

**Review**

**The Effectiveness of Warm Water Foot Soak Therapy and Rose Aroma Therapy on Lowering Blood Pressure and Anxiety in Hypertensive Patients : Literature Review**

Abdul Muhith<sup>1</sup>, Moh Subairi<sup>1</sup>, Anastasa Mampesi<sup>1</sup>, Adirson Barbosa de Oliveira<sup>1</sup>, Eva Vera Zulkarnain<sup>1</sup>, Tata Mahyuvi<sup>2</sup>, Moch Fatkan<sup>2</sup>, Sulistyorini<sup>2</sup>, Anies Muthoharoh<sup>2</sup>

<sup>1</sup> Faculty of Nursing and Midwifery, Nahdlatul Ulama University Surabaya, East Java, Indonesia

<sup>2</sup> Surabaya Islamic Hospital, A.Yani, Surabaya, East Java, Indonesia

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**ABSTRACT**

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**Background:** Hypertension is a disease that can cause anxiety for sufferers, this is because the disease is the main factor in the occurrence of other diseases such as stroke, this must be treated immediately by doing a combination of non-pharmacological and pharmacological treatment to reduce symptoms and complications that may occur. The purpose of this literature review is to determine the effectiveness of warm water foot soak therapy and the administration of rose aroma therapy on reducing blood pressure and anxiety in hypertensive patients


**Methods:** The method used PRISMA Approach for this article is literature review using a journal database from Google Scholar in the period of 2018-2023 with search keywords namely "soak the feet of warm water of hypertensive patients", and "aroma therapy rose with anxiety" to find relevant articles found as many as 3,250 articles from Google Scholar).


**Results:** Articles were selected according to the criteria and obtained the results of 10 articles that were ready to be reviewed. The results of this study showed that it was proven effective in soaking warm water feet and giving rose aroma therapy to reduce blood pressure and anxiety in hypertensive patients.

**Conclusion:** The conclusion of the 10 articles reviewed, showed that the fire of soaking the feet of warm water and giving rose aroma therapy showed a positive response in lowering blood pressure and anxiety.

 **Corresponding Author**

 **Affiliation**

 **Email**

 **Cite this as**

: Abdul Muhith  
 : Faculty of Nursing and Midwifery, Nahdlatul Ulama University Surabaya  
 : abdulmuhith@unusa.ac.id  
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**Introduction**

Hypertension or high blood pressure is one of the problems that are often found among people in developed and developing countries, including in Indonesia. Hypertension is a disease of

abnormalities in blood vessels characterized by an increase in blood pressure, and is often called the silent killer. Hypertension is a condition of increased systolic and diastolic blood pressure, where systolic  $\geq 140$  mmHg and



diastolic  $\geq 90$  mmHg (Evelyn & Hartini, 2022).

Anxiety in hypertensive patients is a psychiatric element that describes feelings, emotional states possessed by a person when facing reality or events in his life. Stating that anxiety is an unpleasant emotional reaction, characterized by fear, inhibition of personal desires and repressed emotions that arise in consciousness (Simanullang et al., 2022).

Data from the World Health Organization (WHO) (2014), revealed that under the prevalence of hypertension sufferers, which is 4 out of 10 total population, two-thirds of the number are elderly aged more than 60 years. According to Riskesdas (2018) stated that the prevalence of hypertension based on measurement results in the population aged  $\geq 18$  years was 34.1%, the highest in South Kalimantan (44.1%), while the lowest in Papua was (22.2%). The estimated number of hypertension cases in Indonesia is 63,309,620 people, while the death rate in Indonesia due to hypertension is 427,218 deaths (Evelyn & Hartini, 2022).

