

The Effect of Laughter Therapy to Decrease Blood Pressure in Patients with Hypertension Patients at Welahan 1 Primary Health Care

Rizka Himawan
S1 Nursing program
Universitas Muhammadiyah Kudus
Kudus, Indonesia
rizkahimawan@umkudus.ac.id

Meisella Aryatu
S1 Nursing Program
Universitas Muhammadiyah Kudus
Kudus, Indonesia

Rusnoto
S1 Nursing Program
Universitas Muhammadiyah Kudus
Kudus, Indonesia
rusnoto@umkudus.ac.id

Indanah
S1 Nursing Program
Universitas Muhammadiyah Kudus, Indonesia
indanah@umkudus.ac.id

Abstract— Background: *Hypertension is a disease experienced by the world's population. However, only one of three people who suffers from hypertension are aware of the circumstances and 61% of the samples is treatment. There are Concerns that emergence of new problems in hypertension will cause mental emotional disorder. One of the lifestyle modifications that can be practiced to cope with hypertension is by doing relaxation. One relaxation for hypertension patients is laughter therapy.*

Purpose : *The purpose of this study is to determine the effect of laughter therapy to decrease blood pressure in patients with hypertension at Welahan 1 Primary Health Care.*

Method : *The method is a quasi-experimental design with pre-test and post-test. The samples are 36 respondents that consists of 16 respondents in intervention group and 16 respondents in control group. The measure instruments used are aneroid sphygmomanometer and observation sheet of laughter therapy. The Data analysis used T test.*

Results : *The results -T signed rank test test analysis shows the mean systolic and diastolic blood pressure of the intervention group before treatment are 162 mmHg and 103 mmHg. Meanwhile, they are 154 mmHg and 96 mmHg in the control group. The mean systolic and diastolic blood pressure of the intervention group after treatment are 159 mmHg and 97 mmHg. Meanwhile, they are 194 mmHg and 94 mmHg in the control group. Therefore, there is significant effect of laughter therapy in decreasing systolic and diastolic blood pressure with p-value 0,022 and 0,036 (p value < 0,05).*

Conclusion: *There is effect of laughter therapy In decreasing the blood pressure of patients with hypertension at Welahan 1 Primary Health Care*

Keywords— *Hypertension, Blood Pressure, Laughter Therapy*

I. INTRODUCTION

Hypertension is the most common disease suffered by many people in the world. According to the AHA (American Heart Association), hypertension is found in one in three people or 65 million people and 28% or 59 million people suffer from prehypertension. But only one third of people who suffer from hypertension know that they suffer from hypertension and only 61% have treatment [1]

According to the data from the Basic Health Research, cases of hypertension in Indonesia amounted to 25.8% . The Central Java Health Profile data in 2012 showed that hypertension was the highest case of non-communicable diseases in the heart and blood vessel disease group, which was 67.57% (544,711 cases) (Central Java Province Health Profile 2012). Jepara District Health Office (DKK) stated, in 2015 hypertension was the highest case of non-communicable diseases, namely 15,469 cases (Jepara DKK, 2015). At Welahan I Puskesmas UPT, there were 1375 cases of hypertension in 2015.

Several factors that can increase the incidence of hypertension are age, heredity, gender, obesity, excessive salt consumption, smoking and consuming alcohol, and stress. Hypertension can result in myocardial infarction, stroke, kidney failure, and death if it is not detected early and handled appropriately [2].

Blood pressure can be controlled through pharmacological therapy, diet management, stress control, exercising, quitting smoking and reducing alcohol consumption and limiting salt intake into the body. However, drug use in patients with hypertension has several disadvantages, including expensive costs, requiring compliance because it requires a relatively long time to be able to reduce blood pressure so that boredom often arises in

hypertensive. For this reason, companion therapy is necessary for people with hypertension. Laughter therapy is one way to achieve a relaxed state.

