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CALLIGRAPHY PAINTING ARABIC (ALLAH + MUHAMMAD) STIMULATION IN INCREASING THE ABILITY TO WRITE AND SPEAK ON ELDERLY WITH DEMENTIA

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ABSTRACT

Introduction
Elder people is one phase of human development. Aging process causes the cerebral alteration in its structure and function. It causes elder people become easier to forget the new information they just received. Through calligraphy painting Arabic (Allah+Muhammad) stimulation, elderly people with dementia can increase their cognitive. The aims studied was to determine the effect of calligraphy painting stimulation Arabic (Allah+Muhammad) increase writing skill dan ability to speak in elderly with dementia.

Method(s)
This research used quasy experimental design. Population were elderly with dementia at district Sidotopo Wetan Surabaya. Samples were 22 respondents taken according to simple random sampling technique, then divided into two groups (intervention: 11 respondents; control: 11 respondents). The independent variable was the calligraphy arabic (Allah+Muhammad) stimulation. The dependent variable was dementia, ability to write and speak. Data were collected by using MMSE and Tadir questionnaire, then analyzed by using Wilcoxon sign rank test and Man-Whitney with significant value $p \leq 0{,}05$.

Result(s)
The result of Wilcoxon sign rank test in experiment group for MMSE test p=0.007; Tadir test for ability to speak p=0.008; and for ability to write p=0.20. While in control group for MMSE test p=0.309; Tadir test for ability to speak p=0.414; and ability to write p=1.000. Result of Man-Whitney for MMSE test p=0,036; Tadir test for ability to speak p=0.000; and for ability to write p=0.002).

Conclusion(s)
It can be concluded that calligraphy painting (allah + muhammad) stimulation improved cognitive level, ability to write, and speak in elderly with dementia. Future studies were expected to similar interventions can be applied by nurses and health care workers in elderly with dementia. Further research should be added that the number of samples with specific characteristics that affect cognitive elderly with dementia.

INTRODUCTION

The aging process is a natural process characterized by a decline or change in physical, psychological and social conditions in interacting with others (Nurul, 2014). One of the changes in these conditions that occur in the elderly is senility or in medical terms is called dementia. Dementia is a clinical syndrome that includes a loss of intellectual function and memory that is so severe that it causes dysfunction in daily life (Agrawal, 2009). Other clinical syndromes in dementia are also characterized by disorders in writing, difficulty speaking/language and changes in mood and behavior (Yenny, 2013). Decreased cognitive function is one of the signs of dementia including attention, language, memory, visuospatial and decision-making functions. Dementia can not only be caused by the aging process, but can also be caused by chronic diseases such as stroke and Parkinson's (Purnakarya, 2009). The World Alzheimer Reports (2015) noted that dementia will be the biggest health crisis of this century with the number of sufferers continuing to increase. More than 46 million people live with dementia worldwide. This number is estimated to increase to 131,500,000 in 2050.

The incidence of dementia in Asia Pacific was around 4.3 million in 2005 which will increase to 19.7 million per year in 2050. The number of people with dementia in Indonesia was almost one million people in 2011. If we look at the distribution of the elderly population by province, the percentage of the elderly population above 10% and the highest is in the provinces of DI Yogyakarta (13.04%), East Java (10.40%) and Central Java (10.34%) (Ministry of Health, 2013; Gitahafas, 2011; Gustia, 2010).

The results of the initial data survey on April 4-8, 2016 in the form of interviews and cognitive tests using the ECAQ (Elderly Cognitive Assessment Questionnaire) with 40 elderly people in the work area of RW X, Sidotopo Wetan Village, Surabaya, the author found that 42% of the elderly experienced symptoms of cognitive decline, including 59% experiencing memory disorders, 47% experiencing writing disorders and 29% of the author also found that there were elderly people who experienced speech disorders. Cognitive decline in the elderly can be caused by several factors, one of which is the aging process in the elderly which will cause many changes in the brain, both changes in terms of structure and function. Changes in brain structure in the elderly include a decrease in brain volume, although it does not occur in all parts of the brain. The part of the brain that is most affected by the aging process is the frontal part.

