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Reading the Qur'an Affects Blood Pressure Reduction in Hypertensive Elderly at the Binjai Elderly Social Service Unit

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Abstract: Reading the Qur'an is a form of dhikr and as a meditation in positive benefits for the body. Hypertension is a condition when blood pressure in tFaculty of Medicine he blood vessels increases chronically at >140/>90 mmHg. The prevalence rate in Binjai City in 2016 was found to be 366 hypertension patients. Therapy to read the Qur'an harmoniously and carefully can improve biochemistry in the body that lowers blood pressure. This study aims to determine the effect of reading the Qur'an on reducing blood pressure in the elderly with hypertension at the Binjai Elderly Social Service Unit. This study uses a type of quantitative research with *a quasi-experimental* method with *a non-randommized pre test-post test control group design*. Based on the results of the study, it was found that there was an average difference between the intervention and control groups, where the systolic mean was 143.25 and diastolic 88.37, while the systolic and diastolic mean of the control group were 150.43 and 94.75. This is because the verses of the Qur'an read by hypertensive patients can activate endorphins naturally, thereby increasing feelings of relaxation and lowering blood pressure. It was found that *the P value* in the final systolic variable was 0.034 which means that there was a mean difference between the final systolic in the intervention group and the control group because P was <0.05, while the *P value* in the final diastolic variable was <0.001 which can be concluded that there is a significant mean difference between the final systolic of the intervention group and the control group because of P <0.05. Based on this study, it was found that the majority of hypertension is found in women and 60-74 years old. There was a difference in average blood pressure in the intervention and control groups.

Keywords: Hypertension, Elderly, Reading the Qur'an

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INTRODUCTION

Literally the Qur'an is a perfect reading and according to the term Al-Qur'an is a word of Allah SWT which was revealed directly to the Prophet Muhammad SAW. Reading the Qur'an has many benefits, namely it can provide peace of mind, double rewards, be a glory for children and parents, every letter that is read contains many good values and is included in the good human group.[1] The elderly are the final stage of development in human life. Usually, the elderly have a decrease in the function of the organs of the body or anatomical.[2] An elderly person is someone who has reached the age of 60 years and above. Changes in physiological conditions in the elderly include changes in musculoskeletal, hearing, vision, cardiovascular, respiration.[3,4]

Hypertension is one of the causes of premature death around the world so it is called the "*silent killer"*, because often people with hypertension do not feel any symptoms.[5,6] Hypertension is a condition when blood pressure in the blood vessels is chronically elevated based on two phases in each heart rate namely the systolic phase >140 mmHg which indicates the phase of blood that is being pumped by the heart and the diastolic phase >90 mmHg which indicates the phase of blood returning to the heart, it can occur because the heart works harder pumping blood to meet the body's oxygen and nutrient needs.[7–9]

The World Health Organization (WHO) estimates that the prevalence of hypertension globally is 22% of the total world population.[10]

Based on data obtained by the Ministry of Health in 2018, it was found that hypertension rates occur mostly at the age of 75 years or around 69.5% of cases that occur in Indonesia.[11] Riskesdas found that the prevalence rate of hypertension in North Sumatra Province was 29.19% and diseases Based on prevalence data in Binjai City, it is known that the number of hypertension cases in 2016 patients increased by 366 cases. Based on research by the Tenayan Raya Pekanbaru Health Center, blood pressure before reading the Qur'an was obtained the average blood pressure value was systolic (148.46) mmHg and diastolic (90.77) mmHg, and while the average blood pressure value after reading the Qur'an was obtained systolic (135.38) mmHg and diastolic (80.00) mmHg.[12] Based on a preliminary survey conducted at the Binjai Elderly Social Service Unit on August 8, 2022, data was obtained on the number of patients at the Binjai Elderly Social Service Unit as many as 195 people, and 36 patients diagnosed with hypertension. In this UPT, the majority of patients are Muslims.

METHOD

In this study, using a type of quantitative research with a quasi-experimental method, research is carried out repeatedly in two groups, namely the intervention group and the control group. The research design used was *a non-randommized pre-test-post test control*

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group design, which is a design that was carried out on two groups of subjects and took measurements before and after treatment and was not carried out randomly. Ethical approval was obtained from the Health Research Ethics Commission, Faculty of Medicine, University of Muhammadiyah North Sumatra No. 915/KEPK/FKUMSU/2022. This research was conducted from September 2022 – March 2023 at the Elderly Social Service Unit of the North Sumatra Provincial Government's Social Service.

