



Original Research

DHIKR THERAPY CAN IMPROVE MUSCLE STRENGTH IN NON-HEMORRHAGIC STROKE PATIENTS

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ABSTRACT

Background: Non-hemorrhagic stroke is a disease that occurs due to a blockage in certain brain blood vessels. Therefore, the brain area is not supplied with energy and oxygen so that the brain tissue does not function. The problem that occurs in non-hemorrhagic strokes is the weakness of the limbs and facial muscles. Non-pharmacological therapy for non-hemorrhagic stroke sufferers is dhikr therapy. Dhikr therapy relies on feelings and heart to calm the soul and increase muscle strength. This study aims to determine the effect of dhikr therapy on muscle strength in non-hemorrhagic stroke patients

Methods: This study used a quasi-experimental research design with pre-and post-test with control group. Non-probability sampling was used to determine the sample, which consisted of 54 respondents: 27 in the treatment group with ROM therapy, dhikr and 27 in the control group with ROM therapy. Manual Muscle Testing (MMT) Instrument is used to measure muscle strength. The data were analyzed using an independent T-test

Results: There is an effect of dhikr therapy on muscle strength after implementing the therapy in the intervention and control groups with a p-value of the right upper extremity of 0.000, p-value of the left upper extremity of 0.008, p-value of the right lower extremity of 0.007 and p-value of the left lower extremity of 0.007

Conclusion: The results of this study indicate that dhikr therapy can improve muscle strength in non-hemorrhagic stroke patients at the Sibela Community Health Center of Surakarta

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INTRODUCTION

Stroke is a neurological dysfunction caused by disruption of blood flow in the brain that occurs suddenly within a few seconds or quickly within hours (Barakat et al., 2014). Stroke is a cerebrovascular disease that occurs due to impaired brain function associated with blood vessel disease that supplies blood to the brain (Wardhani, 2018). Stroke is also called a brain attack or brain attack, which occurs when a part of the brain is damaged due to lack of blood supply to that part of the brain. Inadequate oxygen and nutrients carried by blood vessels cause brain cells (neurons) to die and the connections

or connections between neurons (synapses) are lost (De Silva et al., 1967). Non-hemorrhagic stroke is the death of brain tissue due to disruption of blood flow to the brain area, which is caused by blockage of the cerebral or cervical arteries (Zazulia & Diringer, 2013).

According to the American Heart Association (2017) stroke is the leading cause of death among heart disease, cancer, chronic lower respiratory disease, and accidental injury. The main cause of stroke is high blood pressure. However, stroke also occurs in about 8% of children with sickle cell disease (Sandmire et al., 1976). In Indonesia, stroke is the third leading cause of death after heart disease. A Stroke prevalence reaches 8.3 per 1000 population, 60.7 percent of which are caused by non-hemorrhagic strokes.

As many as 28.5% of the sufferers died and the rest experienced total or partial paralysis. Only 15% can recover completely from a stroke or disability (Nasution, 2013). In Central Java Province, the prevalence of stroke in 2019 was 3.91% per 1000 population. While the data report from the Sibela-Surakarta Health Center, the number of stroke cases in 2017 was 89 cases and the number of stroke cases increased in 2018 to 136 and for 2019 non-hemorrhagic strokes increased to 350 patients, in 2019, non-hemorrhagic strokes increased very far from the previous year.

Death of brain tissue due to stroke can cause decreased or even loss of function controlled by the network. One of the symptoms that are caused is muscle weakness in the limbs (Diputra, 2006). Muscle weakness disturbs a person to do activities so muscle strength is very important for stroke sufferers. Muscle strength is a brief contraction of the striped muscle fibers (voluntary muscle) and each contraction occurs on a single stimulation of the nerve. The force applied to the contraction of the entire muscle is smoothed out by varying the amount of fibers that contract and the frequency of the contraction of each fiber (Pearce, 2012).

The impact of a stroke causes a decrease in the function of the extremities. The function of the extremity is to carry out daily activities and is the most active part, so lesions in the part of the brain that result in weakness in the extremities will greatly inhibit and interfere with a person's daily abilities and activities (Sukmaningrum, 2012). Stroke can cause various levels of disturbances, such as decreased muscle tone, loss of sensibility in some parts of the body. Stroke patients who experience weakness on one side of the limb are caused by decreased muscle tone, so they are unable to move their body (immobilization) (Murtaqib, 2013).

Efforts made on ischemic stroke patients by pharmacological and non-pharmacological ways. Pharmacological therapy performed in non-hemorrhagic stroke patients: thrombolysis therapy, anticoagulant therapy, antiplatelet aggregation, neuroprotector. Non-pharmacological non-hemorrhagic strokes include physiotherapy, speech therapy, occupational therapy, social workers, and psychological and religious (Sofwan, 2010). Religious therapy is the therapy of choice to treat stroke problems with interventions that can effectively improve extremity and increase muscle strength. Dhikr therapy means to praise, gratitude and prayer to Allah. Dhikr can be done under any circumstances and can make the heart calmer.

