

A Study on Effects of Dementia Prevention Program

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Abstract

This study investigated the effect of the dementia prevention program on cognitive function, emotional function, and activity of daily living. The score of MMSE-DS (Mini-Mental State Examination-Dementia Scale), a tool for cognitive function assessment, increased statistically significantly. The score of SGDS-K (Short form Geriatric Depression scale-Korean version), which assessed emotional function, increased, though it did not reach a statistically significant level. The IADL score (Instrumental Activity of Daily Living), a tool used to assess activities of daily living, showed a statistically non-significant decrease. These results suggest that the program presented in this study is appropriate as a dementia prevention program, and it is necessary to develop and expand the program continuously to prevent dementia in the elderly.

Keywords: *Dementia, Dementia prevention, Cognitive function, Emotional function, activity of daily living*

1. Introduction

1.1. The need for research

Dementia, a brain disease, is a complex clinical syndrome that causes continuous damage to the entire brain function, leading to problems related to language, comprehension, judgment, and behavior, as well as memory, and widely affects personality, thinking, and judgment [1]. With family nuclearization and the increased participation of women in economic activities, the situation and responsibilities for supporting older people in the home are gradually weakening, and the voice calling for the responsibility of the government and society for elderly support is increasing. Nursing care for the elderly with dementia, therefore, has become a problem that is not affordable at home, and responsibility for caring for the elderly with dementia is shifting from home to community or facility [2].

As the importance of prevention and management of dementia at the national level has been emphasized, a dementia center of each local government and a regional dementia support center have been established to build a systematic and comprehensive dementia

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management system [3]. These centers, which consist of experts, are responsible for the prevention of dementia and the burden of dementia families through early prevention, early screening, and early intervention for dementia patients [4]. In addition, facilities for community-living elderly and patients with dementia and a service delivery system within the community are established, and health professionals are trained and released. In addition, many facilities and communities seek to provide quality services by increasing the insufficient workforce by utilizing volunteers [5].

The solution to dementia, however, is not a simple problem; it should be developed in a comprehensive and complex way and should be provided to the field to achieve satisfactory effects [6]. Cognitive function training requires an integrated program, rather than monotherapy, that stimulates various aspects, such as cognition, emotion, and exercise [7].

Therefore, this study aimed to investigate the effects of the dementia prevention program on cognitive and emotional functions and activity of daily living in elderly living at home by applying the program composed of dementia education, cognition, emotion, and physical activity to them.

1.2. Purpose of research

This study aims to investigate the program's effect on the cognitive function, emotional function, and daily life movement ability of the elderly by applying the dementia prevention program included in the elderly residing in the community designated as the safe town of dementia.

1.3. The hypothesis of the research

Hypothesis 1. The subjects who received the dementia prevention program will have higher MMSE-DS scores.

Hypothesis 2. Those who receive a program to prevent dementia will have a lower GDS-K score.

Hypothesis 3. Those who receive a program to prevent dementia will have lower IADL scores.

2. Method

2.1. Design and subject

The subjects of this non-synchronized study to investigate the effects of a dementia prevention program on cognitive and emotional functions and activity of daily living were 11 elderly living at a dementia care village located in N city, Gyeonggi Province.

2.2. Instruments

The subjects' general characteristics, such as gender, age, education level, job, marital status, type of residence, motive for participation, and health coverage status, were collected by questionnaire survey. The cognitive function was measured using the Mini-Mental State Examination for Dementia Screening (MMSE-DS), which has established usual standards for the Korean elderly and has been adjusted from the Korean Mini-Mental State Examination to lower the effects of education level on the results [8]. The emotional function of subjects was measured by the translated Short Geriatric Depression Scale (SGDS) developed by Sheikh and Yesavage as a short form (15 items) of the Geriatric Depression Scale (GDS) developed

by Yesavage et al. (1983). This scale is one of Korea's most widely used screening tools [9]. The activity of daily living function of subjects was measured using the Korean Instrumental Activities of Daily Living (K-IADL) developed by Won [10].

