Reduction of stress and blood pressure with meditation therapy in elderly groups in balai pelayanan sosial tresna werdha (BPSTW) in Yogyakarta

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Abstract

Stress in elderly institution residents is an interesting phenomenon to study. Sustained stress in the elderly can be harmful and cause mental and physical health problems. Hypertension is one of the physical health problems that can result from stress. Nursing Intervention Classification 2013 recommends the use of Meditation Therapy to address the problem. Meditation is a self-directed exercise to relax and calm the mind, besides that meditation is an easy and inexpensive activity. This certainly provides benefits for the institution in caring for the elderly. Less information on meditation therapy, challenging nurses to perform scientific verification.Scientific proof of reduced stress and blood pressure in elderly groups at the Balap Pelayanan Tresna Werdha (BPSTW) in Yogyakarta This research is a quasy experiment with pretest and posttest with control group. The treatment group was given meditation therapy for 7 times a week, while the control group was not given treatment. Respondents were selected using simple random sampling. Stress measurement using the DASS (Depression Anxiety Stress Scale) and blood pressure were measured using a digital sphygmomanometer. The stress in intervention group of elderly after being treated results decreased by 1.8, whereas in the control group it increased by 0.029. The systole blood pressure in the intervention group of elderly decreased 6.257 mmHg and 0.457 mmHg in the control group. When the elderly diastole blood pressure in the intervention group experienced an average decrease of 3.4 mmHg, while in the control group it increased by 1.057 mmHg.
Conclusion: Meditation therapy is significant for reducing stress and blood pressure in the elderly at the Balai Pelayanan Tresna Werdha (BPSTW) in Yogyakarta

Keyword: Meditation, Elderly; Stress; Blood Pressure

INTRODUCTION

Smeltzer and Bare (2002) say that old person is a decline period involving the changing in several body systems which are physiological, cognitive, and psychosocial changing. The changing causes the decrease of the functions so that it affects the old people's health status. One of the functioned decreasing processes is the changing of the cardiovascular system where the heart wall changes to be thicker where the heart pumping is also slower and the elasticity of the *aorta* and *artery* also changes. The

cardiovascular system change causes the old people to be easy to get the illnesses such as Hypertension. Hypertension is a condition when someone gets the blood pressure increase both in slow and sudden motions (Saptono, 2011).

The data of WHO in 2000 shows that around 972 million people or 26,4% people get hypertension in the world. It's inferred that the number will increase by 29, 3% in 2025. From 972 million people getting hypertension, 333 million people live in the developing countries such as Indonesia (Suhadak, 2010). The number of hypertension among the elderly in Indonesia shows that it is quite high which 83 per 1000 family members are. Riskesda (2007) mentions that the people getting hypertension in the age of 55 – 75 years old reaches 62, 8% and more than the half of the old people's death is caused by cardiovascular illnesses. Moreover, in BPSTW Yogyakarta, especially in Kasongan Unit, hypertension is the main illness based on the clinic notes of BPSTW.

One of the habits which can cause hypertension is the stress. The stress or mental tense (feeling of being forced, sadness, anger, revenge, fear, and feeling guilty) can stimulate the adrenal gland releasing the adrenaline hormone and push faster and harder so that the blood pressure increases (Dalyoko, 2010). The data from Rikesdas (2013) shows that the old people get the emotional mental health of 8,34% in the 55-64 years old, 10% in the 65-74 years old and 12% in above 75 years old. The number of the case in the woman which is 8, 9% is higher than which happens in men which is only 5%. An article in *Kompas* entitled *Kesehatan Jiwa Lansia* shows that 1, 5% old people get mental illness (Candra, 2012). The stress level of the old people living in a nursing home is an interesting phenomenon to investigate (Indriana et.al. 2010)

The stress and hypertension will be the serious problems because if it isn't handled as soon as possible it will cause dangerous complication. The uncontrolled blood pressure can cause congestive heart attack, stroke, eyes problems, and kidney illness (Dalimartha, 2008). The unhandled stress can cause suicide risk among the old people. Around 800.000 people are dead because of the suicide, just the same number of death in 40 seconds only based on the researches conducted in 172 countries for 10 years (Akbar, 2014).

Every old person is unique. Thus, the treatment should give the different approach (Laksono, 2006). Darmojo (2008) says that controlling hypertension and stress can be done through both the pharmacology and non-pharmacology therapies. However, consuming the chemical medicines can cause negative effects for the old people such as breathing problems and the problems of the central neurons. The decrease of the kidney and liver functions which are related to the metabolism and medicine excretion also causes the negative effects of the medicine consumption. The nurses have several treatments helping to decrease the stress and blood pressure based on Nursing Intervention Classification (NIC 2013) which is Art Therapy, anger control assistance, Bablio therapy, music therapy; impulse control training, meditation training and assertive training. (Malchiodi, 2005)

According to Snyder and Lindquist (2011), meditation is a self-exercise aims at relaxing the body and calming the mind. Effendi (2005, page 24) says that there are a lot of benefits got from meditation, those who often conduct the meditation can control the stress and their immune surveillance will increase. Besides, it is an activity which is easy and cheap to do and can also remove the pain, make them become more patient and happy (euphoria) in curing the illness. Thus, the patients become highly motivated and suggested to get well. Of course this gives benefits because the patients will not rely on the medicines. Suwarsi (2016) says that the old people should not rely on the

medicines because of the process of their body system aging so that the alternative and complemented therapies are needed. It brings the advantages to the nursing home in caring the old people. At least, the information related to the meditation therapy challenges the nurses to scientifically prove it.

