

The Effect of Educational Program for National Certification Test for Professional Caregiver on Trainees on Geriatric Nursing Self-Efficacy, Geriatric Nursing Practice, Achievement, Dementia Attitude

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Abstract

This is one group pretest-posttest study to investigate the effect of educational program for professional caregiver on the trainees' geriatric nursing self-efficacy, performance range of geriatric nursing, learning achievement, and dementia attitude. The subjects were 43 trainees enrolled in caregiver education center of K University located in Gyeonggi-do. The instruments used in this study were Inventory Geriatric Nursing Self-Efficacy(IGNSE) for geriatric nursing self-efficacy, an instrument developed by Cho (2002) for geriatric nursing practice, and self-developed theory and practice test of academic achievement. The attitude toward dementia was measured using knowledge, stabilization, and total score of the Dementia Attitudes Scale (DAS). The behavior toward elderly was measured using a evaluation tool developed by Won (2004). The designated textbook for education of caregiver, revised in 2019, was used as a textbook, and a total of 240 hours were allocated where 80 hours were allocated to theory, practice, and work experience, respectively. The education of theory and practice were performed for eight weeks, four hours a day, five days a week, and those for work experience was two weeks, eight hours a day, five days a week. Data were collected from March 1, 2019 to December 30, 2019, and pre- and post-test were performed. Data were analyzed using frequency, percentage, mean and standard deviation, and paired-t test. The results showed that IGNSE, geriatric nursing practice, and behavior toward elderly improved slightly, but the difference was not statistically significant ($t=-1.01$, $p=.319$; $t=-.78$, $p=.438$; $t=-10.03$, $p=.0131$; $t=-.281$, $p=.780$, respectively). Academic achievements of theory and practice improved statistically ($t=-10.03$, $p=.0131$; $t=-5.14$, $p<.001$, respectively). The DAS stabilization scale score and total score improved statistically ($t=-2.58$, $p<.001$, $t=-2.79$, $p=.008$, respectively). The DAS knowledge scale improved slightly, but the difference was not statistically significant ($t=-1.07$, $p=.293$). These results showed that the educational program for national certification test for professional caregiver is useful for obtaining national certification and improving dementia attitude. It is necessary, however, to modify and supplement appropriately curriculum to effectiveness of the program in improving self-efficacy, knowledge, and behavior necessary for elderly nursing. In addition, replication studies with larger random samples are necessary to confirm the findings obtained from this study.

Keywords: professional caregiver, geriatric self-efficacy, geriatric nursing practice, dementia attitude

1. Introduction

1.1. Background

The proportion of the elderly in Korea has increased 4.5 times, in half a century, from 2.9% in 1960 to 13.1% in 2015, and it is estimated that it will continue to increase to 24.3% in 2030 and 40.1% in 2060, being the second highest in the world [1]. The rapid aging of society, combined with the development of medical technology, led to a steep increase in the number of nursing hospitals for inpatients in need of long-term care, as evidenced by increase of the number by almost two times from 777 in 2009 to 1,416 in 2016 [2]. The number of long-term care qualifier in 2018, in addition, was 612,000, or 8.3% of the elderly people aged 65 or older [3]. Given that 949,000 who applied for grade judgement to receive the right of long-term care insurance may be a group with caring needs [4], the number of elderly receiving social care is likely to

increase continuously due to aging of society.

Korea implemented the Korean Elderly Long-Term Care Insurance System in 2008 and introduced a professional caregiver system that uses medical care benefits as compensation to secure the human resources necessary for the system. The professional caregiver qualifications are granted to those who, after completing a prescribed curriculum at a nursing care education institution that satisfies the criteria for the installation reporting determined by the city or province governors, passed the national certification test [5]. The professional caregiver, under the Elderly Long-Term Care Insurance System Act, provides meals, bathing, housekeeping, and nursing services to the elderlies at home or institution who have difficulty in daily life due to geriatric diseases such as dementia and stroke [6]. They provide direct physical, psychological, psycho-social, and emotional social care services to the elderlies, thus may have direct or indirect effect on the elderlies [7].

Since the national license for professional caregiver is currently issued without restriction of education level or age of the applicants, it is necessary, for the education and training processes to play the proper role, to ensure that they provide curriculum that develops sufficient abilities and qualities of the trainees required in performing the relevant tasks. According to a previous study surveyed nursing agency operators and managers, nursing care givers, related officials, and experts, although many caregivers were nurtured through the caregiver training program, many of them have poor basic care skills due to factors such as the educational system that lacks link with the field, various problems of educational institutions that prioritize economic profits and lack of a supervision system for such problems, and deviations between educational institutions [8].

It necessitates the evaluation of the effectiveness of education program for professional caregiver measured by the improvement level of the trainees' behavior and capacity [9]. Since the knowledge of and attitude toward elderly are very important factor in caregiving, the provision of fundamental data that can be used to adjust the content or level of training of caregivers education and to develop and amend the questions of the national license test are likely to be a useful assist in providing better care for the elderly by producing more quality workforce.

