EFFECTIVE BIOMASSAGE METHOD LOWERS BLOOD PRESSURE IN HYPERTENSIVE MENOPAUSAL WOMEN AT PUSKESMAS DENPASAR BARAT II DENPASAR BALI

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Abstract

The main problem of menopausal women is hypertension because in menopause the hormone estrogen is decreasing, cholesterol levels increase then arthrosclerosis occurs and blood vessels are damaged. Hypertension is one of the entrances to heart disease, kidney failure, diabetes, stroke and the global prevalence of 22% of the world's population, in Indonesia in 2018 is 34.11%. , in Bali 21% and Denpasar City 26.23%. Overcoming this problem besides conventionally needed another method to solve the problem of hypertension, namely biomassage massage. The purpose of the study was to find out whether biomassage massage is effective in lowering blood pressure in menopausal hypertension. This research method is true experimental method with pretest-postest control group design; The sample of 66 people with simple random techniques was divided into two, one experiment and one control. Analysis before and after treatment was carried out normality test, the results were all variables normally distributed for systole so that hypothesis testing with t test and abnormal on diastole so that the analysis used vicoxson and the results there were significant differences before and after treatment with sig values of $0.00 < 0.05$.with a systole difference rank of 7 mmH and Diastole 4 mmHg. It was concluded that there was a significant difference before and after the Biomassage procedure. It is recommended in overcoming hypertension, besides conventionally with drugs need to be supplemented with biomassage massage education.

Keywords: hypertension; menopause; education; biomassage.

INTRODUCTION

The background of this research is because the number of menopausal women is increasing and hypertension is easier. *Menopause* is a natural phase that will be experienced by every woman that usually occurs over the age of 40 years. Women are said to have *Menopause* If you have not menstruated for 12 months since the last menstruation caused by decreased ovarian function (Suryoprajogo, 2019). Hypertension, is a condition of high blood pressure when at rest systolic blood pressure is in the position of 140 mmHg and above or diastolic blood pressure at the position of 90 mmHg and above after repeated measurements

(Woro Riyadi 2019). According to the occurrence of hypertension it occurs because the hormone estrogen is decreasing so that cholesterol levels increase which serves as a protector of the process of arthrosclerosis and loss of the hormone estrogen which functions as a protector of blood vessels from damage. According to WHO by 2025 the number of women *Menopause* in Asia will increase from 107 million people to 373 million people and the Indonesian Ministry of Health estimates that Indonesia's population in 2030 will reach 262.6 million people with the number of women living in age *Menopause* About 30.3 million people with an average age of 49 years experienced *Menopause* (Wardani, D. A., Sumiati, &; Waisong 2019). In Bali Province in 2020, the number of women aged 45 - 64 years was 539,700 people, the number of women in Denpasar City is 359,013 people (BPS Prov Bali, 2020) Hypertensive data according to (WHO 2018) It continues to increase, it is estimated that as many as 1.13 billion people worldwide suffer from hypertension and occur in adults aged 30-79 years. Based on data from (Riskesdas 2018) in Indonesia, the prevalence of hypertension based on measurement results in the population aged ≥18 years is 34.11%. This disease is most prevalent in the elderly aged 75 years and over as much as 69.53% (Research and Development Agency of the Ministry of Health of the Republic of Indonesia 2018) Therefore Hypertension become One of the entrances to diseases such as heart, kidney failure, diabetes, stroke So a solution is needed to overcome this problem of hypertension. Solutions to solve the problem This is besides conventionally required a method of nursing action, namely with biomassage massage. The purpose of the study was to find out whether biomassage massage can effectively lower blood pressure in menopausal hypertensive patients.

RESEARCH METHODS

This research method uses an approach with a true experimental method with pretest-postest control group design. Sampling techniques at the time of the study with simple random techniques with a total sampling of 66 people .The samples obtained were divided into two groups, one experimental group and one control group totaling 33 people each. Instrument of data collection with questionnaires for characteristic data and with digital tension meters for systolic and diastolic blood pressure in hypertensive menopausal women. The analysis techniques used are the t test and vicoxson test. The t test is carried out to see the difference in systole before and after biomassage, which has previously been carried out data normality test with normal data results, as early as diastole analysis with vilcoxon test because the test does not distribute normal spark plugs.