2.3. Data collection

The dementia prevention program was provided once per week for eight weeks, once per week, from January 1 to March 20, 2019, at a dementia care village located in N City, Gyeonggi Province. A session takes about two hours. The data was collected pre- and post-program.

2.4. Dementia prevention program

The dementia prevention program provided in this study aims to educate knowledge and exercise for dementia prevention. The contents of dementia knowledge included understanding dementia patients, supporting the dementia family, early detection of dementia, prevention of dementia, exercise to prevent dementia, and making a dementia-friendly society. Dementia prevention exercises included a sheet-ball game, coking Ssuk-gae-duck, a ribbon game, a Yut game, bean bag making, and a bean bag game. The program was administered for eight weeks once per week, resulting in eight sessions [Table 1].

Table 1. Dementia prevention program

Session	Pre-program activities _ Share story	Dementia education	Rest	All activities by topic	Theme program	closing
	10 minutes	30 minutes	10 minutes	10 minutes	40 minutes	10 minutes
1	Reply with quote	Dementia partner?	Rest	Talae Thread Winding	Self- introduction, program guide	Balloon Games, Singing, Snack
2		Understanding Dementia Patients		Thread Knitting	Sheet ball game	
3		Supporting the dementia family		Counting Numbers	Making Ssuggae tteog	
4		Method of early detection of dementia		Singing	Ribbon game	
5		Dementia prevention activity		Talae Thread Winding	yuchnol-i	
6		Dementia prevention movement		Thread Knitting	Making kongjumeoni	
7		Dementia Partner Activity		Counting Numbers	Kongjumeoni game	
8		Creating a dementia-friendly society		Singing	Graduation	

2.5. Data analysis

The collected data were analyzed using the SPSS/WIN 18.0 program. The general and educational characteristics of the subjects were analyzed using descriptive statistics (actual number, percentage, mean, and standard deviation), and cognitive function, emotional function, and daily life performance before and after the program were compared using an independent sample t-test.

3. Results

3.1. General characteristic

Table 2. General characteristics of subjects (N=11)

Characteristics	Category	Frequency(%) & Mean
Sex	Male	0(0.0)
	Female	11(100.0)
Age	Under 70	1(9.09)
	70-79	4(36.4)
	80-89	4(36.4)
	90-99	2(18.2)
Education Level	No education	6(54.6)
	Elementary School	4(36.4)
	Middle School	1(9.1)
Job	Employment	5(45.5)
	Unemployment	4(36.4)
	No response	2(18.2)
Spouse	No	10(90.9)
	Yes	1(9.1)
Health Insurance	No	10(90.9)
	No response	1(9.1)
Cognitive Impairment	No	10(90.9)
	Yes	1(9.1)

3.2. Effect of the Dementia Prevention Program

The scores measured pre- and post-program were compared, and the results showed that the MMSE-DS score increased statistically significantly ($t=-3.35$, $p=.007$). The SGDS score and LADL score showed no statistically significant change, though a slight decrease was observed (mean score: *SGDS* 6.09 ± 5.874 vs. 6.45 ± 4.95 ; *LADL* 12.00 ± 4.49 vs. 11.00 ± 2.19).

Table 3. Effects of dementia prevention program (N=11)

Parameter	Domain	Pretest (M±SD)	Posttest (M±SD)	t	p
MMSE-DS		22.91±5.70	24.36±5.61	-3.35	.007
SGDS-K		6.09±5.87	6.45±4.95	-0.482	.640
IADL		12.00±4.49	11.00±2.19	0.680	.512

4. Discussion

This study was conducted to examine the effects of the subjects' cognitive function, emotional function, and daily life function after providing a dementia prevention program to the elderly over 65 years old.

