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Research on Oral Health for the Aged by Residential Patterns

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Abstract

This study figured out oral status of the elderly dwelling on a facility and in owner-occupation, and carried out to supply basic data for promotion of oral health for those who dwell on facilities. Study target were 259; 131 of convalescent hospital, and 128 of owner-occupation in Daegu. It showed the difference of general characteristic and health behavior variables by dwelling forms, and statistically significant levels as to the number of survival teeth ($p< 0.05$).

Keywords: *Elderly, Employee, Health behavior, Oral health*

1. Introduction

Owing to highly modern industrial society and aging society, the ratio of elderly population is greatly increasing in the world [1], and South Korea is expected that elderly population enters to super-aging society that exceeds 20% due to continuous augmentation of the elderly population in 2026 [2] . Because of change of these demography structure, health problems of the aged are risen by important social problem, and problems of nursing by increase of Senile disease, attendance and everyday life support also reached to serious situation. Hereupon, government has offered long-term care service to dementia or palsy string that need help in everyday life to behavior discomfort since July 1, 2008 as countermeasure of old man's health and welfare assistance [3].

This study found that the symptoms which the aged felt were hemodia caused by abrasion or attrition, facial deformity, occlusion abnormality, xerostoamia, burning sensation and ageusia due to edentulous, and this could result in total physical problems through by nutrition disorders [4]. Also, it found that the aged showed low frequency about special oral medical examination and treatment, and lower use of professional oral care as they were in trouble with economically [5].

Social expectation and interest about countermeasure and researches are increasing regarding with the change by increasing population the aged. In spite of lively researches of several researchers or investigators, most of virtue studies have set focus on substances about physical health or mental health, except oral states [6, 7, 8].

Meyerowitz who studied the relevance of whole body disease and oral health [9] reported that if loss of teeth, caries of root or periodontal pocket etc. have been abandoned, systemic disease incidence such as bacteremia, nutrient deficiency, cerebral tumor, and pneumonia is far above compared with healthy persons. Also, Almirall etc. [10] reported that about 25 % of the Elderly in convalescent hospital, were dead due to nosocomial infection, and Curtis [11] stated that Aspiration pneumonia was increased to the aged who have got long-term care and

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aspirated suction cluster bacteria in nasal cavity or the larynx. In order to prevent respiratory infectious disease like this must be prevented from accumulating through complete oral health controls.

According to investigation of the Korea Institute for Health and Social Affairs [12], 64.7% of the aged who are over 60-year-old responded that oral health is more important than any other problems and public health nutrition fact-finding mission [13] showed that only 49.5% of 65-74 years old remain their own teeth more than 20, and 53% of them suffer from uncomfortable mastication. Yang *etc.*, [4] reported that the aged who live in nursing homes show more caries experience of permanent teeth index and staphylococcus aureus caused by denture stomatitis than ordinary senior citizens, Kim *etc.*, [14] stated that the aged dwelling on facilities are weakness in that oral health than those in owner-occupation and Paltola etc. [15] said that Xerostomia(Dry Mouth) occurrence critical rate rises from the aged inhabiting to nursing homes by sequence of taking medicines of several drugs, and Jung *etc.*, [16] that utilization ratio of nursing facilities is increasing as a result of the necessity of another person's good care, increasing opportunities of woman's social activities, change of sense of values about filial piety.

Hereupon, the purpose of this study is to offer basic data for oral health program of the aged dwelling on nursing homes by investigating and comparing health behaviors and oral health states of the aged dwelling on nursing home and the aged living in owner-occupation.

2. Research Methods

2.1. Test Methods

This research was done with 259 of the aged, 131 who can communicate freely among 170 dwelling on nursing home in Daegu, Republic of Korea and 128 of owner-occupation who locate in the same area and agreed with taking part in this research. The data were collected from December 21, 2014 to December 27, 2014, by Dentist's medical team, made up of a dentist, a dental hygienist and a dental mechanic who carried out oral inspection and health questionnaires.

