THE EFFECTIVENESS OF YOGA TO DECREASE BLOOD PRESSURE IN ELDERLY WITH HYPERTENSION IN TRESNA WERDHA KHUSNUL KHOTIMAH NURSING HOMES PEKANBARU

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Abstract

Uncontrolled hypertension increase the incidence of stroke disease by 7 times, congestive heart failure by 6 times, and heart attack by 3 times. About 74% elderly in Indonesia who from chronic hypertension consumed pharmacological medicine during their life that had some adverse effects. Therefore, nonpharmacological intervention such as simple yoga exercise can prevent the complications in elderly. The objective of this research was to find out the The effectiveness of yoga to decrease blood pressure in elderly with hypertension in Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru. The research design was quasi-experimental research by using pretest-posttest design with control group. Total sample were 34 respondents by using purposive sampling. The research used univariat and bivariate analysis by using wilcoxson test to find out pretest result of experimental and control group, mann-whitney test to find out posttest result of experimental and control group. The results showed that the difference between systole blood pressure before (pretest) and after (posttest) of experimental group was significant with p-value 0,000 and diastole with p-value 0,000. Results also showed that mean rank systolic experimental group was 21,40 mmHg and 14,42 mmHg in control group with p-value 0,043 (<0,05), while that mean rank of diastolic experimental group was 21,60 mmhg and 14,26 mmHg to the control group with p-value 0,033 (<0,05). It can be concluded that yoga intervention effective toward decreasing of blood pressure in elderly with hypertension. This research recommends that yoga can be used as a therapy to decrease blood pressure in elderly with hypertension.

Keywords: Hypertension, Elderly, Decrease of blood pressure, Yoga.

BACKGROUND

Human in their life will experience a growth phase and the development phase starting from infancy, childhood, adolescence, adulthood and elderly. Each of these phases has certain characteristics with a variety of different problems. Adulthood end or known as advanced age (elderly) is the last stage of the stages of human development (Maryam, 2012).

WHO (World Health Organization, 2012) states that in 2025 the number of elderly people worldwide will reach 1.2 billion people will continue to increase up to 2 billion people in 2050. According to the UNESCAP (The United Nations Economic and Social Commission for Asia and the Pacific) in 2011, the population of the region reached as much as 4.22 billion people or 60% of the world population. Southeast Asia's elderly population is still below the world average level. However, in 2040 will be well above the average of the elderly population in the world. In Southeast Asia, Singapore has the highest elderly population. Thailand, Vietnam, and Indonesia are in position "immediately" while other countries will follow in subsequent years (BKKBN, 2013).

Indonesia is one of the developing countries in Southeast Asia that has a number of senior citizens is increasing rapidly every year. So that Indonesia has entered the era of the elderly population structure (aging structured population). Experts projected that by 2020 life expectancy of elderly people in Indonesia to 71.7 years with an estimated number of elderly people to 28.8 million people or 11.34% (Utomo 2004).

Central Statistics Agency data Riau Province (2013), the elderly population in Riau province

reached 834 841 people. The number of elderly is divided by age group, namely: middle age with age range 45-59 years reached 475 222 people, the elderly 60-74 years as many as 145 622 people, old age 75-90 years as many as 59 229 people, and the very old over 90 years reached 20 502 people.

Data from Pekanbaru city Health Department in 2012, obtained the number of elderly women in the city of Pekanbaru 72 624 and 75 046 elderly men. With a total number of elderly in the city of Pekanbaru is 147 670. The elderly population in 2012 was 60-69 years amounted to 38 383 inhabitants, and> 70 years by 5765. An increase in the number of elderly has increased in Pekanbaru city with a comparison in the previous year. This concluded that the number of elderly in the city of Pekanbaru also has developed very fast every year.

An increase in the number of elderly have an impact on the emergence of health problems that occur in the elderly in the form of physical problems, biological, and psychosocial makes attention of all parties. According Soejono important issues facing the elderly is health. Watson (2003) said the health problems of elderly population not only lie in the aspect of chronic or degenerative diseases, but also susceptibility to disease (Hutapea, 2005).

