INDONESIAN JOURNAL OF COMMUNITY HEALTH NURSING
Vol. 6, No. 1 February 2021
https://e-journal.unair.ac.id/IJCHN

EFFECT OF MASSAGE, SOAK FEET WARM WATER, AND AROMATHERAPY FOR DECREASING BLOOD PRESSURE IN OLDER ADULTS WITH HYPERTENSION: A LITERATURE REVIEW

Emmalia Adhi Fitama, Joni Haryanto and Makhfudli Makhfudli

Faculty of Nursing, Universitas Airlangga, East Java, Indonesia

ARTICLE HISTORY

Received: 16 December 2020
Accepted: 13 February 2021

CONTACT

Emmalia Adhi Fitama
emmaliaadhifitama@gmail.com
Faculty of Nursing, Universitas Airlangga, East Java, Indonesia

ABSTRACT

Introduction: The increase in blood pressure that lasts long enough to cause damage to the kidneys, heart, and brain. This is in line with Carol A. Miller's theory regarding the aging process that occurs in the older adults. Miller's functional theory in the development process, the older adults will experience many changes, one of which is the dilated and stiff arteries, this results in reduced vascular recoil capacity. The purpose of this study was to determine the effect of massage, warm water foot soaking, and aromatherapy on lowering blood pressure in hypertensive older adults based on empirical studies of the last ten years.

Method: Search for journals or articles using a database through Scopus, ProQuest, PubMed, SAGE, EBSCO, Scient Direct, Research Gate, and Google Scholar. The Center for Review and Dissemination and The Joanna Briggs Institute were used to assess the study's quality. The framework used for the review is PICOS, and the inclusion criteria used are English and Indonesian language journals with a coverage of the last ten years, older adults who lives in nursing home or community older adults, outcomes: decreased to blood pressure, and the study design of quasy-experimental studies, randomized control and trial, qualitative research and cross-sectional studies.

Result: After screening twenty-five article, but only Thirteen studies matched the research criteria. Six studies suggest that age is a significant factor in hypertension and seven studies the presence of excess sympathetic activity. Meanwhile, strategies to reduce blood pressure in the older adults include massage, soaking feet in warm water, and aromatherapy.

Conclusion: Decreased prevalence of hypertension in the older adults can be carried out pharmacologically and non-pharmacologically. The strategy is entirely sufficient for lowering blood pressure in elderly hypertensive are massage, foot soak warm water, and aromatherapy as inhaled a calming effect. Determines successfully in complementary therapy in lowering blood pressure.

Keywords

aromatherapy; hypertension; massage; warm water soak foot

Cite as:

Fitama, E. A., Haryanto, J., & Makhfudli, M. (2021). Effect of Massage, Soak Feet Warm Water, and Aromatherapy for Decreasing Blood Pressure in Older Adults with Hypertension: A Literature Review. *Indonesian J. of Community Health Nurs.*, 6(1), 22-27. Doi: 10.20473/ijchn.v6i1.26663

INTRODUCTION

Indonesia is a country with a population structure with vulnerable conditions that will enter an era of an aging population. This is based on the percentage of the older adults population, which has reached 7.6 of the total population (Indonesia Ministry of Health, 2019). With age, physiological functions decrease due to degenerative processes. The older adults will experience changes in arterial blood vessel dilation, and stiffness due to reduced recoil capacity of blood vessels, reduced function of blood vessels causes

increased systolic pressure (Rizal *et al*., 2019). Results of Basic Health Research (2018) that the disease that mostly affects the older adults is hypertension, 63.5% of older adults. Physiologically, increased blood pressure in the older adults is a normal condition.

According to the WHO and the International Society of Hypertension (ISH), there are currently 600 million people with hypertension worldwide, and 3 million die every year. The prevalence of hypertension in older adults aged 55-64 years is 45.9%, aged 65-74 years is 57.6%, while those aged> 75 years are 63.8% (Indonesia Ministry of Health, 2019). Hypertension or high blood pressure is the process of increasing the systolic blood pressure value of more than 140 mmHg and systolic blood pressure to more than 90 mmHg. An increase in blood pressure that lasts for a long time will cause damage the kidneys, heart, and brain if not treated early (Indonesia Ministry of Health, 2014).

Various studies have been developed to lower blood pressure, such as complementary therapies; one of the complementary interventions is foot soaking. The effect of foot soaking using warm water is the same as walking barefoot for 30 minutes (Santoso, 2015) in (Harnani & Axmalia, 2017). Previous studies regarding immersion interventions to lower blood pressure include the effect of soaking feet with warm water and aromatherapy inhalation (Ulya, 2017). The result's study of Walaszek (2015) shows that giving classical massage interventions to the lower limbs, which is done once for 10 days, has been shown to reduce blood pressure in the older adults Destia et al. (2014) in (Dilianti *et al,* 2017).

The benefits of these complementary nursing interventions are the physical effects that result from the boiling process that produces heat or warmth; this can cause liquids, solids, and gases to expand, thereby increasing chemical reactions in the body. The biological effect of warmth and the content of active compounds resulting from the boiling process can cause dilation of blood vessels, which results in increased blood circulation. Physiologically, the body's response to heat causes blood vessels to reduce blood viscosity, reduce muscle tension, increase tissue metabolism, and increase capillary permeability.

Based on the description above, the author intends to conduct a study using the literature review method, which will present an evidence-based influence analysis regarding the effect of massage, warm water foot bath, and aromatherapy to reduce blood pressure in hypertensive older adults.

METHOD

Changes experienced by the older adults are irreversible, which allows the older adults to experience negative functional consequences such as: disease, support systems, psychosocial conditions and the effects of drug use that can be detrimental to the older adults, so that they can affect the quality of life in the older adults. With the literature review related to non-pharmacological therapy, it can provide an overview of the nursing process in the domain (Miller, 2012) as a provider of nursing care by minimizing the negative impact of age-related changes and risk factors experienced, so that the health of the older adults can improve.

This study uses a literature study model. The literature search was carried out in May-July 2020 using secondary data. Formulation of questions using the PICOT framework (Patient or Problem; Interest; Comparisons or Exposure; Outcome; Study Design). Search for articles using keywords and Boolean operators, adjusted for Medical Subject Heading (MeSH), namely "massage," "soak feet," "aromatherapy","blood pressure", "hypertension", "older adults". And the inclusion criteria used are English and Indonesian language journals with a coverage of the last ten years, older adults who lives in nursing home or community older adults, interest: massage, foot bath of warm water and aromatherapy, and outcomes: decreased to blood pressure, and the study design are quasy-experimental studies, randomized control and trial, qualitative research and cross-sectional studies.