The self-efficacy is defined as the perceived level of one's ability to organize and execute the course of action required for the performance of a specific task and refers to the strength of situational and specific confidence [6]. The self-efficacy is a psychological construct that plays a crucial role in the mediation of health-related behavior in general [10] and on stress and caregiver burnout specifically[11]Self-efficacy refers to an individual's belief in their ability to accomplish specific goals[12] In any given situation, these beliefs affect the choices people make, the actions they pursue, how much effort they will expend, how perseverant and resilient they will be in the face of obstacles, and how much stress and anxiety they will experience. The geriatric nursing self-efficacy is, therefore, one's confidence and capacity to decide and perform the role required in solving the problems of elderlies and has effects on operation and application of educational program for professional caregiver. The previous studies found that the self- efficacy in the clinical practice had effect on the self-directionality and satisfaction and thus that the students with higher self-efficacy were more likely to be satisfied with education due to derive to achieve goal by active and positive experiences. These mean that the self-efficacy has effects on the later work of the trainees [13]. Despite these observations, some authors failed in finding significant difference in geriatric nursing self-efficacy between before and after education [14]. It is necessary, therefore, to measure and analyze the geriatric nursing self-efficacy after completing education.

The geriatric nursing practice is one that performed in the clinical field for caring and an interaction by providing actual help for solving health problem, inconvenience, personal hygienic issues of elderlies [15]. This provides quality caring as well as is helpful in treating disease. The capacity to practice care is

important for the professional caregivers caring elderly directly [15]. It is also helping the elderly to admit their own aging and chronic diseases, to maintain dignity in their life while being independent as much as possible, to create a necessary environment, and to choose appropriate methods of help [16]. The geriatric nursing practice is, based on a positive attitude toward the elderly, to satisfy their desires for qualitative life and health [16], therefore, it is necessary to identify various factors to improve the geriatric nursing practice of nurses [17]. Comparing to the time when the license was issued for those who completed the program, it is important to investigate the effect of the educational program after introducing test on the efficacy toward elderly, dementia attitude, practice of the trainees.

With the increase in the elderly, the number of them with dementia has also been increasing every year. The patients with dementia among elderly aged 65 or older is estimated to be 10.2% in 2017, and is expected to increase up to 15% in 2050 [18]. Since the working age population supporting one elderly with dementia is expected to decrease, in addition, the management and provision of care for the elderly with dementia is emerging as a national issue. The developed countries and international organizations emphasize that public caregivers who have acquired expertise through quality education on dementia and caring should be trained to supply them stably [19]. The caregivers should be aware clearly of the human rights of patients and should always maintain an attitude of respect for them as humans with dignity.

The dementia attitude refers to emotional attitude meaning the positive or negative emotion to the situations accompanied by the disease of dementia itself, and behavioral attitude meaning the overall behavioral tendency toward the situation formed by dementia [20]. It was found that those who have more positive attitude toward elderly with dementia are likely to show higher level of caregiving [21] thus improve the quality of life of patients with dementia [22]. The positive attitude toward dementia has also effect on the outcome of treatment, delay the entrance to the institution, and relieve the burden of caregiver for the caring [9][10]. The dementia attitude of a caregiver caring for dementia is, therefore, a very important factor in improving patients' quality of life through human-centered care, meaning that it is important to measure dementia attitude after completing the educational program for professional caregiver.

It is very important for caregivers to understand accurately the elderly and to behave positively toward them in caring practice since genuine services for the elderly are based on a sufficient understanding and positive attitude toward them [23]

The positive behavior include the positive attitude since the positive attitude toward the elderly of caregivers, who is the closest to the elderly in need of nursing care, induces positive behavior [24][25].

Negative behavior toward the elderly by caregiver trainees who are expected to take the important responsibility of caring for elderly in the near future may result in a social problem. It is important to test their behavior toward elderly is very important.

1.2. Purpose

The purpose of this study was, by investigate the effect of the national certification test for professional caregiver on the geriatric nursing self-efficacy, geriatric nursing practice, dementia attitude, attitude toward elderly, and educational performance, to verify the effectiveness of this system and to provide fundamental data to be used in revising and complementing the system. The specific purpose are as follows:

- To identify the general characteristics and motivation for program participation.
- To measure, after completing the program, the change in geriatric nursing self-efficacy, geriatric nursing practice, dementia attitude, attitude toward elderly, and educational performance of trainees.

1.3. Hypothesis

The trainees who completed the educational program for national certification test for professional caregiver will show

- Hypothesis 1. increase in score of geriatric nursing self-efficacy.
- Hypothesis 2. increase in score of geriatric nursing practice.
- Hypothesis 3. increase in score of theory test.
- Hypothesis 4. increase in score of practice test.
- Hypothesis 5. increase in score of dementia attitude stabilization scale.
- Hypothesis 6. increase in score of dementia attitude knowledge scale.
- Hypothesis 7. increase in total score of dementia attitude scale.
- Hypothesis 8. increase in total score of elderly attitude scale.