Roach (2001) argued that the elderly are likely to suffer from chronic diseases and about 80% of elderly people in the world suffer from at least one type of chronic disease such as hypertension. Data from the study of the socio-economic and health conditions of elderly people who carried out the National Commission on the Elderly in 10 provinces in 2006, it is known that chronic disease that affects the elderly in particular hypertension was 38.8% (Zulfitri., 2011).

Hypertension or high blood pressure is a condition of a person's blood pressure is above normal numbers are 120/80 mmHg (Susilo & Wulandari, 2011). Hypertension become very dangerous in the elderly because of excessive blood pressure cause various complications in other diseases, namely atherosclerosis, heart failure, kidney disorders, erectile dysfunction, visual disturbances, cognitive disorders and cognitive disorders / dementia. These diseases can emerge and exacerbated by increasing blood pressure in the elderly (Yuda & Harry, 2011).

Several studies have reported that the disease uncontrolled hypertension can lead to seven times greater risk of stroke, six times greater risk of congestive heart failure, and three times greater risk of heart attack. WHO and the International Society of Hypertension (ISH 2008) states there are currently 600 million people with hypertension worldwide and 3 million of them die each year (Rahajeng & Tuminah, 2009).

The prevalence of hypertension is high indicating that hypertension is necessary and must be addressed immediately to prevent complications. Changes in diet and lifestyle can improve blood pressure control and reduce the risk of health complications. Broadly speaking, the treatment of hypertension were divided into two treatment is pharmacological treatment and non-pharmacological (Smeltzer & Bare, 2002).

Hospital Association of Indonesia (2009) mentions that about 74% of the elderly in Indonesia suffer from chronic diseases should consume pharmacological drugs during their lifetime. Pharmacologic treatment not only has a beneficial effect, but also harmful. Side effects of drugs can cause undesirable reactions in patients with hypertension, which can worsen the disease state or other fatal effects. This reaction can occur at doses normally used for the prevention or treatment of diseases, besides hypertension drug prices are relatively expensive, impractical dose of the drug as well as the type of drugs that are hard to come lead the elderly to stop consuming drugs and therapies affect treatment is not effective.

The number of side effects in drugs and prices are relatively expensive, non-pharmacological treatment made the right choice. Most hypertensive patients require life-long pharmacological treatment with various drugs decrease blood pressure in combination with various other treatments that are non-pharmacological (Tara & Soetrisno, 2008).

With the development of the human era continue to seek solutions for the treatment of

non-pharmacologic particularly in the treatment of hypertension. Non-pharmacological treatment is a treatment that uses materials from chemical compounds, among others from plant material, keep the diet, reducing alcohol intake, not smoking, and regular exercise. From some research proven exercises that regular exercise can reduce high blood pressure. Striking a considerable reduction in blood pressure sufferers of high blood pressure, can be found in people who have been doing exercises sports (Ana, 2007).

Non-pharmacological treatment or non-medical as an alternative treatment is expected to reduce the cost of treatment. Alternative medicine attracted many people because in addition to affordable too small to be likely to result in adverse effects (Nila. dkk, 2008). Several studies have shown that non-pharmacological treatment is an intervention that must be performed on each of the treatment of hypertension (Smeltzer & Bare, 2002).

Harris and Holly (2007) states that the recommended light exercise with light weights and repeat 20-30 times can lower blood pressure in hypertensive patients. Blair (2008) mentions that physical activity is more than 2000 times per week is very closely related to the reduction in mortality (Tara & Soetrisno, 2008). One of mild exercise is often done yoga. Yoga is one of the respiratory gymnastics are quite popular today. This is evidenced by the establishment of places of practice yoga in several major cities in Indonesia. One important aspect of yoga is meditation that causes some physiological changes, called the relaxation response. Yoga has many types and streams whose purpose is almost the same as doing breath control techniques, meditation, and movement or poses.

Type of hatha flow yoga in Indonesia is very well known and in the interest, with the establishment of proven many home therapy with yoga that teaches the type of hatha flow yoga. Hatha yoga is a type of flow that was first developed by the Western world's emphasis on balancing two contradictory forces on the body, with the aim to maintain balance of the body through mastery of the body techniques (Leaf Yoga Hatha Yoga Teacher Training Course, 2011).