This search for literature review articles uses five databases with high and moderate-quality criteria, namely Scopus, ProQuest, PubMed, SAGE, EBSCO, Scient Direct, Research Gate, and Google Scholar with journal coverage of the last 10 years, which can be accessed in full text in pdf format and scholarly (peer-reviewed journals).

The research strategy used literature review, using The Center for Review and Dissemination and The Joanna Briggs Institute protocol as a guide for assessing the quality of the studies to be summarized. The purpose of this study is to provide knowledge about complementary therapies that can increase blood pressure in the elderly, as an intervention that can minimize the negative impact of irreversible age-related changes.

There were 68,912 articles or research journals found, then 68,884 irrelevant screening was carried out. There were 68,857 duplicates selected. After that, the identification of the titles of 28 journals was obtained. Elimination was carried out for articles that did not meet the inclusion criteria, where five articles did not focus on hypertension in general, two articles consisted of abstracts, and five articles did not focus on the elderly. The final results obtained are 13 journals. Data analysis and tabulation are carried out in articles or journals to determine the feasibility of the articles or journals in preparing this literature study. The Joanna Briggs Institute (JBI) is a reference for assessing the quality of articles or journals. The results of the assessment that have been carried out using The Joanna Briggs Institute Guideline, all articles are of high quality. A total of 7 articles had a JBI score of 100%, 2 articles 88.8%, 2 articles 77.7%, 1 article 76.9%, and 1 article with a score of 84.7%.

RESULTS

After searching through several databases, it was found that complementary interventions can lower blood pressure, as follows:

Massage

The massage was chosen as a safe alternative conventional method because no deterioration in health has occurred. Giving massage to the lower limb area (foot area) and ending the movement on the soles of the feet will stimulate and refresh the feet to restore the balance system (Haris *et al* ., 2016). The results of the study of Walaszek (2015) on ten older women and additional rubbing and kneading movements (40%), vibrations (10%), and skin rolling (10%) showed that these movements were proven to reduce blood pressure in the older adults.

This is because the stimulation provided can accelerate the flow of blood and body fluids. The result is that the circulation of nutrition and oxygen distribution to the body's cells becomes smooth without any obstacles to experience a balanced condition.

Soak the feet in warm water

Scientifically warm water has a physiological impact on the body. The first impacts the blood vessels where the warmth resulting from the immersion process makes blood circulation smooth; the second is the loading factor in the water, strengthening the ligament muscles that affect the joints of the body. Asan et al. (2016), in their study of 15 men and 27 women, there was a decrease in systolic and diastolic blood pressure from 10 to 39 mmHg (p-value 0.000 <0.05). The decrease in respondents' blood pressure was based on their adherence to regular hydrotherapy (foot soaking) (Harnani *et al.*, 2017).