RESEARCH METHODS

This research is a quantitative research, especially a Quasy experimental research with Pre-test and Post-test nonequivalent control group design. In this research, before the treatment is given, the experiment group respondents (R_1,) and the control group respondents (R_2) are given the pretest to measure the beginning condition. After the pretest is administered to the groups, the treatment is given to the experiment group (X). Then, the experiment group (O_1) and the control group (O_2) are given a post test. This research is conducted in the Balai Pelayanan Sosial Tresna Wredha (BPSTW) Yogyakarta, especially in Abiyoso and Budi Luhur Units on May – August 2018. The samples are the old people in the BPSTW Yogyakarta, especially in Abiyoso and Budi Luhur Units who are ≥ 60 years old, they are physically healthy and they don't get traumatic brain injury. The sampling technique used is simple random sampling which is still based on the research sample criteria. The experiment group conducts the meditation seven times a week while the control group doesn't get the treatment. The stress is measured by using DASS (Depressio Anxiety Stress Scale) and the blood pressure is measured by using a digital *sphygmomanometer*.

RESULTS AND DISCUSSION

Table 1. The mean distribution of the stress score of the old people group after meditation in BPSTW Yogyakarta in 2018 (N=35)

Stress Score	Mean	Mean Deviation	Std. Error Mean	P value
Stress Pre	18,31	1,8	3,27	0,000
Stress Post	16,49		2,69	

Based on the invariant analysis result in the table 1, it can be found that there is deviation of the stress score mean before and after conducting the meditation therapy which decreases by 1, 8 with the P value is 0,000 which means there is a significant correlation between the given intervention through the meditation therapy and the decrease of the stress value among the elderly.

Table 2. The mean distribution of the stress score of the old people group in the control group in BPSTW Yogyakarta in 2018 (N=35)

Stress Score	Mean	Mean Deviation	Std. Error Mean	P value
Stress PRE	17,83	-0,029	2,67	0,899
Stress POST	17,86		2,69	

Based on the *Univariat* analysis result in table 2, it can be found that the deviation of the mean of the stress score increases by 0,029. The P value is 0,899 and it means that there is no significant change of the stress value of the old people in the control group.

Table 3. The avarage distribution of sistole blood pressure among eldery after meditation in BPSTW Yogyakarta, 2018 (N=35)

Blood Pressure	Mean	Mean Differences	Std. Error Mean	P Value
Sistole PRE	129,23	6,257	9,45	0,000
Sistole POST	122,97		9,64	

Based on *Univariat* data analysis, table 3 shows that the mean differences of *Sistole* Blood Pressure from before to after meditation therapy decreases to 6,257. P Score 0, 00 shows that there is a significant relationship between meditation therapy and the decrease of the Sistole Blood Pressure among elderly.

Table 4. The avarage distribution of sistole blood pressure among the control group of eldery in BPSTW Yogyakarta, 2018 (N=35)

Blood Pressure	Mean	Mean Differences	Std. Error Mean	P Value
Sistole PRE	132,80	0,457	7,16	0,639
Sistole POST	132,34		10,31	

Based on *Univariat* data analysis, table 4 shows that the mean differences of *Sistole* Blood Pressure among the elderly control group decrease to 0,457. P Score 0, 64 shows that there is no significant relationship among the elderly control group in decreasing their Sistole Blood Pressure.

Tabel 5. The avarage distribution of the elderly sistole blood pressure after meditation therapy in BPSTW Yogyakarta, 2018 (N=35)

Blood Pressure	Mean	Mean Differences	Std. Error Mean	P Value
Diastole PRE	85,57	3,4	5,64	0,000
Diastole POST	82,17		3,8	

Based on *Univariat* data analysis, table 5 shows that the mean differences of *Sistole* Blood Pressure from before to after meditation therapy decreases to 3,4. P Score 0, 00 shows that there is a significant relationship between meditation therapy and the decrease of the *Diastole* Blood Pressure among elderly.

Table 6. The avarage distribution of diastole blood pressure among the control group of eldery in BPSTW Yogyakarta, 2018 (N=35)

Blood Pressure	Mean	Mean Differences	Std. Error Mean	P Value
Diastole PRE	84,34	-1,057	4,35	0,041
Diastole POST	85,40		4,97	

Based on the *Univariat* analysis result in table 6, it can be found that the deviation of the systole blood pressure mean value increases by -1,057. The P value is 0,041 which means there is a significant correlation related to the increasing the diastole blood pressure of the old people in the control group.

