

Effect of Dhikr on Blood Pressure in Pregnant Women with Hypertension

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ABSTRACT

Background: Hypertension is a 5-10% of complications in pregnancy and is one of the most common causes of death besides bleeding and infection, and also contributes to the morbidity and mortality of pregnant women. The purpose of this study was to examine effect of dhikr on blood pressure in pregnant women with hypertension.

Subjects and Method: This was an experimental study conducted in Banjarnegara district health center, Central Java, in June 2018. A sample of 30 pregnant women with hypertension was selected for this study randomly. The dependent variable was blood pressure. The independent variable was dhikr. Blood pressure was measured by sphygmomanometer. Mean difference between of systolic and diastolic blood pressure in two groups after intervention was tested by t test.

Results: After intervention, diastolic blood pressure in the intervention group (Mean=

136.67; SD= 6.17) was lower than in the control group (Mean= 141.33; SD= 5.16), and it was statistically significant ($p= 0.006$). After intervention, diastolic blood pressure in the intervention group (Mean= 88.67; SD= 3.52) was lower than in the control group (Mean= 92.00; SD= 4.41), and it was statistically significant ($p= 0.025$).

Conclusion: Dhikr decreases blood pressure in pregnant women with hypertension.

Keywords: blood pressure, hypertension, pregnant women

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Cite this as:

Sari DN, Djamil M, Suwandono A (2020). Effect of Dhikr on Blood Pressure in Pregnant Women with Hypertension. *Indones J Med.* 05(01): 87-94. <https://doi.org/10.26911/theijmed.2020.05.01.12>



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BACKGROUND

Hypertension is the most common problem in pregnancy. Hypertension is 5-10% of complications in pregnancy and is one of the most common causes of death besides bleeding and infection, and also contributes to the morbidity and mortality of pregnant women (Cunningham et al., 2014).

Hypertension is included in global problems that hit the world. According to WHO (World Health Organization) data in 2013 cardiovascular disease accounted for

around 17 million deaths per year, almost one third of the total population. Of these, hypertension complications reached 9.4 million deaths worldwide annually. Hypertension is responsible for at least 45% of deaths from heart disease (Organization, 2013).

Some of the complications that can be caused by hypertension in pregnancy include: lack of plasma fluid due to vascular disorders, kidney disorders, hematological disorders, cardiovascular disorders, liver

disorders, respiratory problems, HELLP syndrome (hemolysis, elevated liver enzymes, low platelet count), and disorders of the fetus such as stunted growth, prematurity until death in the uterus. Hypertension in pregnancy can also continue to preeclampsia and eclampsia which can cause death in both mother and fetus (Lindheimer et al., 2008; Seely and Ecker, 2014; Brown et al., 2018).

Maternal death according to the WHO definition is death during pregnancy or within a period of 42 days after the end of pregnancy, due to all causes related to or aggravated by pregnancy or treatment, but not caused by an accident/ injury (Ministry of Health, 2014).

Government programs have been carried out to overcome the problem of maternal mortality in Indonesia, but have not overcome the problem because the Maternal Mortality Rate (MMR) is still high. Based on the 2012 Indonesian Demographic and Health Survey (IDHS), the maternal mortality rate in Indonesia is still high at 359 per 100,000 live births. This figure is slightly decreased when compared to the 1991 IDHS, which is 390 per 100,000 live births. This number has declined slightly even though it is not too significant. The fifth global target of MDGs (Millennium Development goals) is to reduce MMR to 102 per 100,000 live births in 2015. Referring to current conditions, the potential to achieve the fifth MDG target to reduce MMR is off track, meaning that hard work is needed. really to achieve it (Ministry of Health, 2014).

The Central Java Province maternal mortality rate in 2012 was based on reports from the district/ city of 116.34/ 100,000 live births, an increase compared to the MMR in 2011 of 116.01/ 100,000 live births. The highest cases of hypertension occur in the entire region of Central Java

with a total of 554,771 cases (67.57%) in 2012. This case also includes hypertension in pregnancy (preeclampsia). The number of complications in pregnancy is 126,806 (Provincial Health Office of Central Java, 2013).

