

Application of Foot Massage Therapy to Reduce Blood Pressure in Hypertension Sufferers: A Systematic Review

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ABSTRACT

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Hypertension is a condition in which there is an increase in systolic blood pressure above the normal limit, namely more than 140 mmHg and diastolic blood pressure of more than 90 mmHg. Objective: This systematic review aims to examine the effectiveness of foot massage interventions to reduce blood pressure in hypertensive patients. which includes intervention models, measurement instruments, and evaluating the impact and effectiveness of foot massage interventions on reducing blood pressure. Method: used. Searches in this systematic review are several international data bases, namely Proquest, Ebsco, PubMed, Taylor, Cochrane, and secondary research (Gray literature) with a time span of 2018 to 2023 (10 years). Results: After reviewing all the articles, it was found that foot massage can reduce both systolic and diastolic blood pressure. The intervention model regarding Foot Massage varies in each study regarding the treatment of blood pressure in hypertensive patients and the most common is Foot Massage. The most widely used instrument for measuring blood pressure is the Sphygmomanometer. The results of evaluating the impact and effectiveness of the intervention show that Foot Massage is able to reduce both systolic and diastolic blood pressure. Likewise, the results of a systematic review show that foot massage is able to reduce both systolic and diastolic blood pressure.

Conclusion: Hypertension patients who underwent foot massage therapy for approximately 30 minutes, at all reflex points on both feet, once every two weeks, for 4 weeks to 10 consecutive weeks experienced a significant reduction in the level of fatigue intensity. The time for measuring results should be carried out 24 hours after the intervention or serially according to the session carried out and using a certified and experienced therapist

Keywords: Gadgets; Eye Health Disorders; Pupils

INTRODUCTION

Hypertension is a disease that is responsible for 12.8 % or 7.5 million deaths globally and this number is the largest number of deaths in the world. Hypertension is also the cause of reduced ability or *Disability-Adjusted Life Years (DALYs)* by 3.8 % . *Suboptimal* blood pressure control , namely *systolic* >115mmHg, is responsible for 62%

of *cerebrovascular disease*, 49% of *ischemic heart disease* , and 49% of *heart failure cases* (Suhadi, R.et al., 2016 in Yuli Widyastuti et all, 2022) .

Hypertension can be defined as systemic blood pressure where the systolic pressure is above 140 mmHg and the diastolic pressure is above 90 mmHg. In the elderly population, hypertension is defined as a systolic pressure of 160 mmHg and a diastolic pressure of 90 mmHg. *Hypertension* is the main cause of *heart failure* and *kidney failure* , *stroke* , referred to as the silent killer (Suirakoka P, 2015) in (Health et al., 2023) . Based on the results of Basic Health Research (Riskesdas), it is reported that hypertension is at the highest level of the 5 non-communicable diseases in Indonesia with a prevalence of 31.7% in 2007, then decreased in 2013 to 25.8% and in 2018 it showed a prevalence of Hypertension has increased nationally, reaching 34.1%. Based on these figures, the highest incidence of hypertension is in South Kalimantan (44.1 %) and the lowest is in Papua (22.2%) (Riskesdas, 2018 in Aulia Saputri, Mursal, 2021) .

Currently, treatment to control hypertension is very necessary, such as non-pharmacological treatment which can be used as a complement to therapy to obtain a better treatment effect than pharmacological treatment. This non-pharmacological treatment is a mandatory intervention that must be carried out in every treatment for hypertension. One of the non-pharmacological therapies offered to reduce hypertension is by applying massage therapy to both legs of hypertensive sufferers. This foot massage technique can remove blockages in the blood flow so that blood flow and energy in the body can flow again smoothly (Smeltzer & Bare, 2018).

Massage or what is usually called massage uses various pressure and movement techniques to manipulate muscles and other soft tissues. By relaxing the soft tissue in the body, this will allow more blood and oxygen to reach the affected area and reduce pain. Massage is a sensory integration technique that can influence activity in the autonomic nervous system. If someone can perceive touch as a relaxing stimulus, a relaxation response will emerge (Patria, 2019). The benefits of foot massage or foot massage are to improve blood and lymph circulation. Where foot massage will help to speed up metabolism in the human body. Foot massage *treatment* will greatly influence the contraction of the capillary walls in the blood so that it can cause vasodilation or widening of the capillaries and lymph vessels. When the flow of oxygen in the blood increases, the removal of metabolic waste will become smoother so that it can stimulate *endorphin hormones* which function to provide a feeling of comfort (Haryani 2019).

