

Original Research Article

The effect of meditation and murotal hearing combination therapy on reduction of stress and blood pressure in hypertension

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ABSTRACT

Background: World Health Organization(WHO) in 2012 showed that 26.4% of people suffer from hypertension. One of the things that affects blood pressure is stress. Blood pressure can be lowered by reducing stress levels. Nonpharmacological efforts to reduce stress are relaxation techniques, including meditation and murotal hearing. The purpose of this study was to determine the effect of a combination of meditation and murotal hearing on stress levels and blood pressure of hypertension sufferers.

Methods: This study used a quasi-experimental design in the form of pretest - posttest intervention with control group. A sample of 30 respondents was divided into 15 intervention groups and 15 control groups. The intervention group received meditation and murotal hearing and antihypertensive therapy for 3 consecutive days while the control group only received antihypertensive therapy. The analysis uses paired t-test to determine the effect of the intervention on the intervention group and the independent t-test to see differences between influences between groups.

Results: Meditation and murotal hearing significantly reduced stress scores by $p=0$, also significant in decreasing systolic blood pressure with $p=0.008$ and not significant in decreasing diastolic blood pressure with $p=0.206$. In the different test between intervention and control groups showed that a significant difference was found in the reduction in stress levels with a value of $p=0.002$.

Conclusions: The combination of meditation and murotal hearing significantly reduces stress and systolic blood pressure. As for diastolic blood pressure, this combination therapy can decrease but not statistically significant.

Keywords: Meditation, Murotal hearing, Stress, Blood pressure.

INTRODUCTION

World Health Organization, WHO in 2012 showed that around 982 million people or 26.4% of the earth's inhabitants had hypertension. This number is likely to increase to 29.2% in 2025.¹ In Asia there were 38.4 million people with hypertension in 2000.² While the prevalence of hypertension in Indonesia was recorded at 31.7% of the population aged 18 years and over and of that number 60% of people with hypertension will suffer

a stroke, while the rest will experience heart problems, kidney failure and blindness.³ The prevalence of hypertension in Java is 41.9%, with a range in each province of 36.6%-47.7%. Prevalence in urban areas 39.9%(37.0% - 45.8%) and in rural areas 44.1(36.2% - 51.7%).⁴ In the Special Region of Yogyakarta (DIY), the results of the regional health survey in 2007 showed that DIY is the province with the fifth highest hypertension sufferer in all of Indonesia with a figure reaching 35.80%.⁵

If people who suffer from hypertension do not know how to handle hypertension, then there is a risk of complications due to hypertension suffered such as Cerebral Vascular Accident (CVA), heart failure and others. It is estimated that two thirds of hypertensive patients over the age of 60 will experience congestive heart failure, myocardial infarction, aortic dissection stroke within five years if hypertension is left untreated.⁶ About 20% of the adult population has hypertension, more than 90% of them suffer from primary hypertension (essential) where medical causes can not be determined.⁷ Several factors can cause hypertension, namely lifestyle with the wrong diet, sex, physical exercise, food, stimulants (substances that accelerate bodily functions) and stress.⁸

Psychological stress is associated with a greater risk of hypertension compared to people who do not experience psychological stress which can reach around 9%.⁹ Stress is a physical or psychological pressure that can stimulate the kidneys and release the hormone adrenaline.¹⁰ There is a significant influence between levels stress to complications in people with hypertension. Statistical test results obtained that $p=0.002$ which means that there is a relationship between stress and the incidence of hypertensive complications in hypertensive patients in the Adult Inpatient Hospital of Kediri Baptist Hospital.¹¹ Stress will activate the hypothalamus which further controls the neuroendocrine system, the sympathetic system and the adrenal cortex system. The sympathetic nervous system, activates various organs and smooth muscles under its control, one of which increases the speed of the heart rate. The sympathetic nervous system also signals the adrenal medulla to release epinephrine and norepinephrine into the bloodstream.¹² Then it will increase peripheral vascular resistance and cardiac output so that it will have an impact on increasing blood pressure intermittently or erratically many things can be done to manage stress, one of which is by increasing stress immunity by regulating daily lifestyle such as food, relationships and relaxation.¹³ Relaxation can reduce stress levels and sugar levels.¹⁴ Relaxation can reduce systolic and diastolic blood pressure in sufferers of hypertension.¹⁵ This is in accordance with the opinion of Jacobson and Wolpe who stated several benefits of relaxation, including reducing problems related to stress such as hypertension, headaches, reducing anxiety levels.¹⁶ Various types of relaxation techniques have been developed such as muscle relaxation, relaxation sensory awareness, yoga relaxation and hypnosis relaxation.¹⁶

