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A Study on the Knowledge Attitudes of Dental Hygiene toward the Elderly and Oral Nursing for the Elderly

Hee Ja NA[1] , Ae eun Moon[2]

[1,2]Department of Dental Hygiene, Honam University, An Adjunct Professor, Gwangju, Republic of Korea

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***Corresponding author:** Ae eun Moon, Department of Dental Hygiene, Honam University, an adjunct professor, Gwangju, Republic of Korea

ABSTRACT

Objective: The increase in the elderly population emphasizes the role of nurses and dental hygienists in oral care for the elderly, the need for education, and raises the importance of research on knowledge and attitudes related to the elderly.

Methods: This study evaluated the effectiveness of oral care intervention and education in 68 elderly people in nursing hospitals in S city in 2024. The selection criteria are inpatients aged 65 or older, and dropouts are those with difficulty communicating or having total false teeth. The research tool consisted of a survey (general characteristics, oral health knowledge, oral health evaluation of the elderly) and an oral health status survey. Data analysis was performed with SPSS 21.0. Real number, percentage, frequency analysis, mean, standard deviation, t-test, one-way ANOVA, and Pearson's correlation analysis were performed.

Results: In terms of brushing education, the intervention group (27.8%), the education group (15.36%), and the control group (12.8%) responded in order. The subjective oral health status was the intervention group (7.68%) and the education/control group 5 (12.8%). Brushing just before sleeping was found in the intervention group (5.12%) and the education/control group 2 (5.12%). For tongue brushing, the intervention group (15.82%) and the education/control group 7 (15.82%). Dental treatment was in the order of intervention group (2.56%), education group (10.24%), and control group (5.12%). Homogeneity between groups was secured in all variables except for dental examination, fluorine application, pre-intake brushing, and use of oral hygiene products ($p>0.05$).

Conclusion: In the homogeneity test of demographic characteristics of the subjects, there was no difference between groups in gender, age, chronic disease, marital status, smoking, and drinking status, but the final education level of the education group was low at 15.36% of high school graduates or higher, and the number of subjects without chronic diseases was significantly different at 60.5% ($p>0.05$).

Keywords: Dental hygienist; Elderly; Knowledge; Attitude; Oral care

INTRODUCTION

Today, an aging population is being suggested as a common issue in the world. In the case of Korea, the proportion of the elderly aged 65 or older has already entered an aging society at 7.2% in 2000, rising to 14.4% in 2019, and it is predicted to become an aged society at 23.1% in 2026, seven years later [1]. In the reality that expertise in elderly nursing is required, nurses (Song Eun-joo, 2004) continue to be conducted [2], In this study, the knowledge of the elderly is a revision and supplementation of Palmore's True-False version FactOnAgingQuiz by Kyung-mi Yang et al. (2002), and the higher the score, the higher the knowledge level [3]. In this study, it is a measure of nurses' attitude toward the elderly measured by Sanders et al. (1984) meaning that the higher the score, the more positive the attitude is [4]. Oral health for the elderly is a state of oral tissue organs that are not an obstacle to daily life and refers to a state in which oral function can be maintained, appropriate nutrition, and digestive function can be exercised. In this study, the operational definition of oral health for the elderly in nursing hospitals refers to a state in which elderly inpatients in nursing hospitals can maintain oral function and perform appropriate nutritional intake and digestive function. Specifically, oral health refers to a state of oral tissue organs that are not affected by oral disease and are not an obstacle to daily life. This includes maintaining the oral function necessary for proper nutrition and digestion of the elderly [5]. The purpose of this study is to understand the relationship between hospital nurses and dental hygienists' attitudes toward the elderly, related factors, the level of knowledge of the elderly, and oral nursing for the elderly. The research results are used as basic data for the development of oral nursing education programs for the elderly. Using the oral health education media for the elderly by the Korean Oral Health Association, a song video was played to motivate the inpatients. According to the subject's condition, a video for brushing and a video for teaching how to manage dentures were applied. The toothbrushing education video deals with the right choice of toothbrush, the appropriate amount of toothbrush, and the easy-to-follow brushing method, and the denture management method education video deals with the precautions for proper washing of false teeth, proper storage of false teeth, and management of false teeth. After the training, self-management tables and picture stickers were distributed to implement the training content in case of non-visit. In addition, posters developed by the Korean Oral Health Association were attached to the toilets in each hospital room to learn how to brush. The specific purpose of this study is to identify the demographic and sociological characteristics of the subject and characteristics related to the elderly. The subject's knowledge, attitude, and level of nursing practice for the elderly are assessed. It verifies the differences in knowledge and attitudes toward the elderly according to the subject's general characteristics. It identifies the relationship between the subject's knowledge, attitude, and oral nursing for the elderly. The need for research related to knowledge, attitudes, and elderly and nursing is raised as the role of nurses and dental hygienists increases as the elderly population increases, the demand for oral nursing for the elderly increases, and the recognition of the need for education.