Maternal mortality rate in Banjarnegara district in 2016 was 120.3 of live births, which in absolute terms were calculated from the number of maternal deaths by 19 with live births of 15,798 babies. This figure increased compared to 2015, which was 107.61 / 100,000 live births. The main cause of maternal death is hypertension in pregnancy 31.6% (Banjarnegara district health office, 2016).

Handling cases of hypertension in pregnant women has been carried out by giving pharmacological therapy and non-pharmacology (Ministry of Health, 2013). For pharmacological therapy that is by giving metildhopa and nifedipine. According to WHO (2017) giving pharmacological therapy has side effects namely dizziness, hypotension, fatigue, depression, hypoglycemia, IUGR. Therefore, efforts are needed in addition to giving these therapies, namely by giving non-pharmacological therapy namely dhikr.

Dhikr is a relaxation technique that is by incorporating elements of belief (Benson and Proctor, 2000). The effect of relaxation will produce an alpha wave frequency in the brain that can cause feelings of happiness, pleasure, joy and confidence so that it can suppress the release of cortisol, epinephrine and norepinephrine hormones which are strong vasoconstriction in blood vessels. Emphasis on these hormones can lead to dilatation of blood vessels so that blood pressure drops (Beevers et al., 2001; Delacroix et al., 2014).

Nasriyati et al. (2016), stated that with dhikr meditation done twice at 6-8 hours and 12-14 hours postoperatively for 25

minutes produced systolic and diastolic blood pressure in the treatment group experienced a significant decrease. However, there were no differences in blood pressure, pulse and respiration between the treatment and control groups.

Previous study examine the effect of dhikr 3 times/ week for 3 weeks with a 25-minute duration on blood pressure (Mirzaei et al., 2015; Nasiri et al., 2017; Pahlevi et al., 2017). The purpose of this study was to examine effect of dhikr on blood pressure in pregnant women with hypertension.

SUBJECTS AND METHOD

1. Study Design

This was an experimental study carried out at Pagedongan and Mandiraja health centers, Banjarnegara, Central Java, from May to June 2018.

2. Population dan Sample

The target population was all pregnant women with hypertension. A sample of 30 pregnant women with hypertension was selected randomly.

3. Study Variables

The dependent variable was blood pressure. The independent variable was dhikr.

4. Operational Definition of Variables

The provision of dhikr intervention in the treatment group: the pregnant women was relaxed, eyes closed, inhaled deeply, and then said *sholawat* the prophet 1 time, "ya lathif", "ya mubdi'u ya khalik", "ya rahman ya rahim", "ya sami 'yes bashir", "ya ghaffar", "ya sallam" each once, subhanallah 33x, allohuakbar 33x, la ilaha illallah 33x, astagfirulloh 33x alhamdulillah 33x for 25 minutes done 9 times a week 3 times. Data collected through observation sheets.

Table 1. Sample characteristics of continous data

Sample Characteristics	Mean	SD	Min.	Max.
Age (years old)	32.60	6.2	18	45

The measurement scale was categorical. The instrument was a dhikr module.

Blood pressure was a systolic and diastolic blood pressure which measured using sphygmomanometer. Measurements were made before the dhikr intervention and 25 minutes after the intervention. The measurement scale was continous.

5. Data Analysis

Univariate analysis was carried out to describe the frequency distribution and characteristics of pregnant women. Sample characteristics of continous data were described in mean, SD, minimum, and maximum. Sample characteristics of categorical data were described in n and %. Mean difference of systolic and diastolic blood pressure between in two groups after intervention was tested by t test

6. Research Ethic

Research ethics included informed consent, respect, confidentiality, and ethical clearance. Ethical clearance was carried out at the health polytechnic of the Health Ministry of Semarang and was declared ethically feasible based on the number of the decision letter number 438/KEPK/poltekkes-Smg/EC/2018.

RESULTS

1. Sample Characteristics

Distribution of the sample characteristics of continous data were described in Table 1. Distribution of the sample characteristics of categorical data were described in Table 2. Figure 1 shows that mean of systolic blood pressure in the intervention group was lower than in the control group. Figure 2 above shows that mean of diastolic blood pressure in the intervention group was lower than the control group.