2. Method

2.1. Design

This one group pretest-posttest study investigated the effect of educational program for professional caregiver, which is for obtaining certificated caregiver license necessary to provide care service to elderly who have difficulty in performing their daily life independently, on the trainees' geriatric nursing self-efficacy, performance range of geriatric nursing, learning achievement, and dementia attitude.

2.2. Subject

The subjects were 43 trainees enrolled in caregiver education center of K University, an institute designated as caregiver education, located in Gyeonggi-do. The enrollers of this institution from Mar. to Dec., 2019 were 57 and, among them, 14 were excluded due to personal reason or incomplete questionnaire. They were informed of the purpose of study before participation and the informed consents were obtained. The required number of subjects of this study was determined using G* Power 3.1, a sample number calculation program [26]. The yield number of subjects with condition of group 2, statistical power 0.7, significance $\alpha = .05$, independent sample t-test was 39 and over, which was satisfied.

2.3. Program Administration

Curriculum was implemented based on textbooks republished in 2019 according to the course standards specified by the Ministry of Health and Welfare. A total of 240 hours composed of 80 hours for theory, demonstration, and practice, respectively, were administered. Theory and demonstration courses were provided for eight weeks, five days a week, four hours a day. The clinical practice was provided for two weeks, five days a week, eight hours a day. The specific contents are summarized in next section.

2.3.1. Theory & Practice

The education of theory and practice was conducted by five professors of K University located in Gyeonggi-do. They gave classes on their assigned day of the week for such as Introduction of Nursing Care, Basic Knowledge on Nursing Care, General Nursing Care, and Special Nursing Care, using the standard textbook for nursing caregiver training designated by the Ministry of Health and Welfare [27] The class time was 18:00-2:00 of four hours for eight weeks (Table I).

Table I. Education of Theory & Practice

Week	Mon.	Tue.	Wed.	Thu.	Fri.
1	Institution & System related to Nursing Care (Theory 4)	Personal Hygiene and Environmental Nursing Care (Theory 3) & Communication and Leisure Support (Theory 1)	Ingestion Nursing Care (Theory 4)	Basic Knowledge of Nursing and Medicine (Theory 4)	Understanding of Nursing Care (Theory 2) & Personal Hygiene and Environmental Nursing Care (Theory 2)
2	Goal and Function of Nursing Care (Theory 2), Vocational Ethics and Attitude of Caregiver (Theory 1), Institution and Service of Nursing Care (Theory 1)	Communication and Leisure Support (Theory 4)	Ingestion Nursing Care (Practice 4)	Basic Knowledge of Nursing and Medicine (Theory 4)	Personal Hygiene and Environmental Nursing Care (Practice 4)
3	Vocational Ethics and Attitude of Caregiver (Theory 4)	Communication and Leisure Support (Practice4)	Ingestion Nursing Care (Practice 2), Ingestion Nursing Care (Theory2)	Basic Knowledge of Nursing and Medicine (Theory 4)	Personal Hygiene and Environmental Nursing Care (Practice 4)
4	Vocational Ethics and Attitude of Caregiver (Theory3, Practice 1)	Vocational Ethics and Attitude of Caregiver (Theory4)	Ingestion Nursing Care (Theory3, Practice 1)	Dementia Nursing Care Skills (Theory1), Basic Knowledge of Nursing and Medicine (Practice3)	Body Position Change & Home Nursing Care (Theory 4)
5	Vocational Ethics and Attitude of Caregiver (Practice 4)	Communication and Leisure Support (Practice 1), Support for Using Service (Practice 3)	Excretion Nursing Care (Practice 3), Safety and Infection Nursing Care (Theory 1)	Dementia Nursing Care Skills (Theory4)	Support for Housework and Daily Life (Practice 4)
6	Vocational Ethics and Attitude of Caregiver (Practice 1) Support for Housework and Daily Life (Theory 3)	Support for Using Service (Practice1), Terminal and Hospice Nursing Care Skills (Theory 1), Emergency First Aid Skills (Theory 2)	Safety and Infection Nursing Care (Practice4)	Dementia Nursing Care Skills (Theory 1, Practice 3)	Body Position Change & Home Nursing Care (Practice 4)
7	Record and Report of Nursing Care Work (Theory 3), Support for Housework and Daily Life (Theory1)	Emergency First Aid Skills (Theory 2, Practice 2)	Excretion Nursing Care (Practice 4)	Dementia Nursing Care Skills (Practice 3), Terminal and Hospice Nursing Care Skills	Body Position Change & Home Nursing Care (Theory 2, Practice 2)

				(Theory 1)	
8	Record and Report of Nursing Care Work (Practice 4),	Emergency First Aid Skills (Practice 4)	Safety and Infection Nursing Care (Theory 2, Practice 2)	Terminal and Hospice Nursing Care Skills (Theory 1, Practice 3)	Body Position Change & Home Nursing Care (Practice 2), Support for Housework and Daily Life (Practice 2)

