

Implementation of Foot Massage Therapy on Mrs. F with Preeclampsia During Pregnancy in Desa Sungai Kitano, Martapura Timur District

Rizka Ananda Ungang¹, Fitri Ayatul Azlina²

^{1,2} School of Nursing, Faculty of Medicine and Health Science, Universitas Lambung Mangkurat, Indonesia

ABSTRACT

Background. The maternal mortality rate (MMR) in 2023 was 4,482 per 100,000 live births, with the highest number of cases occurring in mothers with hypertension during pregnancy or preeclampsia. Preeclampsia is a pregnancy complication characterized by hypertension $\geq 140/90$ mmHg and proteinuria $>+1$, which appears at or after 20 weeks of pregnancy. Foot massage therapy can be an effective non-pharmacological treatment to prevent and manage preeclampsia during pregnancy. **Objective:** To determine the effectiveness of foot massage therapy in pregnant women with preeclampsia in Sungai Kitano Village, Martapura Timur District. **Methods.** This study used a case study approach in nursing care with foot massage therapy applied to pregnant women with preeclampsia for 5 days. One participant was selected using a convenience sampling technique with predefined inclusion and exclusion criteria. The respondent received 15 minutes of therapy, and blood pressure was measured before and after the treatment. The data were analyzed and described in a table showing the blood pressure before and after the intervention. **Results:** The results showed that on the first day, before the foot massage therapy, the respondent's blood pressure was 156/75 mmHg. After 5 consecutive days of foot massage therapy, the respondent's blood pressure decreased to 111/74 mmHg on the fifth day of therapy. **The conclusion:** Foot massage therapy can lower blood pressure in pregnant women with preeclampsia.

*Correspondence author:
Email Correspondence:
fitriayatulazlina@ulm.ac.id

Keywords: Preeclampsia, Pregnancy, Foot Therapy Massage

INTRODUCTION

Pregnancy, labor, and childbirth were natural processes that resulted in physiological changes in a woman's body and surrounding environment (Wati et al., 2023). Pregnancy was the process of fertilization or the union of spermatozoa and ovum, followed by nidation or implantation. According to the international calendar, When calculated from fertilization until the baby's birth, a normal pregnancy lasts 40 weeks, 10 months, or 9 months. Although it was a physiological process, complications could occur at any time and lead to severe impacts for both the mother and the fetus (Wati et al., 2023).

The Ministry of Health of the Republic of Indonesia stated that in 2023, the maternal mortality rate (MMR) in Indonesia was 4,482 per 100,000 live births (Kemenkes RI, 2024). One of the leading causes of maternal deaths in Indonesia was hypertension during pregnancy, with 412 cases reported in 2023 (Kemenkes RI, 2024). Hypertension during pregnancy, also

known as preeclampsia, was a condition in which the pregnant woman's blood pressure was $\geq 140/90$ mmHg and her urine protein levels were high ($> +1$), typically occurring at or after 20 weeks of pregnancy (Zaniyah & Dewi, 2023).

The incidence of preeclampsia worldwide ranged from 0.51% to 38.4%, with 5-7% of cases occurring in pregnant women in developing countries (Zaniyah & Dewi, 2023). Based on this data, hypertension during pregnancy or preeclampsia needed to be managed and prevented to avoid an increase in maternal mortality due to hypertension.

The management and prevention of preeclampsia could be carried out through pharmacological and non-pharmacological therapies (Hidayati, 2022). Pharmacological treatment involves taking antihypertensive medications, while non-pharmacological therapy could include relaxation therapy, exercise, massage, prayer, and others (Orizani, 2019). One of the non-

pharmacological/complementary therapies that the mother could safely perform independently was foot massage therapy (Fatikasari, 2024).