Table 2. Sample characteristics of categorical data

Sample Characteristics	n	%
Parity		
Primiparous	6	20
Multiparous	23	76.7
Grandemultiparous	1	3.3
Occupation		
Employed	10	33.3
Unemployed	20	67.7
Education		
≥Senior high school	2	6.7
Junior high school	5	16.7
Elementary school	23	76.7

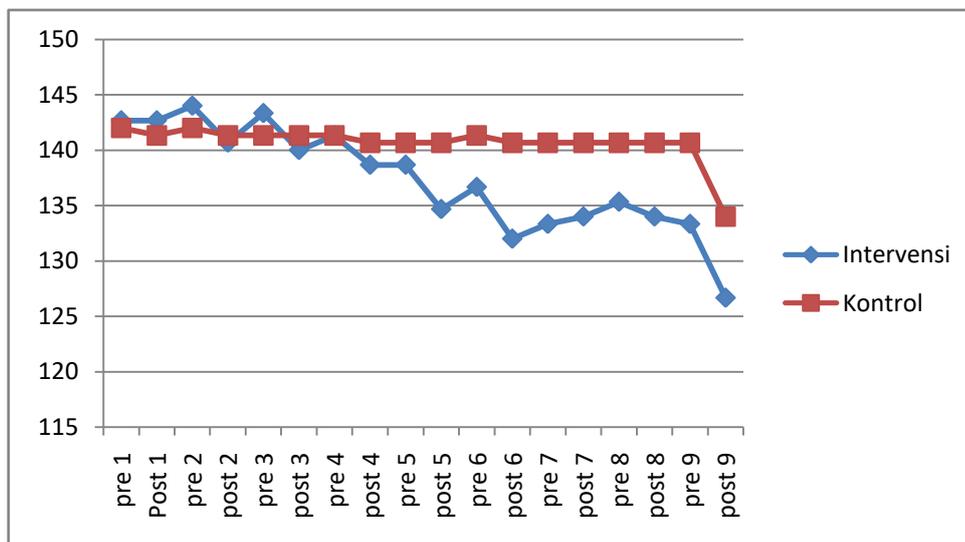


Figure 1. Change in mean systolic blood pressure in the intervention and control groups

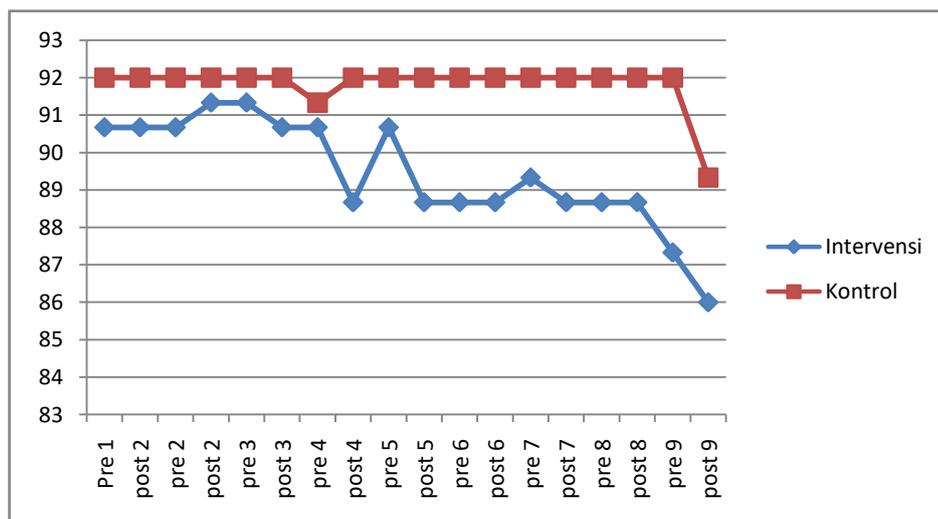


Figure 2. Mean of diastolic blood pressure in the control and intervention groups

2. Bivariate Analysis

Table 3. Difference of systolic blood pressure in control and intervention groups before intervention

Group	Mean	SD	p
Control	140.67	5.94	0.271
Intervention	138.67	3.52	

Table 4. Difference of systolic blood pressure in control and intervention groups after intervention

Group	Mean	SD	p
Control	141.33	5.16	0.006
Intervention	136.67	6.17	

After intervention, diastolic blood pressure in the intervention group (Mean= 136.67; SD= 6.17) was lower than in the

control group (Mean= 141.33; SD= 5.16), and it was statistically significant (p= 0.006).