2.3.2. Work Experience

For education of work experience, those in institution were conducted at a nursing home located in N city for five days, eight hours a day, and those in home were conducted at a day and night care center located in N city for two days and at a home nursing center for three days, eight hours a day. Total class times were 80 hours (see table II)

Table II . Education of Work Experience

Week	Mon.	Tue.	Wed.	Thu.	Fri.
1	Nursing Home (8)	Nursing Home (8)	Nursing Home (8)	Nursing Home (8)	Nursing Home (8)
2	Day Care Center (8)	Day Care Center (8)	Home Nursing Center (8)	Home Nursing Center (8)	Home Nursing Center (8)

2.4. Instruments

2.4.1. General Characteristics of Subjects

The general characteristics of subjects included sex, age, education level, monthly income, current vocation, and motivation for joining program.

2.4.2. Inventory Geriatric Nursing self-efficacy

The self-efficacy is defined as the perceived level of one's ability to organize and execute the course of action required for the performance of a specific task [12]. Geriatric nursing self-efficacy refers to a caregiver's personal belief in his/her abilities to determine and execute certain roles needed to solve certain geriatric issues in the presence of fatigue and stress when the caregiver carries out general health-related nursing [28].The present study used the instrument developed by Mackenzie et al [28] and translated by Kim et al[29]. The instrument consisted of 9 question items. Each item was rated on a scale of 1 to 7 (1: Never confident, 7: Very confident), where higher scores meant higher geriatric nursing self-efficacy (range: 9-63). Initially, the Cronbach' s α of the measurement scale was .96. The Cronbach' s α in this study was .95.

2.4.3. Nursing Practice

This instrument developed by Choi [30] and revised by Kim [31] measures nursing practice in terms of mental, physical, and psychological aspects of elderlies. 16 items are answered on four point likert scale from 1 (never) to 4 (always) and higher scores represent more positive practice. Choi [30] reported the Cronbach's α of this instrument as .88. The Cronbach' s α in this study was .95.

2.4.4. Achievement

The learning achievement was measured using items developed by an instructor with experience of nine years in caregiver education center and validated by four nursing faculties. The items were 35 ones about theory and 45 ones about practices with the difficulties of national license test and each item gave one point.

2.4.5. Dementia Attitude Scale

The attitude toward dementia refers to emotional attitude meaning the positive or negative emotion to the situations accompanied by the disease of dementia itself, and behavioral attitude meaning the overall behavioral tendency toward the situation formed by dementia. This instrument measuring the attitudes toward dementia was developed by O' Connor & McFadden [32], translated by Kim [29], and adjusted for the purpose of this study. A total of 20 items measuring dementia knowledge (10 items) or social comfort (10 items) were answered on seven point likert scale from 1 (no confidence) to 7 (strong confidence). The score range was 20-140. Six items were reverse-coded. The higher score represents more positive attitude toward dementia and the developer reported its Cronbach's α as 0.83-0.85 [32] The Cronbach' s α in this study was .69.

2.4.6. Attitude toward Elderly

The attitude toward elderly was measured using Attitude Toward Elderly Scale developed by Won [33]. The respondents answered based on their daily behavior on four point likert-scale (1: not at all 2: some times; 3: often; 4: always). All items in this study were reversely-coded and their sum was presented. The higher score represents more positive behavior toward dementia and the developer reported its Cronbach's α as 0.82 [32]. The Cronbach' s α in this study was .81.

2.5. Data collection & Ethical Consideration

The data collection period was from Mar. to Dec., 2019. The subjects themselves answered and the complete questionnaires without omission were used in analysis. For the purpose of ethical consideration, they were informed of the purpose of study thoroughly before participation. The researchers also explained that the collected data would be used only for this study, that the confidentiality would be kept rigidly, and that the subjects would be allowed to withstand their consent at any time. The informed consents were obtained and the questionnaire surveys were performed before and after education

2.6. Data Analysis

Data were analysed using SPSS version 18.0 for Window and the specific contents were as follows:

- The general characteristics of subjects were analyzed using descriptive statistics (real number, percentage, mean, and standard deviation)
- The effects of education program on geriatric nursing, self-efficacy, geriatric nursing practice, achievement, dementia attitudes were tested using paired t-test

3. Results

3.1. General and Dementia-related Characteristics of Subjects

Most of subjects were female (n=41; 95.3% vs n=2; 4.7%). The age groups were 40 years old and younger (n=11; 25.6%), 40-50 years old (n=10; 23.3%), 50-60 years old (n=14; 32.6%), showing that most of them were 30-60 years old though there were also a group of 60 years old and older (n=8; 18.6%). For the education level, most of them reported high school graduation (n=33; 76.7%) and middle school graduation (n=5; 11.6%) and college/university graduation (n=5; 11.6%) were relatively small. Most frequent monthly income was 1 million won and less (n=17; 39.5%) and was followed by 1-2 million won (n=9; 20.9%), 2-3

million won (n=7; 16.3%), and 3 million won and over (n=4; 9.3%). Those without experience of caregiving (n=35; 81.4%) were more those with such experience. The average motivation score for education was $.82(\pm 0.48)$ and most common motivation for education was license (n=27; 62.8%) and was followed by 'job', 'recreation', 'economic aid', and 'recommendation by others'. (see Table III).