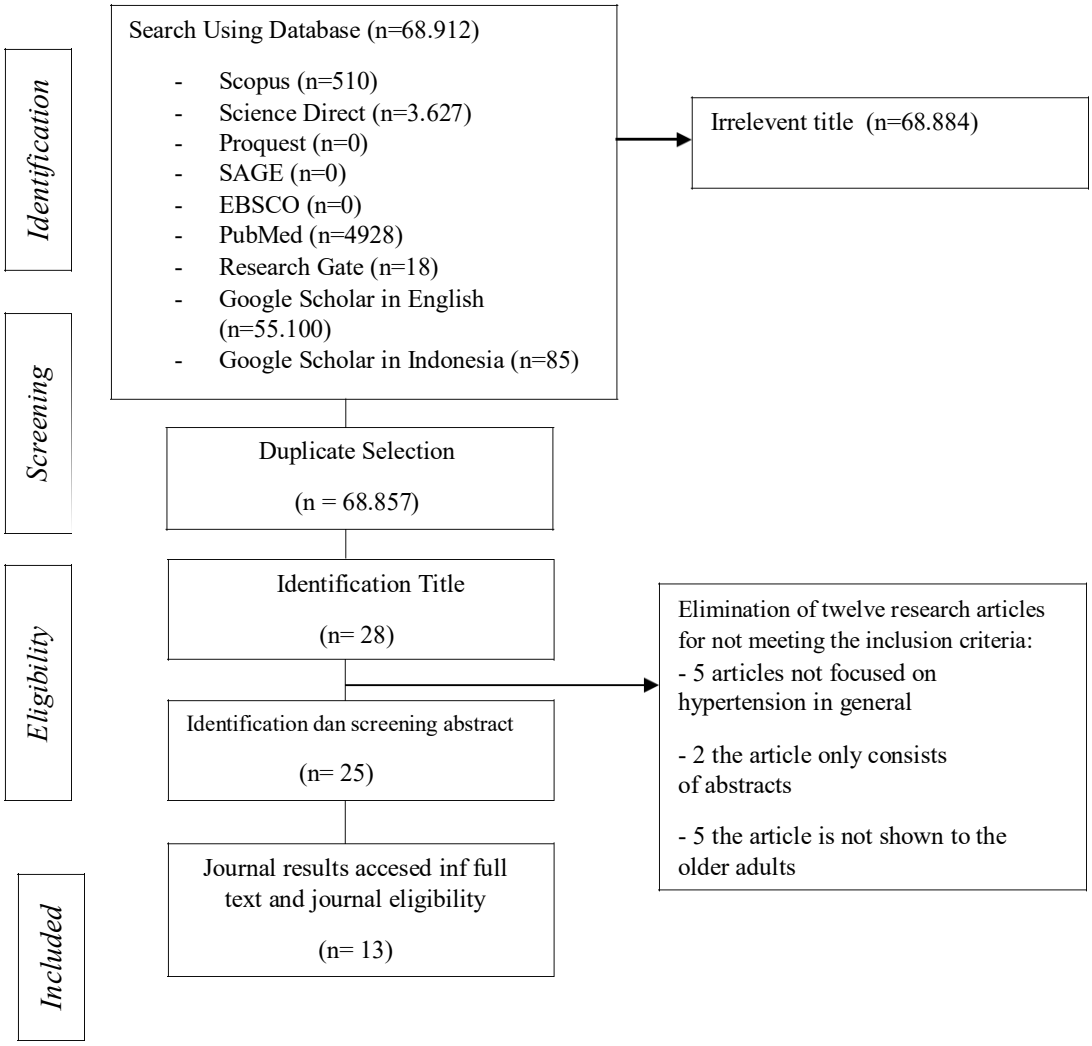

Figure 1. Flow Chart of Literature Review

Table 1. Results of the effect of therapy

Massage	Soak The Feet In Warm Water	Aromatherapy
(Robert Walaszek , 2015) The results of the study is a classic massage intervention in the area extremity below shows the changes decreased blood pressure on older adults aged 60-68 years for ten days. A decrease of 6,81% (Eguchi et al, 2016) The result of the study participant to foot massage for 45 minutes. As intervention show that foot massage can significantly decreased systolic blood pressure (0,02) with p (0,006) and level anxiety (0.003). (Levi Tina, 2014) From the results of massage research reflection with the help of the media wood obtained a significant statistical test amounting to p value> 0.0001.	(Wulandari et al, 2016) The results of soak the feet in warm water is decreased for blood pressure in 38 older adults, systolic blood (10-39 mmHg) and diastole pressure (20-28 mmHg) (Zaenal et al, 2018) The results of the soak the feet in warm water that is temperature 38℃ as 20 – 30 minutes decreased for blood pressure in the older adults at PSTW Gau Mambaji. (Yessy et al, 2017) The results of the soak the feet in warm water to sixteen respondent. That is temperature 38-40 ℃ as 20 – 30 minutes . (Asan et al, 2016) The results in their study of 15 men and 27 women, there was a decrease in systolic and diastolic blood pressure from 10 to 39 mmHg (p-value 0.000 <0.05) (Yasinta et al, 2016) The results of research using therapeutic soak the feet in warm waterunder temperature 40 ℃ as 20 minutes. Results of decrease blood pressure systolic and diastolic blood obtained p value 0.000. (Inggrid Evi et al, 2017) Providing therapeutic use water with temperature 40,5℃-43 ℃ two day in duration of ten minutes, effective decreased to blood pressure in older adults hypertension at Al- Islah nursing home Malang.	(Yelfi et al, 2019) The results giving inhalation for 20 minutes showed a difference in the sig value of 0.000 <0.05 in systolic pressure and a sig value of 0.012 <0.05 for diastolic blood pressure before and after inhalation, which means that it has a very close relationship (Yelfi et al., 2019) (Myeong Sook Ju et al, 2013) Giving aromatheraphy essential oil from plants, there were significant changes of blood pressure. Systolic (p – 0,002) and diastolic (p=0,06) (Haris et al, 2016) The role of aromatheraphy during massage stimulates the olfactory nerve cells affect the work of the limbic system so as to produce a positive and relaxed feeling, and than inhalation of aromatherapy decreased to blood pressure.

Aromatherapy

Aromatherapy is a branch of alternative, complementary medicine that uses fragrances as a therapeutic (Yelfi *et al*., 2019). Aromatherapy produced from essential oil Cymbopogon nardus (L) or citronella produces a refreshing effect. Giving inhalation for 20 minutes showed a difference in the sig value of 0.000 <0.05 in systolic pressure and a sig value of 0.012 <0.05 for diastolic blood pressure before and after inhalation, which means that it has a very close relationship (Yelfi *et al*., 2019).

Giving massage with the addition of aromatherapy can optimize inducing physical relaxation and activation of the sympathetic nervous system to help reduce blood pressure (Sook Ju *et al*., 2013). The role of aromatherapy during massage stimulates olfactory nerve cells, which can affect the work of the limbic system to produce a positive and relaxed feeling (Haris *et al*., 2016).

DISCUSSION

Adult blood pressure increases with age; in the older adults, systolic blood pressure increases due to a decrease in blood vessels' elasticity (Potter & Perry, 2013). Women more often experience hypertension with high-density lipoprotein (HDL) and estrogen levels; women who experience menopause will lose a lot of the hormone estrogen (Nu'im et al., 2018). The high prevalence of hypertensive older adults can be minimized with interventions that can lower blood pressure. Intervention in lowering blood pressure can be done in the pharmacological intervention using antihypertensive drugs such as diuretics, alpha-blockers, beta-blockers, ACE inhibitors, vasodilators, and calcium antagonists.

Pharmacodynamic interactions in the older adults can cause severe side effects, besides causing dependence, and if drug use is stopped, it can cause an increased risk of having a heart attack or stroke (Asan et al., 2016). Pharmacological modifications are needed to reduce the effects resulting from the use of drugs that have side effects, such as changing lifestyle and using complementary interventions. In its treatment, hypertension uses not only drugs but also complementary strategies—one of the best ways to lower blood pressure with massage therapy or massage. Massage techniques at specific points can

remove blockages in the blood so that blood and energy flow in the body becomes smooth.

In massage treatment, it is recommended to use basic massage movements, which include effleurage (rubbing the palms of the hands), friction (massage), petrissage (squeezing or pinching, vibration (vibration), tapotement (tapping, hitting chop) (Menkes, 2014). the lower leg (Walaszek, 2015) increases the muscles' pressure, and the tension will relax so that blood flow to the heart is smoother. The massage movement ends with a massage on the feet' soles to restore the balance system and produce relaxation. Duration of intervention varies, ± 10- 20 minutes.

Changes in the parameters of systolic and diastolic blood pressure values carried out after the massage session can be explained by reflex theory, where the massage technique used refers to the effect of massage on the circulatory system (Walaszek., 2015).

Another strategy that was found to be an effort to lower blood pressure is to do a foot bath. Soaking feet with warm water aims to increase blood circulation, reduce edema, relax muscles, relax muscles, relieve stress, increase capillary permeability, and improve sleep quality. The hydro intervention uses the physical properties of water, hydrostatic pressure, viscosity properties of water, and hydrodynamic and thermodynamic properties (hot and cold temperatures).

The water temperature used in this study is warm water immersion. The use of warm water will increase blood flow and provide a relaxing effect (Menkes, 2014). Intervention guidelines were carried out for 20-30 minutes with a temperature range of 38-40 ℃. Contraindications to the implementation of immersion interventions are in patients with severe heart disease, respondents with diabetes with leg injuries (Harnani et al., 2017).