Results of research conducted by Sasmita (2007) turns the effect of yoga exercises for 12 weeks versus diastolic and systolic blood pressure of women aged 50 years and above with the results of the collected data obtained 37 study subjects, showed a decrease in diastolic blood pressure significantly. Prior to treatment with a mean 89.46 mm Hg diastolic and systolic 149.19 mmHg and after being given the hatha yoga at week 12 decreased by a mean 82.70 mm Hg diastolic and systolic 145.14 mmHg.

Studies presented at the meeting of the American Society of Hypertension in America (2012) states that yoga can help lower blood pressure, especially in individuals who already suffer from mild or moderate hypertension. The study Cohan (2012) who did research that showed satisfactory results and suggested that yoga may be one choice of lifestyle modification therapy according to the guidelines of the treatment of hypertension (Tara &Soetrisno, 2008).

Based on the above data and research can be concluded that yoga therapy is one of the non-pharmacological treatment is relatively inexpensive and can be done independently. Yoga is one of the breathing exercises are quite popular today. This is evidenced by the establishment of places of practice yoga in several major cities in Indonesia. Expected yoga also be another alternative for the elderly to maintain healthy blood pressure, especially in the elderly.

Data from Pekanbaru City Health Office (2012) the number of elderly hypertensive 2,969 inhabitants of the data 20 health centers in Pekanbaru. The number of elderly who suffer from hypertension in the city of Pekanbaru Simpang Tiga counted 98 souls in the absence of data treatment given to the elderly either pharmacological or non-pharmacological. PSTW Khusnul Khotimah is one of the association of the elderly in Pekanbaru city government run with the highest number of elderly people who are in Pekanbaru Simpang Tiga. Preliminary studies conducted by researchers at the date of December 23, 2014 with one of the nurses

interviewed in Tresna Elderly Social Institution Khusnul Khotimal, the number of elderly people over the age of 60 years as many as 76 people, and almost all the elderly with hypertension with pharmacological drugs consume the disobedient. PSTW Khusnul Khotimal Pekanbaru also has not been given a non-pharmacological therapy moderate exercise is yoga.

The purpose of this study was to find out the The effectiveness of yoga to decrease blood pressure in elderly with hypertension in Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru

METHODS

The research design was quasi-experimental research by using pretest-posttest design with control group.

Table 1
Model design of the study pre and posttest with control group

Pretest	Treatment	Posttest
O1	X	O2
O3	~	O4

Notes:
01: Pretest experimental group
X: doing yoga
02: posttest experimental group
03: pretest control group
~: do not do yoga
04: posttest control group

Samples were taken in a non-probability purposive sampling with the type of sampling is done with certain considerations made by the researchers, based on the characteristics or properties of the previously known populations (Notoatmodjo, 2010). The number of samples taken at the time the study was 19 samples in the experimental group and 15 samples in the control group. The sample size used was using the Central Limit Theory.

By fulfilling the inclusion criteria:

1. Elderly aged 60 years and older
2. Has a systolic blood pressure ≥ 140 mmHg and diastolic ≥ 90 mmHg
3. Capable of living independently perform activities
4. There are no impaired vision and hearing
5. Willing to become respondents

the exclusion criteria:

1. Not being able to perform activities of daily living (Bed Rest and using tools wheelchair)

In the process researchers use attendance data collection that contains the name, sex, age, pretest blood pressure (mmHg), presence of respondents over 12 times the intervention, and posttest blood pressure (mmHg) respondents. In the research the researchers are also using a measuring instrument directly tens meter (Automatic Blood Pressure Monitor OMRON HEM 7203).

Interventions carried 12 times for 6 weeks. Respondents do yoga with guided by researchers with a duration of ± 35 min. The movement made that savasana for 10minutes, meditation for 5 minutes, for 5 minutes pranayama, asanas during 5 minutes (tadasana, Sukhasana, upavisthakonasana, viparitakarani) and ends withsavasana for 10 minutes. In this study, the blood pressure measurement results in the form of systole and diastole.