Table 5. Difference of diastolic blood pressure in control and intervention groups before intervention

Group	Mean	SD	p
Control	91.33	5.16	0.638
Intervention	90.67	2.58	

Table 6. Difference of diastolic blood pressure in control and intervention groups after intervention

Group	Mean	SD	p
Control	92.00	4.41	0.025
Intervention	88.67	3.52	

After intervention, diastolic blood pressure in the intervention group (Mean= 88.67; SD= 3.52) was lower than in the control group (Mean= 92.00; SD= 4.41), and it was statistically significant (p= 0.025).

addition angiotensin II also stimulates the adrenal cortex to produce the hormone aldosterol which causes sodium retention and raises blood volume and pressure (Kowalak et al., 2011).

Based on the results of this study indicate that the provision of dhikr intervention has been shown to decrease of systolic and diastolic blood pressure after 9 times of dhikr which is 3 times/ week for 3 weeks with a duration of 25 minutes in pregnant women with hypertension.

Dhikr can cause a response of relaxation and tranquility, purifying the heart from negative attitudes and emotions, freeing itself from worldly stress that can affect stimuli in the autonomic nervous system which affects the physiological response of

DISCUSSION

In pregnancy hypertension due to a decrease in blood flow and uterine perfusion that stimulates excessive renin release, causing renin to be released will flow with the blood to the liver and react with angiotensinogen to convert angiotensin I to angiotensin II which when accumulated with thromboxane will cause vasoplasm which causes the arteriol lumen to narrow and the arteriol pressure increase. In

the body resulting in a decrease in blood pressure, pulse and breathing (Mirzaei et al., 2015; Nasiri et al., 2017; Pahlevi et al., 2017).

Dhikr is a relaxation technique that is by incorporating elements of belief (Benson and Proctor, 2000). The element of dhikr that is related and has a relationship with the relaxation technique of attitude that is surrender. Resignation is a form of passivity that is needed in relaxation (Tangsang-wornthamma, 2018). This can produce an alpha wave frequency in the brain that can cause feelings of happiness, pleasure, joy, and confidence so that it can suppress the release of cortisol, epinephrine and norepinephrine hormones which are strong vasoconstriction in blood vessels. Emphasis on these hormones can lead to dilatation of blood vessels which results in decreased vascular resistance so the end result is a decrease in blood pressure (Beevers et al., 2001; Delacroix et al., 2014).

Haryono (2017) in his study on the combination of back massage and dzikir on blood pressure in patients with essential hypertension, the intervention carried out for 3 consecutive days can reduce significant systolic blood pressure with $p= 0.040$.

One of the systolic blood pressure is influenced by psychological factors so that relaxation will get calm and systolic pressure will drop, besides that systolic blood pressure is also affected by systemic circulation and pulmonary circulation so that with relaxation meditation which focuses on breathing regulation there will be a decrease in pulse and decrease in blood pressure sistole. While diastole pressure is associated with coronary circulation, if the coronary arteries undergo atherosclerosis will affect the increase in diastolic blood pressure (Anderson et al., 2008; Goldstein et al., 2012; Brook et al., 2013; Lu et al., 2017; Levine et al., 2017).

AUTHOR CONTRIBUTION

Dian Nirmala Sari run the experiment study, examined the blood pressure, and wrote the manuscript. Masrifan Djamil and Agus Suwandono did data analysis and interpreted the results.

FUNDING AND SPONSORSHIP

There was no external funding.

CONFLICT OF INTEREST

None.

ACKNOWLEDGEMENT

We thank to Banjarnegara district health center which permit to collect the data and run the study.

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