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The effect of mindfulness meditation on blood pressure on elderly with hypertension at the elderly Posyandu

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Abstract--Hypertension is a disease that many people suffer from that can cause other, more dangerous health problems such as rupture of blood vessels in the brain and heart, resulting in death. According to WHO data, the coverage of hypertension reaches 1.13 billion. The management of hypertension is still dominated by pharmacological therapy. As for reducing this complexity, experts apply complementary therapies. Complementary therapy is a complementary therapy of conventional therapy for healing. One of the complementary nursing therapies that is easy to do to lower blood pressure is through meditation. Of the several types of meditation, there is one type of meditation that is closely related to human psychology, namely Mindfulness Meditation. So this study aims to prove the effect of Mindfulness Meditation on Blood Pressure in Elderly With Hypertension (In the Elderly Posyandu, Dukuh Village, Gondang District, Tulungagung Regency). The research design used was One Group Pre Test-Post Test with a cross sectional approach where the research subjects were only observed once and measurements were made on the subject variables at the time of examination. The sample of this study was hypertension sufferers at the Elderly Posyandu, Gondang Village, aged >55 years. The sampling

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technique is purposive sampling with a total of 32 respondents. Collecting data using an observation sheet of blood pressure examination results, then the data is processed by using the Paired T-Test analysis test. The results showed that the p value was 0.000 and was 0.05, which means ($p < 0.05$). So it can be interpreted that H_0 is rejected and H_1 is accepted, which means that there is an effect of Mindfulness Meditation on blood pressure in the elderly with hypertension at the Elderly Posyandu, Dukuh Village, Gondang District, Tulungagung Regency. The incidence of hypertension is very rampant and many of the causes of death. With Mindfulness Meditation, which has economic advantages, is easy to do and does not require many tools to remember, it will certainly be able to reduce the mortality rate due to hypertension. So that Mindfulness Meditation can be a natural alternative for the community as an effort to reduce blood pressure in people with hypertension.

Keywords---elderly, hypertension, mindfulness meditation.

Introduction

Patients are said to have hypertension if they experience an increase in blood pressure of more than 140/90 mmHg. Blood pressure naturally fluctuates throughout the day and plays an important role in the process of blood circulation throughout the body (Palmer, 2017). Hypertension can occur from various factors, including lifestyle and diet. Hypertension can also occur due to obstruction in the arteries and weakness of the heart muscle to pump blood. This is because in the elderly there is a decrease in muscle mass and an increase in body fat capacity (Nugroho, 2012). Management of hypertension consists of pharmacological and non-pharmacological therapy. However, due to a decrease in the function of organs, the presence of comorbidities to complications in various organs of the elderly and the occurrence of polypharmacy effects that result in disturbances in kidney function and work, the management of hypertension in the elderly becomes more complicated (Darmojo, 2018). As for reducing this complexity, experts apply complementary therapies. Complementary therapy is a complementary therapy of conventional therapy for healing. Some examples of complementary nursing therapies that can be given to hypertensive patients are; herbal therapy, music, yoga, acupuncture and meditation. One of the complementary nursing therapies that is easy to do to lower blood pressure is through meditation (Snyder & Lindquist, 2015).

Meditation is a mental exercise that can balance a person's physical, emotional, mental, and spiritual aspects (Iskandar, 2008). Meditation is focusing the mind towards a state of consciousness that brings a state of calm, clarity, and happiness which is the medium of Natural Stress Reduction (NSR) (Sukmono, 2017). Of the several types of meditation, there is one type of meditation that is closely related to human psychology, namely mindfulness meditation. Mindfulness meditation is a technique used to help focus attention on the current situation without judging or judging various thoughts and emotional reactions related to situations or stimuli (Afandi, 2016). Meditation that is done regularly

can increase the ability of the brain, especially in spiritual matters, which can be a means of stability in life. In addition, technically meditation is a mental sport that is easy to do, economical and does not require many tools (Samhita, 2018).