RESULTS

Univariate analysis

Table 2
The frequency and percentage of the demographic characteristics of the study subjects experimental group and the control group

Characteristics	The experimental group (n = 19)		The control group (n = 15)		Total	
	N	%	n	%	n	%
Sex						
Male	11	57.9	9	60.0	20	58.8
Female	8	42.1	6	40.0	14	41.2
Age						
60-74	13	68.4	12	80.0	25	73.5
75-90	6	31.6	3	20.0	9	26.5
Hypertension level						

Stage 1	3	15.8	8	53.3	11	32.3
Stage 2	16	84.2	7	46.7	23	67.7

The majority of elderly sex in Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru is male 58,8% and females 41.2%, the highest elderly age is 60-74 years by 73.3% and amounted to 32.3% of 75-90 years, and the level of most nation points in Stage 2 hypertension (≥160 / ≥100) amounted to 66.7% and Stage 1 (> 140-159 /> 90-99) amounted to 33.3%.

Table 3
Distribution of the mean blood pressure reduction experimental and control groups (pretest and posttest) in Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru

Variables	Mean	Min	Max
Pretest group experiment			
Systole	166.21	146	218
Diastole	101.26	96	113
Posttest group experimentation			
Systole	134.95	120	140
Diastole	78.37	66	87
Pretest control group			
Systole	150.87	140	168
Diastole	95.33	76	103
Posttest control group			
Systole	146.67	119	172
Diastole	85.07	75	89

The mean value of systolic blood pressure pretest in the experimental group with a value of 166.21 the highest systolic blood pressure (maximum) is 218 and the lowest (minimum) is 146, and the mean diastolic blood pressure value of 101.26 with the highest diastolic (maximum) is 113 and the lowest (minimum) is 96. As for the mean systolic blood pressure posttest 134.95 with the highest value of systolic (maximum) is 140 and the lowest (minimum) is 120, and diastolic 78.37 with a highest score (The maximum) is 87 and the lowest (minimum) is 66.

The mean value of the blood pressure in the control group pretest systole 150.87 with the highest systolic blood pressure values (maximum) is 168 and the lowest value (minimum) is 140, and diastolic 95.33 with a highest value of diastole (maximum) 103 and the lowest value (minimum) is 76. As for the mean systolic blood pressure posttest 146.67 with the highest value of systolic (maximum) is 172 and the lowest value (minimum) is 119, and diastolic 83.07 with a highest value of diastole (maximum) is 89 and the lowest value (minimum) is 75.

Bivariate analysis

Table 4
Distribution decreased blood pressure pretest and posttest in the experimental group using yoga in Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru

Group	Ranks	n	p-value
Systolic blood pressure of experimental pretest-posttestexperimentation systolic blood pressure	Negative Rank	0 [a]	.000
	Positive Rank	19 [b]	
	Ties	0 [c]	
	Total	19	
Diastolic blood pressure of experimental pretest-posttest diastolic blood pressure experimentation	Negative Rank	0 [a]	.000
	Positive Rank	19 [b]	
	Ties	0 [c]	
	Total	19	

Description:

a. Systolic blood pressure pretest experiment <posttest experimental systolic blood pressure
b. Systolic blood pressure pretest experiment> posttest experimental systolic blood pressure
c. Systolic blood pressure experiment pretest posttest = systolic blood pressure experiments

Found that 19 respondents decreased systolic blood pressure, there is no increase, and no respondents with systolic blood pressure remained. Wilcoxon obtained through statistical test p-value of 0.000 (≤ 0.05), which indicates that there are significant differences and influences before (pretest) and after (posttest) given yoga in systole experimental group.

Whereas in diastolic blood pressure experiment, 19 respondents decreased diastolic blood pressure, there is no increase in diastole,

and no blood pressure remains on the respondents. Wilcoxon obtained through statistical test p-value of 0.000 (≤ 0.05), which shows that there are significant differences and influences before (pretest)and after (posttest) given yoga in diastole experimental group.