The data used in this study are primary data obtained from blood pressure checks using *aneroid sphygnomamometer* before and after the intervention was given to selected samples by *the Purposive sampling* technique. Inclusion criteria: respondents suffered from hypertension (systolic blood pressure ≥ 140 mmHg and diastolic blood pressure ≥ 90 mmHg), aged 60 - 80 years, fluent in reading the Qur'an, less able to read the Qur'an because the visual factor was used as a control group. and willing to be a respondent. Exclusion criteria: respondents are not participating in meditation or other relaxation therapy programs and are not willing to be respondents.

RESULT

The number of elderly people registered at the Binjai Elderly Social Service Unit was recorded as 195 elderly people, consisting of 85 elderly men and 110 elderly women. In this study, 32 elderly people with hypertension were divided into 2 groups, namely 16 elderly people with the intervention group and 16 elderly people with the control group.

Table 1. Characteristics of Intervention Group Research Subjects

Characteristics	Intervention (n)	Percentage (%)
Gender		
Man	7	43,8%
Woman	9	56,3%
Age		
60 - 74 y.o	11	68,8%
75 - 90 y.o	5	31,3%
Total	**16**	**100%**

Based on table 1, out of 16 research subjects in the intervention group, it was found that there were more female subjects than male gender, namely 9 people (56.3%). Based on age, it was found that in the intervention group there were more people at the age of 60-74 years, namely 11 people (68.8%).

Table 2. Characteristics of the Control Group Research Subjects

Characteristics	Control (n)	Percentage (%)
Gender		
Man	2	12,5%
Woman	14	87,5%
Age		
60 - 74 y.o	13	81,3%
75 - 90 y.o	3	18,8%
Total	**16**	**100%**

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Based on table 2, out of 16 research subjects, it was found that the most female control group gender, namely 14 people (87.5%). Based on age, it was found that in the control group it was more found at the age of 60-74 years, namely 13 people (81.3%).

Table 3. Mean systolic and diastolic blood pressure values pre-test and post-test days 1 to 8, in the elderly with hypertension in the intervention group

Day To	Variabel	Mean
1	**Sistol**	
	Pre-test	158,43
	Post-test	148,31
	Diastol	
	Pre-test	97,31
	Post-test	92,87
2	**Sistol**	
	Pre-test	158,18
	Post-test	147,93
	Diastol	
	Pre-test	96,62
	Post-test	93,25
3	**Sistol**	
	Pre-test	156,68
	Post-test	147,25
	Diastol	
	Pre-test	96,31
	Post-test	92,37
4	**Sistol**	
	Pre-test	154,81
	Post-test	146,5
	Diastol	
	Pre-test	95,62
	Post-test	92,18
5	**Sistol**	
	Pre-test	152,81
	Post-test	145,37
	Diastol	
	Pre-test	96,18
	Post-test	92,87
6	**Sistol**	
	Pre-test	149,31
	Post-test	143,37
	Diastol	
	Pre-test	93,62
	Post-test	88,87
7	**Sistol**	
	Pre-test	146,5
	Post-test	143,93
	Diastol	
	Pre-test	92,75
	Post-test	91,43
8	**Sistol**	
	Pre-test	145,12
	Post-test	143,25
	Diastol	
	Pre-test	91,18
	Post-test	88,37

Based on table 3, systolic and diastolic blood pressure values of the intervention group from day one to day eight. From the available data, it can be concluded that there was a change in the average value of blood pressure both systolic and diastolic after respondents were given intervention at all meetings. Bivariate analysis was used to test the research hypothesis, namely the effect of reading the Qur'an on blood pressure in the hypertensive elderly, by conducting a research analysis that was carried out every day and analyzing the difference in blood pressure in the intervention and control groups on the first and eighth days.

Table 4. Analysis of Wilcoxon test results in the intervention and control groups on day 1 and day 8

Variabel	Day	Mean	*P Value*
Intervention			
Sistol	Day 1	158,43	< 0,001
	Day 8	143,25	
Diastol	Day 1	97,31	< 0,001
	Day 8	88,37	

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Control			
Sistol	Day 1	149,75	0,343
	Day 8	150,43	
Diastol	Day 1	96,12	0,116
	Day 8	94,75	

From table 4, it can be seen that there is an effect of reading the Qur'an on reducing blood pressure in the elderly with hypertension. This can be seen from the difference in systolic and diastolic mean before and after the intervention was given to the intervention group resulting in *a P value* < 0.001. It was concluded that statistically there was a statistically significant mean difference between the initial and final evaluations in the intervention group and the control group. For comparison, the mean difference between the mean difference in the control group on day one and day eight showed a *P value* of 0.343 and 0.116. Statistically, it can be concluded that in the control group there was no significant difference between the mean systolic and diastolic values due to P>0.05.

