Effect of Reflexology on Blood Pressure Among Patients with Hypertension in The Work Area of Kertajati Community Health Center, Majalengka District In 2021

Heni, Idris Handriana and Lina Siti Nuryawati
STIKes YPIB Majalengka
heniediani@gmail.com, idrishandriana141284@gmail.com, linasn20@gmail.com

Abstract

Hypertension is one of the main problems in the world of public health, both in Indonesia and the world. One treatment to be applied to manage it is non- pharmacological treatment of reflexology. This study aims to determine the effect of reflexology on blood pressure among patients with hypertension in the work area of Kertajati CHC, Majalengka District. This was a quasi-experimental study with one group pretest-posttest design. There were 20 samples involved in this study, namely those with hypertension in the work area of Kertajati CHC, Majalengka District. This study was conducted in the work area of Kertajati CHC, Majalengka District from June 3 to July 3, 2021. The data were analyzed using univariate analysis with frequency distribution and bivariate analysis with Wilxocon test. The results showed that before reflexology, less than half (35.0%) of patients with hypertension experienced stage II hypertension. Furthermore, after reflexology, a small proportion (15.0%) of patients with hypertension experienced stage I hypertension. There was an effect of reflexology on blood pressure among patients with hypertension in the work area of Kertajati CHC, Majalengka District in 2021, as evidenced by a p value of 0.000. It is recommended for the CHC to perform reflexology as an alternative treatment for hypertension. In Addition, there is a need for healthcare workers to provide counseling along with the guidance and supervision to patients with hypertension on how to do reflexology.

Keywords
Reflexology, Patients, Hypertension, Blood Pressure, Health

1. Background

Hypertension is a chronic condition characterized by increased blood pressure on the walls of the arteries. A person is diagnosed as having hypertension if the blood pressure is at or above 140/90 mmHg at rest, taken through two examinations with an interval of five minutes. If the blood pressure is 140/90 mmHg at two or more visits, hypertension can also be diagnosed (Lukman, 2020).

Hypertension or high blood pressure disease is a kind of disorder in the blood vessels that results in a decrease in the supply of oxygen and nutrients. This disease is one of the main problems in the field of public health both in Indonesia and the world. According to the report of the World Health Organization, there qre 1 billion people with hypertension in the world and 2/3 of them are in developing countries. It is estimated that around 80% of the increase in hypertension cases mainly occurs in developing countries in 2025 with a base of a total of 639 million in 2000. This number is estimated to increase to 1.15 billion cases in 2025 (Sri Hartutik, 2017).

The United States is the country with the highest hypertension rate. About 25,000 deaths and more than 1.5 million heart attacks and strokes occur each year. It is estimated that around 80% of the increase in hypertension cases mainly occurs in developing countries in 2025, with a base of 639 million cases in 2000. This number is estimated to increase to 1.15 billion cases in 2025. In Indonesia, hypertension is a health problem with a high prevalence by 28.5% (Lukman, 2020). The prevalence of hypertension in West Java Province in 2019 was 57.5% and it increased to 60.4% in 2020. Most cases of hypertension resulted in heart disease by 40-60% and stroke by 15-30% (West Java Provincial Health Office, 2020).

Based on data derived from the Majalengka District Health Office in 2020, there were 109,009 hypertension cases

© IEOM Society International

in Majalengka District (30.22%) of the target number of 366,730 people (Majalengka District Health Office, 2020). Meanwhile in Kertajati CHC there were 1,417 hypertension cases in 2020 and this number showed an increase compared to cases in 2019 which was 620 patients (Kertajati CHC Unit). This number is also higher than the number of patients with hypertension at Kadipaten CHC Unit in 2020 by 953 cases.

The increase in the number of patients with hypertension in Kertajati CHC requires curative action. Curative health service actions are a series of treatment activities which aims to cure disease, reduce sufferings due to disease, control disease, or control disability so as to maintain the quality of life of the patients as optimally as possible. Management of hypertension can be performed through two methods, namely non-pharmacological and pharmacological. Non-pharmacological methods include weight control, low salt diet, low fat diet, exercise, smoking cessation, stress management, respiratory relaxation, and reflexology. Meanwhile, the pharmacological methods include the administration of diuretics, sympathetic inhibitors, beta-blockers, vasodilators and the angiotensin converting enzyme inhibitors (Ministry of Health of the Republic of Indonesia, 2019).