RESULT AND DISCUSSION

The subjects of this study are menopausal women who experience hypertension located in the area of the West Denpasar 2 Denpasar Health Center as described below:

Table 1. Characteristics of respondents by age

Age in years	Frequency (n)	Percentage (%)
51-53 Years	19	29
54-56 Years	25	38
57-59 Years	22	33
Total	66	100

Based on table 1. it can be seen that the most respondents experiencing hypertension are ages 54-56 years with a total of 25 respondents (38%).

Table 2. Education Level of Respondents

Education	Frequency (n)	Percentage (%)
SD	5	7,6
JUNIOR	13	19,7
SMA	45	68,2
College	3	4,5
Total	66	100

Based on table 2. It can be seen that the most respondents who experienced hypertension were high school education with a total of 45 respondents (68.2%).

Table 3. Job classification Rsponden

Work	Frequency (n)	Percentage (%)
Housewives	30	45,5
Business hero	19	28,8
Private	17	25,8
Total	**66**	**100**

Based on table 3. It can be seen that the most respondents experiencing hypertension are housework with a total of 30 respondents (45.5%).

Table 4. Measurement results before biomassage treatment

Category	Frequency Sistole	Percentage	Frequency Diastole	Percentage
Usual			6	18%
Normal – High			11	33%
Stage 1 (mild hypertension)	17	52%	15	46%
Stage 2 (Moderate Hypertension)	16	48%	1	3%
Total	33	100	33	100

Based on table 4. It can be seen that the most respondents before the biomassage action were stage 1 hypertension with systole 17 people (52%) and diastole 15 people (46%).

Table 5. Measurement results after biomassage treatment

Category	Frequency Sistole	Percentage	Frequency Diastole	Percentage
Usual	4	12%	30	91%
Normal – High	22	67%	3	9%
Stage 1 (mild hypertension)	7	21%		
Stage 2 (Moderate Hypertension)				
Total	33	100	33	100

Based on table 5. It can be seen that the most respondents after the Biosage Action were normal-high hypertension with systole 22 people (67%) and diastolic 30 people (91%) normal category.

Table 6. Measurement results before conventional treatment in the control group

Category	Frequency Sistole	Percentage Sistole	Frequency Diastole	Percentage Diastole
Normal			12	36%
Normal – High			14	43%
Stadium 1 (mild hypertension)	17	52%	7	21%
Stadium 2 (Moderate Hypertension)	16	48%		3%
Total	33	100	33	100

Based on table 6. It can be seen that the most respondents before conventional measures were Stage 1 Hypertension (Mild Hypertension) with 17 people (52%) systole and 14 people (43%) diastolic, high normal category.

Table 7. Measurement results after conventional treatment in the control group

Category	Frequency Sistole	Percentage Sistole	Frequency Diastole	Percentage Diastole
Normal	16	48%	31	94%
Normal – Tinggi	-		2	6%
Stadium 1 (Hipertensi Ringan)	17	52%		
Stadium 2 (Hipertensi Sedang)				
Total	33	100	33	100

Based on table 7. It can be seen that the respondents after conventional measures were normal with 16 people (48%) systole and 31 people (94%) diastolic normal category.

Table 8. Summary of normality test results

Group	Sig	Conclusion
Systole before the biomassage of the experimental group	0.129	Normal
Systole after the biomassage of the experimental group	0.765	Normal
Control group early systole	0.447	Normal
Control group end systole	0.177	Normal

Based on the normality test with the Shapiro Wilk test, the data results were 0.129, 0.765, 0.447, 0.177, which means above 0.05, so it can be concluded that the data is normally distributed.

Table 9. Recapitulation of data analysis of blood pressure measurement results

Analysis	experimental group					control group				
	N	Min	Maks	Mean	Asymp. Sig. (2-tailed)	N	Min	Maks	Mean	Asymp. Sig. (2-tailed)
Systolic before action	33	142	167	154	0.00	33	140	167	151	0.00

	N	Min	Max	Mean	Sig.	N	Min	Max	Mean	Sig.
Systolic after action	33	125	147	136	0.00	33	132	152	140	0.00
Diastolic before action	33	73	95	88	0.00	33	76	92	86	0.00
Postoperative diastolic	33	76	92	86	0.00	33	78	85	82	0.00

Based on table 9. It can be seen that in the experimental group the systolic value before the action averaged 154 mmHg and afterward was 136 mmHg and the diastolic average before the action was 90 mmHg and afterward was 86 mmHg, in the control group the average systolic value was 151mmHg and after that it was 140 mmHg, the diastolic value before 86 mmHg and after 82 mmHg and Asymp value. Sig. (2-tailed) is 0.00