The citronella oil content in the form of citral and citronellal has an analgesic and relaxing effect to easily spread to other bodies, for example, lymph channels, blood vessels, nerves, collagen, fibroblasts, mast cells, and others. Citronella oil will deliver messages to the brain, releasing various neurochemicals such as relaxants, stimulants, sedatives, and euphoric properties that can cause feelings of pleasure and calm when inhaling.

This feeling of pleasure and calm can help lower blood pressure. Besides, the use of lavender as aromatherapy is quite calculated. The content of essential oils is selective, balancing the nervous system (Sook Ju et al., 2013). Lavender essential aroma functions to stimulate the olfactory nerve cells and affect the limbic system's work to create a feeling of relaxation and pleasure. A calm mind and soul will reduce the heart's work to pump so that blood circulation throughout the body will be maximized (Haris et al., 2016).

Combining massage with essential oils as aromatherapy helps to stimulate the blood and lymphatic circulation and increase the supply of oxygen and nutrients. Besides, it induces physical relaxation and activation of the sympathetic nervous system to reduce blood pressure (Sook Ju et al., 2013).

CONCLUSION

Based on the results and discussion above, it can be concluded that the decreased prevalence of hypertension in the older adults can be carried out pharmacologically and non-pharmacologically. The strategy is quite effective for lowering blood pressure in older adult's hypertensive are massage, foot soak warm water, and aromatherapy as inhaled a calming effect. Determines successfully in complementary therapy in lowering blood pressure.

REFERENCES

Asan, Y., Sambriong, M., Angela Gatum, dan M., DIII Keperawatan, J., Kemenkes Kupang, P., Keperawatan, P., & Chmk, Stik. (2016). Perbedaan Tekanan Darah Sebelum Dan Sesudah Terapi Rendam Kaki Air Hangat Pada Lansia Di Upt Panti Sosial Penyantunan Lanjut Usia Budi Agung Kupang. (Vol. 11, Issue 2). http://cyber-chmk.net/ojs/index.php/kesehatan/article/view/30

Been-Dahmen, J. M. J., Walter, M. J., Dwarswaard, J., Hazes, J. M. W., Van Staa, A. L., & Ista, E. (2017). What support is needed to self-manage a rheumatic disorder: a qualitative study. *BMC Musculoskeletal Disorders*, *18*(1), 1–10. https://doi.org/10.1186/s12891-017-1440-

Dilianti, I. E., Candrawati, E., & Adi, W. R. C. (2017). Efektivitas Hidroterapi Terhadap Penurunan Tekanan Darah Pada Lansia Penderita Hipertensi Di Panti Wreda Al-Islah Malang. *Nursing News*, *2*(3), 193–206. https://publikasi.unitri.ac.id/index.php/fikes/article/view/579

Eguchi, E., Funakubo, N., Tomooka, K., Ohira, T., & Ogino, K. (2016). The Effects of Aroma Foot Massage on Blood Pressure and Anxiety in Japanese Community-Dwelling Men and Women : A Crossover Randomized Controlled Trial. *PLoS ONE*, *11*, 1–13. https://doi.org/10.1371/journal.pone.0151712

Haris Maulana *et al*., (2016). Effect of Lower Extremity Massage with Lavender Essential Oil for Decreasing Blood Pressure in Elderly with Hypertension in UPTD Griya Werdha: *Indian Journal of Public Health Research and Developmentnt*, *10*(9), 1488–1493.

Harnani, Y., & Axmalia, A. (2017). Terapi Rendam Kaki Menggunakan Air Hangat Efektif Menurunkan Tekanan Darah Pada Lanjut. *Journal of Community Health*, *3*(5), 129–132. https://doi.org/https://doi.org/10.25311/keskom.Vol3.Issue 4.127

Heri, L., & Cicih, M. I. S. (2019). *Info Demografi BKKBN*. *1*, 16. https://www.bkkbn.go.id/po - content/uploads/info_demo_vol_1_2019_jadi.pdf

Jabareen, Y. (2009). Building a Conceptual Framework: Philosophy, Definitions, and

Procedure. *International Journal of Qualitative Methods*, *8*(4), 49–62. https://doi.org/10.1177/16094069090080040

Ju, M., Lee, S., Bae, I., Hur, M., Seong, K., & Lee, M. S. (2013). *Effects of Aroma Massage on Home Blood Pressure , Ambulatory Blood Pressure , and Sleep Quality in Middle-Aged Women with Hypertension*. Hindawi Publishing Corporation: Evidence-Based Complementary and Alternative Medicine, Article ID 403251, 7 pages http://dx.doi.org/10.1155/2013/403251

Kemenkes RI. (2014). Pusdatin Hipertensi. *Infodatin*, *Hipertensi*, 1–7. https://doi.org/10.1177/109019817400200403

Kemenkes RI. (2019). *Profil Kesehatan Indonesia 2018 [Indonesia Health Profile 2018]*. 556. http://www.depkes.go.id/resources/download/pusdatin/profil-kesehatan-indonesia/Data-dan-Informasi_Profil-Kesehatan-Indonesia-2018.pdf

Kordasiabi, M. C., Enjezab, B., Akhlaghi, M., Baghianimoghadam, M. H., & Morowatisharifabad, M. A. (2018). Behavioral Determinants of Self-Management Behaviors in Rheumatoid Arthritis Patients: A Qualitative Study. *Health Scope*, *8*(2), 1–7. https://doi.org/10.5812/jhealthscope.57203

Marzali, A. (2016). *Menulis Kajian Literatur*. *01*(02), 13. https://doi.org/2527-9313

Masriadi, & Eha, S. (2017). Effectiveness of Foot Soak Therapy with Warm Water on Decreasing Blood Pressure in Patients with Stage One Hypertension , Indonesia. *Indian Journal of Forensic Medicine and Toxicology*, *13*(3).

Menkes, R. (2014). *Peraturan Menteri Kesehatan Peman Pelayanan Kesehatan SPA*. *277*, 11–92. https://doi.org/277

Muhadi, Joint, G., & Committee, N. (2016). *ANALISIS JNC 8 : Evidence-based Guideline Penanganan Pasien Hipertensi Dewasa*. *43*(1), 54–59.

Nu'im Haiya, N., Ardian, I., & Luthfa, I. (2018). Hydroterapy in Influencing The Changes of Elderly Blood Pressure. *Internationalization of Islamic Higher Education Institutions Toward Global Competitiven*, *2014*, 420–424.