Muscle relaxation is one of them with a form of meditation and religious approach. There is also a type of relaxation by including elements of belief that can be done by anyone who believes in something and can be practiced by any religion.¹⁷ One form of the element of belief is dhikr.¹⁸ One aspect of dhikr that is related and has a connection with relaxation techniques is resignation. Resignation is a form of passivity that is absolutely necessary in relaxation.¹⁹ Dhikr can cause a

relaxation and calm response that will affect the stimulation of the autonomic nervous system which affects the physiological response of the body resulting in a decrease in blood pressure, pulse and respiration.²⁰

With the method of dhikr, all worldly problems are based on the one God who overcomes everything. Once the teachings of Islam are complete, none of the problems are overlooked in the Koran, so that the affairs of the soul or spirit, heart, heart therapy and various aspects of life, all arranged in a complex unity. This is in accordance with the word of Allah QS. Ar Ra'du verse 28 which reads: "(yaitu) orang-orang yang beriman dan hati mereka menjadi tenteram dengan mengingat Allah. Ingatlah, hanya dengan mengingati Allah-lah hati menjadi tenteram". "Sesungguhnya dalam penciptaan langit dan bumi dan silih bergantinya malam dan siang terdapat tanda-tanda bagi orang yang berakal. (Yaitu) orang-orang yang mengingat Allah sambil berdiri atau duduk atau dalam keadaan berbaring" (QS. Ali Imran:190-191).

Dzikir can be performed lying down or sitting comfortably and relaxed with your eyes closed then remembering Allah by saying "subhanallah, alhamdulillah, allahuakbar and laailahailallah" for 20 to 30 minutes. During meditation dhikr consciousness of the object is directed to Allah SWT or transcendentally united with God. Abiyoso PSTW is one of the elderly homes in Yogyakarta special province. In general, the existing health problems in Abiyoso PSTW obtained based on preliminary studies are inseparable from health problems that arise in old age. One such problem is high blood pressure or hypertension. The problem of hypertension many factors that influence it, including the stress factor due to the monotonous conditions in the life of Abiyoso PSTW.

METHODS

Study design

This research is a quasi-experimental study in the form of pretest - posttest with intervention control group design. This experimental study uses a single blind disguise.

Study place

This study was held at Abiyoso elderly house Bantul Yogyakarta, Indonesia

Study period

The study was conducted in August-October 2016

Selection criteria of sample

The sample size calculated by the minimal sample of the criteria of the quasi experimental design by Lane Show.

Procedure

In this study the intervention group received a combination of meditation and murtal hearing intervention and antihypertensive therapy according to the doctor's prescription while the control group only received antihypertensive therapy according to the doctor's prescription. Before the intervention was carried out, the two groups conducted a pre-test, then continued the intervention for 1 consecutive day and ended with a post test. This study were all hypertension sufferers in Abiyoso PSTW Yogyakarta. The minimum number of samples for experimental research was 15 respondents. There werw 21 The total number of samples to be used in this study were 15 subjects for each intervention group and the control group.

