

Effect of Art Therapy Program on the Physical, Emotional, Cognitive functions of the Korean elderly with Dementia

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Abstract: The study aims to figure out the effect of art therapy on the physical, emotional, and cognitive functions, of the elderly with dementia. The study carried out group art therapy as a psychological approach to solve it. 5 in experiment group and 6 in control group were randomly selected from the elderly with dementia who were in the silver care unit in Chungnam Medical Institutes. First, when physical function efficacy was verified after art therapy, covariance showed the improvement of physical function in the experimental group, but no significant change was found in control group. Second, the result of the analysis of covariance on the cognitive functions of the control and experimental groups, there wasn't a significant difference between the cognitive function points of the experimental and control groups. Third, when emotion function efficacy was verified after group art therapy, covariance showed the improvement of emotion function in the experimental group, but no significant change was found in the control group.

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1. Introduction

In 2013 it was estimated that 9.2% of all elderly, which is 560,000 people, had dementia. It is expected that the number will continue to rise. It is expected that in 2020 the number will be 790,000 (9.8%), and in 2030, the number is expected to reach 1,030,000 (DHHS, 2013).

In treating dementia, according to the cause and symptoms, there are medication, hormone treatment, environmental treatment, and psychosocial treatment (KAD, 2006), and using methods the patient is comfortable with, methods maintaining and improving memory functions through repetitive practice and maintaining the patients' language and cognitive functions are effective. Many scholars attest to, other than medication treatment, the effect of art therapy, and already overseas, they are using art therapy alongside with medical treatment (Park, 2005).

Elderly art therapy, regardless of skill or professional skill, helps overcome the problems related to condition, such as psychological, emotional, and psychosocial conflict (Jung, 2006), therapy geared towards the elderly with dementia generally is a treatment through alleviation of the disease and the elderly people's psychological, mental, and physical problems (Shin, 2005). The visual, physical, and tactile stimulation of art exercises help the activity of the brain cells to prevent dementia, and even in patients already with dementia it can maintain or improve the ability to distinguish colors and objects to recover the reduced cognitive

functions, which is the reason why it is on the spotlight as the new method of therapy in current clinical practice (Oh, 2007).

In clinical trials it has been proven that art therapy had effect on the improvement of physical, cognitive, and emotional functions in the elderly with dementia. First, regarding the improvement of physical functions, Kim and Ahn(2009), Kim(2005), Park(2005) reported that group art therapy relaxes muscles of the dementia patients through the use of both hands. Regarding emotional function, Bang(2006) reported that through art therapy the elderly people's emotions changed positively, and in the study by Lee and Kim(2008) the effect of group art therapy was proven to have significant effect in self esteem. Regarding cognitive functions, in many domestic studies (Kim, 2005; Park, 2005; Bang, 2006; Ryu, 2000; Kim and Yoon, 2000) it was shown that art therapy helped in cognitive function improvement through the promotion of brain activity in the elderly dementia patients with reduced cognitive functions. For example, Pyo(2005) and Park(2005) reported that after group art therapy, K-MMSE cognitive function improved and Kim and Ahn(2009) also reported that it was effective in improving cognitive functions and restoring memory. Also Kramer(1994) suggested that art therapy was effective in reducing wandering behavior and maintaining creativity and attention in the elderly with dementia.

These previous researches are limited in that it focuses only on 2 of the physical, cognitive, and

emotional functions to conduct the programs then reporting on the effectiveness. For example, Hong(1990) focused on physical and cognitive functions, and Bang(2006) focused on physical and emotional functions.

However humans are holistic beings that have difficulty living with one dimensional function. Because physical functions can help emotional functions, emotional functions can help the cognitive functions, and cognitive functions can help the physical function recover, this study aims to develop a program by approaching the functions of elderly dementia patients in multi-functional manner including physical, emotional, and cognitive functions, then to verify the effects. Also this study aims to carry out art therapy programs on the elderly admitted to the dementia specialized wards. This is because rather than the elderly with dementia in society, it is advantageous to utilize the ward where elderly with dementia are.

Therefore the purpose of this study is to figure out the effects of art therapy on the physical, cognitive, and emotional function improvement in elderly dementia patients admitted to the specialized dementia ward.

2. Configuration of the group art therapy program

2.1 Program Subjects

The subjects of this study were the elderly who had been admitted at least 3 months prior through the diagnosis from a doctor as dementia patients in Chungnam A Medical Institute. Though the help of hospital representatives and social workers, 12 elderly dementia patients were first selected.

The elderly had between 22 to 10 points through the questionnaire assessment of social workers and nurses, private interviews, and K-MMSE examination, and it was limited to the elderly who could participate around 60 minutes of this program. The 12 elderly patients were randomly divided into 6 control group subjects and 6 experimental group subjects.