Method

This research was conducted on 27 and 28 May 2021 ⁴ the Posyandu, Dukuh Village, Gondang District, Tulungagung Regency. The research design used is "One Group Pre Test Post Test Design" which means that this design involves one group of subjects being given a pretest (initial observation) before the intervention. Then the desired intervention is carried out, then a posttest is carried out. Samples were ⁸ taken using the purposive sampling technique with a total of 32 respondents. The independent variable in this study was the provision of mindfulness meditation and the dependent variable in this study was blood pressure in the elderly. In this study using the Paired T-Test test ¹⁵ chnique, if the p value (0.05) there is an effect of giving mindfulness meditation therapy on blood pressure in the elderly with hypertension at the posyandu for the elderly, Desa Dukuh, kec. Gondang, kab. Tulungagung.

Results

Blood Pressure Before Mindfulness Meditation at the Elderly Posyandu

Table 1
Distribution of blood pressure frequency (calculated with MAP) before
Mindfulness Meditation

	N	Min	Max	Mean	SD
blood pressure (MAP)	32	98	131	111,81	7,961

Table 1 contains data which can be concluded that as many as 32 respondents before being given mindfulness meditation, the maximum blood pressure value calculated in the MAP was 131, while the minimum value was 98. Meanwhile, the average blood pressure (MAP) was 111.81.

Blood Pressure After Mindfulness Meditation

Table 2
Distribution of blood pressure frequency (calculated in MAP) after mindfulness
meditation

	N	Min	Max	Mean	SD
Blood Pressure (MAP)	32	95	118	105,19	7,550

Table 2 can be concluded that the respondents at the Posyandu for the elderly, Dukuh Village, Gondang District, after being given mindfulness meditation, the highest score was 118, while the lowest score was 95. Meanwhile, the blood pressure results calculated in the MAP have an average of 105, 19. So it can be concluded that the maximum value of hypertension calculated with the MAP

technique after being given Mindfulness Meditation decreased by 23 in the MAP count.

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Analysis of Blood Pressure in the Elderly with Hypertension after Giving Mindfulness Meditation Actions

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Analysis of blood pressure in the elderly with hypertension after giving mindfulness meditation

	N	Mean	SD	T	P
Blood Pressure (MAP)	32	6,625	5,167	7,254	0,000

Table 3 provides information on blood pressure calculated by MAP before and after being given action at the Elderly Posyandu, Dukuh Village, Gondang District, Tulungagung Regency with 32 respondents. The results of quantitative data analysis using statistical paired T-Test showed that blood pressure (MAP) before and after mindfulness meditation therapy, the mean was 6.625, while the output above the P value was 0.000 with a significant comparison value of (0.05). It can be interpreted that Ho is rejected and H1 is accepted, which means that there is an effect of mindfulness meditation on blood pressure in the elderly with hypertension at the Elderly Posyandu, Dukuh Village, Gondang District, Tulungagung Regency.

Discussion

Blood Pressure (Calculated by MAP) Before Mindfulness Meditation at the Elderly Posyandu

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Based on the research data in table 1, it is known that from 32 respondents before being given mindfulness meditation, the maximum blood pressure value calculated in the MAP was 131 mmHg, while the minimum value was 98 mmHg. Meanwhile, the average blood pressure (MAP) is 111.81 mmHg. Factors that affect hypertension according to (Ardiansyah, 2014) are divided into two groups, namely factors that cannot be changed and factors that can be changed. Factors causing hypertension that cannot be changed are age and gender. The effect of age on blood pressure is seen from the aspect of blood vessels, namely increasing age will reduce the elasticity of peripheral arterial blood vessels thereby increasing peripheral vascular resistance or resistance. Cardiovascular in the elderly, there is thickening and stiffness of heart valves, decreased ability to pump blood (decreased contraction and volume), decreased elasticity of blood vessels, and increased peripheral vascular resistance so that blood pressure increases. From 32 respondents, 53% or the equivalent of 17 people had moderate blood pressure with an age range of 65-90 years. This is in accordance with the theory and facts in the field that blood pressure tends to increase with age. At the age of more than 45 years, blood pressure tends to be high compared to young people because there is a decrease in the elasticity of peripheral arterial blood vessels which results in increased resistance in peripheral blood vessels so that blood pressure in the elderly tends to increase.