Table 5. Analysis of the results of the two-mean difference test in the intervention group and the control group on day eight

Variabel	Group	Mean	*P value*
Sistol	Intervention	143,25	0,034
	Control	150,43	
Diastol	Intervention	88,37	0,000
	Kontrol	94,75	

From table 5, it was found that *the P value* in the final systolic variable was 0.034 which means that there was a mean difference between the final systolic in the intervention group and the control group because P was <0.05, while *the P value* in the final diastolic variable was <0.001 which can be concluded that there was a significant mean difference between the final systolic of the intervention group and the control group because of P <0.05.

DISCUSSION

Hypertension is a disease caused by an increase in blood pressure in the arteries. Hypertension is blood pressure or heart rate above normal due to narrowing of blood vessels or due to other disorders.[13] Age factors and psychosocial stress, salt diet, and physical activity can affect blood pressure. Table salt, which is commonly used in cooking, plays an active role in blood pressure because it draws fluids from extracells.[14] This process causes the volume of fluid in the blood vessels to increase and causes blood pressure to increase.[15]

In this study, it was found that the majority of respondents were women, namely 9 people (56.3%). The results of this study are in line with the research according to Fitriani I M, and Yanti S in the previous study, it was found that the majority of respondents were women, namely 18 people (62.2%).[12] This is because in women, especially 45 – 55 years old, it is the pre-menopausal period which can cause an

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increase in blood pressure because it begins to lose little by little the hormone estrogen in women which is useful for protecting blood vessels from damage. Nalmun, terdalpalt halsil pelitialn yalng tidalk sejallaln, yalitu didalpalti malyoritals patients with hypertension aldallalh lalki-lalki dengaln total 13 oralng (65%).[16]

Based on the results of the study, it was found that the majority of respondents were elderly (60-74 years old) as many as 11 people (68.8%). The results of this study are not in line with the research according to Safitri W, and Astuti H P in the previous study, it was found that the majority of respondents were middle-aged (51-59 years), which was 29 people (72.5%).[17] This is because the elderly are more likely to experience an increase in blood pressure with increasing age. Increased age in the elderly usually leads to increased resistance in peripheral areas and sympathetic activity resulting in a decrease in regulatory sensitivity to blood pressure.[17]

The distribution of systolic and diastolic blood pressure values in this study, the intervention group at each meeting from day one to day eight showed a decrease in the mean number. It can be seen in table 3 where there is a decrease in the systolic average on the first day (158.43), while on the eighth day the systolic average (143.25) and for the diastolic average on the first day (97.31), then on the eighth day there is a decrease in the diastolic average (88.37). This is in line with previous research conducted by Thahirah A found that the average systolic value was 152.67 to 126.67 and the diastolic average was 94.44 to 84.44.[18] The same results were also found in the study of Norwati D. *et al* in 2023 stating that there was a difference in the average blood pressure between the intervention and control groups.[19]

These results show that people who read the Qur'an can experience a decrease in blood pressure through a decrease in stress hormones that can activate endorphins naturally, thereby increasing feelings of relaxation, distraction, anxiety, fear, tension, and improving the chemical system in the reader's body so that it can lower blood pressure. Lowering blood pressure triggers better self-calm, emotional control, and metabolism. In individuals who recite the Qur'an, the signal will be captured by the earlobes, then the impulse from the recitation will be transmitted to the brainstem (thalamus).[20]

Furthermore, the benefits of reading the Qur'an can provide a calming effect in the body due to the elements of autosuggestion, relaxation, and meditation.[19] The positive perception that is obtained will then stimulate the hypothalamus to be able to release endorphins hormones. Nerve control consisting of sympathetic and parasympathetic nerves will be stimulated by the amygdala. The presence of stimulation in the controlled autonomic nerves will stimulate the secretion of the hormones norepinephrine and epinephrine carried out by the adrenal medulla to be

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controlled. The control of the hormones norepinephrine and epinephrine can trigger inhibition in the formation of angiotensin thereby lowering blood pressure. The parasympathetic nerve acts as a nerve that speeds up the heart rate, while the sympathetic nerve can slow down the heart rate. [20]