Dhikr in the Al Qur'an is described as calm. Allah Subhanahu wa Ta'ala said: (that is) those who believe and their hearts are at ease by remembering Allah. Remember, only by remembering Allah will your heart be at peace (Surah Ar Ra'du: 28). As Described by Abdel-Khalek, (2007) the benefits of dhikr to patients to get a response of relaxation, calm, awareness, comfort and peace that improve psychological, social,

spiritual and physical health status. Dhikr makes physical calm, including heart rate, pulse and blood circulation to be smooth.

Analysis of dhikr from a medical point of view scientifically presented by Saleh, (2010) states that dhikr is healthy, and seen from contemporary medical knowledge, the pronunciation of "astaghfirullah" can foster calm and nervous stability for patients. Because in the two dhikr recitations there is the letter JAHR which can remove CO₂ from the brain (Ubaidillah, 2014). The occurrence of non-hemorrhagic strokes is due to a blockage in the blood vessels, Saleh, (2010) explained that when a person is doing dhikr well and the patient achieves relaxation of the blood vessel muscles, the blockage will gradually shift from its place and eventually be carried away by the heavy flow of blood that flushes. Brain due to the diameter of the blood vessels that widen when doing dhikr. Dhikr with finger joints can improve motor skills that are related to the formed movements and control of movements.

Based on its working principle, dhikr therapy is a type of therapy that has psychological and neurological effects. The rhythmic chant can improve the physiology of the nerves so that the body's mechanism improves (Saleh, 2010). A person's muscle strength occurs when the contraction of the striated muscle fibers (conscious muscle) and each fiber also moves by contracting when stimulated by nerve stimulation or so that the chanting of dhikr can improve nerve physiology and muscle contraction (Pearce, 2012).

The results of a preliminary study conducted by researchers, based on patient data at the Sibela Community Health Center, showed that non-hemorrhagic stroke patients increased every year. In 2017 there were 89 cases, in 2018 it increased to 136 cases, and in 2019 it increased to 350 cases. So far, the intervention at Sibela Community Health Center for non-hemorrhagic stroke patients is ROM, which is given once a week for 15 minutes. Even religious intervention has never been given to non-hemorrhagic stroke patients. Based on the above background, therefore the researchers are interested in researching the effect of dhikr therapy on muscle strength in non-hemorrhagic stroke patients.

MATERIALS AND METHOD

The design of this study used a quasi-experimental research design with a pretest-posttest control group design to determine the effect of dhikr on muscle strength. Respondents were 54 non-hemorrhagic stroke patients at the Sibela Surakarta Public Health Center with the criteria of experiencing muscle weakness, being Muslim and not experiencing a decrease in consciousness. Respondents were divided into two groups, namely 27 in the control group and 27 in the intervention group. The control group was given Range of Motion (ROM) action and the intervention group was given ROM and dhikr therapy.

The dhikr therapy intervention was carried out based on standard operating procedures, namely the pronunciation of the sentence *Astaghfirullah hal adzim* for 15 minutes more than 70 times for 3 days, then the muscle strength was measured with the MMT instrument and the results were compared between the intervention group and the control group. The ethical due diligence has received approval from the Health Research Ethics Commission of dr. Moewardi with Number 367 / II / HREC / 2020. The data analysis technique used the Mann Withney test with p-value <0.05

RESULTS

Results of characteristics according to sex were 59% male. The data show that most non-hemorrhagic stroke sufferers are male.

Table 1. Frequency Distribution of Sex in Control and Intervention Groups (n = 54)

Sex	Control group		Intervention group	
	f	%	f	%
Male	13	48,1	16	59,3
Female	14	51,9	11	40,7
Total	27	100	27	100

Table 2. Frequency Distribution of Age in Control and Intervention Groups (n = 54)

Variable	Min	Maks	Mean	Median	SD
Age	50	75	61,94	61,00	5,871

Table 2. The results showed that the mean age of the respondents was 61.94 years with the youngest 50 years old and the oldest 75 years old.

Table 3. Differences in muscle strength before and after being given dhikr therapy in the Intervention group (n = 54)

Variable	Group	Extremities	p Value
Muscle strength	Intervention	Right upper	0,005
		Left upper	0,011
		Right lower	0,002
		Left lower	0,004

Table 3. the test results of the treatment group on the right upper limb using the Wilcoxon test obtained a significant value of 0.005 if the p-value <0.05 then Ho is rejected Ha is accepted, which means that there is an effect of dhikr therapy on muscle strength.

Table 4. Differences in muscle strength before and after being given dhikr therapy in the control group (n = 54)

Variable	Group	Extremities	p Value
Muscle strength	Control	Right upper	0,157
		Left upper	0,157
		Right lower	0,157
		Left lower	0,161

Table 4. The test results of the control group on the right upper limb using the Wilcoxon test showed a significant value of 0.157. If the p-value > 0.05 then Ho is accepted, Ha is rejected, which means there is no effect on muscle strength.