From the 32 respondents, most of the respondents who have high blood pressure are women with a percentage of 94% or the equivalent of 30 people. This is in accordance with the theory (Ardiansyah 2014) which states that hypertension is more common in men with young adults. **10** more women after the age of 55 years, about 60% sufferers. This is related to **hormonal changes that cause weight gain and blood pressure to become more reactive to sodium consumption**, resulting in an increase in blood pressure. According to (Kartikasari, 2012). Based on the theory and facts of the research results above, the researcher argues that hypertension is more often experienced by women aged >55 years, and the number of respondents who attend training is a lot of elderly women. This is because at that age women have entered menopause which causes some of the functions of the hormone-forming organs of the body to decrease. One of them is the pituitary gland which is in charge of producing adrenocorticotrophic hormone or ACTH which helps keep blood pressure stable. If the production of this hormone decreases, nothing else is able to maintain stable blood pressure and keeps blood pressure high.

Blood pressure (calculated with MAP) after the Mindfulness Meditation action at the Elderly Posyandu

6 Based on the research data in table 2, it is known that from 32 respondents after being given mindfulness meditation, the maximum blood pressure value calculated in the MAP is 118 mmHg, while the minimum value is 95 mmHg. Meanwhile, the average blood pressure (MAP) is 105.19 mmHg. The facts at the research site **5** also show that many respondents after receiving Mindfulness Meditation **experienced a decrease 51 blood pressure**, namely from 32 respondents, there were 27 people who **experienced a decrease in blood pressure**, so **the percentage of success in lowering 24 blood pressure was 84.4%**. Meanwhile, the 5 respondents did not experience **a decrease in blood pressure and** were dominated by women with an unsuccessful percentage of 15.6%.

In accordance with the theory according to (Brown, K.W., & Ryan, 2018) that meditation is a mental exercise that focuses the mind towards a state of consciousness that brings a state of calm, clarity, and happiness. Meditation itself has a goal to process thoughts or problems within yourself, not to eliminate the problems that are in the mind. One part of meditation is Mindfulness meditation, which is a technique used to help focus attention or focus on the current state without judging or assessing a problem in the mind and emotional reactions related to situations or stimuli (Afandi, 2016). This exercise takes 20 minutes between 05.00 – 10.00 and can be done twice a week on a regular basis, because this meditation does not pose any danger if done frequently (Kabat-Zinn, 2018). This helps the body to relax so that it can suppress tension, resulting in feelings of relaxation and relief.

Based on exposure to facts linked to theory, the researchers found that Mindfulness meditation therapy was effective in helping lower blood pressure in respondents with moderate hypertension and keeping blood pressure stable without the use of drugs. At the time of meditation the parasympathetic nervous system can be relaxed so that the body becomes relaxed so that it can suppress tension. Feeling relaxed will be transmitted to the hypothalamus to produce

Corticotropin Releasing Hormone (CRH) and Corticotropin Releasing Hormone (CRH) activates the anterior pituitary to secrete enkephalin and endorphins which act as neurotransmitters that affect mood so that they become relaxed and happy.

The Effect of Mindfulness Meditation on Blood Pressure in the Elderly with Hypertension at the Elderly Posyandu

Based on table 3, it is known that from 32 respondents, before and after mindfulness meditation therapy, their blood pressure (MAP) has a mean value of 6.625. In the results of quantitative data analysis with the statistical paired T-Test, it can be interpreted that a significant value of (0.05) is obtained, the P value is 0.000 so that the P value < the value of (0.05). So it can be interpreted that H_0 is rejected and H_1 is accepted, which means that there is an effect of mindfulness meditation on blood pressure in the elderly with hypertension at the Elderly Posyandu, Dukuh Village, Gondang District, Tulungagung Regency.

