	0.499	-2.493	0.014
	Oral Supplements	1.618	0.619		
Response 10	Gender	1.443	0.499	-15.203	0
	The Period of Use of Implants	3.34	1.009		
Response 11	Gender	1.443	0.499	-20.333	0
	Extension of Implant Life	3.474	0.751		

One-Way Analysis of Variance for Implant Salts and Prolongation of Life of Implants with Different Ages

There is a significant difference between age and period of use of implants at the significance level of .05 with $f=1.150$, and $p=.333$.

Subsequently, there is a significant difference in the significance level of $f=5.729$, $p=0.01$ in age and Extension of Life Expectancy for implants. There is a significant difference at the significance level of .05 as $f=3.014$, $p=0.034$ in the period of use of implants Table 3.

Table 3: One-way analysis of variance for implant salts and prolongation of life of implants with different age. -----
($n=97$).

Item	Sub-Item	n	Mean	SD	Model	The Sum of Squares	Freedom	Average Square	F	P
The period of use of implants.	40	11	3.454	0.522	The period of use of implants.	3.496	3	1.165	1.15	0.333
	50	23	3.347	1.64						
	60	29	3.068	0.842						
	70	34	3.529	0.614	Error	94.277	93	1.014		
	Sum	97	3.402	1.009	Sum	97.773	96			
Extension of life expectancy for implants.	40	11	3.454	0.522	Extension of life expectancy for implants.	8.53	3	2.843	5.729	0.01
	50	23	2.956	0.767						
	60	29	3.689	0.712						
	70	34	3.647	0.691	Error	45.655	93	0.491		
	Sum	97	3.474	0.751	Sum	54.186	96			
The period of use of implants.	40	11	1.545	0.522	The period of use of implants.	2.514	3	0.838	3.014	0.034
	50	23	1.434	0.506						
	60	29	1.862	0.35						
	70	34	1.617	0.652	Error	25.857	93	0.278		
	Sum	97	1.639	0.543	Sum	28.371	96			

Post Analysis of Age-Different Life Expectancy and Implantation

In the post-analysis according to age, the average difference between the 50s and 60s of Extending the life span of implant

progress is. The significance level as 733 , $p=.004$. There was a significant difference in 05. The average difference between those in their 50s and 60s in implantation. is $-.427$, $p=.004$, the significance level. There is a significant difference in 05 (Table 4).

Table 4: Post-analysis of age-different life expectancy and implantation. ---($n=97$).

Item	Age	Average Difference	Standard Error	P
Extending the life span of implant prosthesis.	50&60	-.733*	0.196	0.004
Implant inflammation.	50&60	-.427*	0.147	0.004

ANOVA According to Oral Health Education

In Table 5, the average difference in oral health education for diseases, implant prosthesis, drinking, implant satisfaction, chronic

disease, implant discomfort, implant disease, gender, implant duration, smoking amount, and age is $f=15.105$, $p=$ Significance level at .000. It was found to be significant in 05.

Table 5: ANOVA according to oral health education.

ANOVA ^a						
Model		The Sum of Squares	Freedom	Average Square	F	P
1	Regression	33.664	11	3.06	15.105	.000 ^b
	Residual	17.222	85	0.203		
	The Entire	50.887	96			

^aDependent variable: oral health education.

^bPredictor: (constant), disease experienced after implant procedure, life extension of implant prosthesis, frequency of drinking, satisfaction with implant, chronic disease, postoperative discomfort of implant, major cause of implant location disease, gender, implant duration, smoking amount, age.

Implant Regression Analysis according to Oral Health Education

The regression analysis different from gender and oral health

education is $f=4.474$ $p=.037$, which significantly explains oral health education at the significance level of .05 ($t=2.115$, $p=.037$) 45% (35% correction coefficient) of the total amount of change is explained by gender (Table 6).

Table 6: One-way analysis of variance for implant salts and prolongation of life of implants with different age. -----
($n=97$).