Table 5. Differences in muscle strength after being given dhikr therapy in the intervention group and the control group

Variable	Group	Phase	Extremities	p Value
Muscle strength	Control	Post test	Right upper	0,001
			Left upper	0,012
	Intervention		Right lower	0,012
			Left lower	0,008

Table. 5. The results of the test for differences in muscle strength in the two control and treatment groups showed that the right upper limb with a significant value of 0.001, the left upper limb, a significant value of 0.012, 0.012, right lower limb, and a significant value of 0.008 for the left lower limb. From the overall significant value of p-value <0.05, H_0 rejected H_a is accepted, which means that there is an effect of dhikr therapy on muscle strength in non-hemorrhagic stroke patients.

DISCUSSION

The results of a study conducted by (Prok et al., 2016) showed that the highest number of non-hemorrhagic stroke respondents was male with 14 respondents (77.8%) compared to women. According to the American Heart Association, the incidence of stroke in men is more than in women at a young age but not at an old age. Another study conducted by (Muhri et al., 2012) found that the incidence of stroke was more in the male gender as many as 40 patients (52%) compared to the female gender as many as 37 patients (48%). In a study conducted by Prok et al, (2016), the incidence of stroke increases with age.

Revealed that age has a very strong relationship with the incidence of stroke. Stroke rarely occurs at age less than 50 years, but the risk of stroke increases twofold after age 50 years. Alfianto, (2015) also stated that the incidence of stroke will increase with increasing age, especially when entering the age of > 55 years, from the results of the study showed that non-hemorrhagic strokes were more at the age > 55 years. According to research conducted by Jayanti, (2015), the proportion of patients who have had a stroke in the age category > 40 years is greater than those aged <40 years.

H_a is accepted, so there is an effect of dhikr therapy. In the lower right limb, a significant value of 0.002 p-value <0.05, then H_0 is rejected, which means that there is an effect of dhikr therapy. Lower left extremity significant value 0.004 p-value <0.05, so there is an effect after being given dhikr therapy. According to Amin & Haryanto, (2008), dzikir will increase the patient's confidence and courage to recover. Through dhikr, the soul is increasingly convinced of the greatness of Allah SWT, so that we can be brave enough to face anything.

The results of this study support the research that has been done by Prok et al., (2016) shows the difference in the average muscle strength between before and after active exercise gripping the ball is -3,500 with a standard deviation of 1.249. The results of the analysis obtained a p value of 0.000, which means that there is a very significant difference in the average muscle strength before and after hand exercise. Left lower extremity significant value 0.157, so there is no influence. Kumala et al., (2017) states that this dhikr relaxation therapy can be used to reduce physical, emotional, cognitive and behavioral tension that can lead to improved blood pressure. This dhikr relaxation therapy helps individuals to concentrate on the tension they feel and trains the individual to relax, in the control group that is not given dzikir therapy, calmness and feelings of relaxation are not maximally obtained so that it may affect the concentration of activity and muscle training.

This is supported by the opinion of Saleh, (2010) which states that the process of dhikr by saying sentences containing the letters jahr, such as tauhid and istighfar sentences, increases the disposal of CO₂ in the lungs and also explained that when a person is doing dhikr, there is a shortening of the brain blood vessels due to a chemical response when someone is doing dhikr (Hawari, 1998). Blood supply (decreased oxygen and glucose levels) to brain tissue has decreased. This situation is immediately

responded to by the brain with a yawning reflex which massively brings oxygen through the lungs to the brain accompanied by a widening of the diameter of the blood vessels. As a result, the supply of oxygen and glucose to brain tissue increases rapidly. This condition will revitalize all cellular and microcellular elements which have an impact on the strength and viability of brain cells.

In addition to the supply of large amounts of oxygen, mitochondria as the center of cell respiration will return to activity and work normally. According Saleh, (2010) which reveals in the book "Dzikir for nervous health" which states that it can cure paralysis due to stroke, by dhikr in a calm state and a heart focused on the Almighty. Doing dhikr with finger movements and clear pronunciation, the clogged blood vessels will gradually be displaced and carried by the swift flow of blood, so that it can drain all extremities and the dhikr movement itself can train the movement of the muscles of the upper extremities.

CONCLUSION

The results of the analysis of muscle strength before and after giving dhikr therapy in the treatment group, using paired t-test, showed that there was an effect of dhikr therapy on muscle strength in non-hemorrhagic stroke patients with p-value <0.05. Whereas in the control group the results obtained p-value > 0.05, meaning that there was no effect of dhikr therapy on muscle strength in non-hemorrhagic stroke patients. The results of the mean difference analysis test in the control group and the treatment group, using the independent t-test, obtained a p-value <0.05, it was concluded that there was an effect of dhikr therapy on the muscle strength of non-hemorrhagic stroke patients.

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