Foot massage therapy massages the foot area by applying pressure, rubbing, and tapping specific foot parts (Amalia et al., 2024). The pressure from the massage would cause the brain to send signals that balance the nervous system or release endorphin hormones, which induces relaxation and improved blood circulation (Ardiansyah & Titiah, 2019). Additionally, the massage could lead to the widening of the arteries, which increases blood supply to the massaged area, thereby enhancing muscle contraction effectiveness and eliminating metabolic waste from the muscles, helping to reduce muscle tension (Aditya & Khoiriyah, 2021).

Based on the results of observations and assessments during the Wetland Health Nursing rotation (KKLB) of the nursing profession education at Lambung Mangkurat University (2024) in Sungai Kitano Village, Martapura Timur District, two pregnant women with preeclampsia were found. Sungai Kitano Village was one of the wetland areas, with settlements along the Martapura River's banks. Wetlands are water accumulation or storage areas characterized by terrestrial and aquatic features (Laily, 2022).

The abundance of flora and fauna within the area, including river fish such as haruan, lais, Bauman, sapat, papaya, and others, made preserving these fish with salt an efficient way to utilize them (Putri, 2022). This led to the riverbank communities developing a preference for salty foods, which contributed to a high incidence of hypertension among the people living along the river, including pregnant women, particularly with preeclampsia.

Therefore, the researcher was interested in the effectiveness of foot massage therapy for pregnant women with preeclampsia in Sungai Kitano Village, Martapura Timur District.

METHODS

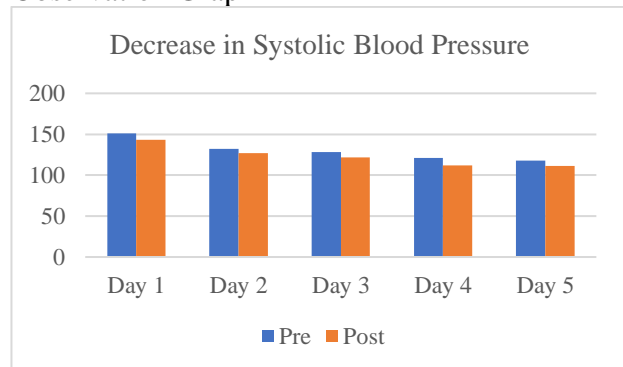
This research was conducted from December 4 to 8, 2024, in RT 01, Desa Sungai Kitano, Kecamatan Martapura Timur. This study used a case study approach in nursing care, applying foot massage therapy to Ny. F with preeclampsia in trimester II. The equipment used in this study included a

sphygmomanometer to measure blood pressure, olive oil, and towels. The first step of the procedure in this study was to measure the client's blood pressure before therapy. Furthermore, foot massage therapy was carried out from the calf to the sole with predetermined movements (Ainun et al., 2021) for 15 minutes daily for 5 consecutive days at 3.00 pm. The client's blood pressure was then measured again after therapy was given.

The data obtained were analyzed and described simply before and after the intervention, then presented as diagrams.

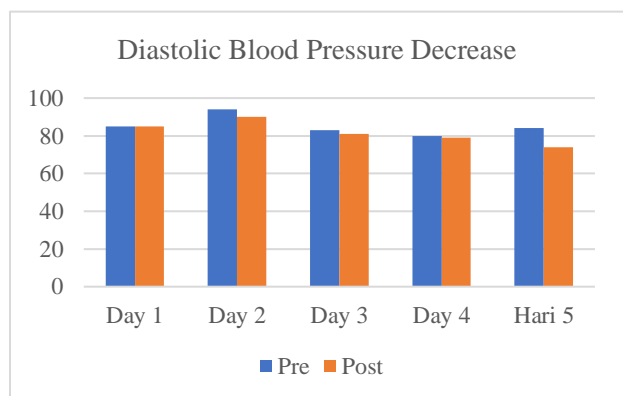
RESULTS AND DISCUSSION

Figure 1. Results of Systolic Blood Pressure Observation Graph



The results in Figure 1 show that after being given foot massage therapy for 5 days, the study showed that the client's systolic blood pressure decreased. The decrease in systolic blood pressure before the intervention was 150 mmHg; after the intervention, it was 111 mmHg, indicating a reduction in blood pressure of 39 mmHg.