In the brain, endorphins have a role as neurotransmitters and neuromodulators, because they can stimulate a more stable and longer-lasting effect on their targets. The inhibition of the hormone norepinephrine and epinephrine in dalpalt triggers the inhibition of the formation of alngiotensin so that it decreases the metabolism of the dallalt. Endorphins are part of opioid receptor agonists that act as analgesics that have stronger effects than morphine. Stress and anxiety can induce the production of the hormone corticotropin as well as release the hormone ACTH (*Adrenocorticotropic*) and endorphins simultaneously.[21]

The results of *the Wilcoxon test* on systolic and diastolic blood pressure measurements conducted over eight days showed a difference in the average number in the intervention group, where the systolic and diastolic values before the intervention on the first day and after the intervention on the eighth day there was a decrease in systolic blood pressure from 158.43 to 143.25 with a significance value of <0.001, while the diastolic value was 97.31 to 88.37 with a significance value of <0.001 which This means that there is a significant average difference from the first day before the intervention and the eighth day after the intervention. In contrast to the control group, the systolic had a slight increase, from 149.75 to 150.43 with a significance value of 0.343, while the diastolic from 96.12 to 94.75 with a significance value of 0.116, which meant that there was no significant average difference in blood pressure on the first and eighth days for the control group.

This is in line with the research conducted by Sahputri R, that in previous research the intervention group showed that there was an effect of reading the Qur'an on lowering blood pressure.[22] The Qur'an has miracles and has the role of a sedative for those who are overwhelmed by anxiety and anxiety. However, there are still many who do not know that reading the Qur'an can benefit in the form of relieving pain, as contained in *Q.S Yunus/10:57* below:[18]

يٰٓاَيُّهَا النَّاسُ قَدْ جَاۤءَتْكُمْ مَّوْعِظَةٌ مِّنْ رَّبِّكُمْ وَشِفَاۤءٌ لِّمَا فِى الصُّدُوْرِۙ وَهُدًى وَّرَحْمَةٌ لِّلْمُؤْمِنِيْنَ ٥٧

"O people, there has indeed come to you a lesson (Qur'an) from your Lord, a healer for a disease in the chest, and guidance and mercy for the believers."

This verse contains the meaning that the Qur'an is a medicine for everything in the chest. The mention of chest in the verse means as a divine revelation that has a function in curing every disease such as unblurred disease, envy, doubt, and so on. In this case, the Qur'an can provide coolness,

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calmness, and accommodate all good and praiseworthy qualities. Allah SWT will not send down a disease to His servants, but He will also surely send down the cure. As stated in the book Saheeh Bukhari from the hadith of Abu Hurarairah (may Allah be pleased with him) from the Prophet SAW said:[18]

مَا أَنْزَلَ اللَّهُ دَاءً إِلاَّ أَنْزَلَ لَهُ شِفَاءً

Meaning: "Allah SWT does not send down diseases unless He sends down the cure for them." (HR. Al-Bukhari no.5678)

The results of *the Mann Whitney* test for systolic blood pressure after intervention were given in the intervention group and the control group had *a P value* of 0.034 (P<0.05) in systolic blood pressure and a *P value* of <0.001 in diastolic blood pressure, which means that there was an average difference between the intervention group and the control group, where the systolic mean was 143.25 and the diastolic 88.37, While the systolic and diastolic mean of the control groups were 150.43 and 94.75. The results of this study are in line with the research conducted by Annisa T, in the previous study, it was found that post-test systolic blood pressure between the intervention group and the control group.[18]

CONCLUSION

The intervention group showed that there was an effect of reading the Qur'an on lowering blood pressure.[22] The Qur'an has miracles and has the role of a sedative for those who are overwhelmed by anxiety and anxiety. However, there are still many who do not know that reading the Qur'an can be beneficial in the form of relieving pain, as contained in *Q.S Yunus/10:57.* The presence of stimulation in the controlled autonomic nerves will stimulate the secretion of the hormones norepinephrine and epinephrine carried out by the adrenal medulla to be controlled. The control of the hormones norepinephrine and epinephrine can trigger inhibition in the formation of angiotensin thereby lowering blood pressure.[20] With the activity of reading the Qur'an, an individual gets several benefits at once, such as getting rewards and relaxing autonomic nerves so that hypertension can be controlled. This can be another alternative for hypertension patients to be able to lower high blood pressure.

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