Various efforts have been made to improve cognitive function in the elderly, both through pharmacological and non-pharmacological methods. According to Brum et al (2009), non-pharmacological interventions play a more important role in older adults. These interventions are in the form of exercises or games whose procedures require concentration or attention, orientation (place, time, and situation) and memory. Brum et al, 2009; Tamher & Noorkasiani, 2009). One of the brain stimulation programs that can be given to the elderly with dementia is Calligraphy. Stimulation of painting Arabic calligraphy will stimulate the brain system, especially visual and kinesthetic functions. Visual function stimulation will first be received by the eyes into the retina and forwarded to the thalamus, while kinesthetic stimulation is obtained due to the presence of afferent and efferent neuron systems in the brain.

Aferen functions as sensory information that is responsible for receiving and sending messages to the central nervous system from all parts of the body. Conversely, efferent neurons as motor nerves are responsible for receiving and sending messages from the central nervous system to all parts of the body. Stimulation of these neurons will enter the limbic system consisting of the amygdala as a place to regulate emotions and behavior and the hippocampus as a place to regulate memory. The results of this stimulation will stimulate the Wernick area and Broca area in the prefrontal brain so that the ability to speak and write in the elderly with dementia can

increase.

METHODS

The research design used was Quasy-Experiment. The target population in this study was elderly with dementia in Surabaya City as many as 17,083 elderly from 31 sub-districts. Kenjeran sub-district is the sub-district with the highest elderly, namely 4,508 elderly with dementia (4 sub-districts), while the number of elderly with dementia in the RW X area of Sidotopo Wetan Village is 1,618. The RW X area of Sidotopo Wetan Village was chosen as the research location because it has the largest number of elderly. The accessible population (has met the inclusion and exclusion criteria) in the RW X area of Sidotopo Wetan Village is 50 people. The inclusion criteria in the study were: elderly aged 60-75 years, in a family, Muslim, elderly with a score of <8 on the ECAQ (Elderly Cognitive Assessment Questionnaire) test, elderly with writing and speaking skills <normal criteria on the TADIR test (Aphasia Test for Rehabilitation Information Diagnosis). Exclusion criteria: Elderly with conditions that prevent (illness), severe visual impairment, uncorrected neurological disorders.

Respondents in each group were selected through probability sampling with simple random sampling technique. The sample size in this study was set at 22 elderly people divided into 11 elderly people per group. The independent variable used in this study was Arabic calligraphy. The dependent variables used in this study were cognitive level, speaking ability and writing ability.

The instrument to measure the dependent variable, namely cognitive level, used the MMSE (Mini Mental State Examination) examination sheet with 31 questions and TADIR (Aphasia Test for Rehabilitation Information Diagnosis) with 5 sub-questions consisting of 3 sub-questions on speaking ability and 2 sub-questions on writing ability. The research instrument for the independent variable (Arabic Calligraphy) used SAK (Activity Event Unit). The location of the study was in the RW X Area, Sidotopo Wetan Village, Surabaya. The study was conducted for 4 weeks starting from May 27 - June 27, 2016. The pre-test was conducted using the MMSE questionnaire and TADIR Test on the control and treatment groups, namely one day before the Arabic Calligraphy painting intervention was given. The activity was carried out 8 times for 4 weeks with a frequency of 2 times per week. The intervention given to respondents was in accordance with the agreed SAK for 8 meetings. The post-test was conducted after the last intervention using the MMSE questionnaire and TADIR Test on both groups and then analyzing the results.

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RESULTS

Table 1 Differences between Pre-test and Post-test of Cognitive Ability (MMSE Test)

Group	Treatment		Control	
	Pre test	*Post test*	*Pre test*	*Post test*
Normal	7	9	5	5
Probable	4	2	6	5
Definite	0	0	0	1
Wilcoxon Sign Rank Test	p= 0.007		p= 0.309	

Table 2 Differences between Pre-test and Post-test of Speaking Ability (Speech Proficiency Test)

Group	Treatment		Control	
	Pre test	*Post test*	*Pre test*	*Post test*
Normal	1	8	0	0
Not normal	10	3	11	11
Wilcoxon Sign Rank Test	p= 0.008		p= 0.414	

Table 3 Differences between Pre-test and Post-test of Writing Ability (Writing Ability Test)

Group	Treatment		Control	
	Pre test	*Post test*	*Pre test*	*Post test*
Normal	5	8	1	1
Not normal	6	3	10	10
Wilcoxon Sign Rank Test	p= 0.020		p= 1.000	

Table 4 Differences in cognitive, speaking and writing abilities in the intervention group and control group.