Statistical analysis

This study was analysis with the Paired t-test with the condition that the data is normally distributed. If the data are not normally distributed, use the Wilcoxon test. To find out the difference test in the intervention group and the control group used the Independent t-test with the condition that the data is normally distributed. If the data are not normally distributed then use the Mann-Whitney test. This study were all hypertension sufferers in Abiyoso PSTW Yogyakarta. The minimum number of samples for experimental research was 15 respondents.²¹ The total number of samples to be used in this study were 15 subjects for each intervention group and the control group.

RESULTS

Characteristics of age, sex, education and occupation of the respondent

The following table is presented which will illustrate the characteristics of respondents viewed from the fields of age, sex, education and occupation of hypertension sufferers. The age of most respondents was in the range of 61-80 years both in the intervention group and the control group that is ≥80%. The sex of the most respondents was female compared to male, namely 60% in the intervention group and 73.3% in the control group. The lower the education level of the respondent, the higher the incidence of hypertension, both in the intervention group and the control group(Table 1).

Overview of respondents' levels of stress and blood pressure

The Perceived Stress Score(PSS-10) instrument used by researchers uses a numerical scale variable that has been changed to an ordinal scale with specific cut points into 3 groups: light stress, total score 1-13; moderate stress, a total score of 14-26; and severe stress, a total score of 27-40.²²

Based on (Table 2), we can get an initial description of the stress level of 15 respondents in the intervention group is an average of 13.73 (moderate stress) while in the control group that is 14.53 (moderate stress). The initial picture of systolic blood pressure from 15 respondents in the intervention group was an average of 142 mmHg while in the control group was 147.33 mmHg. Initial description of diastolic blood pressure of 15 respondents in the intervention group was an average of 79.33 mmHg while in the control group was 84.67 mmHg.

Table 1: Distribution of respondents 30 people in each group by age, sex, education.

Variable	Intervention group		Control group	
	N	%	N	%
Age (years)				
61-80	12	80	13	86,7
81-90	3	20	2	1,3
Sex				
Male	6	40	4	26,6
Female	9	60	11	73,3
Education				
Elementary	4	26,6	5	33,3
Junior high school	1	6,7	1	6,7
Senior high school	4	26,6	1	6,7
No school	6	40	8	53,3

Table 2: Overview of stress and blood pressure levels in intervention groupand control group

Variable	N	Mean	SD	Std. error of mean	
Interven-tion Group	Stress level	15	13,733	4,74	1,22
	Systolic blood pressure	15	142	13,73	3,55
	Diastole blood pressure	15	79,33	8,84	2,28
Control Group	Stress level	15	14,53	5,34	1,38
	Systolic blood pressure	15	147,33	21,54	5,56
	Diastole blood pressure	15	84,67	10,60	2,74

Differences in stress level before and after intervention a combination of meditation and murotal hearing

The following table presents the results of testing the different levels of stress data in the intervention group before and after the intervention combination of meditation and murotal hearing in patients with hypertension at Abiyoso PSTW Yogyakarta. Based on (Table 3) above, it shows that the value of $p < 0.05$ so that it can be concluded stress scores in the intervention group between before and after the intervention combined meditation and murotal hearing experienced a significant decrease. The decline that occurred was an average of 3.47 points.

Differences in blood pressure before and after intervention combination of back massage and Dhikr guidance

Systolic blood pressure differences before and after the intervention A combination of meditation and murotal hearing. Based on Table 4, it shows that the p value < 0.05 so that it can be concluded that systolic blood pressure in the Intervention group between before and after the Meditation combination intervention and murotal hearing significantly decreased.

Differences in diastolic blood pressure before and after intervention A combination of meditation and murotal hearing

Based on the results of normality test data in table 5 above, the results show that diastole blood pressure data is not normally distributed, that is the value of $p < 0.05$, so to further test diastole blood pressure differences before and after the intervention using Wilcoxon.

Based on Table 5 above, it shows that the p value > 0.05 so that it can be concluded that diastolic blood pressure in the intervention group between before and after the intervention combination of meditation and murotal hearing decreased but was not significant.