RESEARCH METHODS

Research Design and Research Subjects

This study was conducted on 68 elderly hospitalized patients in S city nursing hospitals from May 25 to July 6, 2024. The experimental group consisted of the intervention group (30 patients), the education group (14 patients) and the control group (14 patients). The study was conducted with a similar experimental design to evaluate the effectiveness

of oral management intervention and oral education. The specific selection criteria and exclusion criteria of the study subjects are as follows. Selection criteria: Elderly patients over 65 years of age who are hospitalized in nursing hospitals, patients who can respond to surveys, and those who give up participating in the study because it is difficult to communicate during the questionnaire response process, and those who are equipped with total dentures. This research tool consisted of a questionnaire survey and an oral health status survey. The questionnaire survey conducted general characteristics, oral health knowledge, and oral health evaluation for the elderly [3].

Ethical Considerations

This study carried out ethical considerations in all research processes. It was approved according to the review of the Honam University Research Ethics Review Committee (IRB) and conducted a study (IRB NO: 1041223-202303-HR-01).

Statistics

The collected data of the study were analyzed using the SPSS program 21.0, and the analysis method is as follows. First, real numbers and percentages were used to understand the demographic and sociological characteristics of the subjects and the characteristics related to the elderly. Second, frequency analysis, mean, and standard deviation were obtained to find out the subjects' knowledge and attitude toward the elderly and the level of nursing practice for the elderly. Third, t-test and one-way ANOVA were used to verify the difference between knowledge and attitude toward the elderly and oral nursing for the elderly according to the general characteristics of the subjects. Fourth, Pearson's Correlation analysis was conducted to verify the relationship between knowledge and attitude toward the elderly and oral nursing practice for the elderly.

RESULTS

Table 1: Demographic and Sociological Characteristics of Subjects.

Characteristic	Sortation	Mediation group N (%)	Education Group N (%)	A control group N (%)	p*
Castle	man	20(39.2)	7(17.92)	4(10.24)	0.493
	woman	10(25.6)	7(17.92)	10(25.6)	
final academic ability	graduation from elementary school	19(48.64)	7(17.92)	4(10.24)	0.041
	a junior high school graduate	9(23.04)	5(12.8)	5(12.8)	
	A person who has a high school diploma	2(5.12)	2(5.12)	5(12.8)	
Age	<75 years of age or older	5(12.8)	5(12.8)	5(12.8)	0.097
	> Under 75 years old	15(38.4)	9(23.4)	9(23.4)	
Chronic disease status	There is	22(34.9)	5(12.8)	5(12.8)	0.042
	I don't have any	8(29.6)	9(23.4)	9(23.4)	
Marital status	Single	0	3(100)	4(10.24)	0.104
	married	30(34.5)	11(28.16)	10(25.6)	

Smoking status	a non-smoker	24(39.3)	5(12.8)	2(5.12	0.204
	Smoker	1(14.3)	2(5.12)	4(10.24)	
	a smoker	5(22.7)	7(17.92)	8(20.48)	
Drinking status	There is	3(27.3)	2(5.12)	3(7.68)	0.902
	I don't have any	27(34.2)	12(30.72)	11(28.16)	

In the homogeneity test of demographic and sociological characteristics of the subjects in Table 1, the homogeneity test between groups was secured in terms of gender, age, chronic disease, marital status, smoking, and drinking, but the final education level in the education group was low at 15.36% for high school graduates or higher, and there was a significant difference at 60.5% for those without chronic diseases (p> 0.05), <Table 1>.

