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# The Influence Combination of Dragon Fruit Juice (Hylocereus Polyrrhizus) and Foot Exercise Therapy on Elderly with Diabetes Melitus in Kemutug Kidul Village Baturraden: Case Study



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Dewi Hajar Khansa Amirah<sup>1\*</sup>, Asep Iskandar<sup>2</sup>, Koernia Nanda Pratama<sup>2</sup>

<sup>1</sup>Program Profesi Ners, Faculty of Health Sciences, Jenderal Soedirman University, Purwokerto

<sup>2</sup>Department of Nursing, Faculty of Health Sciences, Jenderal Soedirman University, Purwokerto

## ABSTRACT

**Background:** Hypertension is a disease characterized by an increase in systolic where the results of blood pressure measurements reach more than 140 mmHg and in diastolic reach more than 90 mmHg. The incidence of hypertension in the elderly has increased in line with the increase in age group. Overall, the incidence of hypertension among the elderly in Indonesia is 26.5%. Hypertension can cause various complications if not controlled. Not wanting to take drugs and stress are the causes of uncontrolled hypertension in the elderly. Therefore, an alternative therapy is needed to control blood pressure in the elderly, namely by soaking feet in warm water with a mixture of salt and lemongrass and finger-holding therapy.

**Method:** The method used in this research is a case study based on evidence based practice.

**Result:** To determine the difference in the effect of warm water foot soak therapy with a mixture of salt and lemongrass and finger grip therapy in controlling blood pressure in the elderly.

**Conclusion:** Intervention finger hold relaxation therapy was more effective in controlling blood pressure and stress than warm water foot soak therapy with a mixture of salt and lemongrass.

**Keywords:** Hypertension, Elderly, Warm Water Foot Soak Therapy with a Mixture of Salt and Lemongrass, Finger Holding Therapy

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Correspondence Author :

Dewi Hajar Khansa Amirah;  
Department of Nursing, Faculty  
of Health Sciences, Jenderal  
Sudirman University  
dewiamirah1201@gmail.com

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## INTRODUCTION

Elderly or elderly is someone who has reached the age of 60 years (RI Ministry of Health 2019). In 2050, the number of elderly people is expected to reach 1.5 billion and 53% of these elderly people are in Asia. Meanwhile, the number of elderly people in Indonesia will reach 29.3% in 2021, where the number of elderly people will be 10.82% of the total population of Indonesia (Andriani et al., 2023). As they get older, the elderly will experience a decrease in body functions and are more at risk of developing degenerative diseases. Degenerative disease is a chronic disease caused by decreased organ function due to the aging process (Berawi et al., 2019).

A degenerative disease that is currently being suffered by the elderly is hypertension. Hypertension is a disease characterized by an increase in systolic where the results of blood pressure measurements reach more than 140 mmHg and in diastolic reach more than 90 mmHg (Haekal et al., 2021). The incidence of hypertension in the elderly has increased in line with the increase in age group. Overall, the incidence of hypertension among the elderly in Indonesia is 26.5% (Asari and Helda, 2021). Meanwhile, according to age group, the incidence rate was 55.2% in the 55-64 year age group, 63.2% in the 65-74 year age group and 69.5% in the >74 year age group (Andriani et al., 2023).

Hypertension can be treated with both pharmacological and non-pharmacological treatments. Pharmacological treatment is defined as the treatment of hypertension with chemical drugs such as diuretics, beta blockers and calcium channel blockers (Machus et al., 2020). Long-term use of anti-hypertensive drugs can cause various side effects experienced by people with hypertension. Side effects that are felt include nausea, headaches, weakness and dizziness (Asmah et al., 2022). This makes people with hypertension refuse to take medication. Therefore, non-pharmacological treatment is needed to help control blood pressure. One of the non-pharmacological therapies that is currently widely applied and can be carried out by the elderly with hypertension is relaxation therapy.

Non-pharmacological treatment that can be

done is relaxation therapy by soaking feet in warm water with a mixture of salt and lemongrass and finger-hold relaxation therapy. Research conducted by (Augin and Soesanto, 2022) shows that warm water foot soak therapy with a mixture of salt and lemongrass can reduce blood pressure in hypertensive patients. The results of this study were also supported by research conducted (Yossi Fitriana, Dian Anggraini, 2022) which stated that there was a decrease in blood pressure in respondents who were given warm water foot soak therapy with a mixture of salt and lemongrass after 5 days of treatment. Finger hold relaxation technique is another non-pharmacological therapy that can be applied. Finger-held relaxation therapy is an acupressure relaxation technique from Japan which is carried out by giving a manual touch to the five fingers so that it can relax the body (Nur Fadhilah and Maryatun, 2022). According to research conducted by (Handayani, 2020) showed that there was a decrease in blood pressure in respondents who were given finger-hold therapy for 5 days of treatment.