2.2. Analysis of Test Results

Survey contents were composed of general characteristics and health behaviors. General characteristics were composed of gender, age, attainment in scholarship, monthly allowance, the latest dentist's office visit availability, subjective oral health condition and ADL, and health behaviors of smoking, drinking alcohol, times of tooth brushing, taking in sugary diet and the number of survival teeth. Preliminary investigation carried out by Likert 5-point-measurement, but because of difficulty in understanding the questions, the last investigation was used amending 3-point-measurement. That is, subjective mouth health 'Bad', 'Usually', as 'Good', ADL 'Uncomfortable', 'Usually', divided and respond 'is not uncomfortable'. Also, smoking and drinking were asked by truth style of 'Yes' 'No', and food intake availability divided by 'Do not enjoy', 'Usual', 'Enjoy' only.

The collected data are analyzed using SPSS WIN 21. 0 (SPSS Inc., Chicago, IL., USA) and the correlation of residential patterns and general characteristics and that of residential patterns and health behaviors carried out Crossing analysis, and also, Correlation analysis was carried out to search interrelationship of residential patterns and the number of survival teeth and then conducted multiple regression analysis to confirm influence of dwelling forms and autonomous variable as to residential patterns of dependent variable. A significant level used for statistical significance test was 0.05.

3. Results

As to the correlation of residential patterns and general characteristics, 'Age' ($p<0.001$), 'Monthly allowance' ($p<0.001$), 'The latest dentist's office visit' ($p<0.01$), 'Subjective oral health condition' ($p<0.001$), 'ADL' ($p<0.01$), 'Number of survival teeth'($p<0.001$) were statistically significant. That is, the elder they are, the more stay in facility, and monthly allowance appeared higher to owner-occupiers. Also, 'Less than 1 year' of the latest dentist's office visiting appeared to a lot in facility dwellers, and in that 'Subjective oral health condition', owner-occupiers responded ‘So-so’, while facility dwellers did ‘Good’. According to 'ADL', owner-occupiers responded most ‘uncomfortable ’. In that 'Number of survival teeth', 81.58% of owner-occupiers have ‘more than 21’ (Table 1).

Table 1. The Correlation of Residential Patterns and General Characteristics

		No.	Residential Patterns		*p*-value
			Owner-Occupation	Elderly care facilities	
Gender	Male	76	44(57.89)	32(42.11)	.129
	Female	183	87(47.54)	96(52.46)	
Age	60-69	49	34(69.39)	15(30.61)	.000***
	70-79	113	67(59.29)	46(40.71)	
	80-89	81	27(33.33)	54(66.67)	
	More than 90	16	3(18.75)	13(81.25)	
Academic Background	None	104	55(52.88)	49(47.12)	.543
	Over elementary school	155	76(49.03)	79(50.97)	
Monthly allowance	Less than 490 USD	230	102(44.35)	128(55.65)	.000***
	More than 500 USD	29	29(100.00)	0(0.00)	
The latest dentist's office visit	Less than 1 year	22	5(22.73)	17(77.27)	.005**
	More than 1 year	237	126(53.16)	111(46.84)	
Subjective oral health condition	Bad	146	72(49.31)	74(50.69)	.000***
	So-so	47	40(85.11)	7(14.89)	
	Good	66	19(28.79)	47(71.21)	

ADL	Inconvenient	98	57(58.16)	41(41.84)	.008**
	So-so	36	23(63.89)	13(36.11)	
	Convenient	125	51(40.80)	74(59.20)	
Number of survival teeth	0-10	144	51(35.42)	93(64.58)	.000***
	11-20	39	18(46.15)	21(53.85)	
	More than 21	76	62(81.58)	14(18.42)	

Statistically significant differences by chi-square test, *p<0.05, **p<0.01, ***p<0.001

As to the correlation of residential patterns and health behaviors, 'Smoking'(p<0.001) and 'taking in sugary diet'(p<0.001) showed statistically significant levels. That is, smoker appeared a lot in owner-occupier, and as to taking in sugary diet, 84.61% of owner-occupier answered ‘Frequently’ and facility dwellers answered ‘Sometimes’ (Table 2).