Okoli, C., & Schabram, K. (2010). Working Papers on Information Systems A Guide to Conducting a Systematic Literature Review of Information Systems Research. *Working Papers on Information Systems*, *10*(2010), 1–51. https://doi.org/10.2139/ssrn.1954824

Potter & Perry's. (2008).*Potter and Perry's Fundamentals of Nursing*; MOSBY Elsevier, 4th edition of Australia. Number of ISBN 9780729541107 (volve resources) https://media.elsevierhealth.com.au/media/blfa_files/Potter___Perry_Fund_of_Nursing_ANZ_9780729541107_Crisp.pdf

Rizal. (2019). *Pengaruh Getuk Herbal Mahkota Dewa Terhadap Penurunan Tekanan Darah Pada Lansia Dengan Hipertensi Di Upt Pstw Blitar (Di Blitar Dan Tulungagung) Penelitian Quasy-*: Indonesia One Search : RC31-1245 Internal Medicine, number ID IOS3215.81251

Sari, L. T., Renityas, N. N., & Wibisono, W. (2014). The Effectiveness Of Reflexology Massage In Lowering The Blood Pressure In Elderly With Hypertension. *Jurnal Ners Dan Kebidanan (Journal of Ners and Midwifery)*, *1*(3), 200–204. https://doi.org/10.26699/jnk.v1i3.art.p200-204

Seke, P. A., Bidjuni, H. J., & Lolong, J. (2016). Hubungan Kejadian Stres Dengan Penyakit Hipertensi Pada Lansia Di Balai Penyantunan Lanjut Usia Senjah Cerah Kecamatan Mapanget Kota Manado. *Keperawatan*, *4*, 1–5.

Sook Ju *et al*., (2013). *Effects of aroma massage on home blood pressure, ambulatory blood pressure, and sleep quality in middle-aged women with hypertension. Article ID 403251, : Evidence Based Complementary and Alternative Medicine.* https://doi.org/10.1155/2013/403251

Sugiyo, D., & et al. (2015). Muhammadiyah Journal of Nursing :*Umur dan Perubahan Kondisi Fisiologis Terhadap Kemandirian Lansia*. 21–27. Yogyakarta

Triandini *et al*, (2019). Metode Systematic Literature Review untuk Identifikasi Platform dan Metode Pengembangan Sistem Informasi di Indonesia. *Indonesian Journal of Information System*, *1*(2), 15.

Ulya, M. (2017). *Pengaruh Kombinasi Terapi Merendam Kaki Dengan Air Hangat Dan Inhalasi Aromaterapi Terhadap Tekanan Darah Pasien Hipertensi Di Desa Brabo Tanggungharjo Grobogan Jawa Tengah* http://repository.uinjkt.ac.id/dspace/handle/123456789/36731

Walaszek, R. (2015). Clinical Study Impact of classic massage on blood pressure in patients with clinically diagnosed hypertension. *Journal of Traditional Chinese Medicine*, *35*(4), 396–401. https://doi.org/10.1016/S0254-6272(15)30115-1

Wulandari, P. et al. (2016). Pengaruh Rendam Kaki Menggunakan Air Hangat dengan Campuran Garam dan Serai Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi di Wilayah Podorejo RW 8 Ngaliyan. *Keperawatan*, *7*(2009), 43–47. http://ejournal.umm.ac.id/index.php/keperawatan/article/viewFile/3918/4397

Yelfi, A., & Al, E. (2019). Antihypertension Activity of Cymbopogon nardus (L .) Rendle as an Aromatherapy Candle Material at Community Health Center Kapuk II West Jakarta , Indonesia Antihypertension Activity of Cymbopogon nardus (L .) Rendle as an Aromatherapy Candle Material at. *Earth and Enviromental Science 308*. https://doi.org/10.1088/1755-1315/308/1/012037

Zaenal, & Nurbaya Baco. (2018). Pengaruh Rendam Kaki Air Hangat Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Di Pstw Gau Mabaji Kabupaten Gowa: In JIKKKHC vol -2, number of issue 02. https://ojs.stikesgrahaedukasi.ac.id/index.php/JIKKHC/article/view/82

RESULTS

After searching through several databases, it was found that complementary interventions can lower blood pressure, as follows:

Massage

The massage was chosen as a safe alternative conventional method because no deterioration in health has occurred. Giving massage to the lower limb area (foot area) and ending the movement on the soles of the feet will stimulate and refresh the feet to restore the balance system (Haris *et al*., 2016). The results of the study of Walaszek (2015) on ten older women and additional rubbing and kneading movements (40%), vibrations (10%), and skin rolling (10%) showed that these movements were proven to reduce blood pressure in the older adults.

This is because the stimulation provided can accelerate the flow of blood and body fluids. The result is that the circulation of nutrition and oxygen distribution to the body's cells becomes smooth without any obstacles to experience a balanced condition.

Soak the feet in warm water

Scientifically warm water has a physiological impact on the body. The first impacts the blood vessels where the warmth resulting from the immersion process makes blood circulation smooth; the second is the loading factor in the water, strengthening the ligament muscles that affect the joints of the body. Asan et al. (2016), in their study of 15 men and 27 women, there was a decrease in systolic and diastolic blood pressure from 10 to 39 mmHg (p-value 0.000 <0.05). The decrease in respondents' blood pressure was based on their adherence to regular hydrotherapy (foot soaking) (Harnani *et al*., 2017).