The MMSE-DS score showed a statistically significant change, indicating that the cognitive function was improved after the program. The change in IADL scores was not statistically significant, though a slight improvement was observed. These results are similar to the results of a study on the improvement of cognitive function, physical function, and emotional function by providing a program using Korean familiarity, such as childhood play, stone dressing, making songpyeon, and samgyetang to the elderly with dementia [11]. In this study, we used the subjects we had experienced, such as making ssuggae teog, making kongjumeoni, and playing kongjumeoni. The subjects of these familiar programs were interpreted as affecting the cognitive and physical improvement of the elderly. However, the SGDS-K score increased, though it did not reach a statistically significant level. This deterioration of depression is a problem to be considered in future program development.

5. Conclusion

This study evaluated the effectiveness of a dementia prevention program for the elderly living in a dementia care village.

As a result of the study, it was shown that the dementia prevention program for elderly people aged 65 and over is efficacious in improving cognitive function and physical function as MMSE-DS and IADL scores increase.

The dementia prevention program proposed in this study, therefore, may be a suitable one for the elderly who, due to aging, showed decreased cognitive function and activity of daily living. However, it is difficult to generalize because it is a study of elderly people living in a dementia relief village in one place. It is suggested that it is necessary to develop the program, expand the participants, and do repeated research so that it can be settled as a dementia prevention program in the future.

References

- [1] J. Cerejeira, L. Lagarto, and E. B. Muka etova-Ladinska, "Behavioral and psychological symptoms of dementia," *Front Neurol*, vol.3, no.1, pp.73, (2012)
- [2] B. Cheong, "The reciprocity of intergenerational support exchange and its characteristics: Analyzing data on elders in Seoul area," *Korean Association for Survey Research*, vol.27, no.2, pp.503-518, (2007)
- [3] S. H. Ryu, "The role of the local center for dementia in the management system of dementia in Seoul," *J Korean Geriatr psychiatry*, vol.11, no.1, pp.12-15, (2007)
- [4] D. Y. Lee, "Seoul dementia management project and Seoul metropolitan center for dementia," *Journal of Korean Geriatric Psychiatry*, vol.11, no.1, pp.8-11, (2007)
- [5] S. Y. Jung and H.U. Baik, *Mental Health & Social Work*, vol.21, no.12, pp.60-89, (2005)
- [6] H. R. Ji, S. H. Choi, M. S. Cho, and R. A. Ju, "The effects of the continuous dementia nursing intervention program on cognitive function and depression of the elderly with mild dementia in the community," *J Korean Gerontol Nurs*, vol.6, no.2, pp.216-227, (2004)
- [7] J. Y. Kim, S. G. Lee, and S. K. Lee, "The relationship between health behaviors, health status, activities of daily living and health-related quality of life in the elderly," *Journal of the Korean Gerontological Society*, vol.30, no.2, pp.471-484, (2010)

- [8] T. H. Kim, J. H. Jhoo, J. H. Park, J. L. Kim, S. H. Ryu, S. W. Moon, I. H. Chon, D. W. Lee, J. C. Yoon, S. B. Lee, M. D. Kim, and K. W. Kim, *Psychiatry*, vol.7, no.2, pp.102-108, **(2010)**
- [9] M. J. Cho, J. M. Bae, G. H. Suh, B. J. Hahm, J. K. Kim, D. W. Lee, and M. H. Kang, "Validation of Geriatric Depression Scale, Korean Version(GDS) in the assessment of DSM-III-R major depression," *J Korean Neuropsychiatr Assoc*, vol.38, pp.48-63, **(1999)**
- [10] C. W. Won, K. Y. Yang, Y. G. Rho, S. Y. Kim, E. J. Lee, J. L. Yoon, K. H. Cho, H. C. Shin, B. R. Cho, J. R. Oh, D. K. Yoon, H. S. Lee, and Y. S. Lee, "The development of Korean Activities of Daily Living(K-ADL) and Korean Instrumental Activities of Daily Living(K-IADL) scale," *J Korean Geriatr Soc.*, vol.6, no.2, pp.107-120, **(2002)**
- [11] Y. S. Park and H. G. R. Son, "Effects of intervention using Korean traditional familiarity on cognitive and physical functions among persons with dementia," *J. Korean Gerontol Nurs*, vol.15, no.3, pp.257-266, **(2013)**