The Coefficient ^a					
	Non-Standardization Coefficient		Standardized Coefficient	T	P
	B	Standard Error			
Constant	1.172	0.233		5.254	0
Gender	0.309	0.014	0.212	2.115	0.037

DISCUSSION

For the success of implants for a long time, maintenance and management of dentists' treatment ability patients themselves are also important [7]. In a medical study, the results of analyzing the actual condition of oral health education of dental hygienists and those who experienced oral health education were presented to highlight the importance of oral health education for dental hygienists in oral health education. In the Table 2 corresponding sample t-test, each Age 3.886 (1.019) and Chronic disorder 2.371(1.481). $t=7.792$, $p=.000$. Age 3.886 (1.019) and Extraction 1.71(.572) $T=19.284$, $p=.000$, Age3.886 (1.019) Original health education 1.618 (.728), $t=16.638$, $p=.000$. Response 4 Age 3.886 (1.019) Impact care 1.608(621), $t=16.809$, $p=.000$ and Age 3.886 (1.019) Extension of implant life 3.474 (751) $t=3.671$, $p=$ in Response 5.000 is Response 6 Age 3.886 (1.019) Original supplies. 2.597 (1.296) $t=6.805$, $p=.000$. Response 7 showed that each Gender was 1.443 (.499) oral health education 1.618(.621), $t=-2.183$, and $p=-.031$. In Response 8 Gender was 1.443 (.499), implant care 1.608 (621), $t=-2.313$, $p=.023$, and at Response 9, Gender was 1.443 (.499) Oral components 1.618 (621), $t=-2.493$, $p=.014$. The period of use of implants. 3.340 Gender was 1.443 (.499) (1.009) at Response 10 and $t=-15.203$, $p=.000$ and Gender was 1.443 (.499) Extension of implant life .3.474 (751), $t=-20.333$, $p=.000$. Table 2. In addition, there is a significant difference between the age and the period of use of implants at the significance level of $f=1.150$, $p=.333$, and the period of use of implants at the significance level of .05. Subsequently, there is a significant difference in the significance level of $f=5.729$, $p=0.01$ in age and Extension of Life Expectancy for implants. There is a significant difference at the significance level of .05 as $f=3.014$, $p=0.034$ in the period of use of implants Table 3.

In Table 5, the average difference in oral health education for post-implant disease, implant prosthesis life extension, drinking, implant satisfaction, chronic disease, implant discomfort, implant disease, gender, implant longest usage period, smoking amount, and age is $f=15.105$, $p=$ Significance level at .001. It was found to be significant in .05. A study by Han [8] suggested that periodontal disease has a low prevalence in oral care product users, significant differences between the prevalence rate in the use of oral care products and the number of toothbrushes, and that the occurrence and severity of periodontal disease are mainly related to poor oral hygiene environments.

In studies such as No [9,10], it was argued that the more education the number of times, the more changes in the subject's attitude. It is believed that oral health education can be implemented through repetitive education to further enhance the effectiveness of oral health education. In order to increase the practicality of the subject through the application of oral health education, it is considered necessary to apply the "Tell-show-do" method as suggested in studies such as Kang [11] to first explain it in the model, wipe the subject's oral cavity, and try it yourself. In addition, as suggested in the study of Ahn [12], it is necessary to gain trust from the subject through sufficient dialogue with the subject so that the subject can induce motivation and behavior change.

To extend the life of the implant after the procedure, thorough oral hygiene management is required to support healthy periodontal tissue in the implant area, and oral health education should be strengthened to recognize the importance of oral hygiene management and induce them to practice themselves [13,14].

Oral health education refers to systematic education that fosters oral health knowledge for the people and changes attitudes and behaviors to promote and maintain oral health. It can be said that oral health education is very important because the acquisition of knowledge through oral health education changes the subject's oral health behavior or attitude. Currently, dental hygienists are the most frequently conducting oral health education in dental clinical practice. Most of the patients who visit the dentist are receiving oral health education from dental hygienists along with dental treatment [15].

In Table 5, the average difference in oral health education for post-implant treatment disease, implant prosthesis life extension, drinking, implant satisfaction, chronic disease, implant discomfort, implant disease, gender, implant longest use period, smoking amount, and age is $f=15.105$, $p=$ Significance level at .001. It was found to be significant in .05. The regression analysis different from gender and oral health education is $f=4.474$ $p=.037$, which significantly explains oral health education at the significance level of .05 ($t=2.115$, $p=.037$) 45% (35% correction coefficient) of the total amount of change is explained by gender Table 6.