Table 10. Results of t Test on Blood Pressure in experimental and control groups

Group	Average	SD	t	Sig. (2-tailed)
Sistole	-3.61	8.49	-2.43	0.020
Diastole	-9.39	3.20	-1.68	0.153

Based on table 10, the results of the t test obtained a sig value of 0.020 for systolic, meaning 0.020 <0.05, meaning that there is a significant difference in blood pressure in systole after biomassage measures, while in diastole, a sig value of 0.153 means 0.153 > 0.05, meaning there is no difference after biomassage.

Characteristics of Respondents

The results of the study stated menopausal women who have hypertension, with **age** the most at the age of 54-56 years, the lowest 51 years and the highest 59 years and the level of education is still in elementary and junior high schools as much as 27%, and the most jobs are housewives as many as 30 samples (45.5%). This data is in line with research conducted by wardani where average age of 49 years experienced *Menopause* (Wardani, D. A., Sumiati, &; Waisong 2019) .Menopause is a natural phase that every woman will experience which usually occurs over the age of 40 and women do not experience menstruation forever .(Suryoprajogo, 2019) . One of the consequences of menopause is a decrease in the hormone estrogen and an increase in the hormone cortisol, so that menopausal women tend to get stressed more easily which can affect an increase in blood pressure or hypertension. (Lestari et al., 2020)

Prevalence data in Bali Province in 2020, the number of women aged 45 - 64 years was 539,700 people, the number of women in Denpasar City was 359,013 people (BPS Prov Bali, 2020) .Based on education there is still lower education in elementary and junior high school, this means that although today the majority have android phones that they can use to access the internet and use it to find information about diseases, it will be difficult for them to remember the knowledge they learned. and apply it in their daily lives, because of low education iu. (Pratama, Fathnin and Budiono, 2020)

Measurement results before treatment.

The results of the study obtained data on women *Menopause* who had hypertension before treatment (*pre-test)* in the experimental group the number of valid samples was 33, the mean score of systole was 154 mmHg, the highest systole was 167, and the lowest was 142, the mean diastole was 89 mmHg, the lowest was 73 and the highest was 95, while in the control group the average score was 158 mmHg, diastole was 86 mmHg. This hypertension when viewed from the theory classified by Triyanto is in Stage 1 (Mild Hypertension) Cystole: 140-159 Diastole: 90-99 as much as 17 0rang or 52% and Stage 2 (Moderate Hypertension) Cystole: 160-179 Diastole: 100-109 as many as 16 people or 48%. For normal diastole values < 85 as many as 6 people or 18%, normal-high 85-89 as many as 11 people or 33%, mild hypertension diastole 90-99 as many as 15 people or 46% and moderate hypertension diastole 100-109 as many as 1 person or 3%. The average value of the systole score of 154 is already stage 1 hypertension, because the definition of hypertension itself is a state of high blood pressure when at rest systolic blood pressure is in the position of 140 mmHg and above after repeated measurements. (Woro Riyadi, 2014). The respondents of this study were hypertension during menopause. One of the consequences of *Menopause* There is a decrease in the hormone estrogen and there is an increase in the hormone cortisol, so women *Menopause* tends to be more easily stressed which can affect the increase in blood pressure or hypertension. (Lestari et al., 2020). Various consequences will arise when hypertension includes narrowing of the arteries that carry blood and oxygen to the brain resulting in damage to the brain organs resulting in a stroke and complications, namely pain when walking, damage to the kidneys and damage to the organs of the eye which can lead to blindness (Agustin & Anggraini, 2022)