Among the elderly chosen through the standards above, one of the subjects showed worsened health conditions during the progress of the program, resulting in frequent absence, and the subject was excluded from the results. Thus, the number of subjects in the experimental group for the analysis of effectiveness was 5.

2.2 The goals of the program

First, the improvement of physical functions of the elderly dementia patients through art therapy. Second, the improvement of cognitive functions of

the elderly dementia patients through art therapy. Third, the improvement of emotional functions of the elderly dementia patients through art therapy.

2.3 The content and execution of the program

2.3.1 Content of the program

For the configuration of the art therapy program, the previous studies of Jung(2007), Jung(2006), Choi(2005), Kim(2004) were referenced. Advising was received in 4 occasions from an art therapy major professor and an elderly welfare major professor. During the program progress, advising was also received.

In the primary stages of the program (Sessions 1, 2, 3), the goal was the relation building between the researchers and the groups through non-directive, comfortable introduction to create familiarity with art mediums. To induce interest the program was configured to be non-directive and unstructured.

In the intermediate stages of the program (Sessions 4, 5, 6, 7, 8), the subjects were led to relieve the negative feelings by expressing themselves and the sadness they felt in living. In the second intermediate stages (Sessions 9, 10, 11, 12), small muscle improvement through various mediums and expression of positive emotions was carried out. Also through creative activity, confidence was recovered and through talking about their artwork the intimacy between the elderly and the atmosphere of support was maintained.

In the conclusive stages (Sessions 13, 14, 15), was about being satisfied with self though positive thinking and through the exhibition of their work in session 15, there was a time of supporting and encouraging each others' artwork.

Every session was carried out as Introduction → Execution → Conclusion stages. Introduction comprised of physical activity and greetings. Execution comprised of programs according to session. Conclusion stage was comprised of discussing about the results, physical activity, greetings, and talking about the next session.

2.3.2 Execution of the program

This study was carried out from February to April 2011, through 15 sessions. To provide frequent chances to recover memory, the sessions were carried out twice a week (Tues, Thur) and each session was around 60 minutes. The art therapy was carried out with the help from 1 social worker and 1 assistant working with 1 researcher. Pre-examination was conducted 1 week before the program started and post examination was conducted 1 week after the end of the program.

The place of the study was a place where it was easy to access by wheelchairs, where there were adequate materials, chairs and tables for the art therapy could take place. The progress, procedure, and the behavior of the subjects were observed and recorded by the researcher every session.

For the seamless progression of the art therapy, 1 social worker and 1 assistant from the A medical institution was chosen and they were explained the objective and procedures before participating in the study. The assistant was a person who had 3 years of art therapy experience. Also, to acquire the reliability and validity of the progress measurement tools, the research assistant was educated on the measurement tools and to reduce errors in measurement, every session, the researcher and the research assistant observed and measured at the start and end of the session.

3. Program evaluation method

3.1 Evaluation design

To find out about the effects of art therapy on the body and emotions of the elderly with dementia, this study used pretest-posttest control design. This design is the most typical experiment design that randomly assigns subjects to distribute them into experimental and control groups (Kim, 2004).

3.2 Evaluation tools

3.2.1 Physical function (Pinch Test)

To evaluate the grabbing strength of the thumbs, pinch gauge (JAMAR serial Number 60504224, Sammons preston, UK) was used to measure every start and end of sessions. The units measured in pounds (p) was converted to Kilograms (kg) ($1p=0.453kg$). Higher numbers represent stronger pinch.

3.2.2 Cognitive function (K-MMSE)

The cognitive functions of the subjects were measured using K-MMSE, a simple Korean mental condition examination. This is a standard examination designed to quickly measure the cognitive functions of the elderly. The categories are 'Time orientation,' 'place orientation,' 'attention and calculation skills,' 'Memory Recall,' and 'language and space-time configuration ability.' The value of the scale of validity, Cronbach's alpha was .846 prior, and .759 post.

3.2.3 Emotional function (depression)

To figure out the emotional function of the elderly with dementia, the scale CES-D (Radloff, 1977) translated by Kang(1998) was used. The original scale was configured as a 4 level scale but in

this study the Likert type scale utilizing 5 levels from 'Not at all (1 point),' to 'Strongly Agree (5 points).' The value of the scale of validity, Cronbach's alpha was .864 prior, and .804 post.

3.3 The characteristics of the program subjects

The experimental group had more women with 80.0% women and 20.0% men. The age distribution was 60's 40.0%, 70's 20.0%, and 80's 40.0%. Marital status distribution was married 20.0%, divorced 20.0%, and widowed 60.0% and in female subjects there was a low percent of surviving spouse. For education history, there were elementary education 80.0% and middle school education 20.0%. For financial status, there were government support 40.0%, family support 20.0%, and offspring support 40.0%. Cohabitation status showed living alone 80.0% and living with spouse 20.0%. Religion distribution was 80% Christian and 20.0% Buddhist.