Laughter is a mixture of an increase in the sympathetic nervous system and also a decrease in the work of the sympathetic nervous system. The increase has a function to provide energy for body movements, but this is followed by a decrease in the sympathetic nervous system, one of which is caused by changes in muscle conditions that become more relaxed, and reduction of solution to nitric oxide which leads to widening of blood vessels, so that on average laughter causes an increase in blood flow by 20%, while stress causes a decrease in blood flow by 30% [3]. The advantages of laughter therapy are that they do not have space and time limit and do not require the presence of a professional therapist and can be applied independently by individuals or groups. So, laughter therapy is a dynamic meditation or dynamic relaxation technique in a short time that can reduce stress and anxiety, and can control one's blood pressure [4].

Based on a preliminary survey on December 6, 2015 conducted at Welahan I Puskesmas UPT in Jepara Regency, out of 10 people who suffer from hypertension they only consume drugs given by doctors at primary health care. At Welahan I Primary Health Care, laughter therapy has never been done. Based on the survey and background, the authors are interested in conducting research with the title "The Effects of Laughter Therapy to Decrease Blood Pressure in Patients with Hypertensive at Welahan I Primary Health Care".

II. METHOD

This design uses a type of quasi-experimental research to find out a symptom or influence that arises, as result of certain treatments [4]. This study used two groups: the control group and the intervention group, both of which were given a pre-test and post-test. The intervention group was given treatment in the form of laughter therapy while the control group was not treated.

The population used in this study was hypertension patients at Welahan 1 Primary Health Care in Jepara Regency with 115 patients per month. The samples used in this study were 32 respondents according to the inclusion and exclusion criteria which were divided into 2 groups, namely the intervention group with 16 respondents and the control group with 16 respondents with purposive sampling technique. The research instruments used in this study were aneroid sphygmomanometer (needle) and laughter therapy observation sheet. The researchers first taught breathing exercises in and practiced the rhythmic movements of the diaphragm by saying "ho ho ho ha ha ha". This breathing can cause a more relaxed feeling. The use of the pattern "ha ha ha" is a respiratory pattern that has been associated with laughter (measurement of laughing activity using laryngeal electromyography, abdominal muscle EMG, and

electrocardiogram). Although it will vary greatly with different durations, this laugh pattern is different from when someone coughs or sneezes.

The analysis in this study used the T test which is to test the differences in the average between pairs in pairs.

III. RESULT and DISCUSSION

A. Characteristics of Respondents

Based on the results of the research that has been done, the characteristics of the respondents are described as follows:

1. Age, Gender, education level and job

Table 1
Respondent characteristic :

Demographic	Intervention Group		Control group	
Age				
Mean	52.19		52.75	
Median	52		53.50	
Modus	48		46	
Min	60		60	
Max	45		45	
	Frequency	Percentge	Frequency	Percentage
Gender				
Male	5	31.3	3	18.8
Female	11	68.7	13	81.2
Total	16	100	16	100
Education				
Elementary school	11	68.7	13	81.2
Junior high school	3	18.8	2	12.5
Senior high school	2	12.5	1	6.3
Total	16	100	16	100
Job				
Doesn't work	6	37.5	4	25
Farmer	4	25	3	18.8
Seller	4	25	2	12.5
Laborers	2	12.5	7	43.7
Total	16	100	16	100

The average age of the respondents in the intervention group was 52.19 and is 52.75 in the control group. Most respondents age in the intervention group were 48 years old and were 46 years old in the control group 46 years. There were 11 female respondents in the intervention group and 13 female respondents (68.7%) in the control group (81.2%). The majority of the respondents both in the intervention group and the control group had elementary school education. The majority of the respondents both in the intervention group and the control group had elementary school education.

B. Univariate Analysis

Table 2

Blood Pressure Before Given Treatment

Blood pressure	Mean	Median	Modus	SD	Min	Max
Intervention Group						
Systole	162.19	160	150	14.17	140	200
Diastole	103.44	102.50	110	9.953	90	120
Control Group						
Systole	154.38	150	150	10.93	140	180
Diastole	95.63	95	90	9.639	80	110

Based on Table 2 the blood pressure before being given treatment in the intervention group averaged systolic blood pressure the average systolic blood pressure in intervention group before being given treatment was 162 mmHg and the average diastolic blood pressure was 103 mmHg. While the results of the blood data before treatment (initial observation) in the control group showed that the average systolic blood pressure was 154.38 mmHg and the average diastolic blood pressure was 96 mmHg.