The loss of such hormones results in an increase in triglyceride levels, a decrease *High Density Lipopotrein* (HDL), LDL and higher salt sensitivity so that it can improve the work of the heart and increase blood pressure. An increase in LDL will result in the accumulation of macrophages in vascular smooth muscle cells and increase LDL oxidation resulting in inflammation. Inflammation that occurs will cause vasodilation disorders and protorhombic effects so that atherosclerosis plaques appear which will cause an increase in blood pressure (Suryonegoro et al., 2021). These respondents in both experimental and control groups all followed the hypertension treatment program programmed by the puskesmas, Hydrochlorothiazide (HCT) 12.5 – 25 mg per day single dose in the morning, Reserpine 0.1 – 0.25 mg, Propranolol, Captopril 12.5 – 25 mg and Nifedipine ranging from 5mg – 10 mg. Thus it can be concluded that the average blood pressure before biomassage is 154, the highest is 167 and the lowest is 142 and the average diastole is 89 mmHg, the lowest is 73 and the highest is 95. While in the control group the average systole was 158 and diastole 86. Symptoms that arise in menopausal hypertension include headache (heavy feeling in the back of the neck), palpitations, fatigue, nausea, vomiting, nervousness, excessive sweating, muscle tremors, chest pain, epistaxis, blurred or double vision, tinnitus (ringing in the ears), chest pain, fatigue, palpitations, sleep disturbances and these symptoms really appear before stopping menstruation (Achmad Ali Fikri, Syamsul Arifin, 2022)

Measurement results after treatment.

The results of the study obtained data on women *Menopause* who develop hypertension after treatment (*post-test)* in the experimental group the number of valid samples was 33, the mean score of systole was 136 mmHg, the highest systole was 147, and the lowest was 125, the mean diastole was 81 mmHg, the lowest was 70 and the highest was 88, while in the control group the average score of systole was 140 mmHg, the highest was 152 and the lowest was 132 while the mean diastole was 82 mmHg, the lowest was 72 and the highest was 85 mmHg. . This hypertension when viewed from the theory classified by Triyanto is in Stage 1 (mild hypertension). Sistole: 140-159 as many as 7 people or 21%, normal-high stage as many as 22 people or 67% and normal < 130 as many as 4 people or 12%, while the control group Stage 1 (Mild Hypertension). Sistole: 140-159 as many as 17 people or 52%, normal-high stage as many as 16 people or 48%. Judging from diastole data, Normal-high stage Diastole score: 85-89 as many as 3 people or 9%, Normal diastole value < 85 as many as 30 people or 91%, atau 91 %, (E.Triyanto, 2017) . Thus it means that there has been a decrease in both systole and diastole after biomassage. The same thing was stated by Rindang et al in his research which stated that foot reflexology could reduce blood pressure, in his research which stated that foot reflexology could reduce blood pressure, 80% of respondents fell to the normal classification, 10% were in the mild classification, and 10 % are in the moderate classification. , (Rindang Azhari Rezki, Yesi Hasneli, 2015) Likewise, research on Slow Stroke Back Massage on Blood Pressure in Menopause found that there was a significant difference with a confidence level of 0.030. Blood pressure decreased with a sample of 30 people at the treatment level and 30 people in the control group. (Sari Dewi, 2020)

Based on the data there was a decrease in systole blood pressure in the experiment by 18 mmHg and in the control by 12 mmHg.This difference is one of them because in the experimental group that triggers a decrease in blood in addition to drugs taken also because the action of biomassage contributes quite effectively (Nyoman Ribek, 2023). When compared to the research conducted by supaat states that once done *massage* there was a decrease in systolic from 143 mmHg to 137 mm Hg (Supa'at, 2013)**.** *Biomassage* it itself is a *Branded* from *bioenergy* and massage, Bioenergy comes from two syllables, namely Bio and Energy, Bio means life and Energy means force while massage is applied with acupressure. or 91%,((Nyoman Ribek, 2023). There are three types of acupressur points, namely: a). general massage points, namely meridium massage points outside the meridium duct, b). special massage points, namely acupressure points outside the meridium duct, c). pain points or yes points / ashe points are points that if massaged feel pain and are not located in general points or at special points. (Ministry of Health RI 2012).

Analysis of differences in blood pressure measurement results between the experimental group and the control group in *menopausal* women who had hypertension.

After the normality test of systolic data has a value of > 0.05, then the data is normal spark plugs, then a t test was carried out between the experimental group and the control group, the results were obtained sig value 0.00 for systole means 0.00 < 0.05 meaning there is a significant difference in blood pressure in systole after *biomassage*. When analyzed the difference between the experimental group and the control group of systole data obtained a difference of 7 mmHg where in the experimental group there was a decrease of 18 mmHg where the average score of

systole dropped to 136 mmHg from 154, while in the control group there was a decrease of 11 mmHg from 151 mmHg to 140 mmHg. Diastole data was analyzed using the vilcoxon test because the normality test was abnormal, the results of diastole data obtained a difference of 4 mmHg where in the experimental group there was a decrease of 8 mmHg where the average diastole score dropped to 81 mmHg from 89, while in the control group there was a decrease of 4 mmHg from 86 mmHg to 82 mmHg. By looking at the difference in blood pressure reduction between the experimental group and the control group for systole by 7 mmHg while diastole by 4 mmHg, statistically the statistical hypothesis is that there is an effect of Biomassage on reducing blood pressure in menopausal hypertension. Thus, it means that the hypothesis of this study can be mentioned that biomassage is effective in lowering blood pressure in menopausal hypertension.