Group	n	*Average Post MMSE test*	*Average Post Tadir test (speaking)*	*AveragePost Tadir test (writing)*
Intervensi	11	26	14	9
Control	11	23	11	5
Mann-Whitney α=0.05		0.036	0.000	0.002

Based on table 1, the results of the Wilcoxon Sign Rank Test statistical analysis in this study were conducted to determine whether there was a difference between before and after treatment. The data above shows that the results of the MMSE test assessment in the intervention group obtained a value of p = 0.007 or p ≤ 0.05, which means that H1 is accepted, namely that there is a difference before and after being given Arabic calligraphy painting stimulation (Allah + Muhammad).

Meanwhile, based on Table 3, the MMSE assessment of the control group obtained a value of p = 0.309. The assessment data shows that p> 0.05, which means that there is no significant difference in the MMSE assessment.

Based on table 2, the assessment of the intervention group's speech test obtained a value of p = 0.008 or p <0.05, which means that H1 is accepted, namely that there is a difference before and after being given Arabic calligraphy painting stimulation (Allah + Muhammad). Meanwhile, the results of the Wilcoxon Sign Rank Test statistical test in the control group obtained a value of p = 0.414 or p> 0.05 which means that there is no significant difference in the assessment of speaking ability.

Table 3 explains the results that the Wilcoxon Sign Rank Test statistical test on the assessment of the intervention group's writing test obtained a value of p = 0.020 or p <0.05 which means that H1 is accepted, namely that there is a difference before and after being given Arabic calligraphy painting stimulation (Allah + Muhammad). Meanwhile, the results of the Wilcoxon Sign Rank Test statistical test in the control group obtained a value of p = 1,000 or p> 0.05 which means that there is no significant difference in the assessment of writing ability.

Based on table 4, the results of the Man-Whitney statistical test were carried out to assess whether there was an influence from the intervention group to the control group. The data obtained from both groups showed that painting Arabic calligraphy (Allah + Muhammad) had an effect on improving cognitive, speaking and writing abilities in the Elderly with Dementia.

The results of the Mann-Whitney statistical test in table 5.6 obtained a p value = 0.036 or p ≤ 0.05 in the MMSE test assessment. The p value = 0.000 or p ≤ 0.05 in the Tadir test assessment (Speaking). The p value = 0.002 or p ≤ 0.05 in the Tadir test assessment (writing) this value indicates that there is an increase in MMSE and the Tadir Test of speaking and writing abilities between the intervention and control groups so that the author's opinion about H1 can be accepted. Based on the overall analysis, it can be said that the subjects in the experimental group have better cognitive, speaking and writing abilities than the control group. The difference in test results shows the effectiveness of the treatment. (Allah + Muhammad). Meanwhile, the results of the Wilcoxon Sign Rank Test statistical test in the control group obtained a value of p = 0.414 or p> 0.05 which means that there is no significant difference in the assessment of speaking ability.

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DISCUSSIONS

The pretest results showed that most of the elderly were still classified as probable/moderate cognitive impairment criteria in the MMSE test assessment. Based on Table 2, it shows that in the intervention group, the lowest MMSE assessment score was obtained by 4 (four) respondents. Respondents who obtained the probable criteria were on average respondents who had disorders in temporal orientation and recall. The respondent who received the lowest score was a 70-year-old male respondent with.