One of the non-pharmacological therapies for hypertension is reflexology. Reflexology is the proper choice since it is a safe and non-invasive procedure for patients, and is easy for the therapist to perform. Reflexology is one of the best forms of complementary and alternative treatment in the UK and is used for health care by a wide variety of people. In fact, complementary alternative medicine (CAM) is increasingly being considered as a safe and effective treatment to reduce the causes and adverse effects of pain and disease (Lukman, 2020).

Reflexology provides stimulation in the form of pressure on the nerves of the human body. Usually, massage is performed by applying pressure to certain key points on the hands or feet. The stimulus is received by sensory receptors (peripheral nerves). The stimulus received will be converted by the body into an "electric current". The current will then spread to the spinal cord and further forwarded to the brain and muscles. Reflexology helps reduce symptoms of liver, kidney, and heart diseases; high blood pressure, and almost all diseases in human (Lukman, 2020).

Reflexology works the same way as acupuncture, acupressure, and shiatsu in normalizing the balance of the flow of vital energy (chi) at the meridians. Most reflexology practitioners focus on the reflex zone on the feet, although other zones can also be touched, such as the hands and ears. In addition to the palms of the hands and soles of the feet, there are additional location of the reflex zone on the front and back of the body and face (Lukman, 2020). Massage technique has an impact on the smooth circulation of blood flow; it may balance the flow of energy in the body and relax muscle tension. Although massage will not have much impact on patients with severe hypertension, several studies provided evidence that massage could lower blood pressure among patients with mild and moderate hypertension (Zunaidi, 2017).

The results of a study conducted by Hartutik (2017) in Surakarta showed an effect of foot reflexology therapy on blood pressure among patients with primary hypertension. Furthermore, there was a difference in blood pressure between the treatment group and the control group after foot reflexology therapy treatment (post-test) with a p value of $0.000 < 0.05$. Likewise, a study conducted by Lukman (2020) in Palembang showed that there was a statistical decrease in blood pressure after reflexology treatment.

The results of a preliminary study conducted in the Work Area of the Kertajati CHC among 10 patients with hypertension aged 30-45 years sowed that 8 people had a routine check-up with healthcare workers, while 2 other patients controlled their blood pressure independently at home assisted by their family members. The 10 patients got treatment in accordance with the instructions of healthcare workers, namely by taking the medicine given by the doctor and 2 of them always performed sports activities every week by taking a leisurely walk. However, all of the patients had never got complementary therapy by means of reflexology.

Based on the background described above, the researcher is interested in conducting a study entitled "Effect of Reflexology on Blood Pressure among Patients with Hypertension in the Work Area of Kertajati Community Health Center, Majalengka District in 2021."

2. Study Methods

This was a quasi-experimental study with one group pretest-posttest design. The populations involved in this study

© IEOM Society International

were all patients with hypertension in the work area of Kertajati CHC Majalengka District as many as 1,417 people. The samples involved in this study were 20 patients with hypertension in the work area Kertajati CHC Majalengka District. The current study was conducted in the work area of Kertajati CHC Majalengka District from June 3 to July 3, 2021. The instruments used in this study were observation sheets and blood pressure measurement tools namely a digital sphygmomanometer and a stethoscope, used before and after treatment. Reflexology was performed based on reflexology SOP to provide the same reflexology treatment for all respondents.

3. Results

3.1 Univariate Analysis

Description of Blood Pressure Before Reflexology among Patients with Hypertension in the Work Area of Kertajati CHC Majalengka District in 2021

Table.1 Frequency Distribution of Blood Pressure Before Reflexology among Patients with Hypertension in the Work Area of Kertajati CHC Majalengka District in 2021

Blood Pressure among Patients with Hypertension before Reflexology	Frequency (F)	Percentage (%)
Normal	0	0
Pre hypertension	0	0
Hypertension I	13	65.0
Hypertension II	7	35.0
Total	20	100.0

Based on table 1, it was shown that 13 people (65.0%) had stage I hypertension and 7 (35.0%) had stage II hypertension before the reflexolog. Such findings indicated that less than half (35.0%) of patients with hypertension in the work area of Kertajati CHC Majalengka District experienced stage II hypertension before reflexology.