CONCLUSION

The results of this study concluded that manaupause tends to experience hypertension at the age of 54-56 years, education is still in elementary and junior high schools, and the most jobs are housewives. The results of blood pressure measurement after biomassage decreased systolic by 18 mm Hg while in the control group there was a decrease of 11 mmHg, as well as in diastole there was a decrease in diastolic 8 mm Hg and in the control group there was a decrease of 4 mmHg

There is an effect of biomassage on lowering blood pressure in hypertension experienced by menapause women with a sig of 0.00 which means 0.00 < 0.05 so that Biomassage is effective in reducing blood pressure in hypertension experienced by women menapause.

BIBLIOGRAPHY

achmad Ali Fikri, Syamsul Arifin, M. F. F. (2022). Gejala Hipertensi Mirip Menapause. 2, הארץ(8.5.2017), 2005–2003.

Agustin, K., & Anggraini, Y. (2022). Korelasi Usia Menaupase Dengan Hipertensi. 6, 9487–9494.

Badan Penelitian Dan Pengembangan Kemenkes Ri. (2018). Riset Kesehatan Dasar. Badan Penelitian Dan Pengembangan Kesehatan Kementerian Ri.

Bps Prov Bali. (2020). Hasil Sensus Penduduk Provinsi Bali.

E.Triyanto. (2017). Karya Terkait (Pp. 21–22).

Kemenkes Ri. (2012). Modul Akupresur Bagi Petugas Kesehatan.

Lestari, A. D., Putri, R. H., & Yunitasari, E. (2020). Hipertensi Pada Ibu Menopause ; Sebuah Tinjaun Literatur. Wellness And Healthy Magazine, 2(1), 309–313.

Nyoman Ribek, Dkk. (2023). Manajemen Tata Laksana Hipertensi : Dari Sisi Kompkementer. In 1 (Ed.), Book Chapter (Pp. 67–69). Media Saint Indonesia.

Rindang Azhari Rezki, Yesi Hasneli, O. H. (2015). Pengaruh Terapi Pijat Refeleksi Telapak Kaki Terhadap Perubahan Tekanan Darah Pada Penderita Hipertensirindang Azhari Rezki, Yesi Hasneli, O. H. (2015) "Pengaruh Terapi Pijat Refeleksi Telapak Kaki Terhadap Perubahan Tekanan Darah Pada Penderita Hipertens. Nursing News, 2(2), 1454–1462.

Sari Dewi, E. (2020). Pengaruh Slow Stroke Back Masage (Ssbm) Dengan Aromatherapi Rose Terhadap Tekanan Darah Dan Denyut Nadi Menopause Penderita Hipertensi. Jurnal Kebidanan, 9(1), 18–23.

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Suryonegoro, S. B., Elfa, M. M., Noor, M. S., Studi, P., Dokter, P., Kedokteran, F., Mangkurat, U. L., Ilmu, D., Dalam, P., Ilmu, D., Masyarakat, K., & Kedokteran, F. (2021). Literature Review: Hubungan Hipertensi Pada Wanita Menopause Dan Usia Lanjut Terhadap Kualitas Hidup. Homeostasis: Jurnal Mahasiswa Pendidikan Dokter, 4(2), 387–398.

Suryoprajogo. (2019). Tips Menyenangkan Menghadapi Menopause. Desa Pustaka Indonesia.

Wardani, D. A., Sumiati, & Waisong, Y. (2019). Hubungan Dukungan Suami Dengan Kualitas Hidup Perempuan Menopause. Jurnal Medika Karya Ilmiah Kesehatan. Jurnal Medika Karya Ilmiah Kesehatan ,.

Who. (2013). A Global Brief On Hypertension.

Woro Riyadi. (2014). Menopause Pada Wanita Hipertensi. In วารสารวิชาการมหาวิทยาลัยอีสเทิร์นเอเชีย (Vol. 4, Issue 1).