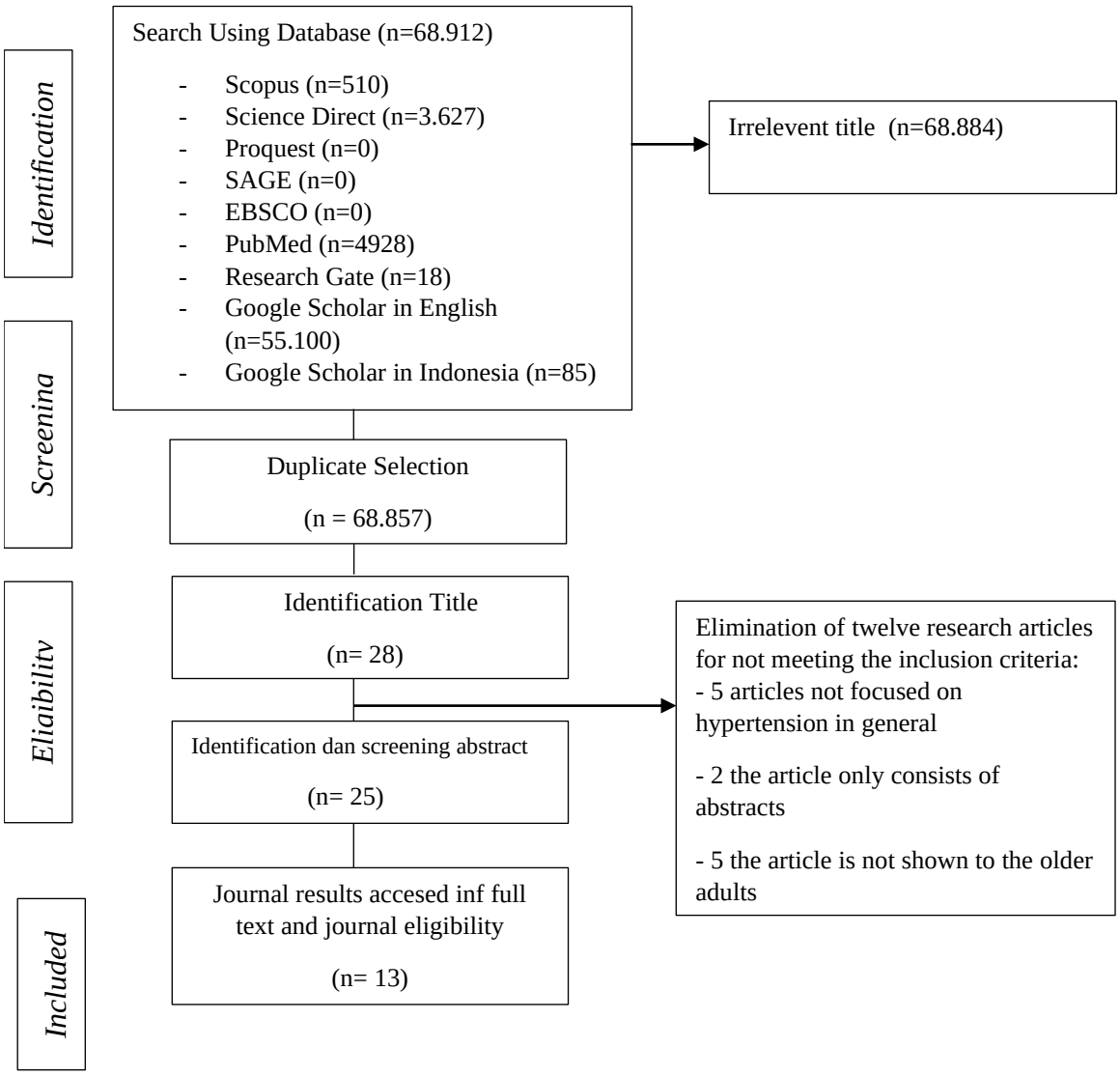

Figure 1. Flow Chart of Literature Review

Table 1. Results of the effect of therapy

Massage	Soak The Feet In Warm Water	Aromatherapy
(Robert Walaszek , 2015) The results of the study is a classic massage intervention in the area extremity below shows the changes decreased blood pressure on older adults aged 60-68 years for ten days. A decrease of 6,81% (Eguchi et al, 2016) The result of the study participant to foot massage for 45 minutes. As intervention show that foot massage can significantly decreased systolic blood pressure (0,02) with p (0,006) and level anxiety (0.003). (Levi Tina, 2014) From the results of massage research reflection with the help of the media wood obtained a significant statistical test amounting to p value> 0.0001.	(Wulandari et al, 2016) The results of soak the feet in warm water is decreased for blood pressure in 38 older adults, systolic blood (10-39 mmHg) and diastole pressure (20-28 mmHg) (Zaenal et al, 2018) The results of the soak the feet in warm water that is temperature 38℃ as 20 – 30 minutes decreased for blood pressure in the older adults at PSTW Gau Mambaji. (Yessy et al, 2017) The results of the soak the feet in warm water to sixteen respondent. That is temperature 38-40 ℃ as 20 – 30 minutes . (Asan et al, 2016) The results in their study of 15 men and 27 women, there was a decrease in systolic and diastolic blood pressure from 10 to 39 mmHg (p-value 0.000 <0.05) (Yasinta et al, 2016) The results of research using therapeutic soak the feet in warm waterunder temperature 40 ℃ as 20 minutes. Results of decrease blood pressure systolic and diastolic blood obtained p value 0.000. (Inggrid Evi et al, 2017) Providing therapeutic use water with temperature 40,5℃-43 ℃ two day in duration of ten minutes, effective decreased to blood pressure in older adults hypertension at Al- Islah nursing home Malang.	(Yelfi et al, 2019) The results giving inhalation for 20 minutes showed a difference in the sig value of 0.000 <0.05 in systolic pressure and a sig value of 0.012 <0.05 for diastolic blood pressure before and after inhalation, which means that it has a very close relationship (Yelfi et al., 2019) (Myeong Sook Ju et al, 2013) Giving aromatheraphy essential oil from plants, there were significant changes of blood pressure. Systolic (p – 0,002) and diastolic (p=0,06) (Haris et al, 2016) The role of aromatheraphy during massage stimulates the olfactory nerve cells affect the work of the limbic system so as to produce a positive and relaxed feeling, and than inhalation of aromatherapy decreased to blood pressure.

Aromatherapy

Aromatherapy is a branch of alternative, complementary medicine that uses fragrances as a therapeutic (Yelfi *et al*., 2019). Aromatherapy produced from essential oil Cymbopogon nardus (L) or citronella produces a refreshing effect. Giving inhalation for 20 minutes showed a difference in the sig value of 0.000 <0.05 in systolic pressure and a sig value of 0.012 <0.05 for diastolic blood pressure before and after inhalation, which means that it has a very close relationship (Yelfi *et al*., 2019).

Giving massage with the addition of aromatherapy can optimize inducing physical relaxation and activation of the sympathetic nervous system to help reduce blood pressure (Sook Ju *et al*., 2013). The role of aromatherapy during massage stimulates olfactory nerve cells, which can affect the work of the limbic system to produce a positive and relaxed feeling (Haris *et al*., 2016).

DISCUSSION

Adult blood pressure increases with age; in the older adults, systolic blood pressure increases due to a decrease in blood vessels' elasticity (Potter & Perry, 2013). Women more often experience hypertension with high-density lipoprotein (HDL) and estrogen levels; women who experience menopause will lose a lot of the hormone estrogen (Nu'im et al., 2018). The high prevalence of hypertensive older adults can be minimized with interventions that can lower blood pressure. Intervention in lowering blood pressure can be done in the pharmacological intervention using antihypertensive drugs such as diuretics, alpha-blockers, beta-blockers, ACE inhibitors, vasodilators, and calcium antagonists.