Difference test of intervention and control

Groups Based on the results of the normality of stress data testing between groups, the value of the Shapiro Wilk test was $p = 0.145$, showing the results that the data were not normally distributed, the value of $p < 0.05$, so to further test the stress levels in the intervention group and the control group after the intervention using independent t-test test.

Based on Table 6, it shows that the value of $p < 0.05$ so that it can be concluded stress scores in the intervention group and the control group after the intervention given a combination of back massage and dhikr experienced a significant difference with a value of $p = 0.002$.

Based on the results of the normality test for systolic pressure data, the results show that the systolic data are normally distributed, that is, the value of $p = 0.271$ where the value of $p < 0.05$, so to further test systole blood pressure differences in the intervention group and the control group after the intervention using the independent t test.

Based on Table 5, it shows that the value of $p > 0.05$ so that it can be concluded that there is no significant difference between systolic blood pressure in the intervention group and the control group after intervention given a combination of meditation and murotal hearing.

DISCUSSION

Effect of combination of meditation and murotal hearing on stress levels

Based on Table 3, it shows that the $p < 0.05$ so that it can be concluded stress scores in the intervention group between before and after the intervention combination of meditation and murotal hearing experienced a significant decrease. Likewise based on Table 6 shows that $p < 0.05$ so that it can be concluded stress scores in the intervention group and the control group after being given a meditation intervention and murotal hearing experienced significant differences. This conclusion is also supported by much literature and previous research. Many things can be done to manage stress, one of which is by increasing stress immunity by regulating daily lifestyle such as food, relationships and relaxation.¹³ Relaxation can reduce stress levels and sugar levels.¹⁴ Relaxation can reduce systolic and diastolic blood pressure in sufferers of hypertension.²³ Some benefits of relaxation, including reducing stress-related problems such as hypertension, headaches, reducing anxiety levels.²³ Meditation is one of the relaxation techniques that provides a calming effect on a person. Murotal hearing is a part of dhikr remembering and living the verses of the Holy Qur'an for Muslims. Dhikr is a part of transendental meditation which involves the belief factor.²⁴ Relaxation response that involves the belief that is held will accelerate the occurrence of a relaxed state or in other words a combination of relaxation responses that involve belief will multiply the benefits derived from the relaxation response. The stronger a person's beliefs are combined with the relaxation response, the greater the effect obtained.²⁴ With the method of dhikr, all the problems of the world are transmitted to the one God who overcomes everything. Once the teachings of Islam are complete, none of the problems are overlooked in the Koran, so that the affairs of the soul or soul, qalb, heart therapy and various aspects of life are all arranged in a complex unity.²⁵ It can be concluded that the combined action of meditation and murotal hearing on hypertensive patients can have an effect on reducing the level of stress they experience. This can occur because the act of meditation and murotal hearing is part of a relaxation

technique that can increase parasympathetic activity to release neurotransmitters such as endorphin hormone and produce alpha wave frequencies in the brain that can cause feelings of happiness, pleasure, joy, and self-confidence so as to reduce expenditure the hormone cortisol.

Effect of a combination of meditation and murotal hearing on systolic blood pressure

Based on Table 4, it shows that the $p < 0.05$ so that it can be concluded that the systolic blood pressure in the intervention group between before and after the intervention combined meditation and murotal hearing experienced a significant decrease. Likewise based on table 7, showing that the value of $p < 0.05$ so that it can be concluded that there is a significant difference between systolic blood pressure in the intervention group and the control group after the intervention was given a combination of meditation and murotal hearing. This conclusion is also supported by several previous literature and studies. Relaxation can reduce systolic and diastolic blood pressure in people with hypertension.²³ Some of the benefits of relaxation, including reducing stress-related problems such as hypertension, headaches, reducing anxiety levels.²³ Chen's research shows that after respondents are given a back massage treatment significantly anxiety was reduced and increased comfort and decreased systolic blood pressure.²⁶ Mean pain intensity decreased from a scale of 7 to 4.1 and blood pressure from 124/80.4 mmHg to 120/75 mmHg in the treatment group with $p < 0.05$ after getting guidance dzikir.²⁴ It can be concluded that systolic blood pressure in the intervention group between before and after the intervention combined meditation and murotal hearing decreased significantly. This can occur through the resulting relaxation effect will reduce the hormone Adrenalin in children and kidney stimulates the parasympathetic nervous system in reducing cardiac output and vasodilating arterioles.

