

## The Efficiency on the Oral Health Training of Elderly Adults at Welfare Institutions

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### 노인복지센터 이용노인의 구강보건교육 효율성

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**Abstract** The purpose of this survey was to evaluate the efficiency on the oral health training of elderly adults who have experienced the oral health training program at welfare institutions in An-yang city, Korea. A total of 451 adults (aged 65 or more) were selected and surveyed by the self-reporting questionnaire that consist of 4 items and socio-economic general characteristics (gender, age). Oral health indices were produced by using the SPSS. The percentage of perceived oral health status that felt poor or very poor was decreased about 8.5% than before and the frequency of perceived oral symptom was decreased too and the practice rate and satisfaction with oral health training was significantly increase than before. Oral health promotion of the elderly adults at welfare institutions in An-yang city should focused on the constant attention the means of the preventive oral health training program.

**Key words** Oral Health Training, Elderly Adults, Perceived Oral Health Status.

### Introduction

Population of elderly adults in Korea was about 9.1 percent in 2005 and going to be about 14.3 percent in 2018 (aging society) and about 20.8 percent in 2026 (aged society) respectively, according to the latest statistics released by National Statistics Office. So, with a increasing life expectancy oral health and well-being in the elderly adults was one of the greatest problems in our modern societies and become an object of public concern. Outbreaks of diseased symptoms in elderly adults is creeping and subclinical. It's lead to slows your immune and you may become sick<sup>2)</sup>. Especially we think that the features of oral disease in elderly adults can be applied to diseased symptoms in the same manner. Oral disease in elderly adults are several factors, including the degeneration of oral structure caused by

the aging process, decrease the self-purification ability of saliva, decrease the immune in mouth, doesn't care much about personal dental hygiene<sup>3)</sup>. Because passive dental treatment of oral disease, the oral health become worth.

Most of the oral disease is chronic, especially chewing ability is essential to living and it's have a great effect on the well-being. But, elderly adults in Korea show indifference to the recognition of dental clinic and oral disease by comparison with advanced country. Oral disease in elderly adults are not aging but inappropriate oral care and did not received a medical care<sup>4)</sup>. Fundamental properties of oral disease can prevent by way of practice the oral health training program<sup>5)</sup>. It is in need of making up the oral health care system to prevent the become worse the oral health and to expand the tooth durability by providing the appropriate oral health care and oral health training program constantly to elderly adults.

We analysis the efficiency of the oral health training program through the survey the difference of response between experience and non-experience the oral health program.

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We are survey that focus on the methods for motivation and how to improve the adult's oral health to prepare the preliminary data of the oral health program.

## Materials and methods

### 1. Object of study and collect data

We made up a questionnaire for the elderly adults who have experienced the oral health training program at welfare-institutions in An-yang city to analyze the efficiency of oral health training. When investigating questionnaire, we explained sufficiently the purpose of the questionnaires and method before answering. The survey method was writing by oneself in principle and if can not writing by oneself, the assistant was used.

The survey of elderly adults who have experienced the oral health training, that is, "Elderly adults oral shepherd" taken two times between an early stage of training and the end of training, 451 members responded to the survey. A survey has found that the proportion of males were 35.9 percent (162), females were 64.1 percent (289) and average age was  $72.9 \pm 6.9$  years old (men's average age was lower than that of women by 1 year) and the mean value of tooth in male and female was  $7.57 \pm 1.8$  of teeth and  $7.42 \pm 2.0$  of teeth respectively.

### 2. A method of study

#### 1) Collect data

we ask questions regarding the oral health status by using the likert 5 points scale (very poor(1-point), poor(2-points), moderate(3-points), good(4-points), very good(5-points)) and regarding the oral health training program by using the likert 3 points scale (not helpful(1-point), moderate(2-points), helpful(3-points)). The perceived oral health status and practice trends of oral health training were used independent variable and gender, age, oral health status were used dependent variable.

#### 2) Data analysis

The SPSS(V.12) was used to data analysis. The difference test in general characteristic of perceived oral health status was used the Chi-square test. Perceived oral health status, the trends and oral symptom were used the One-way ANOVA. To analyze the efficiency on the oral health training, we made use of t-test as to "Practice rate the oral health training", "Perceived oral symptom", "Perceived satisfaction measurement" whose have experienced and non-experienced the oral health training.

## Result

### 1. Number of total tooth in respondent

Total tooth in respondent on age and gender showed a preponderance in 8 and below(Table 1). As grow older number of total tooth was decrease with age.

### 2. Oral health status and trends on general characteristic.

1) Perceived oral health before and after the oral health training on age and gender.