Table 5
Distribution decreased blood pressure pretest and posttest control group using yoga in Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru

Group	Ranks	n	p-value
Systolic blood pressure controlpretest-posttestcontrol of systolic blood pressure	Negative Rank	4 [a]	.158
	Positive Rank	10 [b]	
	Ties	1 [c]	
	Total	15	
Diastolic blood pressure controlpretest-posttestdiastolic blood pressure control	Negative Rank	0 [a]	.001
	Positive Rank	15 [b]	
	Ties	0 [c]	
	Total	15	

Description:

a. Systolic blood pressure control pretest <posttest control of systolic blood pressure
b. Systolic blood pressure control pretest> posttest control of systolic blood pressure
c. Systolic blood pressure control = pretest posttest control of systolic blood pressure

Found that 10 respondents decreased systolic blood pressure, 4 respondents experienced an increase in systolic blood pressure, and 1 respondent with systolic blood pressure remained. Wilcoxon obtained through statistical test p-value 0.158 (≥ 0.05), which indicates that there is no difference before (pretest) and after (posttest) in the study.

Whereas in diastolic blood pressure control group, 15 respondents decreased diastolic blood pressure, there is no increase in diastole, and no respondent blood pressure remains. Wilcoxon obtained through statistical test p-value of 0.001 (≤ 0.05), which shows that there are significant differences and influences before (pretest)and after (posttest) were not given yoga in the control group.

Table 6
Distribution of blood pressure reduction comparison experimental group (posttest) and control group (posttest) in Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru

Variable comparison value	N	Mean Rank	p-value
Posttest Systole experiment	19	21.40	.043
Systole control	15	14.42	
Posttest Diastole experiment	19	21,60	.033
Diastole control	15	14.26	

Results of statistical tests that rank mean systolic experimental group was 21.40 and 14.42 systole control group, where there is a decrease in blood pressure value comparison experiments are given yoga higher than the control group that was not given yoga with p-value 0.034 (<0:05) ,

Results of statistical tests that rank mean diastole experimental group was 21.60 and 14.26 diastole control group with p-value 0.033 (<0.05). It shows that yoga is effective against a decrease in blood pressure in the elderly with hypertension.

DISCUSSION

Based on the results of research in Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru found that the sex of the largest research respondents with hypertension were male. This is in accordance with Junaidi, Yulianti, and Rinata (2013) turned out to be more men suffer from hypertension. Kristansi H. (2013) says more men than women have hypertension. Hypertension by sex can also be influenced by psychological factors. In women often triggered by unhealthy behaviors such as smoking, overweight, depression, and low status jobs. Whereas in men over work-related psychological factors affecting strong. It is also appropriate Susanto (2010) that hypertension in men related to jobs such as feeling less comfortable on employment and unemployment.

The largest age range with hypertension in Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru are in the range 60-74 years. This is in accordance with Junaidi, Yulianti, and Rinata (2013) mentions the addition of age may increase the risk of hypertension. Although hypertension is common in all ages, but it most commonly affects adults aged 35 years and over. Increased blood pressure with age is very reasonable. This leads to the natural changes in the heart, blood vessels, and hormones. Susanto (2010) also said that the increasing age of the age of the possibility of suffering from hypertension are also getting bigger.

The highest rate of elderly hypertensive Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru is Stage 2 (systole and diastole ≥160 ≥100) with blood pressure classification sevent Report of the Joint National Committee VII (JNC VII) on prevention, detection, evaluation, and treatment of hight blood pressure (Indriani, 2009). This is consistent with research Sasmita. S (2007), The form of high blood pressure that is commonly experienced by the elderly is Isolated Systolic Hypertension (HST). Based on the WHO Isolated Systolic Hypertension is systolic blood pressure over 140 mmHg with diastolic blood pressure less than 90 mmHg. This situation is caused by loss of elasticity of arteries due to the aging process resulting in aortic stiffness increases in systolic blood pressure.

Based on the results obtained during the pretest and posttest in the experimental group, it was found that the experimental group before being given the yoga intervention (pretest) mean systolic blood pressure was 166.21 mmHg and the mean diastolic was 101.26 mmHg. Having given the yoga intervention (posttest)decreased mean systolic blood pressure was 134.95 mmHg and the mean diastolic was 78.37. This shows that yoga affects the decrease in blood pressure of elderly with hypertension by doing moderate exercise is yoga.