Figure 2. Diastolic Blood Pressure Observation Graph Results



The results in Figure 2 show that after being given foot massage therapy for 5 days, the study showed that the client's diastolic blood pressure decreased. There was an increase in diastolic blood pressure on the 2nd day, but then gradually reduced over the next 3 days. The decrease in systolic blood pressure before the intervention was 75 mmHg, and after the intervention, it was 74 mmHg, indicating a reduction in blood pressure of 1 mmHg.

DISCUSSION

Blood pressure in individuals with hypertension tended to fluctuate daily due to various factors, including changes in physical activity, emotional stress, food and drink consumption, medication, sleep duration, environment, biological factors such as illness, and improper therapy (Sasmalinda et al., 2023). In pregnant women with preeclampsia, blood pressure increases due to a combination of abnormal placenta and ischemia (Retnaningtyas, 2021). Therefore, safe therapy for both the mother and the fetus was needed, which was easy to perform and could be done independently at home.

Foot massage became one of the non-pharmacological therapy techniques, namely massage, that was safe for pregnant women because it was far from the abdominal area and could help relax the body (Rahmasari et al., 2021). In addition, according to the researchers, massage was an activity that could be easily performed by anyone, anywhere, without requiring special costs, time, or setting. Foot massage therapy, in principle, aimed to improve the flow of energy in the body, as all energy pathways would be open and the flow of energy would no longer be blocked by muscle tension or other obstacles, thereby minimizing complications for pregnant women with preeclampsia (Pramesti et al., 2019).

The foot massage was a complementary therapy for lowering hypertension, performed by kneading and massaging the feet. The relaxation effect experienced came from the massage, which provided a bioelectric stimulation to the nerves in the feet, which then improved circulation and oxygen flow to the body's cells, reducing blood pressure (Ervinda, 2023).

The foot massage therapy intervention for Mrs. F was focused on the issue of preeclampsia with

a nursing diagnosis of Ineffective Peripheral Tissue Perfusion. The client and the researcher discussed the timing of the intervention to ensure it was performed at the same time every day. During the 15-minute foot massage therapy intervention, blood pressure was always measured twice, once before and once after the intervention each day, using a digital sphygmomanometer, and the client was seated in a relaxed state.

The decrease in systolic blood pressure, from 156 mmHg before the intervention to 111 mmHg after the intervention, indicated a reduction of 45 mmHg. Meanwhile, there was an increase in diastolic blood pressure on the first day, from 75 mmHg before the intervention to 93 mmHg after the intervention. This was due to the patient still consuming salted fish and not taking antihypertensive medication the previous day. However, this increase in blood pressure was still within normal limits. In a study by Fitri (2024), it was stated that medication adherence had a significant correlation with blood pressure in hypertensive patients. The study explained that the more compliant pregnant women were with taking their medication, the more their blood pressure would be controlled. Medication adherence in preeclamptic patients was crucial because strict hypertension control during pregnancy was essential to prevent dangerous complications (Fitri, 2024).

The habit of consuming high-sodium foods was a customary practice. It has even become a characteristic food for the people of South Kalimantan, such as salted fish, salted eggs, and iwak wadi, especially among those living along the riverbanks (Erawati & Loly, 2020). This was due to the abundance of river fish supplies around the riverbank areas, so an efficient way to utilize them was by preserving the fish with salt (Putri, 2022).

The researcher assumed that another factor contributing to the instability of blood pressure and the occurrence of preeclampsia in Mrs. F was her age, as she was only 19. Research by Mariati (2022) mentioned a relationship between maternal age and the incidence of preeclampsia, where pregnant women under 20 years old were at high risk for preeclampsia. This was because pregnant women under 20 had not yet reached optimal development of their reproductive organs and physiological functions, leading to frequent failure of "spiral

artery remodeling," resulting in placental ischemia. This ischemic placenta produces highly toxic hydroxyl radical oxidants, causing preeclampsia (Rahmawati, 2022). Therefore, the ideal age for pregnancy is between 20 and 35 years old (Laura, 2021).