Table III. General Characteristics of Subjects (n=43)

Characteristics	Category	Frequency (%) & Mean(SD)
Sex	Female	41(95.3)
	Male	2(4.7)
Age	40 years old and younger	11(25.6)
	40-50 years old	10(23.3)
	50-60 years old	14(32.6)
	60 years old and older	8(18.6)
Education Level	Middle school graduation	5(11.6)
	High school graduation	33(76.7)
	College graduation	3(7.0)
	University graduation	2(4.7)
Monthly Income	< 1 million Won	17(39.5)
	1-2 million Won	9(20.9)
	2-3 million Won	7(16.3)
	<3 million Won	4(9.3)
Religion	Catholic	6(14.0)
	Christian	10(23.3)
	Buddhist	6(14.0)
	No religion	18(41.9)
	Others	3(7.0)
Experience of Caregiving	Yes	8(18.6)
	No	35(81.4)
Current Job	Caregiver	0(0.0)
	Nursing assistant	0(0.0)
	Social worker	0(0.0)
	Nurse	0(0.0)
	Unemployed	20(46.5)
	Others	23(53.5)
Motivation for Education	License	27(62.8)
	Job	6(14.0)
	Economic aid	2(4.7)
	Recreation	3(7.0)
	Recommendation by others	1(2.3)
	Others	4(9.3)

3.2. Effect of Education Program

The trainees who completed the educational program for national certification test for professional caregiver were found to

- (Hypothesis 1) increase their score of geriatric nursing self-efficacy from 4.28 ± 1.17 to 4.40 ± 1.17 , but the difference was not statistically significant ($t=-1.01$, $p= .319$).
- (Hypothesis 2). increase slightly their score of geriatric nursing practice from 3.52 ± 0.39 to 3.56 ± 0.48 , but the difference was not statistically significant ($t=-.78$, $p= .438$).
- (Hypothesis 3). increase their score of theory test from 20.14 ± 5.34 to 29.07 ± 5.34 , and the difference was statistically significant ($t=-10.03$, $p< .001$).
- (Hypothesis 4). increase their score of practice test from 27.58 ± 4.18 to 32.53 ± 5.95 and the difference was statistically significant ($t=-5314$, $p< .001$).
- (Hypothesis 5). increase their score of dementia attitude stabilization scale from 3.47 ± 0.56 to 3.69 ± 0.54 and the difference was statistically significant ($t=-2.58$, $p= .013$).
- (Hypothesis 6). increase their score of dementia attitude knowledge scale from 4.84 ± 0.81 to 4.94 ± 0.74 but the difference was not statistically significant ($t=-1.07$, $p= .293$).
- (Hypothesis 7). increase their total score of dementia attitude scale from 4.12 ± 0.53 to 4.32 ± 0.44 and the difference was statistically significant ($t=-2.79$, $p= .008$).
- (Hypothesis 8). increase their total score of elderly attitude scale from 61.12 ± 4.70 to 61.26 ± 4.48 but the difference was not statistically significant ($t=-.281$, $p= .780$)(Table IV).

Table IV. Effect of Educational Program (n=43)

Variable		Pretest (M±SD)	Posttest (M±SD)	t	p
IGNSE		4.28 ± 1.17	4.40 ± 1.17	-1.01	.319
Geriatric Nursing Practice		3.52 ± 0.39	3.56 ± 0.48	-.78	.438
Achievement	Theory	20.14 ± 5.34	29.07 ± 5.34	-10.03	<.001
	Demonstration	27.58 ± 4.18	32.53 ± 5.95	-5.14	<.001
DAS	Stabilization	3.47 ± 0.56	3.69 ± 0.54	-2.58	.013
	Knowledge	4.84 ± 0.81	4.94 ± 0.74	-1.07	.293
	Total	4.12 ± 0.53	4.32 ± 0.44	-2.79	.008
Behavior toward Elderly		61.12 ± 4.70	61.26 ± 4.48	-.281	.780

4. Discussions

Author details must not show any professional title (e.g. Managing Director), any academic title (e.g. Dr.) or any membership of any professional organization (e.g. Senior Member IEEE).