Table 1 show that the stress value of the old people decreases by 1, 8 after given the meditation therapy with the P value is 0,000. It is in line with the research conducted by Rokhman (2008) that the meditation can decrease the stress although the meditation

in that research is combined with Yoga. Harmilah et. al. (2011) add the meditation can make the brain relax and repair or recover the body. The regularly conducted meditation can decrease the stress and depression. The meditation technique is the main method used to decrease the stress. The meditation is a relax condition to concentrate to the reality which is happening or the condition where the mind is free from any kind of problems or a condition which is free from all of the exhausting things and focuses on the God or the valuable things.

While conducting the meditation, the patients also exercise to ignore the negative thinking which can cause the stress. It makes the mind becomes calmer than before. Besides, it is also believed that the meditation is effective to activate gamma wavelengths in the brain which play roles in learning process, concentration, memory, and consciousness. Thus, the meditation is believed to produce positive emotion which is happiness (Bomadonna, 2003). Relaxation aims at decreasing *Simpatis* neuron system, increasing *Parasimpatic* activities, decreasing metabolism, decreasing the blood pressure and pulse and decreasing the oxygen consumption. The condition shows that relaxation can bring comfort, decreases the stress, gives inner peace, and decreases nervous in the middle level of stress (Azhylia, 2017).

The findings in table 1 show the difference from the control (table 2), where the result shows that there is the rise of the stress value in 0,029 with the P value is 0,899. The research conducted by Selo et. al (2017) shows that the old people living in the nursing home get the higher stress than those who do not. Indriana, et. al. (2012) states that the cause of the stress among the old people living in the nursing homes involves the changing of the daily activities, the changing of the family groups, the couple of death, the death of one of the family members, and the changing of the choices and sport quality and recreation and the job changing.

Table 4 and table 6 show that the old people in the control group have decreased in their diastole blood pressure by 0,457 with the P value is 0,639 and the diastole increases by 1,057 mmHg with the P value is 0,041. The old people show there is the changing of the systole blood pressure but the P value shows the insignificant result. However, the diastole increases. The blood pressure of the old people in the BPSTW Yogykarta can be caused by the stress. During the stress period, the body will release *epinephrine* hormone (adrenaline) and cortisol which can increase the blood pressure (hypertension) because of the narrow of the blood vessels and it can increase the heart rate (Sheps, 2002).

Besides, the age is one of the factors influencing the blood pressure. The age is related to the high blood pressure (hypertension). Getting older, the big artery loses the flexibility and gets inelastic so that the blood in every heart rate is forced to flow through the narrower blood vessels and cause higher blood pressure (Noviningtyas, 2014). Gender is also one of the factors influencing the blood pressure. The women tend much more to get hypertension. The women will get the high blood pressure (hypertension) risk increase after menopause which happens in above 45 years old. The women who don't get menopause yet are protected by estrogen hormone which plays roles in increasing the amount of High Density Lipoprotein (HDL). The low amount of HDL cholesterol and the high LDL (Low Density Lipoprotein) cholesterol influence the

appearance of atherosclerosis process causing the high blood pressure (Noviningtyas, 2014).

Table 3 shows that the systole blood pressure of the old people in the experiment group decreases by 6,257 mmHg with the P value is 0,000 and table 5 shows that their diastole blood pressure after they are given the meditation therapy is 3,4 with the P value is 0,000. It means that the meditation therapy can significantly decrease the systole and diastole blood pressure. This research is supported by Dhar (2008), the individual who regularly conducts the meditation shows the jugular frequency, blood pressure, inhalation, and weight decrease. Through the blood checking, the decrease of the blood sugar and cholesterol serum and the increase of the blood protein amount are found. After ten days of conducting the meditation, the *neurohumours* and the enzymes such as *acetylcholinesterase*, catecholamine, cholinesterase and monoamine oxidase increase through decreasing the cholesterol in plasma.

Borysenko (1988, in; Snyder and Lindquist, 2011), defines the meditation as only an activity or something makes someone's attention comes when accessing the relaxation responses. Relaxation can be explained that in the human neuron system in a relax condition, the body will get rest phase. At that time, the body will activate the *parasimpatic* neuron system. The work of it causes the decrease of the heart rate through breath and blood pressure (Sulistyarini, 2013).

CONCLUSION

The conclusions in this research are the mean of the stress value of the old people in the experiment group after the therapy decreases while in the control group increases, the systole blood pressure of the old people in the experiment group decreases larger than in the control group, the mean of the diastole blood pressure of the old people in the experiment group decreases, while in the control group it increases and the meditation therapy significantly decreases the old people's stress and blood pressure in BPSTW Yogyakarta. Meditation therapy can be alternative therapy in decreasing stress and blood pressure among elderly by Nurses in BPSTW Yogyakartasss

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