Relaxation therapy can stimulate the brain to produce endorphins which will help reduce stress in the body. A relaxed body will also make the parasympathetic nerves active so that blood pressure, heart rate and respiratory rate can decrease (Ekarini et al., 2019). Apart from being able to make the body relax, foot soak therapy in warm water with a mixture of salt and lemongrass and finger grip therapy is an easy therapy for the elderly to do. Based on the description above, the authors are interested in analyzing the difference in effectiveness between giving warm water foot soak therapy with a mixture of salt and lemongrass and finger-holding therapy in the elderly with hypertension.

## METHOD

The research was conducted using the case study method on two elderly people with hypertension. The research was conducted in Kemutug Kidul Village with the instrument of collecting informed consent data. The results of the study of Mrs. W's first client complained of joint pain, sometimes felt stressed and bored and did not take

hypertension medication. Pain that is felt in the knee, gets worse when you walk a lot and gets better when you rest. In the past, the client had a habit of consuming salted fish so that the first symptom felt by the client was neck pain. Then the client went to the doctor to check and found that his blood pressure was high so the doctor advised the client not to eat salted fish anymore. Clients do not want to take medication because they feel they do not need to take medication. This is because the client can still carry out daily activities even though the knee pain is intermittent. Based on the results of the physical examination, Mrs. W is 175/90 mmHg and the pulse is 79 x/minute. As for the results of measuring the stress level of Mrs. W is 16 which means that Mrs. W in the mild category.

The second client is Mrs. P is 67 years old. The results of the study found that clients sometimes feel dizzy and have neck pain. In addition, complaints of stress and difficulty sleeping are also often felt by Mrs. Q. In the past, the client had a habit of consuming salted fish. The client knows he suffers from high blood pressure when he is doing an elderly posyandu near his house. Mrs. P said that he had taken hypertension medication before, namely amlodipine. However, he no longer wants to drink it because of the side effect he is feeling, namely a fast heart beat. Based on the results of the physical examination, Mrs. P is 197/105 mmHg and the pulse is 104 x/minute. As for the results of measuring the stress level of Mrs. P is 19 which means that Mrs. P is in the medium category.

## RESULT AND DISCUSSION

The research results will be given to Mrs. W is a warm water foot soak therapy with a mixture of salt and lemongrass which aims to control blood pressure and reduce the client's stress level. While the intervention that will be given to Mrs. P is finger-held relaxation therapy which also aims to control the client's blood pressure and reduce the client's stress level. The plan for giving the intervention is consulted in advance with the supervising lecturer as the person in charge of the final scientific work. After confirming that there is no history of other diseases and being approved by the supervisor, the researcher prepares tools and materials and enters into a time contract with the patient.

Therapeutic intervention of soaking feet in warm water with a mixture of salt and lemongrass was given to Mrs. W for 7 days every morning. While the intervention given to Mrs. P is finger-held relaxation therapy with a duration of administration of 7 days.

The first week of intervention, namely warm water foot soak therapy with a mixture of salt and lemon grass, was given to Mrs. W started on April 15 2023. The intervention was carried out once a day for 15 minutes every morning. An explanation of how to make and the mechanism of the intervention is explained in advance to the client before the intervention is carried out. The way to make water to soak the client's feet is simply to boil water, add two sticks of lemon grass and half a teaspoon of salt, then boil together until it boils. After boiling let stand the cooking water for 5 minutes. Blood pressure measurement was carried out before the client was given an intervention and the results obtained were 178/100 mmHg and the client's stress score was 16, which means it is included in the mild category. The following is a table of blood pressure measurement results after intervention for 7 consecutive days.