Results of statistical tests were performed on experimental pretest systolic blood pressure with systolic blood pressure after doing yoga (posttest) 19 respondents experienced a decrease in systolic blood pressure significantly. In the experiment diastolic blood pressure after doing yoga (posttest) 19 respondents experienced a significant drop in blood pressure. It is also related to the stated Haris and Holly (2007) that mild exercise training with light weights and repetitive can lower blood pressure in patients with hypertension. Yoga is a gentle exercise that can be done hypertensive (Tara &Soetrisno, 2008).

Results of previous studies by Sasmita S. (2007) also said there was a yoga exercise influence over the 12 weeks to the decrease of systolic and diastolic blood pressure were significantly with average prior to systole and diastole 149.19 89.46 mmHg, after declining by an average 145.14 mmHg systole and diastole 82.70 mmHg. The American Society of Hypertension in America (2012) also says that yoga can help lower blood pressure, especially in individuals who already suffer from mild or moderate hypertension. The study Cohan (2012) also showed satisfactory results and suggested that yoga may be one choice of lifestyle modification therapy according to the guidelines of the treatment of hypertension (Tara &Soetrisno, 2008).

This research was carried out for 6 weeks with 12 times the intervention of moderate exercise yoga with a duration of 45 minutes to the elderly in Tresna Werdha Khusnul Khotimah Nursing Homes Pekanbaru, it relates to the statement Wahdah (2011), non-pharmacological treatment with mild exercise can be done for 30-45 minutes as much as 3 -4 times a week. It is also in conjunction with the statement of Mary (2012), mild exercise would be beneficial for the elderly to improve physical fitness if carried out in the training zone for at least 15 minutes, frequency of exercise performed at least three days or as much as five times a week.

Based on the results obtained during the pretest and posttest in the control group, it was found that systolic blood pressure control pretest posttest with systolic blood pressure of 10 respondents experienced a decrease in systolic blood pressure, systolic blood pressure remained 1, and four

experienced an increase systolic blood pressure. While the diastolic blood pressure control pretest posttest diastolic blood pressure of 15 respondents experienced a decrease in blood pressure. It can conclude that influence is not given yoga resulted in an increase in systolic blood pressure on the respondent.

It is feared by Rahajeng and Tuminah (2009) says that uncontrolled hypertension can lead to 7 times greater stroke, 6 times greater pressed congestive heart failure,and three times greater risk of heart attack. Junaidi, Yulianti, and Rinanta (2013) says there are some complications that result from uncontrolled hypertension are: disorders of the cardiovascular system (heart and blood vessels), arteriosclerosis, aneurysms, coronary artery disease, the left ventricle hypertrophy and heart failure, impaired on the brain: stroke, ischemic, hemorrhagic stroke, and dementia, disorders of the kidney: renal failure, disorders of the eye: the cornea damage.

Treatment can be done either pharmacological or non-pharmacological to control blood pressure. Exercise is one of the non-pharmacological treatment is safe to do such moderate exercise can reduce high blood pressure is an attempt to reduce the rise in blood pressure, to perform precise movements for 30-40 minutes or as much as a minimum of 3 days and a maximum of 4 days a week can reduce the pressure Blood (Johan D., 2011).

Researchers used a statistical test Mann - Whitney to compare the blood pressure in the experimental group (posttest) doing yoga with the control group (posttest) who did not do yoga. Results of statistical tests that rank mean systolic experimental group was 21.40 and 14.42 systole control group where there is a decrease in blood pressure value comparison experiments given yoga higher than the control group that was not given yoga with p-value of 0.043 (<0.05). Results of statistical tests thatrank mean diastolic experimental group was 21.60 and 14.26 diastole control group with p-value 0.033 (<0.05). It shows that yoga is effective against a decrease in blood pressure in the elderly with hypertension.