Effect of a combination of meditation and murotal hearing on diastolic blood pressure

Based on Table 5, it shows that the $p > 0.05$ so that it can be concluded that the diastolic blood pressure in the intervention group between before and after the intervention combined meditation and murotal hearing decreased but was not statistically significant. This is consistent with some literature and previous research which states that the decrease in diastolic blood pressure tends to be less than the decrease in systolic blood pressure. After the respondent was given relaxation treatment with back massage, it significantly decreased systolic blood pressure by an average of 11.6 mmHg but for diastole pressure it only dropped by 7.1 mmHg.²⁶ According to research on the effect of neck and hypnotic massage on blood pressure reduction in hypertensive patients showed that the patient's blood pressure is significantly decreased. Neck massage and hypnosis can

reduce systolic blood pressure by an average of 15.62 mmHg but for average diastolic pressure to fall by 6.72 mmHg.²⁷ Research on relaxation therapy to reduce blood pressure in hypertensive patients shows the results that relaxation can reduce systolic blood pressure by an average of 15 mmHg but for average diastolic pressure it drops 8.4 mmHg.²⁸ Research on the effect of progressive relaxation on blood pressure levels in elderly hypertension shows results that can reduce systolic blood pressure by an average of 33.6 mmHg but for average diastolic pressure it drops 12.5 mmHg.²⁹ Research on the effect of self resignation (relaxation and dzikir) on the reduction in Blood Pressure shows the difference in the average difference in blood pressure of systole and diastole in the intervention group on day 1, day 2 and day 3, ie on day 1 the average difference in systole 5.4 and dandiastole 2.7. On day 2, the average difference in systole 6.8 and diastole 3. Then on day 3 the average difference in sistole 6.6 and diastole 2,9.³⁰ From some of the studies above show that the various interventions given to hypertensive patients will give the effect of decreasing diastolic blood pressure always less than systolic blood pressure. Systolic pressure is one of which is influenced by psychological so that relaxation will get calm and systolic pressure will drop, besides that systolic blood pressure is also influenced by systemic circulation and pulmonary circulation so that with relaxation meditation that focuses on breathing regulation there will be a decrease in pulse and a decrease in blood pressure of systole. Whereas diastolic pressure is related to coronary circulation, if the artericoroner experiences atherosclerosis it will affect the increase in diastolic blood pressure, so that relaxation meditation does not experience a significant decrease in diastolic pressure.³² Relaxation can reduce systolic pressure by more than 20 mmHg and diastole between 10 mmHg to 15 mmHg.³¹

CONCLUSION

There is a significant difference in stress scores in the intervention group after the combination of meditation and murotal hearing behaviour. There is a significant difference in stress scores between the intervention group and the control group after the intervention was given a combination of meditation and murotal hearing. There is a significant difference in systolic blood pressure score in the intervention group after being given a combination of meditation and murotal hearing behaviour. There is a significant difference in systolic blood pressure between the intervention group and the control group after the intervention was given a combination of meditation and murotal hearing. There was no significant difference in the diastoe pressure score in the intervention group after being given a combination of meditation and murotal hearing behaviour.

Limitation of the study

When this study was carried out for 3 days there was a decrease in stress levels and blood pressure, but the

researches could not control for other factors that might appear during those 3 days.

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Ethical approval: The study was approved by Yogyakarta Special Region Government

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