Table 1 Mrs. W Results of Blood Pressure Measurements After Intervention

No.	Day, date	Bloodpressure Result
1.	Sabtu, 15 April 2023	176/98 mmHg
2.	Minggu, 16 April 2023	168/95 mmHg
3.	Senin, 17 April 2023	155/95 mmHg
4.	Selasa, 18 April 2023	151/93 mmHg
5.	Rabu, 19 April 2023	145/89 mmHg
6.	Kamis, 20 April 2023	143/90mmHg
7.	Jumat, 21 April 2023	141/88 mmHg

Table 2 Mrs. W Results of Stress Score After Intervention

No.	Day, date	Stress Score
1.	Sabtu, 15 April 2023	16
2.	Jumat, 16 April 2023	14

Table 1 is a table of the results of Mrs. W after being given a therapeutic intervention, soak feet in warm water with a mixture of salt and lemongrass for 7 days. The results of blood pressure measurements before being given the intervention were 178/100 mmHg and after being given the intervention for 7 days it became 141/88 mmHg. These results indicate that there is a decrease in blood pressure at systole by 37 mmHg and by 12 mmHg at diastole, which means that there is an effect after being given the intervention of warm water foot soak with a mixture of salt and lemon grass. While table 2 is a table of the results of measuring the client's stress level. Before the intervention was given, the client's stress score was 16 which means it was included in the mild stress category (15-18).

After being given the intervention, the stress score decreased to 14 which means it is included in the no stress category.

**Table 3 Mrs. P Results of Blood Pressure Measurements After Intervention**

No.	Day, date	Bloodpressure Result
1.	Senin, 1 Mei 2023	192/100 mmHg
2.	Selasa, 2 Mei 2023	184/96 mmHg
3.	Rabu, 3 Mei 2023	183/88 mmHg
4.	Kamis, 4 Mei 2023	173/98 mmHg
5.	Jumat, 5 Mei 2023	166/96 mmHg
6.	Sabtu, 6 Mei 2023	149/93 mmHg
7.	Minggu, 7 Mei 2023	147/89 mmHg

**Table 4 Mrs. P Results of Stress Score After Intervention**

No.	Day, date	Skor Stres
1.	Senin, 1 Mei 2023	19
2.	Minggu, 7 Mei 2023	15

Table 3 is a table of the results of Mrs. P after being given finger hand-held relaxation therapy intervention for 7 days. The results of blood pressure measurements before being given the intervention were 192/102 mmHg and after being given the intervention for 7 days it became 147/89 mmHg. These results indicate that there is a decrease in blood pressure at systole by 45 mmHg and by 13 mmHg at diastole, which means there is an effect after being given finger grip relaxation therapy. While table 4 is a table of the results of measuring the client's stress level. Before the intervention was given, the client's stress score was 19 which means it was included in the moderate stress category (19-25). Then after being given the intervention, the stress score decreased to 15 which means it is included in the mild stress category.

#### Discussion

Based on the results of the research conducted, it was shown that there was a decrease in blood pressure after giving warm water foot soak therapy with a mixture of salt and lemon grass for 7 days. The results of blood pressure measurements which were initially 178/100 mmHg decreased to 141/88 mmHg after the intervention was given. The results of this study are in line with research conducted by (Augin and Soesanto, 2022) which states that warm water foot soak therapy with a mixture of salt and lemongrass is effective for lowering blood pressure in the elderly with hypertension. Research conducted by (Ernawati and Maulana, 2015) states that soaking feet in warm water will dilate blood vessels so that it can increase blood circulation so that more oxygen is distributed to the tissues. Research conducted by (Yossi Fitriana, Dian Anggraini, 2022) said that there are two types of substances contained in salt that can reduce hypertension, namely Na and Cl which play an important role in the extracellular space, namely their role in regulating osmotic pressure and blood pressure. According to research conducted by (Olorunnisola et al., 2014),

lemongrass extract can produce hypolipidemic substances that function as a reduction in the risk of hypertension. The effect of a hypolipidemic agent is to reduce low levels of lipids in the bloodstream. The results of the study also showed that there was a decrease in stress levels from initially 16 to 14 after the intervention. Lemongrass has a content that can act as an antidepressant so it can reduce stress and make the body more relaxed. Lemongrass produces essential oils that function as antidepressants so that they can reduce stress and anxiety so that they can relax the body and mind (Sari and Widyaningrum, 2018). Lemongrass essential oil contains flavonoids and alkaloids which have an effect on the body (Rustanti et al., 2020). Flavonoids which are antioxidants can act as an antidote to free radicals, reduce oxidation in LDL, improve total cholesterol levels, and help vasodilation in blood vessels (Ullah et al., 2020). The process of flavonoids as hypolipidemic substances in an effort to lower blood pressure begins when flavonoids inhibit the oxidation process of LDL which results in preventing cholesterol buildup in blood vessels. In addition, with flavonoids which can trigger the process of vasodilation of blood vessels, it can improve the body's blood flow (Khan et al., 2021). Therefore, warm lemongrass water foot soak therapy results in relaxation in the body and absorption of lemongrass extract which contains flavonoids into the body so that it affects blood pressure.