Based on related reviews, the benefits of providing foot massage therapy which is done by massaging parts of the feet can help reduce excess fluid volume (foot edema) in *Congestive Heart Failure patients*. (Sari & Prihati, 2021) , helps reduce edema in third trimester pregnant women (Zaenatulshofi & Sulastri, 2019) . And can provide a feeling of comfort or relaxation for hypertension sufferers (Yanti et al., 2019 in Nur Uyuun I. Biahimo, Sri Susanti Abdullah, 2022) . Foot massage therapy can also reduce pain in the body, can prevent various diseases, increase stamina, help overcome stress, relieve migraine symptoms, help cure chronic diseases, and reduce drug dependence. (Ramayanti, 2022) . However, there has been no *review* that specifically discusses foot massage on reducing blood pressure in hypertensive patients. Therefore, in this systematic review, the author wants to know the effect of foot massage in reducing blood pressure *in* hypertension patients in terms of the type of intervention, duration and measurement time.

METHODS

This systematic review was prepared using *The Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) guidelines (Moher et al., 2010) . A search for relevant literature was carried out using *the PubMed, Science Direct, Cochrane, ProQuest, Willey, Google Scholar data bases* . Question formulation follows PICO (*patient, intervention, comparison/control and outcome*) guidelines to increase the accuracy and completeness of intervention study reporting. The PICO in this study is P: hypertension, I: foot massage C: *no OR any intervention* , O: *decrease in blood pressure*. Articles that will be included are articles with experimental study designs for reflexology to *reduce blood pressure* in adult patients with hypertension. Only studies published in English were included and published between 2010-2020 (last 10 years). Studies that used therapies other than reflexology therapy were excluded.

RESULTS

Study Type

Among the five studies included, seven of the five studies were experimental design studies (Widyastuti Yuli at al., 2022; Aulia Saputi at al., 2021; Arman 2019; Elpriska 2021; Irwan Ade at al. 2020, Nur Arifah Charulia at al., 2024) .

Participants

Participants involved in these five studies were patients with hypertension. (Widyastuti Yuli at al., 2022; Aulia Saputi at al., 2021; Arman 2019; Elpriska 2021; Irwan

Ade at al. 2020, Nur Arifah Charulia at al, 2024) .

Critical Appraisal

Study quality was assessed using *the Critical Appraisal Skills Program* (CASP) and *The Joanna Briggs Institute* (JBI) (CASP, 2018a; The Joanna Briggs Institute, 2017) . A study with a Quassy Experiment design, *appraisal was carried out* using JBI *quasi experiment* and valid results were obtained.

Study Characteristics

Type, Intensity, and Duration of Intervention

The five studies reviewed used foot massage techniques, with one study saying the intensity was sufficient for only 15 minutes (Widyastuti Yuli at al., 2022) , the intensity was 30-60 minutes for 3 consecutive days.

DISCUSSION

Providing foot massage therapy can affect the reduction of blood pressure, this is because foot massage causes deep relaxation, thereby alleviating physical and spiritual fatigue because the sympathetic nervous system experiences a decrease in activity which ultimately results in a decrease in blood pressure. In principle, massage is performed on hypertension sufferers to facilitate the flow of energy in the body so that hypertension disorders and their complications can be minimized. When all energy pathways are open and energy flow is no longer blocked by muscle tension and other obstacles, the risk of hypertension can be reduced (Armen et al. , (2019). The management stated above aims to reduce blood pressure by reducing the amount of blood, reducing the heart's pumping activity, and reducing the shrinkage of the walls of the fine arteries so that the pressure on the walls of the blood vessels is reduced and blood flow becomes smooth so that the pressure blood will decrease (Dalimartha, 2012 in Armen et all., 2019).