Perceived oral health status before and after the oral health training on age, gender was showed in Table 2. The total number of the feel "poor" the oral health were 239 persons(53%) (before) and 201 persons(44.5%) (after) respectively. It show that the number of feel "poor" were declined 8.5% than before the oral health training.

2) The oral management trend in before and after the oral health training on age, gender.

The respondent's oral management trend on age, gender was shown in Table 3. Most of the respondents were used the dentifrice when toothbrushing. Solidity of toothbrush's bristle was hard and soft bristle in before but after the health training they were used the soft bristle.

Table 1. Numbers of the total tooth on age and gender

	Division	Total tooth				Total	$\chi^2$ (p-value)
		< 8	9 - 15	16 - 20	21 <		
Gender	Male	111(24.6)	47(10.4)	3(0.7)	1(0.3)	162(35.9)	1.92 (0.589)
	Female	208(46.1)	76(16.9)	2(0.4)	3(0.7)		
	< 65	21(4.7)	9(2.0)	0(0.0)	0(0.0)	30(6.7)	
Age group	66 - 75	161(35.7)	73(16.2)	4(0.9)	3(0.7)	241(53.4)	9.02
	76 - 85	118(26.2)	34(7.5)	0(0.0)	1(0.2)	153(33.9)	(0.435)
	86 >	19(4.2)	7(1.6)	1(0.2)	0(0.0)	27(6.0)	
	Total	319(70.7)	123(27.3)	5(1.1)	4(0.9)	451(100.0)	

**Table 2. Socio-characteristics of subject according to perceived oral health status**

Division	Perceived oral health status												$\chi^2$ (p-value)	
	Very poor(%)		Poor(%)		Moderate(%)		Good(%)		Very good(%)					
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After		
Gender	Male	162(35.9)	22(13.6)	21(13.0)	59(36.4)	46(28.4)	50(30.9)	46(28.4)	27(16.7)	34(21.0)	4(2.5)	15(9.3)	5.69	7.05
	Female	289(64.1)	34(11.8)	26(9.0)	124(42.9)	108(37.4)	63(21.8)	65(22.5)	60(20.8)	71(24.6)	8(2.8)	19(6.6)	(0.223)	(0.133)
Age group	< 65	30(6.7)	0(0.0)	0(0.0)	11(36.7)	8(26.7)	9(30.0)	8(26.7)	7(23.3)	10(33.3)	3(10.0)	4(13.3)		
	66 - 75	241(53.4)	39(16.2)	36(14.9)	94(39.0)	77(32.0)	70(30.3)	69(28.6)	28(11.6)	40(16.6)	7(2.9)	19(7.9)	71.6	47.7
	76 - 85	153(33.9)	6(3.9)	3(2.0)	70(45.8)	61(39.9)	26(17.0)	30(19.6)	49(32.0)	49(32.0)	2(1.3)	10(6.5)	(0.000)	(0.000)
	86 >	27(6.1)	11(40.7)	8(29.6)	8(29.6)	8(29.6)	5(18.5)	4(14.8)	3(11.1)	6(22.2)	0(0.0)	1(3.7)		
Total	451(100)	56(12.4)	47(10.4)	183(40.6)	154(34.1)	113(25.1)	111(24.6)	87(19.3)	105(23.3)	12(2.7)	34(7.5)			