Description of Blood Pressure After Reflexology among Patients with Hypertension in the Work Area of Kertajati CHC Majalengka District in 2021

Table 2 Frequency Distribution of Blood Pressure After Reflexology among Patients with Hypertension in the Work Area of Kertajati CHC Majalengka District in 2021

Blood Pressure among Patients with Hypertension after Reflexology	Frequency (F)	Percentage(%)
Normal	7	35.0
Pre hypertension	10	50.0
Hypertension I	3	15.0
Hypertension II	0	0
Total	20	100.0

Based on table 2, it was shown that there were 7 respondents (35.0%) had a normal blood pressure, 10 people had pre-hypertension (50.0%) and 3 people had stage I hypertension (15.0%) after reflexology. Such findings indicated that a small percentage (15.0%) of patients with hypertension in the work area of Kertajati CHC Majalengka District experienced stage I hypertension after reflexology.

3.2 Bivariate Analysis

© IEOM Society International

Effect of Reflexology on Blood Pressure among Patients with Hypertension in the Work Area of Kertajati CHC Majalengka District in 2021

To determine the effect of reflexology on blood pressure among patients with hypertension, this study applied the Wilxocon test since this was a non-parametric study with an ordinal measuring scale. The following table shows the results of SPSS processing:

Table 3 Effect of Reflexology on Blood Pressure among Patients with Hypertension in the Work Area of Kertajati CHC Majalengka District in 2021

Effect of Reflexology on Blood Pressure among Patients with Hypertension	N	Mean Rank	Sum of Ranks	value
Negative Ranks	19[a]	10.00	190.00	
Positive Ranks	0[b]	.00	.00	0.000
Ties	1[c]			
Total	**20**			

Based on Table 4.3 revealed 19 negative ranks, which indicated that after being given reflexology, 19 respondents experienced a decrease in their blood pressure. The ties value of 1 indicated that after being given reflexology, there was 1 respondent who experienced no change. The results of the calculation using the Wilcoxon statistical test at α = 0.05 obtained a value = 0.000<0.05. Thus, there was an effect of reflexology on blood pressure among patients with hypertension in the work area of Kertajati CHC Majalengka District in 2021.

4 Discussion

4.1 Description of Blood Pressure before feflexology among Patients with hypertension in the Work area of Kertajati CHC Majalengka District in 2021

Based on the results of the study, it was found that less than half (35.0%) of patients with hypertension in the work area of Kertajati CHC Majalengka District had stage II hypertension before reflexology. This indicated that respondents in this study were those who experienced hypertension and the hypertension experienced by respondents was stage I and stage II. Hypertension experienced by the respondents can be due to smoking habits, excessive salt consumption, coffee consumption and non-regular exercise.

The finding showed a slightly lower value compared to the finding of a study conducted by (Sri Hartutik, 2017) in Cihideung Sub-District, Tasikmalaya District, which found that most of respondents (75.5%) had hypertension grade I before being given reflexology treatment. Likewise, another study (Arianto, 2018) showed that 80.6% of respondebts had stage 1 hypertension before reflexology therapy.

Hypertension can be defined as persistent blood pressure wherein the systolic pressure is at or above 140 mmHg and the diastolic pressure is at or above 90 mmHg (Potter & Perry, 2016). Hypertension is an abnormal high blood pressure and should be measured on at least three different occasions. Normal blood pressure varies according to age so that each diagnosis of hypertension must be age-specific (Sri Hartutik & Suratih, 2017).

Hypertension is often referred to as the silent killer because the patient does not know that he or she has hypertension. Hypertension is also the third top risk factor that causes premature death because it can trigger congestive heart failure and cerebro-vascular disease (Lukman, 2020).

Hypertension can be caused by many factors. Hypertension risk factors consist of controllable and uncontrollable factors. Uncontrollable factors include gender, age and genetics. Meanwhile, the controllable factors include obesity, exercise, smoking habits, excessive salt consumption, coffee consumption and stress (Potter & Perry, 2016).

More than half of patients with hypertension experienced stage I hypertension before reflexology. Therefore, healthcare workers need to motivate patients with hypertension to control blood pressure regularly, and also provide counseling about hypertension prevention and non-pharmacological treatment, one of which is reflexology. People with hypertension should regulate their diet in order to reduce the risk factors for

© IEOM Society International

hypertension, such as reducing foods that contain high salt. It is also necessary to maintain activity, do exercise and control blood pressure regularly, and perform non-pharmacological treatment with reflexology.

4.2 Description of Blood Pressure after feflexology among Patients with hypertension in the Work area of Kertajati CHC Majalengka District in 2021

Based on the results of the study, it was found that a small proportion (15.0%) of patients with hypertension in the work area of Kertajati CHC Majalengka District experienced stage I hypertension after reflexology. Such decrease might occur because respondents adhered to the advice and instructions regarding the implementation of reflexology and they might have a lower blood pressure. However, there were respondents who did not experience changes due to other factors such as not being able to control the risk factors for hypertension.