Education level is not elementary school. According to Suprenant et al, older people tend to have a decrease in memory ability compared to younger people. As age increases, brain cells will become more tired in carrying out their functions and cause them to not be able to work optimally as when they were young. Age factors can be related to cognitive function according to research by Lumbantobing (2006) which states that changes that occur in the brain due to increasing age include the function of storing information (storage) experiencing slight changes (Lumbantobing, 2006; Suprenant et al, 2006). The highest score in the MMSE test assessment was achieved by 1 respondent (10%) with a score of 29. The results of the MMSE test assessment showed that all cognitive domains of respondents had almost perfect scores, but there were a few errors in the language area, namely the ability to repeat sentences and write sentences. The highest score was obtained by 3 respondents (30%) getting a score of 25. Respondents who got a score of 25 were respondents who made mistakes, especially during the language assessment, namely repeating sentences. The decline in dementia levels varies between individuals because each elderly person is a complex and unique individual whose well-being function is influenced by many internal and external factors (Miller, 2009). After the pretest was conducted, respondents

were given Arabic calligraphy painting stimulation (Allah + Muhammad) for 4 meetings in 4 weeks. There was an increase in cognitive and kinesthetic abilities after the Arabic calligraphy painting stimulation intervention (Allah + Muhammad). The pretest results showed that 3 respondents (30%) scored 25 on the MMSE test. Respondents scored 25 because they made mistakes, especially during the language assessment, namely repeating sentences, but after being given Arabic calligraphy painting stimulation (Allah + Muhammad), the 3 respondents all got quite high scores on their post-test. In addition, 5 other respondents also experienced an increase in cognitive abilities as evidenced by the MMSE post-test assessment. The increase in scores for each respondent varied depending on each respondent. The highest increase in scores on this test was +6. Respondents who experienced an increase of +6 on the MMSE test were respondents who got the lowest score during the pretest. The factor that can influence this increase in value is the listening factor. Respondents who got the lowest score in this pretest were always enthusiastic and paid attention during the Arabic calligraphy painting activity. The Arabic calligraphy painting activity (Allah + Muhammad) will train visuospatial cognitive function, which is one component of short-term memory where this activity will play a role in the constructional ability played by all lobes, especially the right hemisphere. (Doerflinger, 2007; Gamon, D, Bragdon, A 2005; Rizzo et al., 2004). This is also reinforced by Wreksoatmodjo's statement (2015) which states that cognitive activity (painting calligraphy) can affect the cognitive function of the elderly. However, in addition to the increase, there were 2 respondents in the treatment group who did not experience an increase in their scores at the end of their cognitive test. The results of observations of these two respondents during 4 meetings in 2 weeks, found that the respondents were less focused in paying attention to the material. Respondents often joked when giving calligraphy painting stimulation material. Lack of concentration will affect the memory stored in the brain as Rizzo et al (2004) said that attention and concentration are very important in maintaining cognitive function, especially in the learning process. In addition, the results of the post-test in the control group found 1 (one respondent) who actually experienced a very significant increase. The results of the demographic data observation showed that the respondent was 61 years old, retired, had a bachelor's degree and was active in activities. Factors that can inhibit the process of brain degeneration are age, education level and active in work. The next assessment in this study was the Tadir Test. The Tadir Test was conducted to assess speaking and writing abilities in the elderly. Speaking and writing abilities are closely related to cognitive function. The assessment of speaking ability is measured through the respondent's ability to mention, imitate and provide personal information, while the assessment of writing ability is measured through Dictation ability, namely assessing the ability to write without misspelling dictated words and Word Level ability, namely assessing the ability to name images in writing.

Based on the results of the study, the pre-test assessment of speaking ability in the Tadir test showed that there were 2 (two) respondents who got the lowest scores. The respondent was 62 years old and had a job as an entrepreneur, but in terms of education level, the respondent was only an elementary school graduate. The results of the assessment on the speech test regarding personal information and mentioning, each respondent got the maximum score, but in the assessment of imitating speech, the respondent could not repeat the sentences spoken by the researcher. Aging increases the risk of dementia due to tangled brain neurons (Neurofibrillary tangles) and the appearance of plaque (Chen, 2012). According to Otenbacher et al (2010), individuals who have a low level of