The professional caregivers provide physical and household support services for the elderly who have difficulty in daily life due to geriatric diseases such as dementia and hypertension and have been judged by the National Health Insurance Service as eligible for long-term care. The certification is issued to those who have received prescribed education at the institutions designated as a caregiver education organization nursing care provider and have passed the national test, regardless of educational background and age. This study was conducted to provide basic data for the development and revision of the educational program for national certification test for professional caregiver by verifying the effect of the program on trainees. This study, given that the knowledge, behavior and attitude of a caregiver about the elderly are very important factors in nursing care, investigated the effect of educational program for the national certification test for professional caregiver on geriatric nursing self-efficacy, geriatric nursing practice,

behavior toward elderly, and considering that many of them are patients with dementia, dementia attitude. In the current situation where the need for caregivers to take care of the elderly is increasing due to rapid aging of society, since the educational program for caregiver is a process of developing caregivers who take care of the physical activity and daily life of the elderly directly, it is important to understand the effectiveness of the program. The main results of this study, comparing with the results of previous studies on the effectiveness of caregiver education are as follows:

The educational program for national certification test for professional caregiver is the only pathway to cultivate professional caregiver. A study on the caregiver education program for the general public showed its effect on knowledge improvement [34] and the educational program for caregiver was found to have a significant effect on academic self-efficacy [35]. The educational program for national certification test for professional caregiver, therefore, seems to be an effective educational method to obtain national certification, which was demonstrated in this study by the significant improvement of academic achievements of the subjects. These results, considering that the subjects in this study are middle-aged and older group in their 40s or older, suggest that this program is effective in improving knowledge regardless of the age of trainees. It is difficult, however, to generalize the results of this study regardless of academic background, considering that education level of most of the subjects were 'high school graduation' or higher.

Meanwhile, the mean score of geriatric nursing self-efficacy increased slightly though that was not statistically significant. This is inconsistent with the result that, at the beginning of the educational program for national certification test for professional caregiver, the education comprising of 80 hours of theoretical, 80 hours of practical skills, and 80 hours of field practice hours significantly reduced self-efficacy of the trainees. This is perhaps because, in the earlier period, it was difficult to apply the selection of institutions for education, contents of education, and selection of instructors to the education program, however, after history of program over 10 years, the operation of the educational program has been stabilized due to the accumulated experience. It was found that self-efficacy is determined by past performance, indirect experience, verbal persuasion, and physical and mental states and develops gradually through repeated experiences related to a specific task [12], and significantly increases with the higher degree of understanding of education, showing positive correlation [35]. The result of a significant increase in academic achievement in this study shows that elderly nursing of caregiver may be a factor to improve self-efficacy. The improvement of geriatric nursing self-efficacy, however, failed in reaching a significant level, and the reason may be that the contents of education were not effective to improve self-efficacy or the education period was too short. It is suggested, therefore, that the educational curriculum leading to improvement of self-efficacy is necessary.

The elderly nursing practice is, based on the attitude toward and knowledge about the elderly, to identify and address the elderly's unique nursing problems [30]. and the score In this study increased from 3.52 ± 0.39 to 3.56 ± 0.48 after completing program, though it was not statistically significant. The previous studies showed that the level of empathy toward the elderly has positive correlation showed the level of elderly nursing practice, and the higher empathy toward the elderly was likely to increase the elderly nursing practice [36,37]. Considering that those who have acquired the caregiver certification are likely to engage in elderly nursing care, a curriculum is needed to enhance empathy for the elderly [38].

The score of behavior toward elderly slightly improved from 61.12 ± 4.70 to 61.26 ± 4.48 , but this difference was not statistically significant. The score before educational program showed that trainees already had tendency to behave positively toward the elderly, which is why the difference was not significant. Given that behavior toward the elderly is an important factor in nursing care, it is necessary to develop a program to improve and maintain continuously such behavior in the future [39]. In addition, there have was a report that higher effectiveness of train has a positive correlation with the behavior of the elderly, and in that study, the effectiveness of train included instructor's skills and values, education and training design, and trainees' ability and recognition areas. The behavior toward the elderly should be changed more positively through active support for the effectiveness of training.

Finally, the change in score of dementia attitude in this study was statistically significant in stabilization score and total score, but not in knowledge score. The more positive dementia attitude was shown to lead to a higher level of caregiving practice, showing that it is an important factor in improving the quality of life of dementia patients. There have been, however, no studies to confirm this effect in the trainee of caregiver program, however the results of previous studies on the effect of the educational program are as follows.

The results of this study is inconsistent with that of studies on the attitude toward dementia's influencing factor of families of patients with dementia in community reporting that scores on the knowledge scale are higher than on the stabilization scale, and an education-centered intervention program for families determines their dementia attitude total score, stabilization and knowledge score. Improved [40] though it was not significant [41,42], while is consistent with the result that the total score of dementia attitude increased significantly after education for formal caregivers in rural areas [43]. Dementia is diagnosed in more than 40% of elderly eligible for nursing care services and, as like attitudes influence the practice and behavior toward the elderlies, dementia attitude has effect on the elderly with dementia, therefore it is important to manage dementia as well as chronic diseases. In the development of the educational curriculum for caregiver, therefore, the mitigation of caregivers' perceived burden through improvement of dementia attitude should be considered.