Table 2. The Correlation of Residential Patterns and Health Behaviors

		No.	Residential Patterns		*p*-value
			Owner-Occupation	Elderly care facilities	
Smoking	No	96	20(20.83)	76(79.17)	.000***
	Yes	163	111(68.10)	52(31.90)	
Driking Alcohol	No	210	82(39.05)	128(60.95)	.000***
	Yes	49	49(100.00)	0(0.00)	
Brush number of times	Less than once	60	26(43.33)	34(56.67)	.281
	Twice	103	51(49.51)	52(50.49)	
	More than 3 times	96	54(56.25)	42(43.75)	
Taking in sugary diet	Rarely	64	35(54.69)	29(45.31)	.000***
	Sometimes	156	63(40.38)	93(59.62)	
	Frequently	39	33(84.61)	6(15.39)	

Statistically significant differences by chi-square test, *p<0.05, **p<0.01, ***p<0.001

Interrelation of dwelling form and survival teeth number is the same as (Table 3). Negative interrelation appeared in two fantasts by -.397, and these kept in mind statistically (p< 0.01).

Table 3. The Correlation of Residential Patterns and Survival Teeth Numbers

	Residential patterns	Survival teeth numbers
Residential patterns	-	-.397**
Survival teeth numbers	-.397**	-

Statistically significant differences by the Pearson correlation coefficient, **p<0.01

As a result of multiple regression analysis to confirm influence of independent variables and dependent variable, 'Age' (p<0.05), 'Subjective mouth health' (p<0.01), 'Smoking' (p<0.001), 'Whether or not taking sugary diet' (p<0.01) and 'Number of survival teeth'(p<0.001) appeared variables that make significant effect (Table 4).

Table 4. Multiple regression Analysis for Factors that Impact the Residential Patterns

		Residential patterns			*p*-value
		B	S.E	t	
Age	60-69	-.696	1.401	.247	
	70-79	4.100	1.271	10.403	.001***
	80-89	3.421	1.202	8.103	.004**
	More than 90	2.609	1.216	4.606	.032*
The latest dentist's office visit	Less than 1 year				
	More than 1 year	-1.509	.913	2.735	.098
Subjective oral health condition	Bad				
	So-so	2.044	.727	7.902	.005**
	Good	4.253	.856	24.663	.000***
ADL	Inconvenient				
	So-so	1.231	.696	3.132	.077
	Convenient	.610	.763	.640	.424
Smoking	No				
	Yes	-1.900	.443	18.373	.000***
Taking in sugary diet	Rarely				
	Sometimes	-1.804	.696	6.712	.010**
	Frequently	-2.294	.645	12.640	.000***
Number of survival teeth	0-10				
	11-20	-3.052	.536	32.471	.000***
	More than 21	-2.180	.615	12.545	.000***
Adjusted R^2 =0.683 p-value = 0.001					

SE: standard error.
The data were analyzed by multiple regression analysis.
*p<0.05, **p<0.01, ***p<0.001

4. Discussion

The solitary elderly are increasing because the population of the elderly is increasing as average life span increases, and in conjunction with this marriage idea of people is changed; both maiden rate and conjugal divorce rate are increasing [17].

Aging by change of age brings the damage and degradation of physical, mental and social function, which results in even higher utilization rate of nursing facilities for the aged [18] by adding the dependence of activity of daily life and health aggravation by chronic diseases.

Korea lies under the current law that nursing facilities should be hired nurse, nurse assistant and geriatric care helper, so oral health management for the aged is very vulnerable [19]. The aged nursing facilities were reported that treatment and care for the elderly were not treated oral health service properly because of lack of time of family caregiver [20], lack of dental care knowledge [21, 22] and lack of awareness of oral health importance [23].