**Table 3. Socio-characteristics of the trends of oral management**

Division	Trends of oral management																
	Toothbrushing material						Solidity of toothbrush's bristle										
	Dentifrice		Salt		Toothbrush		Dentifrice + Salt		Hard bristle		Soft bristle		Electric toothbrush		Others		
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	
Gender	Male	140 (31.4)	161 (35.7)	8 (1.8)	1 (0.2)	8 (1.8)	0 (0.0)	6 (1.3)	0 (0.0)	48 (10.8)	10 (2.2)	102 (22.9)	152 (33.7)	0 (0.0)	0 (0.0)	12 (2.7)	0 (0.0)
	Female	245 (54.9)	287 (63.6)	16 (3.6)	2 (0.4)	9 (2.0)	0 (0.0)	14 (3.1)	0 (0.0)	70 (15.7)	15 (3.3)	197 (44.2)	274 (60.8)	1 (0.2)	0 (0.0)	16 (3.6)	0 (0.0)
Age group	$\chi^2$ (p-value)	Before		1.92(0.732)								26.20(0.002)					
		After		0.009(0.925)								0.481(0.923)					
	< 65	25 (5.6)	30 (6.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	5 (1.1)	0 (0.0)	3 (0.7)	2 (0.4)	27 (6.1)	28 (6.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	66-75	210 (47.1)	239 (53.0)	9 (2.0)	2 (0.4)	10 (2.2)	0 (0.0)	7 (1.6)	0 (0.0)	84 (18.8)	11 (2.4)	136 (30.5)	230 (51.0)	1 (0.2)	0 (0.0)	15 (3.4)	0 (0.0)
Age group	76-85	123 (27.6)	152 (33.7)	15 (3.4)	1 (0.2)	7 (1.6)	0 (0.0)	8 (1.8)	0 (0.0)	18 (4.0)	9 (2.0)	125 (28.0)	144 (31.9)	0 (0.0)	0 (0.0)	10 (2.2)	0 (0.0)
	86 >	27 (6.1)	27 (6.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	13 (2.9)	3 (0.7)	11 (2.5)	24 (5.3)	0 (0.0)	0 (0.0)	3 (0.7)	0 (0.0)
Total	$\chi^2$ (p-value)	Before		2.69(0.443)								44.76(0.000)					
		After		0.191(0.662)								2.146(0.543)					
Total		385 (86.3)	448 (99.3)	24 (5.4)	3 (0.7)	17 (3.8)	0 (0.0)	20 (4.5)	0 (0.0)	118 (26.5)	25 (5.5)	299 (67.0)	426 (94.5)	1 (0.2)	0 (0.0)	28 (6.3)	0 (0.0)

**3. The trends and oral symptom in oral health on socio-characteristics.**

1) The oral health trends before and after the oral health training on socio-characteristics.

The items of oral health's trends(Times of toothbrush a day, Periodic examination of oral health, Put oral health training into practice) were compared with before and after the oral health training on age, gender. The consequence was that "Times of toothbrush a day", "Put oral health training into practice" showed a preponderance in female "Periodic examination of oral health" showed a preponderance in male in before the oral health training. After the oral health training, proportion of predominance refer to the gender were not changed and the item of "Times of toothbrush a day" was increased the most between before and after(from

2.07±0.72 to 2.44±0.71). The items of oral health's trends were compared with before and after the oral health training on age. The consequence was that "Times of toothbrush a day", "Put oral health training into practice" showed a preponderance in less than age 65. "Periodic examination of oral health" showed a preponderance in from age 76 to age 85 in before the oral health training. After the oral health training, "Times of toothbrush a day" showed a preponderance in from age 65 to age 85. "Put oral health training into practice", "Periodic examination of oral health" showed a preponderance in more than age 85.

2) The oral symptom on oral health status.

The oral symptom in elderly adults on oral health status showed a preponderance in case of "very poor". so we can found that the more felt the poor health more

**Table 4. The trends of oral health in individuals on socio-characteristics**

Division	Trends of oral health						
	Times of toothbrush a day		Periodic examination of oral health		Put oral health training into practice		
	Before	After	Before	After	Before	After	
Gender	Male	2.07±0.72	2.44±0.71	1.65±0.48	1.69±0.46	2.70±0.46	2.88±0.33
	Female	2.30±0.70	2.55±0.64	1.59±0.52	1.64±0.52	2.79±0.41	2.90±0.30
	F(p-value)	10.68(0.001)	3.04(0.082)	1.60(0.207)	1.25(0.264)	4.35(0.038)	0.77(0.381)
Age group	< 65	2.43±0.50	2.53±0.51	1.23±0.43	1.33±0.48	3.00±0.00	3.00±0.00
	66 - 75	2.27±0.76	2.56±0.70	1.60±0.52	1.63±0.53	2.75±0.44	2.88±0.32
	76 - 85	2.10±0.66	2.46±0.64	1.75±0.43	1.78±0.42	2.73±0.45	2.88±0.33
	86 >	2.11±0.70	2.33±0.73	1.37±0.50	1.59±0.50	2.70±0.47	2.96±0.20
	F(p-value)	2.92(0.034)	1.45(0.227)	12.50(0.000)	8.03(0.000)	3.69(0.012)	1.90(0.128)

**Table 5. Perceived oral symptom score according to oral health status**

Division		Perceived oral health status					F	p-value
		Very poor	Poor	Moderate	Good	Very good		
Toothbrushing blood	Before	2.17±1.03	1.29±0.63	1.56±0.83	1.18±0.43	1.05±0.23	15.77	0.000
	After	1.21±0.59	1.28±0.60	1.50±0.78	1.18±0.43	1.04±0.20	7.3	0.000
Swollen gum	Before	2.25±0.97	1.29±0.63	1.65±0.87	1.39±0.73	1.23±0.60	8.14	0.000
	After	1.24±0.61	1.27±0.61	1.49±0.78	1.44±0.77	1.21±0.59	2.58	0.037
Malodor	Before	1.50±0.80	1.21±0.58	1.25±0.50	1.28±0.71	1.07±0.26	1.9	0.109
	After	1.03±0.17	1.12±0.41	1.21±0.54	1.10±0.43	1.06±0.25	1.78	0.132
Dry mouth	Before	2.25±0.97	1.45±0.71	1.67±0.88	1.55±0.79	1.86±0.94	4.33	0.002
	After	1.53±0.75	1.39±0.67	1.66±0.88	1.56±0.81	1.96±0.95	4.29	0.002