Pharmacodynamic interactions in the older adults can cause severe side effects, besides causing dependence, and if drug use is stopped, it can cause an increased risk of having a heart attack or stroke (Asan et al., 2016). Pharmacological modifications are needed to reduce the effects resulting from the use of drugs that have side effects, such as changing lifestyle and using complementary interventions. In its treatment, hypertension uses not only drugs but also complementary strategies—one of the best ways to lower blood pressure with massage therapy or massage. Massage techniques at specific points can

remove blockages in the blood so that blood and energy flow in the body becomes smooth.

In massage treatment, it is recommended to use basic massage movements, which include effleurage (rubbing the palms of the hands), friction (massage), petrissage (squeezing or pinching, vibration (vibration), tapotement (tapping, hitting chop) (Menkes, 2014). the lower leg (Walaszek, 2015) increases the muscles' pressure, and the tension will relax so that blood flow to the heart is smoother. The massage movement ends with a massage on the feet' soles to restore the balance system and produce relaxation. Duration of intervention varies, ± 10- 20 minutes.

Changes in the parameters of systolic and diastolic blood pressure values carried out after the massage session can be explained by reflex theory, where the massage technique used refers to the effect of massage on the circulatory system (Walaszek., 2015).

Another strategy that was found to be an effort to lower blood pressure is to do a foot bath. Soaking feet with warm water aims to increase blood circulation, reduce edema, relax muscles, relax muscles, relieve stress, increase capillary permeability, and improve sleep quality. The hydro intervention uses the physical properties of water, hydrostatic pressure, viscosity properties of water, and hydrodynamic and thermodynamic properties (hot and cold temperatures).

The water temperature used in this study is warm water immersion. The use of warm water will increase blood flow and provide a relaxing effect (Menkes, 2014). Intervention guidelines were carried out for 20-30 minutes with a temperature range of 38-40 ℃. Contraindications to the implementation of immersion interventions are in patients with severe heart disease, respondents with diabetes with leg injuries (Harnani et al., 2017).

The citronella oil content in the form of citral and citronellal has an analgesic and relaxing effect to easily spread to other bodies, for example, lymph channels, blood vessels, nerves, collagen, fibroblasts, mast cells, and others. Citronella oil will deliver messages to the brain, releasing various neurochemicals such as relaxants, stimulants, sedatives, and euphoric properties that can cause feelings of pleasure and calm when inhaling.

This feeling of pleasure and calm can help lower blood pressure. Besides, the use of lavender as aromatherapy is quite calculated. The content of essential oils is selective, balancing the nervous system (Sook Ju et al., 2013). Lavender essential aroma functions to stimulate the olfactory nerve cells and affect the limbic system's work to create a feeling of relaxation and pleasure. A calm mind and soul will reduce the heart's work to pump so that blood circulation throughout the body will be maximized (Haris et al., 2016).

Combining massage with essential oils as aromatherapy helps to stimulate the blood and lymphatic circulation and increase the supply of oxygen and nutrients. Besides, it induces physical relaxation and activation of the sympathetic nervous system to reduce blood pressure (Sook Ju et al., 2013).

CONCLUSION

Based on the results and discussion above, it can be concluded that the decreased prevalence of hypertension in the older adults can be carried out pharmacologically and non-pharmacologically. The strategy is quite effective for lowering blood pressure in older adult's hypertensive are massage, foot soak warm water, and aromatherapy as inhaled a calming effect. Determines successfully in complementary therapy in lowering blood pressure.

REFERENCES

Asan, Y., Sambriong, M., Angela Gatum, dan M., DIII Keperawatan, J., Kemenkes Kupang, P., Keperawatan, P., & Chmk, Stik. (2016). Perbedaan Tekanan Darah Sebelum Dan Sesudah Terapi Rendam Kaki Air Hangat Pada Lansia Di Upt Panti Sosial Penyantunan Lanjut Usia Budi Agung Kupang. (Vol. 11, Issue 2). http://cyber-chmk.net/ojs/index.php/kesehatan/article/view/30

Been-Dahmen, J. M. J., Walter, M. J., Dwarswaard, J., Hazes, J. M. W., Van Staa, A. L., & Ista, E. (2017). What support is needed to self-manage a rheumatic disorder: a qualitative study. *BMC Musculoskeletal Disorders*, *18*(1), 1–10. https://doi.org/10.1186/s12891-017-1440-

Dilianti, I. E., Candrawati, E., & Adi, W. R. C. (2017). Efektivitas Hidroterapi Terhadap Penurunan Tekanan Darah Pada Lansia Penderita Hipertensi Di Panti Wreda Al-Islah Malang. *Nursing News*, *2*(3), 193–206. https://publikasi.unitri.ac.id/index.php/fikes/article/view/579

Eguchi, E., Funakubo, N., Tomooka, K., Ohira, T., & Ogino, K. (2016). The Effects of Aroma Foot Massage on Blood Pressure and Anxiety in Japanese Community-Dwelling Men and Women : A Crossover Randomized Controlled Trial. *PLoS ONE*, *11*, 1–13. https://doi.org/10.1371/journal.pone.0151712

Haris Maulana *et al*., (2016). Effect of Lower Extremity Massage with Lavender Essential Oil for Decreasing Blood Pressure in Elderly with Hypertension in UPTD Griya Werdha: *Indian Journal of Public Health Research and Developmentnt*, *10*(9), 1488–1493.