education have a fourfold risk of dementia when compared to individuals with higher education. Decreased cognitive function is due to the decline in brain function in the elderly. The weight of the elderly's brain decreases due to reduced protein and fat content in the brain so that the brain becomes lighter. Axons, dendrites and nerve cell bodies undergo many changes, dendrites that function as a means of communication between nerve cells experience changes to become thinner and lose contact between nerve cells, nerve conductivity decreases so that movement becomes slow (Pudjiastutik, 2002). After the pretest was conducted, respondents were given Arabic calligraphy painting stimulation (Allah + Muhammad) for 4 meetings in 4 weeks. There was an increase in cognitive and kinesthetic abilities after the Arabic calligraphy painting stimulation intervention (Allah + Muhammad). The post-test results showed that most respondents experienced an increase in their speaking ability. Respondents who received low scores during the pre-test assessment actually experienced a high increase in the number of respondents during the post-test. This is in accordance with the theory put forward by King (1971) that the main element of the goal achievement theory is interpersonal systems, where two people (nurses-clients) who do not know each other work together to maintain health status. Elderly people with dementia who experience impaired / decreased writing and speaking abilities are given Arabic calligraphy painting stimulation therapy so that interpersonal interactions (health workers-clients) and their feedback will affect the writing and speaking abilities of the elderly. However, the post-test results in the intervention group found that 3 respondents received the results remained the same or there was no increase, while in the control group, 2 respondents experienced an increase. This is due to several factors, namely age factors, education factors and work factors that affect brain performance function. The next Tadir assessment is the assessment of writing ability. Based on the results of the pretest research in the Tadir test on writing ability, there were 5 (five) respondents who got the highest score, namely 9 on the writing ability assessment. The respondents were also on average 62 years old, but each respondent's job was different, namely housewife, Entrepreneurs and retirees and in terms of the level of education of the respondents also differed 4 (four) respondents graduated from elementary school and 1 (one) graduated from college. The results of the assessment on the writing test regarding DICTATION and Word Level, each respondent got the maximum score.

The decrease in dementia levels varies between individuals because each elderly person is a complex and unique individual whose welfare function is influenced by many internal and external factors (Miller, 2009).

After the pretest was conducted, respondents were given stimulation to paint Arabic calligraphy (Allah + Muhammad) for 4 meetings in 4 weeks. There appeared to be the same increase as the increase in speaking ability, namely in cognitive and kinesthetic abilities there was an increase after being given the stimulation intervention to paint Arabic calligraphy (Allah + Muhammad).

The results of the post-test showed a change in the increase in writing ability in some respondents. As many as 60% of each respondent who was given stimulation to paint Arabic calligraphy experienced an increase in their writing ability. respondents who scored quite high in the Tadir test included elderly people aged 60-65 years, who were both male and had the same last education, namely each did not graduate from elementary school. Despite having low education, the respondents were still active in working. According to Sidiarto (2003), a hard worker/overworker such as a farmer and laborer can accelerate the

aging process and affect cognitive function, but if the work is done continuously it can train the brain and can slow down the decline in cognitive function.

Stimulation of Arabic calligraphy painting given to the elderly with dementia will stimulate visual and kinesthetic functions in the brain. Visual and kinesthetic functions are obtained by stimulating the calligraphy writing of Allah and Muhammad so that later the relationship between kinesthetic function and cognitive function will occur through muscle contractions that are caused and will affect the brain (limbic system, namely the amygdala and hippocampus) through muscle spindle tissue. The stimulation that occurs will be forwarded to the central nervous system which will be processed and integrated at all levels of the nervous system so that kinesthetic function works which will result in increased memory or recollection in the elderly (Catani et al, 2013; Rolls, 2013 and Rohana, 2011). However, the results of the post-test of writing ability in the intervention group of 5 respondents did not increase or the value remained the same. The researcher argues that the results of the assessment of writing ability in these respondents were maximized and the scores obtained during the pretest were quite high. Meanwhile, the results of the post-test on writing ability in the control group showed that 4 respondents got a very bad score, namely a score of 1. According to the researcher, this was because during the pre-post, the respondents could not write or understand letters and numbers and had a very low educational history.

CONCLUSIONS

Stimulation of painting Arabic calligraphy (Allah + Muhammad) has an effect on improving speaking and writing skills in elderly people with dementia.

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