**Table 6. Comparison the perceived score according to experienced the oral health training**

Division		Oral health training		t	p-value
		Before	After		
Practice rate the oral health training	Times of toothbrush a day	2.22±0.72	2.51±0.67	-10.63	0.000
	Periodic examination of oral health	1.61±0.51	1.66±0.50	-4.50	0.000
	Put oral health training into practice	2.75±0.43	2.89±0.31	-8.55	0.000
Perceived oral symptom	Toothbrushing blood	1.31±0.64	1.27±0.59	3.03	0.003
	Swollen gum	1.44±0.57	1.37±0.71	3.93	0.000
	Malodor	1.24±0.60	1.12±0.43	3.79	0.000
	Dry mouth	1.62±0.84	1.59±0.82	2.66	0.008
Perceived satisfaction measurement	Oral health training is helpful to me	2.68±0.57	2.82±0.40	-0.65	0.000
	Perceived oral health status	2.59±1.02	2.83±1.13	-5.99	0.000

experienced the oral symptom.

In comparison the oral symptom between before and after, it showed a slight decline in case of “very poor” in all items. especially most declined in “Swollen gum”(Table 5).

#### 4. The efficiency of oral health training

To analyze the efficiency on the oral health training, we made use of t-test as to “Practice rate the oral health training”, “Perceived oral symptom”, “Perceived satisfaction measurement” whose have experienced and non-experienced the oral health training(Table 6).

Analysis the Practice rate the before and after oral health training shown that it was increase in all items.

In case of “Times of toothbrush a day” and “Periodic examination of oral health” were increased from 2.22±0.72 to 2.51±0.67 and from 1.61±0.51 to 1.66±0.50 respectively. The “Put oral health training into practice” item was increased from 2.75±0.43 to 2.89±0.31 it means that they were well practice in their life.

Analysis the frequency of oral symptom shown that all items were decreased from 1.31±0.64 to 1.27±0.59 (Toothbrushing blood), from 1.44±0.57 to 1.37±0.71(Swollen gum), from 1.63±0.89 to 1.59±0.86(Malodor) and from 1.62±0.84 to 1.59±0.82(Dry mouth) respectively.

Analysis whether the oral health training was helpful or not to keep and promote the oral health shown that in case of “Oral health training is helpful to me” and

“Perceived oral health status” were increased from  $2.68 \pm 0.57$  to  $2.82 \pm 0.40$  and from  $2.59 \pm 1.02$  to  $2.83 \pm 1.13$  respectively. It meant that oral health training program was helpful to keep and promote the oral health in elderly adults.

### Consideration

With a string out one's life the oral health and well-being in elderly adults was one of the greatest problems in our modern societies and become an object of public concern<sup>6</sup>. Especially the oral health in elderly adults was close connection between taking nutrition and physical health so it is important to keep up the good oral health in elderly adults. This research purpose was analyze the efficiency of oral health training program by comprising before and after the oral health training who have experienced the oral health training, that is, “Elderly adults oral Shepherd”. Total tooth in respondent on gender showed a preponderance in 8 and below and as grow older number of total tooth was decrease with age. The total number of the feel “poor” the oral health were 239 persons(53%) before the oral health training. It's similar to precede study at welfare-institutions in seoul area. After the oral health training, the total number of the feel “poor” the oral health were 201 persons(44.5%). It show that the number of feel “poor” were declined 8.5% than before the oral health training.

Analysis the oral health status on age shown that the proportion of the feel “very poor” the oral health were preponderance over age 85. So we can found that the more aged more felt “poor” the oral health . It was fallen in with a precede study<sup>5</sup>).

Most of the respondent's oral management trend on age, gender were used the dentifrice when toothbrushing. Solidity of toothbrush's bristle was hard and soft bristle in before but after the health training they were used the soft bristle.

The consequence was that “Times of toothbrush a day”, “Put oral health training into practice” showed a preponderance in female and less than age 65. “Periodic examination of oral health” showed a preponderance in male and from age 76 to age 85.