research is also in line with the research of Eva Dwi Rahmayanti and Arif Nurma Ethics, 2022, which states that providing foot massage therapy can change blood pressure in hypertension sufferers. After carrying out foot massage therapy, 17 respondents experienced changes in their hypertension levels. There were differences in the level of hypertension before and after reflexology foot massage therapy, namely normal hypertension level (58.8 %) and pre-hypertension level (41.2%). Providing foot massage reflexology therapy is an effort to prevent the occurrence of hypertension. A non-pharmacological health therapy with foot reflexology massage is a type of health

therapy that is easy, cheap, and can be done yourself. The effect of foot massage reflexology therapy can reduce blood pressure with efforts to cure high blood pressure through reflexology by massaging the head of the feet, neck of the feet, kidney points, urinary tract and glands. The movements used in massage are able to increase blood flow, causing stimulation of nerve receptors, causing blood vessels to dilate reflexively and thus improve blood flow (A Buchari, 2018 in Eva Dwi Rahmayanti and Arif Nurma Ethics., 2022).

Apart from the results of the two previous studies above, this research is also in line with research conducted by Elpriska Sihotang, 2021. This researcher stated that foot massage therapy is one of the non-pharmacological therapies offered to lower blood pressure using massage touch techniques at certain points which can removes blockages in the blood so that the flow of blood and energy in the body returns smoothly. And the type of research used in this research is the same , namely quasi experimental.

Ade Tedi Irawani et all, 2020 also stated the same thing, namely from the results of research conducted, that providing foot massage therapy can help reduce blood pressure in hypertension sufferers. The type of research carried out by Ade Tedi Irawani et al , 2020 was a quasi-experiment with a one group pretest-posttest design. The sample in the study was 15 people suffering from hypertension at the UPTD Maja Health Center, Majalengka Regency. With this foot massage therapy, it can help hypertension sufferers to reduce pharmacological therapy and the treatment can also be easily carried out independently by sufferers at home.

Hypertension, also known as high blood pressure, occurs when the systolic and diastolic blood pressure consistently increases above 140/90 mmHg. Hypertension is a disease that is often found in Indonesia. Hypertension can attack various groups in society from high to middle to lower social levels. In addition, as a person's age increases , the risk of suffering from hypertension becomes greater and because of the influence of a person's age on the emergence of stress, stress also often occurs (Arianto, 2018). Several factors can cause hypertension, namely lifestyle with wrong diet, gender, physical exercise, food, stimulants (substances that speed up body functions) and stress management.

Providing complementary therapy is non-medical treatment or treatment by using herbs, exercise patterns, dietary adjustments which aim to regulate a healthy lifestyle by maximizing the function of the body's systems. One of the appropriate complementary

therapies in dealing with hypertension in the community is foot massage (Umamah & Paraswati, 2019). Foot massage is a traditional touch therapy that can have a relaxing effect and relax tense muscles, and is also beneficial for health. By doing massage, you can improve blood circulation by providing a direct, mechanical effect from pressure and rhythmic movements, causing stimulation of nerve receptors and causing blood vessels to dilate reflexively, thus improving blood flow (Ratna & Aswad, 2019).

Foot massage can also provide benefits, namely reducing pain in the body, and can also prevent various diseases. Increases stamina, helps overcome stress, relieves migraine symptoms, helps cure chronic diseases, and reduces drug dependence. This foot massage displays basic techniques that are often used, namely the thumb stretching technique, rotating movements of the hands and feet at one point, foot massage reflexology, as well as the implementation of press and hold techniques (Marisna et al., 2017 in Eva Dwi Ramayanti, Arif Nurma Etika ., 2022). According to researchers' assumptions, there is an influence in providing foot massage therapy on reducing blood pressure in hypertension sufferers. Where providing this therapy can help sufferers to feel more relaxed and comfortable and the movements carried out during the intervention can provide benefits, especially making blood circulation smooth.

CONCLUSIONS

This review shows that foot massage can be used to lower blood pressure in hypertensive patients. From the results of this study it can be concluded that hypertension patients who underwent foot massage therapy for approximately 30 minutes, at all reflex points on both feet, once one to two weeks, for 4 weeks to 10 consecutive weeks experienced a significant reduction in the level of fatigue intensity. . The time for measuring results should be carried out 24 hours after the intervention or serially according to the session carried out and using a certified and experienced therapist.

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