Research Sasmita (2007) says that people who do yoga exercises better than those not doing moderate exercise yoga. This is in accordance with Sindu, P., (2006) says that yoga exercise routine shown to increase levels of b-endorphin four to five times in the blood. At the time of doing yoga exercises b-endorphin then going out and captured by receptors in the hypothalamus and limbic system which serves to regulate emotions. Increased b-endorphin shown to be associated closely with decreased pain, increased memory, improve appetite, sexual performance, respiration, and blood pressure.

Lebang E. (2013) said that yoga exercise is historic intervention that combines postures (asanas), breathing techniques (pranayama), and meditation. Intervention yoga exercises are generally effective in reducing weight, blood pressure, glucose, and high cholesterol. Susanto (2010) said sport or physical exercise regularly proven to lower blood pressure to normal levels and reduce the risk of hypertension 50 percent higher than those who do not actively exercise. One exercise session average of 5-7 mmHg lower blood pressure. Effect of blood pressure reduction can take place until about 20 hours after exercise. In this study, researchers gave 12 times the light yoga exercises for 6 weeks with a duration of 1 hour doing yoga experience decrease mean systolic blood pressure of 20.07 mm Hg and 10.50 mm Hg diastolic.

Physical activity in the form of regular physical exercise is the first intervention for the prevention and treatment of hypertension. Exercise is very beneficial for controlling various degenerative and non-communicable diseases, such as hypertension, coronary heart disease, and diabetes. Results of regular exercise helpful proven to lower blood pressure, reduce the risk of stroke, heart attack, kidney failure and other vascular diseases. The influence of sport in the long term of 4-6 months can lower blood pressure by 7.4 / 5.8 mm Hg without medication hypertension (Tara &Soetrisno, 2008).

Tara and Soetrisno (2008) in his research exercise in 52 men aged 18-59 years with high blood pressure levels were given exercises regularly for 10 weeks and also using medications for high blood pressure or

pasebo. The results obtained blood pressure declined against all respondents including those not taking the drug. Mean blood pressure of 145/97 mmHg decreased to an average of 131/84 mmHg.

Fatmah (2010) says that there are various benefits of exercise for the elderly on a regular basis that improve brain power, fight aging, relieve stress, increase feelings of happiness naturally, and increased confidence. Exercise done regularly will lower high blood pressure. This is because the physical activity reduces body fat, where the body fat is associated with high blood pressure.

CONCLUSION

Based on the results of research on "The effectiveness of yoga to decrease blood pressure in the elderly with hypertension in Social Institutions Tresna Elderly Khusnul Khotimah Pekanbaru" obtained the highest gender distribution elderly with hypertension in PSTW Khusnul KhotimahPekanbaru is male, age elderly with hypertension majority is 60 -74 years, and the level of most nation points in Stage 2 hypertension (≥160 / ≥100). Based on the test Wilcoxon value decrease blood pressure pretest andposttest in the experimental group obtained p-value of 0.000 (<0.005) which means that there are differences in systolic and no effect , At the diastolic blood pressure with a p-value of 0.000 (<0.005) which means that there are differences and there is the influence after being given yoga. Influence is not given yoga resulted in an increase in systolic blood pressure at some respondents.

Based on the Mann-Whitney test, the mean rank systole experimental group was 21.40 and 14.42 systole control group, where there is a comparison of the blood pressure reduction in a given experiment yoga higher than the control group that was not given yoga with a p-value of 0.043 (<0.05). Results of statistical tests that rank mean diastolic experimental group was 21.60 and 14.26 diastole control group with p-value 0.033 (<0.05). It shows that yoga is effective against a decrease in blood pressure in the elderly with hypertension.

SUGGESTION

A. For nursing science
   Is expected to be able to apply yoga exercises in patients with hypertension.
B. For officers PSTW
   PSTW expected Khusnul Khotimah Pekanbaru to make routine doing moderate exercise yoga for the elderly.
C. For the elderly
   Expected elderly can do yoga independently as hypertension intervention.
D. For society
   Yoga is expected to grow in the community and can be taught as a treatment alternative for people with hypertension.
E. For other researchers
   The results could be used as the data, basic information, and based evidence to carry out further research and needs to be developed with different design methods.

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