Table 3

Blood Pressure After Given Treatment

Blood pressure	Mean	Median	Modus	SD	Min	Max
Intervention Group						
Systole	158.75	155	150	13.10	140	190
Diastole	97.19	95	90	13.90	70	120
Control Group						
Systole	153.75	150	150	9.574	140	170
Diastole	93.75	90	90	9.574	80	110

Based on Table 3 above, it can be concluded that the results of blood pressure data after being given treatment in the intervention group was 159 mmHg on average for the systolic blood pressure and was 97 mmHg on average for diastolic blood pressure. Meanwhile the results of blood pressure data after treatment (final observation) in the control group was 154 mmHg on average for systolic blood pressure and 94 mmHg on average for diastolic blood pressure.

C. Bivariate Analysis

To find out whether there are differences in average blood pressure (systolic-diastolic) before treatment (pre-test) and after treatment (post-test). Laughter therapy in the intervention group and initial observation (pre-test) with final observation (post-test) in the control group using the Paired-Samples T Test statistical test through computerized assistance.

Table 4

Differences in Blood Pressure before and after in the Intervention and Control Group

Blood Pressure	Df	Sig (2 tailed)
Systole before and after in i intervention group	16	0.022
Diastole before and after in i intervention group	16	0.036
Systole before and after in i control group	16	0.774
Diastole before and after in i control group	16	0.333

Based on Table 4 above, the results of statistical tests have been obtained in the control group, the p-value for systolic and diastolic blood pressure are 0.774 and 0.333 > 0.05, so that in the control group there was no decrease in blood pressure differences. Whereas in the intervention group, the p-value for systolic and diastolic blood pressure were 0.022 and 0.036 < 0.05. Thus H0 is rejected and Ha is accepted. So it can be concluded that there was a significant decrease between the average systolic blood pressure in the treatment group before and after laughter therapy.

The Effects of Laughter Therapy to Decrease Blood Pressure in Patients with Hypertensive at Welahan I Primary Health Care

Based on the results of research on the effects of laughter therapy to decrease blood pressure in patients with hypertensive at Welahan I Primary health care, the intervention group had 2 respondents experiencing severe hypertension, 12 respondents with moderate hypertension and 2 respondents with mild hypertension. Whereas in the control group there were 1 respondent with severe hypertension, 5 respondents with moderate hypertension and 10 respondents with mild hypertension.

Based on the results of the statistical tests, it was found in the control group that the p-value for the systolic and the diastolic blood pressure was 0.774 and 0.333 > 0.05, so that in the control group there was no decrease in blood pressure differences. Whereas in the intervention group, the p-value for systolic and diastolic blood pressure was 0.022 and 0.036 < 0.05. Thus H0 is rejected and Ha is accepted. So it can be concluded that there was a significant decrease between the average systolic blood pressure in the treatment group before and after laughter therapy.

The results of this study are in accordance with the theory that laughter therapy is one way to achieve a relaxed state. Laughter is a mixture of an increase in the sympathetic nervous system and also a decrease in the work of the sympathetic nervous system [6]. The increase has a function

to provide energy for body movements, but this is followed by a decrease in the sympathetic nervous system, one of which is caused by changes in muscle conditions that become more relaxed, and reduction of solutions to nitric oxide which makes blood vessels dilated, so the average laugh causes an increase in blood flow by 20%, while stress causes a decrease in blood flow by 30% [5].

The results of this study are also in accordance with the theory of development of Haruyama Shigeo wherein by relaxing which can be obtained through laughing therapy the body releases the hormone endorphin which can help lower blood pressure [5].

Laughing therapy aims to release endorphins into the blood vessels so that if there is relaxation the blood vessels can experience vasodilation so that blood pressure can go down. In this study, the researchers first taught breathing exercises in and practiced the rhythmic movements of the diaphragm by saying "ho ho ho ha ha ha". This breathing can cause a more relaxed feeling [6].