5. Conclusions

This study was performed to contribute to determine the effectiveness of the national license test and revise and complement the test by investigating the level of dementia attitude and behavior of educational program trainees for the test. It was found that achievement and dementia attitude were improved statistically significantly after completing educational program for national license test for professional caregiver, indicating that the program has desirable effect. Other two domains, geriatric nursing self-efficacy and performance range of geriatric nursing reflecting the ability to apply nursing practice in caring for elderlies were improved though they did not reach statistical significance, suggesting that some complements are needed to improve the effectiveness of the program. The development of such curriculum is expected to lead to creation of systematic knowledge body for the management of long-term care recipients, and ultimately to contribute to the improvement of elderlies' quality of life. It is also expected to deal effectively with the caregivers' burden for care and thus to improve their quality of life.

REFERENCES

- Kim, Joo Hyun. "Korean Social Trends 2015." Statistics Research Institute, 2015, pp43-51.
- Health Insurance Review & Assessment Service. "Statistics of health insurance. Wonju: Health Insurance Review & Assessment, 2016.
- Lee, Yun Kyung. "Current Status of and Barriers to Home and Community Care in the Long-term Care System." Korea Institute for Health and Social Affairs, 2018, 77-89.
- Seok, Jae Eun. "The Conceptualization of Caring Justice and an Evaluation of Long-Term Care Policy in Korea." Korea Social Policy Review 25.2(2018): 57-91
- Ministry of Health & Welfare. 2020 revision, Formal Caregiver Training Standard Textbook: DaeKwang Medical, 2020.
- Kwon, Seung Sug., Song, Sun Hee. "Mediated Effect of Empowerment in the Influence of the Job Satisfaction and Job Involvement of Care Worker Self-efficacy." The Journal of the Korea Contents Association 12.10 (2012): 320-329.
- Ministry of Health & Welfare. Standard text for care givers, Ministry of Health & Welfare, Seoul, 2008.
- Hwang, Eun-Hee., Jung, Duk-Yoo., Kim, Mi-Jung., Kim, Kon-Hee., Shin, Su-Jin. "Comparison of Frequency and Difficulty of Care Helper Jobs in Long Term Care Facilities and Client Homes." Journal of Korean Public Health Nursing 26.1 (2012): 101-112.
- Shin, Kyung Rim., Byeon, Young Soon. "Development of Education & Training Programs for Senile Long-Term Care Managers (the 2nd. Grade)." Journal of Korean Academy of Adult Nursing 20. 2 (2008): 251-268.

Holloway Aisha., Watson Hazel E. "Role of self-efficacy and behavior change." *International Journal of Nursing Practice* 8.2 (2002): 106-115.

Fortinsky, R H., Kercher K., Burant CJ. "Measurement and correlates of family caregiver self-efficacy for managing dementia." *Aging Mental Health* 6.2 (2002): 153-160.

Bandura A. "Self-efficacy: Toward a unifying theory of behavioral change." *Psychological Review*. 84.2 (1977):191-215

Kim, Yeong Hie. Relationship of Self Efficacy, Self-Directedness and Practice Satisfaction to Clinical Practice Education in Nursing Students." *Journal of Korean Academy of fundamentals of Nursing* 16.3 (2009): 307-315.

Park, Young Sun., Jee, Young Ju. "A Study on Effect of Educational Program for National Certification Test for Professional Caregiver on Trainees" *Journal of Ubiquitous Healthcare.*" *NADIA* 1.1 (2020): 19-24.

Kang, Mi-Ran., Jeong, Kyeong-Sook, "Attitudes toward Caring for the Elderly and Geriatric Nursing Practice of Nurses in a General Hospital." *The Journal of the Korea Contents Association* 18.7 (2018):127-137.

Cho, Y H. "Care of the older adult." 4th ed, Seoul, Hyunmoonsa, 2009, pp.440.

Kang, Hye Seung., Sung, Ki Wol. "Influence of emotional intelligence and organizational commitment on geriatric nursing practice of nurses in long-term care hospitals." *Journal of Korean Gerontological Nursing* 17.1 (2015):29-37.

Ministry of Health & Welfare. "National Institute of Dementia." The status of dementia, October 10 2017. https://www.nid.or.kr/info/today_list.aspx.

Alzheimer's Disease International(ADI). *Women and Dementia: A global research review*. London: ADI Press. 2015.

Shin, Chung Jin., Lee, Shin Soom. "The Study of the relationship between the care givers' knowledge and attitude toward the elderly and relation with the elderly." *Journal of Family Relations* 16.4 (2012):181-199.

Mausbach, Brent T., Coon, David W., Depp, Colin., Rabinowitz, Yaron G., Wilson-Arias, E., Kraemer, Helena C., Thompson, Larry W., Lane, Geoffrey., Gallagher-Thompson, Dolores. "Ethnicity and time to institutionalization of dementia patients: a comparison of Latina and Caucasian female family caregivers." *Journal of the Americans Geriatric Society* 52 (2004):1077-84.

Corrigan P, Markowitz FE, Watson A, Rowan D, Kubiak MA. An attribution model of public discrimination towards persons with mental illness. *Journal of Health and Social Behavior* 44 (2003):162-79.