Another relaxation therapy that can be applied to control blood pressure is finger grip relaxation therapy. Finger-held relaxation therapy is an acupressure relaxation technique from Japan which is carried out by giving a manual touch to the five fingers so that it can relax the body (Nur Fadhilah and Maryatun, 2022). Based on the results of the research conducted, it showed that there was a decrease in blood pressure after giving finger-held relaxation therapy for 7 days. The results of blood pressure measurements which were initially 195/102 mmHg decreased to 147/89 mmHg after the intervention was given. This research is in line with research conducted by (Handayani, 2020) which showed that there was a decrease in blood pressure after being given therapy for 5 days. This technique will stimulate the body's meridian points using the grip of the fingers with the aim of influencing certain organs of the body so that the flow of energy in the body can be active and improve blood circulation (Handayani, 2020). The results

of the study also showed that there was a decrease in stress levels from initially 19 to 15 after the intervention. Finger-held relaxation therapy is able to control emotions in the body so that it can relax a person. Relaxation naturally triggers the release of endorphins which function to relieve stress (Huriani et al., 2021).

According to the journal, the length of time for giving warm water foot soak therapy with a mixture of salt and lemongrass varies. Research conducted by (Anggraini, 2021) showed that the results of giving warm water foot soak therapy with a mixture of salt and lemon grass were effective with an intervention duration of 3 days. Other research also states that giving warm water foot soak therapy with a mixture of salt and lemongrass is effective in reducing blood pressure after 3 days of treatment (Yossi Fitriana, Dian Anggraini, 2022). Meanwhile, research (Augin and Soesanto, 2022) provides intervention for 7 days. The longer the intervention time, the more effective the results will be. Likewise with finger-held relaxation therapy. Therefore, researchers are interested in providing interventions for 7 consecutive days.

Based on the results of the study showed that there was a decrease in blood pressure at systole by 37 mmHg and by 12 mmHg at diastole on Mrs. W who has been given therapeutic intervention by soaking feet in warm water with a mixture of salt and lemon grass. Meanwhile, there was a decrease in blood pressure at systole by 45 mmHg and by 13 mmHg at diastole on Mrs. P who has been given finger-held relaxation therapy. In addition, there was a decrease in Mrs.'s stress level. W, which was originally 16, became 14 (down 2 levels) and at Mrs. P which was originally 19 to 15 (down 4 levels). These results indicate that finger-hold relaxation therapy is more effective in controlling blood pressure and stress levels compared to warm water foot soak therapy with a mixture of salt and lemongrass. No negative side effects were felt by both clients during the intervention.

The success of the intervention can be influenced by individual perceptions. Perception, which is a result of understanding objects or events, is very influential in the treatment process for a person (Murty, 2021). There are internal and external factors that influence a person in making a decision on what treatment to do. These factors include perceptions, attitudes, intensity, interest and motivation and needs (Lestari and Faridah, 2021). The results of other studies explain that

having positive perceptions held by patients who are undergoing therapy can increase the effectiveness of therapy which is directly related to the patient's encouragement or desire to recover (Samosir et al., 2021). Perceptions about complementary therapy will support an individual's attitude. From the positive perception that a patient has with complementary therapy, it will generate motivation to make the right decision to achieve healing. With a positive perception, individuals also have a high probability of having a positive attitude (Korengkeng and Mangolo, 2023).

The influence of perceptions on the success of therapy carried out in this study is evidenced by different end results. Client Mrs. P has the perception that complementary therapy (finger grip relaxation) can help to control his blood pressure without the side effect of heart palpitations as can be caused by drugs because this therapy is a natural way. This perception is supported by the positive attitude of Mrs. P, namely several times doing hand-held therapy independently before going to bed. Meanwhile, Mrs. W had an initial perception that complementary therapy (warm foot bath with a mixture of salt and lemongrass) was less effective in lowering blood pressure because of Mrs. W, who had only soaked his feet in warm water, did not lower his blood pressure. until Mrs. W did not take the initiative to carry out therapy independently. Negative perceptions about herbal complementary therapies can also produce negative attitudes (Korengkeng and Mangolo, 2023).

## CONCLUSION

Based on the results of research that has been done, giving warm water foot soak therapy with a mixture of salt and lemon grass and finger-hand relaxation therapy has proven effective in controlling blood pressure and stress in people with hypertension. From the results of the study it can also be concluded that finger-held relaxation therapy is more effective in controlling blood pressure and stress compared to warm water foot soak therapy with a mixture of salt and lemon grass.

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