The results of this study were in line with the research by Andansari (2022), which stated that there was a decrease in both systolic and diastolic blood pressure after foot massage therapy was given to pregnant women with hypertension. Similar results were also found in the study by Mawarti (2019), which showed the effect of foot massage on pregnant women with hypertension. This proved that the application of foot massage therapy could reduce the symptoms of preeclampsia in pregnancy, such as elevated blood pressure.

CONCLUSION

Based on the assessment results of Mrs. F, the nursing diagnosis obtained was Ineffective Peripheral Tissue Perfusion, with the intervention used being foot massage therapy. The intervention on Mrs. F effectively lowered blood pressure, as evidenced by a blood pressure of 156/75 mmHg before the intervention and 111/74 mmHg after the intervention. Recommendations for future researchers are to apply other non-pharmacological therapies that could lower blood pressure in preeclampsia, such as foot massage therapy combined with foot soaking or aromatherapy.

References

- Aditya, R., & Khoiriyah, K. (2021). Aplikasi Terapi Pijat Refleksi Kaki terhadap Penurunan Tekanan Darah pada Pasien Hipertensi di Kecamatan Lowokwaru Kota Malang. *Holistic Nursing Care Approach*, 1(1): 33-37
- Ainun, K., Kristina., & Srimis, L. (2021). Terapi Foot Massage Untuk Menurunkan Dan Menstabilkan Tekanan Darah Pada Penderita Hipertensi. *ADIMAS GALUH*, 3(2): 328-336
- Amalia, P., Yanti, H., & Sukmawati. (2024). Foot Massage Therapy Menggunakan Minyak Zaitun Untuk Mengurangi Nyeri Post Sectio Caesarea: Case Report. *SENTRI: Jurnal Riset Ilmia*, 3(9): 4359-4369
- Andansari, Suparmi, Ariyanti. (2022). Pengaruh pijat kaki dalam menurunkan tekanan darah pada kasus hipertensi dalam kehamilan. *Holistik Jurnal Kesehatan*, Volume 16, No.2, April 2022: 182-190
- Ardiansyah., & Titih H. (2019). Metode Massage Terhadap Tekanan Darah Pada Penderita Hipertensi: A Literatur Review. *Jurnal Penelitian Keperawatan*, 5(1): 35-46
- Erawati, C. M., & Loly, O. P. (2020). Pengaruh Penggunaan Garam Rendah Natrium Pada Ikan Asin Tenggiri Papan (*Scomberomorus Guttatus*). *Jurnal Teknologi Pangan dan Gizi*, 18(2): 74-83
- Ervianda., Hermawati., & Dwi, Y. (2023). Penerapan Foot Massage Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Di RSUD Kabupaten Karanganyar. *Jurnal Ventilator: Jurnal riset ilmu kesehatan dan Keperawatan*, 1(3) : 196-207
- Fatikasari, D., Erika, D. N., & Muhammad, N. (2024). Penerapan Pijat Refleksi Kaki Terhadap Perubahan Tekanan Darah Pada Lansia Hipertensi Di Kelurahan Joyotakan Surakarta. *IJOH: Indonesian Journal of Public Health*, 2(3): 468-480
- Fitri, R. E. (2024). Hubungan Kepatuhan Minum Obat dengan Regulasi Kadar Tekanan Darah pada Ibu Hamil di Puskesmas Kota Semarang
- Hidayati, N. O., Lia, S., Mela, Y., dkk. (2022). Terapi Non Farmakologis dalam Penurunan Tekanan Darah pada Ibu Hamil Dengan Preeklampsia: Studi Literatur. *Journal of Maternity Care and Reproductive Health*, 4(4): 282-292
- Kemendes RI. (2024). Profil Kesehatan Indonesia Tahun 2023. Jakarta: Kementerian Kesehatan RI.
- Laily, K., Lenie, M., Agung, W., & Anugrah, N. R. (2022). Buku Ajar Pengantar Lingkungan Lahan Basah. Yogyakarta: CV Mine
- Laura, C., Hutasoit, E. S. ., & Eyanor, P. C. (2021). Hubungan Usia Ibu Hamil, Paritas Dan Kunjungan Asuhan Antenatal Dengan Kejadian Preeklampsia. *Jurnal Kedokteran Methodist*, 14(2)
- Mariati, P., Anggraini, H., Rahmawati, E., & Supriah. (2022). Faktor-Faktor Yang Berhubungan Dengan Kejadian Preeklampsia Pada Ibu Hamil Trimester III. 7, 246-258
- Mawarti dan Lailatuz. (2019). Pengaruh Pijat Kaki Terhadap Penurunan Tekanan Darah Pada Ibu Hamil Dengan Hipertensi Di Rs Yogyakarta. *Media Ilmu Kesehatan Vol. 8*, No. 1, April 2020