Of the education for geriatric care helper, oral health care is just a part of the is physical activity supporting service, only including oral hygiene, watching tooth brushing, water rinsing/gaggling, denture handling, preparation of necessities as principles [24]. Curriculum of oral information about care and management is only extremely of total 5 hours of individual sanitary nursing [25]. Also, the risk of exposure to oral diseases to facility dwellers is significantly increasing because their oral health care competence is drastically lowered due to being accompanied by uncomfortable performance of their daily lives.

Because the main aim of geriatric care is not treating of their diseases but supporting to nursing, caring and management of daily life, their systematic and continuous oral health care becomes an important factor in improving their quality of lives. Therefore, oral health medical care for the aged dominates very large part [26].

The World Health Organization [27] recommends that the aged of all countries should establish clear-cut policies that can help improve oral health for them.

To preserve oral health, recognition the importance of oral health care by individual, elevation of continuous capacity of management and regular medical examination should be accompanied [28]. However, it is hard for the aged to practice these things because of the physical or spiritual problems, and it is connected with aggravation of oral health and finally is making a lot of effects on deteriorated quality of life [29].

Therefore, this study wishes to compare differences from oral health by dwelling forms.

According to research, the elder they are, the more dwell on facilities. This is caused by increasing opportunities of woman’s social activities and the change of values caring for their parents, as appears equal in research of Song etc. [30] and demonstrates the results of virtue studies.

1. As to the latest dentist's office visit, 'Less than 1 year' appeared most of facility dwellers, but only 9.3% of total participants answered as such. It reflects well reality of oral health care of the aged.

2. As to Subjective oral health condition, 71.21% of facility dwellers answered ‘Good’, which is higher than 28.79% of owner occupiers’. This is considered that facility dwellers think that they are treated by convalescent hospital professional workers and it is necessary to research further.

3. As to ADL, owner-occupiers felt more uncomfortable. This is because facility dwellers are taken care of professional workers including home nurse that is receiving good care residing 24 hours. Also, Oh etc. [31] proposed that development of recreational programs can encourage the elder to give big satisfaction of their daily lives and self-effect.

4. As to smoking, owner-occupiers appeared higher than facility dwellers. This must take precautions on interpretation whether facility dwellers quits smoking as they entered the facilities or stop smoking due to health problems, because it couldn't confirm first and last relation of variance by limit of section investigation study.

5. As to the number of survival teeth, 81.58% of owner-occupiers have 'more than 21', which was the highest rate. The number of survival teeth is the representative index to display oral health conditions, and also, it implies the problems of oral health care for facility dwellers, therefore, this study suggests that it should be necessary to arrange professional dental care workers and support systematic management for them to solve these problems.

Also, considering the awareness of oral health management by geriatric care workers can make an influence on the practice of oral health care for facility dwellers, it is necessary to oral health education and oral health programs for geriatric care workers[31].

This study is limited to generalize the consequences because it was measured by the aged who live in certain area, and there might be hard on the explanation of a causal relationship with the work because of the sectional investigation. However, this study has a signification from contiguity to facility dwellers that are difficult to contact with. On the basis of results of this study, next study will be actively planned to consider development patterns of total health program including oral health for facility dwellers by relating to employees at facility institution.

5. Conclusions

This study carried out to confirm to oral health condition for the aged by their residential patterns by investing total 259 who were composed of 131 of facility dwellers and 128 of owner-occupiers living in Daegu. The conclusions are as following:

1. In the correlation of residential patterns and general characteristics, the results are Age ($p<0.05$), Subjective oral health ($p<0.01$), ADL ($p<0.01$) and survival teeth number ($p<0.001$).

2. In The correlation of residential patterns and health behaviors, Study showed smoking ($p<0.001$), taking sugary diet ($p<0.01$).

3. Interrelation of dwelling forms and survival teeth number is the negative appeared by -.397 ($p< 0.01$).

As a result of this study, it is geriatric care workers who play a key role in maintaining oral health for the aged. Therefore, this study suggests that arrangement of oral health professionals and development of constant care programs with systematic oral health education programs targeted on geriatric care workers who influence directly on the aged to improve to awareness of oral health care importance and raising their experience rates.

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