Mindfulness meditation is a meditation technique by cultivating the soul that can balance the physical, emotional, mental and spiritual that can direct the mind towards a state of consciousness that brings calm, and happiness (Sukmono, 2017). By doing meditation the individual becomes more relaxed and makes the hypothalamus produce Corticotropin Releasing Hormone (CRH). When CRH works, the release of Adrenocorticotrophic Hormone (ACTH) and cortisol decreases, causing stress and tension to decrease. This state provides a signal that is sent to the medulla oblongata to send information about a decrease in blood flow pressure. Information will be transmitted to the brain stem, as a result, the parasympathetic nerves have increased activity and the sympathetic nerves have decreased activity in the chemoreceptors, so that the heart rate decreases and vasodilation occurs in a number of blood vessels, this makes blood pressure decrease (Brown & Ryan, 2018).

Based on the theory and research results above, the researchers argue that giving Mindfulness meditation therapy has a significant effect on reducing blood pressure. Where, during meditation the parasympathetic nervous system will work to suppress tension and make the individual relax. When the body is able to relax the heart rate will slow down so it requires less oxygen. This reduces the strain on the heart and "rests" the organ. Thus the flow of electricity in the heart returns to normal and blood pressure drops. The difference in hypertension before and after mindfulness meditation can be seen from the pre and post test data in the appendix of this study. After being given mindfulness meditation, from a total of 32 respondents, 27 respondents, equivalent to 84.4%, who had blood pressure of more than 150/100 mmHg or in a MAP count of more than 115 mmHg experienced a significant decrease in blood pressure.

The results of this study are in accordance with research conducted by Theresia Tatik Pujiastuti in 2018 with the research title The Effect of Meditation on Reducing Blood Pressure of Hypertension Patients in Sindumartani Ngemplak Village, Sleman Yogyakarta, with a total of 57 respondents. The results of Theresia Tatik Pujiastuti's research stated that there was an effect of meditation on blood pressure before and after therapy. Based on the theory and facts that have been described above, the researchers argue that mindfulness meditation is

effective for lowering blood pressure, but the facts in the field do not reduce it significantly, so for further research suggestions for places to carry out Mindfulness Meditation in closed or indoor places and avoid noisy environments, so that respondents are more focused in carrying out the training. In this training, hypertension sufferers are very safe if it is done frequently because it does not have a negative impact and without drugs for patients with moderate hypertension. A healthy lifestyle and mental exercise that focuses the mind towards a state of consciousness that brings calm, clarity, happiness can help lower blood pressure and maintain blood pressure stability. This exercise does not require a lot of furniture and can be done twice a week on a regular basis for 20 minutes. Some psychologists also recommend doing mindfulness meditation more often in daily activities for 3-5 minutes.

Conclusion

Blood pressure before being given Mindfulness meditation from 32 respondents in the maximum value of blood pressure calculated in the MAP is 131 mmHg, while the minimum value is 98 mmHg. Meanwhile, the average blood pressure (MAP) is 111.81 mmHg. Blood pressure after being given Mindfulness meditation from 32 respondents in the maximum value of blood pressure calculated in the MAP is 118 mmHg, while the minimum value is 95 mmHg. Meanwhile, the average blood pressure (MAP) is 105.19 mmHg. Based on the results of quantitative data analysis with the statistical *paired T-Test*, it was found that the *P* value was 0.000 so that *P* value < value (0.05) means that *H₀* is rejected and *H₁* is accepted, meaning that there is an effect of mindfulness meditation on blood pressure in the elderly with hypertension. at the Elderly Posyandu, Dukuh Village, Gondang District, Tulungagung Regency in 2021.

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