Hypertension occurred in the age group of 31-44 years (31.6%), age 45-54 years (45.3%), age 55-64 years (55.2%). From the prevalence of hypertension of 34.1%, it is known that 8.8% were diagnosed with hypertension and 13.3% of people diagnosed with hypertension did not take medication and 32.3% did not routinely take medication. This shows that most people with hypertension do not know that they are hypertensive so they do not get treatment (Ministry of Health, 2018) in (Evelyn & Hartini, 2022). Patients experience anxiety due to the influence of hypertension factors suffered if not treated immediately it will have an impact on

stress and also on hypertension sustained, it will increase the occurrence of complications. One of them is hypertension as a trigger factor for stroke. Other complications include heart disease, congestive heart failure, visual impairment, and kidney disease. As a result of prolonged blood pressure, of course, it will cause death. One prevention to minimize morbidity and mortality of hypertensive patients is with therapy that can maintain blood pressure stability. One of the efforts that can be done to lower or control blood pressure is hydrotherapy (hydrotherapy), which is therapy using water. Warm water foot soak hydrotherapy is one type of natural therapy that aims to improve blood circulation, reduce edema, increase muscle relaxation, nourish the heart, relax muscles, relieve stress, relieve pain, increase capillary permeability, provide warmth to the body so it is beneficial for blood pressure reduction therapy in hypertension (Evelyn & Hartini, 2022).

Another method that can be used relaxation to reduce anxiety is by giving aromatherapy, by inhaling aromatherapy can reduce a person's anxiety level. One type of plant - essential oil-producing plants that are often used to relax the body and reduce anxiety by inhalation comes from roses, because compared to other flowers such as jasmine and lavender flowers which also smell good, roses have 14.2% of the total chemical compound geraniol with different components from other flowers derived from the petals and the resulting fragrance effect is also more refreshing. In addition, rose petals also contain 3.71% of the chemical compound linalool which is sedative (Kholifah & Erna Marisa, 2019)

## Methods

This article uses PRISMA Approach, the literature review method. The article search will be conducted in December 2023 using a journal database from Google Scholar. Journal article searches are carried out systematically from the last 5 years, namely 2018-2023 with search keywords, namely "soak the feet of warm water of hypertensive patients", and "aroma therapy roses with anxiety" to find relevant articles. Researchers will filter the article as a whole from references selected without exception based on title and abstract, so that more and more relevant articles are obtained.

The inclusion criteria in this systematic review are 1) Respondents are anxious and hypertensive patients, 2) focus on aromatherapy and foot soaking,

3) Article selection does not limit to methodology, population, and results. While the exclusion criteria for this systematic review are 1) Research that is not related to anxiety and hypertension, 2) Research that is not carried out rose aromatherapy and warm water foot soak, 3) Unpublished research such as final scientific papers (thesis, thesis, dissertation), conference abstracts, and case reports.

Articles that have been obtained from the database will be assessed using the PICO method in accordance with inclusion and exclusion criteria, and money contains about 1) Article title, 2) Author and year of publication of the article, 3) Research methodology (population, sample, intervention, and analysis) 4) Research results.

## Results

An initial literature study found 3,250 from Google Scholar). After selecting the inclusion criteria and issuing articles that are not suitable, 20 articles will be reviewed.