Lim, Young Shin. Knowledge and attitude toward the elderly of a general hospital nurse. Unpublished master's thesis, Chosun University, Gwangju, 2002.

Kim, Myung Hee. "Nursing students' knowledge, attitude and behavior toward elderly." *The Korean Journal of Health Service Management* 5.4 (2011):113-126.

Jeong, Mi Hyun., Kwon, Seon Suk. "Relationship between knowledge and attitudes toward elders of certified caregiver trainees." *Journal of Korean Gerontological Nursing*, 11.1 (2009):51-61.

Cohen, Jacob. *Statistical power analysis for the behavioral sciences*. Second edition, Lawrence Erlbaum Associates Publishers, 1988.

Ministry of Health and Welfare. "Standard Textbook for Professional Caregivers." Revised 2019, DaeKwang Medical, Seoul, 2019.

Mackenzie, Corey S., Peragine, Gina. "Measuring and enhancing self-efficacy among professional caregivers of individuals with dementia." *American Journal of Azheimers Disease & Other Dementias* 8.5 (2003):291-299.

Ministry of Health and Welfare. 2012 Survey of elderly with dementia, 2014.

Choi, H J. The Research on Nurse of Knowledge, Attitude and Practice for old age patient, Unpublished master's thesis, Kyunghee University Graduate School of Public Administration, Seoul, 2002.

Kim, Y J. Study on attitude, behavior, and nursing practice of hospital nurses towards the elderly, Unpublished master's thesis, Hanyang University, Seoul, 2013.

O' Connor Melissa L., Mcfadden, Susan, H. "Development and Psychometric Validation of the Dementia Attitudes Scale" *International Journal of Alzheimer's Disease* 22 (2010):10. DOI: 10.4061/2010/454218

Won, YH. The development of behavior scale toward the elderly. Unpublished manuscript, (2004).

Kim, Hee Kyung., Cho, Keun Ja., Lee, Hyun Ju. "Effects of an Educational Program for Certified Caregivers." *Journal of Korean Gerontological Nursing* 11.1 (2009):62~70.

Park, Young Sun., Young Ju Jee. "A Study on a Caregiver Training Program and Trainees' Understanding of Program Content." *Asia-pacific Journal of Multicultural Society* 2. 1 (2018):11-16.

Seo, Nam Sook., Moon, Ji Seon., Hong, So Hyoung., Park, Yang Hee. "The influence of attitude, experience and empathy on the nursing care of the elderly who have no caregiver." *The Korean Journal of Health Service Management* 10.2 (2016):179-91. <http://dx.doi.org/10.12811/kshsm.2016.10.2.179>

Kim, Young Kyoung., Kwon, Suh ye. "Effects of Empathy and Attitude in Caring for Elders by Nurses in Geriatric Nursing Practice in Long-term Care Hospitals." *Journal of Korean Gerontological Nursing* 19.3 (2017):203-213. <https://doi.org/10.17079/jkgn.2017.19.3.203>

Oh, Hyun Soo., Jeong, Hye Sun., "Implementation and evaluation of gerontological nursing education program: consist of knowledge about nursing care for elderly and elderly simulation experience." *Journal of the Korea Academia-Industrial Cooperation Society* 13.4 (2012):1654-1664. <http://dx.doi.org/10.5762/KAIS.2012.13.4.1654>

Park, A Young., Kim, Kye Ha. "Training Effectiveness and Behavior towards the Elderly of Caregiver Trainees. *Korean Journal of Adult Nursing* 22.2 (2010):200-210.

Choi, JY., Park, JY., Kim, TH., Lee, Dy., Lee, DW., Ryu, SH., Kim, SK., Youn, JC., Jhoo, J., Kim, JL., Lee, SB., Lee JJ., Kwak, KP., Kim BJ., Moon, SW., Bae, JN., ParkJH., Kim, KW., Han JW. "Factors Associated with the Attitudes toward Dementia in Community Caregivers: Results from the Nationwide Survey on Dementia Care in Korea" *Journal of Korean Geriatric Psychiatry* 19.1 (2015): 24-31.

Park, Young Sun., Jee, Young Ju. "A Study on the Dementia Family Intervention Program." *International Journal of Elderly Welfare Promotion and Management* 2.2 (2018):49-54. <http://dx.doi.org/10.21742/IJEWPM.2018.2.2.09>

Park, Young Sun., Jee, Young Ju. "A Study on Effects of a Program for Families with Dementia Patients" *Journal on Consulting Psychology for Patients* 2.1 (2018):13-18. <http://dx.doi.org/10.21742/IJCPP.2018.2.1.03>

Kim, Keunn Hong., Son, Deok Son., Kim, Hyo Jung., Song Ji Won. "A Study on the relationships between family strengths of Elderly and Attitude toward Dementia." *Journal of Community Welfare* 53.6 (2015):341-365. <http://dx.doi.org/10.15300/jcw.2015.53.2.341>