The limitation of this study is that it is necessary to expand the research subject as a follow-up study, consisting of implant experiences living in Gwangju. Subsequently, it was difficult to cultivate implant patients who practice oral health education and

accurately grasp the application and perception of oral health education. Accordingly, it is considered that a 1:1 matching study is necessary in subsequent studies.

CONCLUSION

From October to November 2021, a questionnaire survey was conducted on 97 patients undergoing management after implantation at Y Dental Clinic and I Dental Clinic in Gwangju Metropolitan City. After visiting the dentist in person, explaining the purpose of the study and how to fill out the questionnaire, it was self-filled and collected. The 6 general questions are age, gender, chronic diseases, scaling, smoking, drinking etc. The 8 questions on the degree of oral care include extraction, oral health education, use of oral aids, implant management, number of implants, duration of use of implants, satisfaction with implant procedures, discomfort, and oral diseases. Implant management 4 questions were performed with a total of 18 questions, including implant prosthesis management, implant prosthesis life extension, implant salt, and implant disease.

a) Age was 11 in their 40s, 23 in their 50s, 29 in their 60s, and 34 in their 70s, with an average of 63.886 (1.019), Gender was man 54, and Feminine 43, with an average of 1.443 (499). High blood pressure 35 people, Diabetes 32 people, and Liverpool 7 people. Heart disease 5 people. None 18 people showed an average of 2.371 (1.481). The average was 3.822 (.721), with 1 scaling I don't, 29 months, 52 years, and 15 years. In Smoking, there are 55 I don't smoke, 26 Half the price, 10 One pack, and 6 Two packs, with an average of 1.659 (900). From Drinking, "I Don't 56", "Once a day 20", "Once a week". There were 15 people, 3 times a week. 6, and the average was 1.701 (.948). In Extraction, there were 31 Tooth decay, 64 periodontal disease, and 2 Teeth fractures, with an average of 1.721 (.572).

b) In the Table 2 corresponding sample t-test, each Age 3.886 (1.019) and Chronic disorder 2.371 (1.481), $t=7.792$, $p=.000$. Age 3.886 (1.019) and Extraction 1.71 (.572) $T=19.284$, $p=.000$, Age 3.886 (1.019) Original health education 1.618 (.728), $t=16.638$, $p=.000$. Response 4 Age 3.886 (1.019) Impact care 1.608 (621), $t=16.809$, $p=.000$ and Age 3.886 (1.019) Extension of implant life 3.474 (751) $t=3.671$, $p=$ in Response 5.000 is Response 6 Age 3.886 (1.019) Original supplies. 2.597 (1.296) $t=6.805$, $p=.000$. Response 7 showed that each Gender was 1.443 (499) oral health education 1.618 (621), $t=-2.183$, and $p=-.031$. In Response 8 Gender was 1.443 (.499), implant care 1.608 (621), $t=-2.313$, $p=.023$, and at Response 9, Gender was 1.443 (499) Oral components 1.618 (621), $t=-2.493$, $p=.014$. The period of use of implants. 3.340 Gender was 1.443 (499) (1.009) at Response 10 and $t=-15.203$, $p=.000$ and Gender was 1.443 (.499) Extension of implant life. 3.474 (751), $t=-20.333$, $p=.000$

c) There is a significant difference between age and period of use of implants at the significance level of .05 with $f=1.150$, and $p=.333$. Subsequently, there is a significant difference in significance level 5 as $f=5.729$, $p=0.01$ in age and Extension of Life Expectancy for implants. There is a significant difference at the significance level of .05 as $f=3.014$, $p=0.034$ in the period of use of implants with age Table 3.

d) In the post-analysis according to age, the average difference between the 50s and 60s of Extending the life span of

implant progress is $-.733$, $p=$ The level of significance as 004. There was a significant difference in 05. The average difference between those in their 50s and 60s in implantation. is $-.427$, $p=$ The level of significance at 004. There is a significant difference in Table 4.

e) The average difference in oral health education for the disease, implant prosthesis after implant procedure, alcohol consumption, implant satisfaction, chronic disease, implant discomfort, implant disease main cause, gender, implant longest use period, smoking amount, and age $f=15.105$, $p=$ Significance level at 001. It was found to be significant in 05.

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