Harnani, Y., & Axmalia, A. (2017). Terapi Rendam Kaki Menggunakan Air Hangat Efektif Menurunkan Tekanan Darah Pada Lanjut. *Journal of Community Health*, *3*(5), 129–132. https://doi.org/https://doi.org/10.25311/keskom.Vol3.Issue 4.127

Heri, L., & Cicih, M. I. S. (2019). *Info Demografi BKKBN*. *1*, 16. https://www.bkkbn.go.id/po-content/uploads/info_demo_vol_1_2019_jadi.pdf

Jabareen, Y. (2009). Building a Conceptual Framework: Philosophy, Definitions, and

Procedure. *International Journal of Qualitative Methods*, *8*(4), 49–62. https://doi.org/10.1177/16094069090080040

Ju, M., Lee, S., Bae, I., Hur, M., Seong, K., & Lee, M. S. (2013). *Effects of Aroma Massage on Home Blood Pressure , Ambulatory Blood Pressure , and Sleep Quality in Middle-Aged Women with Hypertension*. Hindawi Publishing Corporation: Evidence-Based Complementary and Alternative Medicine, Article ID 403251, 7 pages http://dx.doi.org/10.1155/2013/403251

Kemenkes RI. (2014). Pusdatin Hipertensi. *Infodatin*, *Hipertensi*, 1–7. https://doi.org/10.1177/109019817400200403

Kemenkes RI. (2019). *Profil Kesehatan Indonesia 2018 [Indonesia Health Profile 2018]*. 556. http://www.depkes.go.id/resources/download/pusdatin/profil-kesehatan-indonesia/Data-dan-Informasi_Profil-Kesehatan-Indonesia-2018.pdf

Kordasiabi, M. C., Enjezab, B., Akhlaghi, M., Baghianimoghadam, M. H., & Morowatisharifabad, M. A. (2018). Behavioral Determinants of Self-Management Behaviors in Rheumatoid Arthritis Patients: A Qualitative Study. *Health Scope*, *8*(2), 1–7. https://doi.org/10.5812/jhealthscope.57203

Marzali, A. (2016). *Menulis Kajian Literatur*. *01*(02), 13. https://doi.org/2527-9313

Masriadi, & Eha, S. (2017). Effectiveness of Foot Soak Therapy with Warm Water on Decreasing Blood Pressure in Patients with Stage One Hypertension , Indonesia. *Indian Journal of Forensic Medicine and Toxicology*, *13*(3).

Menkes, R. (2014). *Peraturan Menteri Kesehatan Peman Pelayanan Kesehatan SPA*. *277*, 11–92. https://doi.org/277

Muhadi, Joint, G., & Committee, N. (2016). *ANALISIS JNC 8 : Evidence-based Guideline Penanganan Pasien Hipertensi Dewasa*. *43*(1), 54–59.

Nu'im Haiya, N., Ardian, I., & Luthfa, I. (2018). Hydroterapy in Influencing The Changes of Elderly Blood Pressure. *Internationalization of Islamic Higher Education Institutions Toward Global Competitiven*, *2014*, 420–424.

Okoli, C., & Schabram, K. (2010). Working Papers on Information Systems A Guide to Conducting a Systematic Literature Review of Information Systems Research. *Working Papers on Information Systems*, *10*(2010), 1–51. https://doi.org/10.2139/ssrn.1954824

Potter & Perry's. (2008).*Potter and Perry's Fundamentals of Nursing*; MOSBY Elsevier, 4th edition of Australia. Number of ISBN 9780729541107 (volve resources) https://media.elsevierhealth.com.au/media/blfa_files/Potter___Perry_Fund_of_Nursing_ANZ_9780729541107_Crisp.pdf

Rizal. (2019). *Pengaruh Getuk Herbal Mahkota Dewa Terhadap Penurunan Tekanan Darah Pada Lansia Dengan Hipertensi Di Upt Pstw Blitar (Di Blitar Dan Tulungagung) Penelitian Quasy-*: Indonesia One Search : RC31-1245 Internal Medicine, number ID IOS3215.81251

Sari, L. T., Renityas, N. N., & Wibisono, W. (2014). The Effectiveness Of Reflexology Massage In Lowering The Blood Pressure In Elderly With Hypertension. *Jurnal Ners Dan Kebidanan (Journal of Ners and Midwifery)*, *1*(3), 200–204. https://doi.org/10.26699/jnk.v1i3.art.p200-204

Seke, P. A., Bidjuni, H. J., & Lolong, J. (2016). Hubungan Kejadian Stres Dengan Penyakit Hipertensi Pada Lansia Di Balai Penyantunan Lanjut Usia Senjah Cerah Kecamatan Mapanget Kota Manado. *Keperawatan*, *4*, 1–5.

Sook Ju *et al*., (2013). *Effects of aroma massage on home blood pressure, ambulatory blood pressure, and sleep quality in middle-aged women with hypertension. Article ID 403251, : Evidence Based Complementary and Alternative Medicine.* https://doi.org/10.1155/2013/403251

Sugiyo, D., & et al. (2015). Muhammadiyah Journal of Nursing :*Umur dan Perubahan Kondisi Fisiologis Terhadap Kemandirian Lansia*. 21–27. Yogyakarta

Triandini *et al*, (2019). Metode Systematic Literature Review untuk Identifikasi Platform dan Metode Pengembangan Sistem Informasi di Indonesia. *Indonesian Journal of Information System*, *1*(2), 15.

Ulya, M. (2017). *Pengaruh Kombinasi Terapi Merendam Kaki Dengan Air Hangat Dan Inhalasi Aromaterapi Terhadap Tekanan Darah Pasien Hipertensi Di Desa Brabo Tanggungharjo Grobogan Jawa Tengah* http://repository.uinjkt.ac.id/dspace/handle/123456789/36731

Walaszek, R. (2015). Clinical Study Impact of classic massage on blood pressure in patients with clinically diagnosed hypertension. *Journal of Traditional Chinese Medicine*, *35*(4), 396–401. https://doi.org/10.1016/S0254-6272(15)30115-1

Wulandari, P. et al. (2016). Pengaruh Rendam Kaki Menggunakan Air Hangat dengan Campuran Garam dan Serai Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi di Wilayah Podorejo RW 8 Ngaliyan. *Keperawatan*, *7*(2009), 43–47. http://ejournal.umm.ac.id/index.php/keperawatan/article/viewFile/3918/4397

Yelfi, A., & Al, E. (2019). Antihypertension Activity of Cymbopogon nardus (L .) Rendle as an Aromatherapy Candle Material at Community Health Center Kapuk II West Jakarta , Indonesia Antihypertension Activity of Cymbopogon nardus (L .) Rendle as an Aromatherapy Candle Material at. *Earth and Enviromental Science 308*. https://doi.org/10.1088/1755-1315/308/1/012037

Zaenal, & Nurbaya Baco. (2018). Pengaruh Rendam Kaki Air Hangat Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Di Pstw Gau Mabaji Kabupaten Gowa: In JIKKKHC vol -2, number of issue 02. https://ojs.stikesgrahaedukasi.ac.id/index.php/JIKKHC/article/view/82