The control group elderly were 100.0% female with 50.0% in their 70's and 50% in their 80's. The marital status was 100.0% widowed. Education history was 50.0% no education and 50.0% elementary education. Financial status was government support 68.0% and offspring support 32.0%. Cohabitation status was 68.0% living alone and 32.0% living with children. Religion distribution was 68.0% Christian and 32.0% Buddhist.

3.4 Data analysis method

The quantitative analysis results were statistically processed using SPSS Win 17.0, and to figure out the effect of reducing the subjects' pinch test points, K-MMSE points and CES-D points analysis of covariance was applied.

4. Analysis of the effectiveness of the program

4.1 The test of homogeneity between the experimental group and the control group

To test the homogeneity between the experimental group and the control group, t-Test was carried out. There were no significant differences between the experimental group and the control group, proving the homogeneity between the groups(no table).

4.2 The analysis of effectiveness of the program on the experimental group elderly with dementia

Although the experimental and control group was distributed at random, for clearer analysis of the effect of the program, analysis of covariance was carried out. The homogeneity of between the control and experimental group was proven, but because the prior points between the groups were different, the analysis of covariance was conducted with the prior points of both groups controlled.

The differences in the physical function points between the control and experimental groups was significant. The descriptive power of the analysis of covariance on the two groups' physical function (Pinch) was 63.5%. Thus, group art therapy positively affected in improvement of physical functions in the elderly with dementia (Table 1).

Table 1. Analysis of covariance on physical function (Experimental Group n=5, Control Group n=6)

Group	M(SD)	F Value
Exp	11.20(3.493)	15.714***
Cont	6.67(2.338)	

p<.001

In the result of the analysis of covariance on the cognitive functions of the control and experimental groups, there wasn't a significant difference between the cognitive function points of the experimental and control groups. Thus, group art therapy program did not have a significant effect on the cognitive functions of the elderly with dementia (no table).

In the result of the analysis of covariance on emotional function, there was a significant difference between the emotional function (depression) of the control and the experimental group. The descriptive power of the analysis of covariance on emotional function was 47.8%. Therefore, group art therapy program had a positive effect on the emotional function deterioration (Table 3).

Table 2. The analysis of covariance on emotional function (experimental group n=5, control Group n=6)

Group	M(SD)	F Value
Exp Group	2.04(.387)	7.203*
Cont Group	2.73(.536)	

* p<.05

5. Summary and suggestions

The purpose of this study is to find out about the effects of art therapy program on the physical, cognitive, and emotional functions of the elderly with dementia. The results of the group art therapy program on the elderly with dementia is as follows.

First, group art therapy program had a positive effect in improvement of physical functions in the elderly with dementia. This type of result can also be seen in the study by Choi(2008). The use of materials and tools used in art therapy process enables the improvement of coordination of the small muscles, eyes, and the hand to develop and improve strength of using both hands, matching the previous studies done by Kim(2005), Park(2005).

Second, group art therapy program had no significant effect on the improvement of cognitive functions in the elderly with dementia. However, although the experimental group elderly with dementia after the 15 sessions did not show a significant increase in cognitive function, the control group showed a significant decrease in cognitive function. As such, it can be seen that although group art therapy program does not improve cognitive functions in the elderly with dementia, it delays the worsening of cognitive function.

Third, group art therapy program had a positive effect in improving emotional functions in the elderly with dementia. This result matches the results of the previous studies by Lee(2004), Choi(2005), Choi(2001), Woo(2002) that reported the positive effects on depressive emotion reduction in female elderly patients at care centers using group art therapy.

This study is significant in the sense that by using elderly subjects that had more than moderate cases of dementia to carry out art therapy to find out about the effects of physical and emotional function that were not shown in previous studies. To suggest for future studies, this study suggests the following.

First, the result in this study shows no significant improvement in cognitive functions in elderly patients with dementia. This is interpreted to be due to the fact that the subjects were patients with more than moderate cases of dementia admitted to a specialized elderly hospital. Therefore, there is a need for the development of an effective group art therapy method for elderly dementia patients with more than moderate cases.

Second, in this study showed that art therapy was effective in improving physical and cognitive functions but could not verify the delaying effects of art therapy. This was due to the fact that the subjects were elderly patients with more than moderate cases of dementia that did not have the health conditions that could see delaying effects, but it is necessary for future studies to design experiments that can verify delaying effects to more accurately determine the effects of art therapy.

Third, this study carried out group art therapy on the elderly with dementia but in future studies it is hoped that through research comparing the effects of individual and group art therapy, a more constructive art therapy program will be developed for the improvement of physical, cognitive, and emotional function of the elderly with dementia.

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