The use of the pattern "ha ha ha" is a respiratory pattern that has been associated with laughter (measurement of laughing activity using laryngeal electromyography, abdominal muscle EMG, and electrocardiogram). Although it will vary greatly with different durations, this laugh pattern is different from when someone coughs or sneezes [7]. After that the researchers gave laughter therapy in the intervention group according to the stages of laughter therapy, there were 17 stages. Laughter therapy is carried out for 6 days with a duration of 20-30 minutes. In the control group laughter therapy was not carried out [9] [10].

The results of the present study support previous studies, namely those carried out by Yulianti (2009) described in his study that for systolic and diastolic blood pressure there was a significant decrease. Systolic blood pressure decreased by 10-50 mmHg and diastolic blood pressure decreased by 10-20 mmHg by paired sample t-test p-value = 0,000 (p-value $\alpha = 0.05$).

Other research whose results are similar to this study, namely by Kanisius (2013) explained in his study that systolic blood pressure decreased 3-24 mmHg and diastolic blood pressure decreased by 2-24 mmHg with paired sample t-test p-value = 0.002 (p-value $\alpha = 0.05$).

IV. CONCLUSION

1. Based on the characteristics of the respondents, the average age of the respondents was 52 years for the intervention group and 53 years for the control group, the sexes were the highest, namely women, and on the average the respondents had elementary school education.
2. Before being given treatment, in the intervention group the average systolic blood pressure was 162 mmHg and diastolic 103 mmHg, while in the control group the

average systolic blood pressure was 154 mmHg and diastolic was 96 mmHg.

3. After being given treatment, in the intervention group the average systolic blood pressure was 159 mmHg and diastolic 97 mmHg, while in the control group the average systolic blood pressure was 154 mmHg and diastolic 94 mmHg.
4. Research on the effects of laughter therapy to decrease blood pressure in patients with hypertensive at Welahan I Primary Health Care resulted in a significant effect on systolic and diastolic blood pressure with p-value 0.022 and 0.036 (p-value <math>< 0.05</math>).
5. It can be suggested that laughter therapy can be applied to decrease the high level of blood pressure in patients with hypertension at Welahan Primary Health Care, Jepara .

References

- [1] Myrank, "Awas, Bom Hipertensi!," December 2015. [Online]. Available: www.myrank.web.id/tag/hipertensi.
- [2] L. Hartono, "Stres dan Stroke," Yogyakarta, Kanisius, 2011.
- [3] H. & H. Hasan, "Laugh Yourself into Healthier Person: a Cross Cultural Analysis of the effect of Varying Level of Laughter on Health," *International Journal of Medical Sciences*, vol. 6, no. 4, pp. 200-211, 2009.
- [4] Ethel, *Anatomi dan Fisiologi untuk Pemula*, Jakarta: 2008, 2008.
- [5] S. Notoatmodjo, *Metodologi Penelitian Kesehatan*, Jakarta: Rineka Cipta, 2010.
- [6] S. & Kusharyadi, *Terapi Modalitas Keperawatan pada Klien Psikogeriatrik*, Jakarta: Salemba Medika, 2011.
- [7] S. & Dewi, *Hidup Bahagia dengan Hipertensi*, Jakarta: EGC, 2010.
- [8] A. Muhammadun, *Hidup Bersama Hipertensi*, Yogyakarta, 2010.
- [9] Tedjasukmana, *Pengobatan Hipertensi dengan Penyakit Penyerta Dalam : Diagnosis dan tatalaksana Hipertensi Sindrom Koroner Akut dan Gagal Jantung.*, Jakarta: Balai Penerbit Rumah Sakit Jantung Harapan Kita, 2012.
- [10] Kataria, *Laugh For No Reason (Terapi Tawa)*, Jakarta: Gramedia, 2004.
- [11] A. Ayu, *Terapi Tawa: Untuk Hidup Lebih Sehat, Bahagia dan Ceria*, Yogyakarta: EGC, 2007.
- [12] S. Dalimartha, *Deteksi Dini Penyakit Kardiovaskuler*, Jakarta: EGC, 2008.