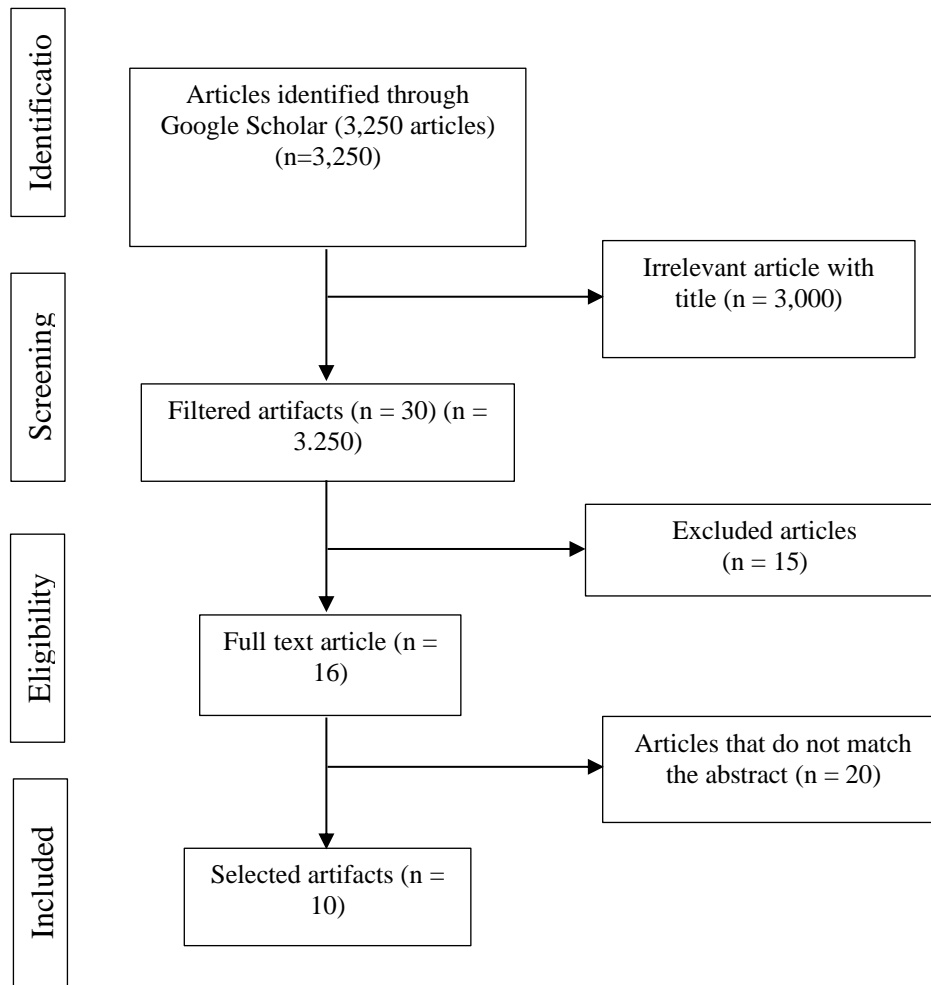


Figure 1. Literature Search Flow Diagram

Table 1. Data Distraction Method

No.	Title, Author, and Year of Article Publication	Research Methodology	Research Results
1.	Pengaruh Rendam Kaki Air Hangat Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Di Pstw Gau Mabaji Kabupaten Gowa (Zaenal & Baco, 2018).	Design: pre-experimental with one-group type t-test design Subjects: 10 respondents Variable: soak feet in warm water with blood pressure Instrument: observation Analysis: paired sample t-test	there is an effect of warm water foot soak on reducing hypertension in the elderly in PSTW Gau Mabaji, Gowa Regency
2.	Penurunan Tekanan Darah Dengan Penerapan Terapi Rendam Kaki Menggunakan Air Hangat Pada Pasien Hipertensi Di Ruang Rawat Inap Rsud Karawang (Evelyn & Hartini, 2022)	Design: a case study Subjects: 20 inpatients Variable: soak feet in warm water with blood pressure Instrument: Observation Analysis: Inferential	Foot soak therapy using warm water with a temperature of 38-40 °C above the ankle which is done for 25-30 minutes in addition to lowering blood pressure, relieving joint pain, lowering muscle tension, dilating blood vessels, killing germs, eliminating odors