After the oral health training, the item of “Times of toothbrush a day” was increased the most between before and after(from  $2.07 \pm 0.72$  to  $2.44 \pm 0.71$ ) and the increase ratio between before and after in all items of oral health trends were showed a preponderance in over

age 85. so we can think that various oral health management program was urgently need for elderly adults.

The oral symptom in elderly adults on oral health status shown that the more felt the poor health more experienced the oral symptom but in comparison the oral symptom between before and after, it showed a slight decline in case of “very poor” in all items. Especially most declined in “Swollen gum” it. If we put oral health training program into preventively it's expected that efficiency is very high. Analysis the Practice rate the before and after oral health training shown that it was increase in all items and it means that they were well practice in their life. Analysis whether the oral health training was helpful or not to keep and promote the oral health shown that in case of “Oral health training is helpful to me” and “Perceived oral health status” were increased. Analysis the frequency of oral symptom shown that all items were decreased. It meant that oral health training program was helpful to keep and promote the oral health in elderly adults.

Therefore oral health training program in elderly adults was essential to keep and build up good oral health. we thought that develop the various oral health program and continuous education are of great importance.

### Summary

We made up a questionnaire two times at the elderly adults who have experienced the oral health training program that is, “Elderly adults oral Shepherd” at welfare-institutions in An-yang city to analyze the efficiency of oral health training. 451 members were respond to the survey. The conclusion is as follow

1. The total number of the feel “poor” the oral health were 239 persons(53%) (before) and 201 persons (44.5%)(after) respectively. It show that the number of feel “poor” were declined 8.5% than before the oral health training.
2. The consequence was that “Times of toothbrush a day”, “Put oral health training into practice” showed a preponderance in female and less than age 65. “Periodic examination of oral health” showed a preponderance in male and from age 76 to age 85.
3. The oral symptom in elderly adults on oral health status shown that the more felt the poor health more experienced the oral symptom but in com-

parison the oral symptom between before and after, it showed a slight decline in case of "very poor" in all items.

4. Analysis the Practice rate the before and after oral health training shown that it was increase in all items and it means that they were well practice in their life. Analysis whether the oral health training was helpful or not was increased and the frequency of oral symptom was decreased.

Oral health training program in elderly adults was essential to keep and build up good oral health. we thought that develop the various oral health program and continuous education are of great importance.

## 요 약

본 연구는 노인들을 대상으로 구강건강교육프로그램(노인구강지킴이)의 효율성을 분석하고자 안양지역 노인복지센터를 이용하는 노인 451명을 대상으로 보조기입식 설문조사를 구강건강 교육 전·후 2차례 실시하였으며 다음과 같은 결론을 얻었다.

1. 전체 조사대상자의 주관적 구강건강상태가 좋지 않다고 인식한 비율이 구강교육을 받기 전 약 53.0%이었으나, 구강교육을 받은 후에는 약 44.5%로 나타나 구강건강상태가 나쁘다고 인식한 비율은 8.5%가 감소하였으며 구강건강 상태가 좋다고 느끼는 비율은 약 4.8%가 증가한 것으로 응답하였다.
2. 구강건강행태를 비교한 결과 "잇솔질 횟수", "구강건강교육 실천"의 경우 65세 이하의 여성에서 "정기적 구강검진"의 경우 76세-85세의 남성에서 높게 나타났으며, 교육 후 각 구강건강행태 변화정도는 남성의 경우에 "잇솔질 횟수"항목에서 가장 높은 증가를 보인 것으로 나타났으며 86세 이상에서 구강건강행태의 모든 항목에서 변화가 높게 나타났다.
3. 조사대상 노인들에 대한 구강건강상태에 따른 구강증상 발현정도를 비교한 결과 전체적으로 구강건강이 나쁠수록 구강증상을 자주 경험하는 것으로 나타났으나 교육 후 주관적 구강건강이 "아주 나쁘다"고

응답한 경우에서 발현빈도가 가장 많이 감소한 것으로 나타났다.

4. 구강건강교육의 효율성과 관련하여 구강건강교육 전·후를 비교한 결과 구강건강교육을 받은 후 구강건강관리 행태에 대한 실천내용을 실생활에서 잘 이행하고 있으며 구강건강교육 및 자신이 느끼는 구강건강행태에 대한 만족정도는 증가하였으며, 구강증상 발현정도는 낮아진 것으로 나타났다.

노인들의 건강한 구강유지에 구강건강교육이 중요한 역할을 하는 것이라 판단되며 노인들의 양호한 구강건강상태의 유지를 위하여 다양한 연령층을 대상으로 효율적이고 예방적인 구강건강증진프로그램개발 및 지속적인 교육이 필요할 것으로 판단된다.

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