The finding showed a lower value compared to the finding of a study conducted by Rezky, 2016 in Sukabumi which showed that 48.5% of respondents had a normal blood pressure after reflexology treatment. Furthermore, a study conducted by Sri Hartutik, 2017 among patients with primary hypertension in Cihideung District, Tasikmalaya District concluded that 30.5% of respondents had a normal blood pressure after reflexology treatment.

One of the non-pharmacological therapies for patients with hypertension is reflexology. Reflexology is the proper choice since it is a safe and non-invasive procedure for patients, and is easy for the therapist to perform. Reflexology is one of the best forms of complementary and alternative treatment in the UK and is used for health care by a wide variety of people. In fact, complementary alternative medicine (CAM) is increasingly being considered as a safe and effective treatment to reduce the causes and adverse effects of pain and disease (Lukman, 2020).

Reflexology provides stimulation in the form of pressure on the nerves of the human body. Usually, massage is performed by applying pressure to certain key points on the hands or feet. The stimulus is received by sensory receptors (peripheral nerves). The stimulus received will be converted by the body into an "electric current". The current will then spread to the spinal cord and further forwarded to the brain and muscles. Reflexology helps reduce symptoms of liver, kidney, and heart diseases; high blood pressure, and almost all diseases in human (Lukman, 2020).

Most of the previous studies, the respondents experienced a decrease in their blood pressure after reflexology. Therefore, health workers can apply reflexology as an alternative to non-pharmacological treatment for patients with hypertension. In Addition, there is a need for healthcare workers to provide counseling along with the guidance and supervision to patients with hypertension on how to do reflexology so as to achieve an optimum outcome. Patients with hypertension can perform reflexology as an alternative method that is easy and inexpensive to treat blood pressure.

4.3 Effect of Reflexology on Blood Pressure among Patients with hypertension in the Work area of Kertajati CHC Majalengka District in 2021

Based on the results of the study, it was found an effect of reflexology on blood pressure among patients with hypertension in the work area of Kertajati CHC Majalengka District in 2021. This effect was due to an impact of reflexology on the smooth circulation of blood flow which balances the flow of energy in the body and relaxes muscle tension.

The study finding is in line with a study conducted by Lukman, 2020 at the ATGF 8 Clinic Palembang which showed that reflexology had an effect on a decrease in blood pressure ($\rho = 0.026$). Likewise, a study conducted by Sri Hartutik, 2017 in Cihideung District, Tasikmalaya District concluded that there was a significant difference in blood pressure before and after reflexology therapy treatment ($\rho = 0.0001$). Furthermore, the study finding is also in line with a study conducted by Arianto, 2018 in Depok showed that there was an effect of reflexology therapy on changes in blood pressure among patients with hypertension ($\rho = 0.005$)

The results of this study are in line with the theory that reflexology works the same way as acupuncture, acupressure, and shiatsu in normalizing the balance of the flow of vital energy (chi) at the meridians. Most reflexology practitioners focus on the reflex zone on the feet, although other zones can also be touched, such as

© IEOM Society International

the hands and ears. In addition to the palms of the hands and soles of the feet, there are additional location of the reflex zone on the front and back of the body and face (Lukman, 2020).

The results of this study are in line with the theory that massage technique has an impact on the smooth circulation of blood flow, it may balance the flow of energy in the body and relax muscle tension. Although massage will not have much impact on patients with severe hypertension, several studies provided evidence that massage could lower blood pressure among patients with mild and moderate hypertension (Zunaidi, 2017).

Because of The significant effect of reflexology on blood pressure among patients with hypertension confirms that reflexology can be applied as an alternative to treat hypertension and the need for healthcare workers to provide counseling and guidance to patients with hypertension on how to perform reflexology through the assistance and supervision of healthcare workers. Patients with hypertension should to perform regular control on their blood pressure and consult with health workers about good and proper reflexology so that their blood pressure can be lowered or controlled optimally.

5 Conclusions

Based on the results of study on the effect of reflexology on blood pressure among patients with hypertension in the work area of Kertajati CHC Majalengka District, the following conclusions can be established: Less than half (35.0%) of patients with hypertension in the work area of Kertajati CHC Majalengka District experienced stage II hypertension before reflexology; A small percentage (15.0%) of patients with hypertension in the work area of Kertajati CHC Majalengka District experienced stage I hypertension after reflexology; There was an effect of reflexology on blood pressure among patients with hypertension in the work area of Kertajati CHC Majalengka District in 2021, as evidenced by a value = 0.000.