No.	Title, Author, and Year of Article Publication	Research Methodology	Research Results
			and can also improve sleep quality for the elderly
3.	Penerapan Rendam Kaki Air Hangat Terhadap Penurunan Tekanan Darah Pada Lansia Hipertensi Di Rsud Dr. Soeratno Gemolong (Safitri et al., 2023).	Design: a case study Subjects: 2 patients Variable: soak feet in warm water with blood pressure Instrument: Observation Analysis:-	There is an effect of giving foot soak with warm water on reducing blood pressure in elderly people with hypertension at Dr. Soeratno Gemolong Hospital
4.	Perubahan Tekanan Darah Sebagai Respon Terhadap Hirdroterapi Rendam Kaki Dengan Air Hangat Pada Wanita Dewasa Hiperetensi Tahap I (Hutajulu & Malinti, 2017).	Design: pre-experiment one group pre-test-post test design Subject: 20 persons Variable: soak feet in warm water with blood pressure Instrument: observation Analysis: paired t-test and Wilcoxon	There is a decrease in blood pressure after hydrotherapy; soak the feet using warm water. The decrease in systolic and diastolic blood pressure has a value value of $< 0.05$ 005, which states that there is a significant decrease
5.	Efektifitas Aromaterapi Mawar Dan Melati Terhadap Penurunan Tingkat Kecemasan Pada Ibu Nifas (Fitria et al., 2022).	Design: quasi-experimental Subject: 20 postpartum mothers Variable: anxiety with rose aromatherapy Instrument: Questionnaire Analysis: T Dependent	There is a significant influence before and after the administration of rose aromatherapy
6.	Pengaruh Rendam Kaki Air Hangat Terhadap Tekanan Darah Pada Lansia Hipertensi (Ayu Okta Viana & Irma Mustika Sari, 2022).	Design: pre-experiment with one group pre-test-post-test design, Subjects: 20 elderly, Variable: soak feet in warm water with blood pressure Instrument: observation Analysis: Wilcoxon	Warm water foot soak has an effect on blood pressure in hypertensive elderly people in Sambilenguk Hamlet.
7.	Pengaruh Aroma Terapi Mawar Terhadap Tingkat Kecemasan Ibu Bersalin Kala I (Simanullang et al., 2022).	Design: nonequivalent control group Subjects: 30 maternity mothers Variable: anxiety with rose aromatherapy Instrument: questionnaire Analysis: T paired	The effect of aroma therapy roses on the anxiety of maternity mothers Kala I before and after rose aroma therapy P value (0.000) $< \alpha$ (0.05).
8.	Pengaruh Pemberian Aromaterapi Bunga Mawar Terhadap Tingkat Kecemasan Siswa Kelas 3 Di Sma N 1 Karanganyar (Arizka, 2023).	Design: Quasi Experiment with pre- and Post Test With Control Group Subjects: 80 respondents Variable: anxiety with rose aromatherapy Instrument: questionnaire Analysis: Wilcoxon	There is an effect of giving rose aromatherapy on the anxiety level of grade 3 students at SMA N 1 Karanganyar
9.	Pengaruh Pemberian Aromaterapi Mawar Terhadap Penurunan Kecemasan Pada Pasien	Design: nonequivalent control group Subjects: 30 respondents	There is an effect of rose aromatherapy on reducing anxiety in patients preoperative major surgery

No.	Title, Author, and Year of Article Publication	Research Methodology	Research Results
	Pre Operasi Bedah Mayor Di Rsud Waled Kabupaten Cirebon (Kholifah & Erna Marisa, 2019).	Variable: anxiety with rose aromatherapy Instrument: questionnaire Analysis: paired t-test	
10.	Perbandingan Efektivitas Aromaterapi Lavender Dan Mawar Terhadap Kecemasan Ibu Bersalin Di Wilayah Kerja Puskesmas Walantaka Serang (Aulya et al., 2021).	Design: quasi experiment Subjects: 20 maternity mothers Instrument: questionnaire Analysis: T-Test Dependent	There is an influence before and after giving rose aromatherapy to reduce anxiety levels for maternity mothers.

## Discussion

The results of the analysis of 10 journals that have been reviewed proved that the effect of soaking warm water feet and giving rose aroma therapy on reducing blood pressure and anxiety in hypertensive patients.

Hypertensive patients in their treatment not only use drugs but can use a cheaper and easier method, namely by using warm water foot soak therapy can be used as one of the therapies that can restore stiff joint muscles and can lower blood pressure if done gradually through awareness and discipline (Zaenal & Baco, 2018).