-
- Nasrullah, D., Rahayu, E., Hadi, S., Ari, N., & Sukadiono, S. (2021). Pengaruh Terapi Olesan Krim Minyak Zaitun dan Perasan Jahe terhadap Penurunan Intensitas Nyeri pada Lansia Rheumathoid Arthritis. *JHeS (Journal of Health Studies)*, 5(1), 34– 42. <https://doi.org/10.31101/jhes.1483>
- Orizani, C. M. (2022). Monograf Regulasi Emosi pada Lansia Penderita Hipertensi Keperawatan Gerontik. Purbalingga: *Eureka Media Aksara*
- Putri, A. Z. (2022). Gambaran Kebiasaan Makan Dan Status Gizi Pada Penderita Hipertensi Di Wilayah Kerja Puskesmas Banjarbaru Selatan. Poltekkes Kemenkes Banjarmasin
- Pramesti, T. A., Indriani, N. W. N., Trisnadewi, N. W., & Juliawan, D. G. (2019). The Effect of Foot Massage on Sleep Quality in the Elderly. Prosiding Seminar Nasional Hasil, 215–223
- Rahmasari, R. I., Nury, L. F., & Sri, N. (2021). Penerapan Massage Pada Kaki Dengan Minyak Essensial Lavender Terhadap Tekanan Darah Pada Pasien Hipertensi Di Ruang Jantung RSUD Jend. Ahmad Yani Kota Metro. *Jurnal Cendikia Muda*, 1(4): 2807-3649
- Rahmawati, L., dkk. (2022). Literature Review: Faktor-Faktor Risiko Terjadinya Preeklampsia Pada Ibu Hamil. *Journal of Borneo Holistic Health*, 5(2): 122-132
- Retnaningtyas, E. (2021). Preeklampsi & Asuhan Kebidanan pada Preeklampsi. Kediri: *STRADA PRESS*
- Sasmalinda, L., Syafriandi., & Salma. (2023). Faktor-faktor yang Mempengaruhi Perubahan Tekanan Darah Pasien di Puskesmas Malalo Batipuh Selatan dengan Menggunakan Regresi Linier Berganda. *Journal of Mathematics UNP*, 1(2): 36-42
- Wati, E., Senja, A. S., & Nury, L. F. (2023). Penerapan Pendidikan Kesehatan Tentang Tanda Bahaya Kehamilan Untuk Meningkatkan Pengetahuan Ibu Hamil Primigravida Di Wilayah Kerja Uptd Puskesmas Purwosari Kec. Metro Utara. *Jurnal Cendikia Muda*, 3(2): 226-234
- Zainiyah, Z., & Dewi, A. H. (2023). Faktor-faktor yang Berhubungan dengan Kejadian Preeklampsi Pada Ibu Hamil Trimester III pada Praktik Mandiri Bidan X di Bangkalan. *Jurnal Kesehatan Komunitas*, 9(3): 504-511