References

Alviani, P. (2017). *Pijat Refleksi : Pijatan Tepat, Tubuh Sehat*. Yogyakarta: Pustaka Baru Press.

Arianto, A. (2018). Pengaruh Terapi Pijat Refleksi Telapak Kaki Terhadap Perubahan Tekanan Darah Pada Penderita Hipertensi. *JKM*, *II*, 201–2016.

Arikunto, S. (2016). *Prosedur Penelitian Pendidikan Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.

Brunner, S. (2016). *Buku Ajar Keperawatan Medikal Bedah Brunner & Suddarth edisi 8 Volume 1,2*. Jakarta: Indonesian Medical Book Publisher EGC. Water(Switzerland).

Dinas Kesehatan Provinsi Jawa Barat. (2020). *Profil Kesehatan Dinas Kesehatan Provinsi Jawa Barat 2019*. Bandung: West Java Provincial Health Office.

Gusmus Indonesia. (2020). Terapi Pijat Refleksi. Retrieved April 2, 2021, derived from https://gusmustherapy.com/

Hartutik, S, & Suratih, S. (2017). Pengaruh Terapi Pijat Refleksi Kaki Terhadap Tekanan Darah Pada Penderita Hipertensi Primer. *JIK*, *II*, 2017–1204.

Hartutik, Sri. (2017). *Pengaruh Terapi Pijat Refleksi Kaki Terhadap Tekanan Darah Pada Penderita Hipertensi Primer*. GASTER, 2(2).

Hendro, & Ariyani, Y. (2016). *Bahan Ajar Kursus Dan Pelatihan Pengobatan Pijat Refleksi Level II - Ilmu Pijat Pengobatan Refleksi Relaksasi*. Jakarta: Directorate of Course and Training Supervision, Directorate General of Early Childhood Education and Community Education, Ministry of Education and Culture.

Ministry of Health of the Republic of Indonesia. (2019). Pusdatin Hipertensi. *Infodatin*, (Hipertensi), 1– 7. https://doi.org/10.1177/109019817400200403

Kozier, B. (2017). *Buku Ajar Fundamental Keperawatan: Konsep, Proses, dan Praktik*, Jakarta: EGC.

Lukman. (2020). Pijat Refleksi Berpengaruh Terhadap Tekanan Darah Pada Pasien Hipertensi Di Klinik Atgf 8 Palembang Reflexology Masssage Is Affecting the Blood Pressure on Hypertention Patients At Atgf 8 Clinic of Palembang. *Jurnal Bahana Kesehatan Masyarakat*, *4*(1), 5–9.

Notoatmodjo, S. (2018). *Metodologi Penelitian Kesehatan*. Jakarta: PT Rineka Cipta.

Nursalam. (2020). *Metodologi Penelitian Ilmu Keperawatan*. Jakarta: Salemba Merdeka.

Potter, P. A., & Perry, A. G. (2016). *Buku Fundamental Keperawatan*. Jakarta: Salemba Medika.

Putri, A. H. (2016). *Titik Titik Pijat Refleksi & Ramuan Tradisional*. Yogyakarta: Araska.

Rezky, R. A. (2016). Pengaruh Terapi Pijat Refleksi Kaki Terhadap Tekanan Darah Penderita Hipertensi Primer. *Jurnal Kesehatan*, *III*, 10–18.

Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R & D*. Bandung:Alphabeta.

Zunaidi, A. (2017). Pengaruh Pijat Refleksi Terhadap Tekanan Darah Pada Penderita Hipertensi Di Klinik Sehat

© IEOM Society International

Hasta Therapetika Tugurejo Semarang Sekolah Tinggi Karya Husada Semarang. *National Conference Proceedings.*

Biographies

Heni is lecture at STIKes YPIB Majalengka, Jawa Barat, Indonesia. She also has relevant experience in research and community services. She research interests are healthy, medicine and nurse.

Idris Handriana is lecture at STIKes YPIB Majalengka, Jawa Barat, Indonesia. He also has relevant experience in research and community services. His research interests are healthy, medicine and nurse.

Lina Siti Nuryawati is lecture at STIKes YPIB Majalengka, Jawa Barat, Indonesia. She also has relevant experience in research and community services. She research interests are healthy, medicine and nurse.

© IEOM Society International