The physiological mechanisms that occur are very complex; several systems have to do with the state of relaxation, namely muscle tissue, endocrine system and innervation. Warm water will cause a sense of comfort in the muscles because there will be a decrease in muscle tension due to the dilation of blood vessels and stretching of cells in the muscles, and it can cause a sense of relaxation in the body. The heat from hydrotherapy using warm water is used to increase skin blood flow, by dilating blood vessels that can increase the supply of oxygen and nutrients to tissues (Hutajulu & Malinti, 2017).

Warm water foot soak hydrotherapy is one type of natural therapy that aims to improve blood circulation, reduce edema, increase muscle relaxation, nourish the heart, relax muscles, relieve stress, relieve pain, increase capillary permeability, provide warmth to the body so it is beneficial for blood pressure reduction therapy in hypertension (Evelyn & Hartini, 2022).

Research conducted based on (Hutajulu & Malinti, 2017) his analysis showed that there was a decrease in blood pressure after hydrotherapy of foot soak using warm water. The reduction in systolic and diastolic blood pressure has a value of  $<0.05$ , which states that there is a significant decrease. It can be said that research conducted for 5 days in soaking feet using warm water for 15 minutes has a significant effect on reducing systolic and diastolic blood pressure. Thus, the hypothesis ( $H_0$ ) that said that there was no significant difference in systolic and diastolic blood pressure in middle adult women with stage I hypertension before and after foot soak hydrotherapy for 5 days using warm water was rejected and the hypothetical result ( $H_a$ ) which said that there was a significant difference in systolic and diastolic blood pressure in



middle adult women with stage I hypertension before and after foot soak hydrotherapy for 5 days with using warm water, accepted.

As for the feelings of anxiety experienced by combining the provision of rose aromatherapy, point Some studies show that inhaling rose aromatherapy can reduce a person's anxiety level. Rose aromatherapy is a therapeutic action that uses essential oils that are useful to improve a person's physical and psychological state. Each essential oil has unique pharmacological effects, such as antibacterial, antiviral, diuretic, vasodilator, sedative, and adrenal-stimulating (Simanullang et al., 2022).

Aromatherapy can foster a feeling of calm or relaxation in the physical, mind and spiritual, create a peaceful atmosphere, and keep away from feelings of anxiety and anxiety. Roses have several pharmacological effects, namely improving anti-inflammatory blood circulation, removing puffiness, and neutralizing toxins. Essential oils used for aromatherapy can affect the activity of brain work function through the nervous system associated with the sense of smell. This response can stimulate increased production of brain nerve conductors or neurotransmitters related to the recovery of psychic conditions such as emotions, feelings, thoughts, and desires (Simanullang et al., 2022).

Inhaling aromatherapy plants that produce essential oils come from roses because compared to other flowers such as jasmine and lavender, which also smell good, roses have 14.2% of the total chemical compound geraniol with different components from other flowers derived from their petals, and the resulting fragrance effect is also more

refreshing. In addition, rose petals also contain 3.71% of the chemical compound linalool which is sedative (Kholifah & Erna Marisa, 2019).

Research shows that based on (Arizka, 2023) the results of the Wilcoxon test, it shows that in the intervention group, a p-value of  $0.000 < 0.05$  was obtained, so there was a significant effect of aromatherapy on the anxiety level of grade 3 students at SMA N 1 Karanganyar.

## Conclusion

*This literature review* shows that it is proven effective in warm water foot soak and rose aroma therapy in reducing blood pressure and anxiety in hypertensive patients

## Authors Contributions

The authors' collective contributions to this literature review are integral to its scholarly rigor and depth: one author conceptualized the study framework, developed inclusion criteria, and conducted primary literature searches; another author critically evaluated the quality and relevance of selected sources, synthesized findings, and identified theoretical implications; while a third author meticulously structured the manuscript, integrated diverse viewpoints, and ensured coherence and readability of the narrative.

## Conflicts of Interest

The authors have no financial, personal, or professional interests that could be seen as influencing the design, methodology, or results of this research, guaranteeing the objectivity and reliability of our findings.

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