Table 2: Oral health knowledge and behavior by subject.

Characteristic	Sortation	Mediation group N (%)	Education Group N (%)	A control group N (%)	p*
tooth brushing education	yes	15(27.8)	6(15.36)	5(12.8)	0.025
	no	15(27.8)	8(20.48)	9(23.04)	
subjective oral health	It's very nice	3(7.68)	1(2.56)	4(10.24)	0.201
	That's nice	5(12.8)	4(10.24)	4(10.24)	
	be normal	11(28.16)	4(10.24)	1(2.56)	
	Bad	10(28.6)	3(7.68)	2(5.12)	
	be very bad	1(2.56)	2(5.12)	37.68)	
Oral health degree of interest	It's very nice	3(7.68)	4(10.24)	1(2.56)	0.189
	That's nice	5(12.8)	4(10.24)	4(10.24)	
	be normal	11(28.16)	1(2.56)	4(10.24)	
	Bad	10(28.6)	2(5.12)	3(7.68)	
	be very bad	1(2.56)	37.68)	2(5.12)	
6 months dental check-up	yes	15(27.8)	6(15.36)	5(12.8)	0.031
	no	15(27.8)	8(20.48)	9(23.04)	
fluoride application	yes	2(5.12)	0	2(5.12)	0.110
	no	23(58.8)	6(15.36)	6(15.36)	
	i don't know	5(11.3)	8(20.48)	8(20.48)	
Snack	no	7(17.92)	4(10.24)	2(5.12)	0.189
	1time	21(53.76)	820.48)	6(15.36)	
	2~3time	2(5.12)	2(5.12)	8(20.48)	
Beverage	no	4(10.24)	4(10.24)	4(10.24)	0.065
	1time	5(12.8)	4(10.24)	4(10.24)	
	2~3time	11(28.16)	4(10.24)	4(10.24)	
	i don't know	10(28.6)	2(5.12)	3(7.68)	
	0time	0	1(2.56)	1(2.56)	0.759
	1time	4(10.24)	4(10.24)	4(10.24)	

Number of times you brush your teeth	2time	15(38.4)	4(10.24)	4(10.24)	
	3time	11(28.16)	3(7.68)	5(11.3)	
Toothbrush before going to bed	yes	2(5.12)	2(5.12)	1(2.56)	0.126
	no	28(71.68)	12(27.12)	13(33.28)	
Use of oral hygiene products	yes	3(7.68)	7(15.82)	5(12.8)	0.125
	no	2769.12)	7(15.82)	9(23.04)	
Wiping the tongue	yes	7(15.82)	5(12.8)	7(15.82)	0.256
	no	23(58.88)	9(23.04)	7(15.82)	
dental treatment	yes	1(2.56)	4(10.24)	2(5.12)	
	no	29(74.24)	10(25.6)	12(30.72)	

The intervention group who answered that they had received the brushing education in Table 2 was 15 (27.8%), the education group was 6 (15.36%), and the control group was 5 (12.8%). The intervention group who answered that the subjective oral health condition was very good was 3 (7.68%), the education group and the control group 5 (12.8%), and the intervention group who answered 'yes' to brushing just before going to bed were 2 (5.12%), the education group was 2 (5.12%), and the control group was 1 (2.56%). The intervention group performing tongue brushing was 7 (15.82%), the education group was 5 (12.8%), and the control group was 7 (15.82%), the intervention group who received dental treatment was 1 (2.56(%), the education group was 4 (10.24%), and the control group was 2 (5.12%). As for the oral health knowledge and behavior of each group, the results of homogeneity verification between groups were obtained in all variables except for dental examination, fluoride application, toothbrush quality before odor, and use of oral hygiene products ($p>0.05$).

CONSIDERATION

Most of the elderly in long-term care facilities are affected by chronic diseases, and it is difficult to perform oral care on their own due to difficulty in moving on their own [6], and in particular, in the case of the elderly, it is difficult to perform basic oral health care due to physical activity joint disorders and cognitive dysfunction, so plaque and food residues remain in the oral cavity for a long time [7]. Therefore, in this study, a 6-week oral intervention program was applied to improve the quality of life and objective oral health status related to oral health, and after training to enable self-management, changes in the effect were observed.

In the general characteristics of the elderly, the level of education was higher for the elderly with high school graduates or higher, similar to a study that showed that the level of oral health knowledge was higher in the group with higher education level, and the higher the level of education, the more aware of oral health management. In previous studies, it has been reported that high awareness of oral health management is related to excellent oral health management activities [8], and Min Hee-hong had a significant relationship with this study [9]. There is a shortage of manpower, dental hygienists, who perform work for the development of continuous oral care programs applicable to nursing hospitals [10]. In 2016, the commissioned dentist system was established, but it was not implemented properly, and due to the lack of education and training opportunities for experts in oral care for the elderly and the lack of priority

of oral care in realistic situations, oral care for the elderly in nursing hospitals is inevitably vulnerable [11]. Therefore, the first training training of dental hygienists specializing in the elderly and the disabled in 2023 was conducted to introduce a professional dental hygienist system promoted by the Korea Dental Hygiene Association, and the professional dental hygienist course recruited for those with more than five years of clinical experience will provide education on theory and practice, and those who have completed the course will directly participate in the oral health care program for the elderly at the Daycare Center in Seo-gu, Incheon [12], showing the need to cultivate professional dental hygienists' manpower. There was a correlation between the knowledge attitude toward the elderly and the practice of nursing care for the elderly. These results show a significant positive correlation between knowledge and attitudes toward the elderly, and the same results as Courtney (2000), Lim Young-shin (2002), and Song Eun-joo (2004) show that nurses' level of knowledge about the elderly has an important influence on their attitudes toward the elderly [13-15].

In this situation, this study is significant in that it can be used as basic data to verify the effectiveness of the oral intervention program with the accelerated aging and to use it as a continuous oral management program centered on dental hygienists in future oral management of inpatients. In particular, the results of a study that the expert oral health intervention contributed to the improvement of the oral health of the elderly living in facilities such as nursing hospitals, but there was no change in oral health in the case of the educational group performed by the conservative oral health education method suggested that expert oral management is essential for the elderly in the facility. However, this study has a limitation in that the intervention period was rather short as a verification of the effectiveness of the 6-week short-term program operation. In future studies, it is necessary to expand the intervention period or conduct longitudinal studies. In addition, oral care can be continuously performed in elderly inpatients, and further research is needed on the development of continuous oral care programs by deploying dental hygienists in each nursing hospital. It is intended to find ways to develop and actively utilize continuous oral care programs for elderly patients in nursing hospitals.

CONCLUSION

This study was conducted on 68 elderly hospitalized patients in S city nursing hospitals from May 25 to July 6, 2024. The experimental group consisted of the intervention group (30 patients), the education group (14 patients) and the control group (14 patients). The study was conducted with a similar experimental design to evaluate the effectiveness of oral care intervention and oral education.

1. In the homogeneity test of the demographic and sociological characteristics of the subjects, the homogeneity test between groups was secured in gender, age, chronic disease, marital status, smoking, and drinking status, but in the self-performing education group, the final education level showed a significant difference in subjects with a high school diploma or higher and no chronic disease ($p>0.05$).
2. As for the subject's oral health knowledge and behavior by group, the results of homogeneity verification between groups were secured in all variables except for dental examination, fluoride application, toothbrushing before intoxication, and use of oral hygiene products.

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