

The Effect of Non-Pharmacological Treatment by Soaking in Warm Water on the Feet on Insomnia in Elderly Women

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Abstract

Introduction: Insomnia treatment can be done pharmacologically and non-pharmacologically. Pharmacological treatments such as sedative-hypnotic drugs such as Zolpidem, Tradozon, Lorazepam, Phenobarbital, Diazepam, Clonazepam, and Amitripilin will have side effects such as impaired thinking coordination, impaired mental function, dependence, and are toxic. Non-pharmacological treatment includes treatment that is safe, effective and without side effects, such as complementary therapy which includes natural medicine therapy. Complementary therapy can be done using herbal therapy, nutritional therapy, relaxation, meditation, laughter therapy, acupuncture, aromatherapy, reflexology, and hydrotherapy.

Objectives: To determine the effect of non-pharmacological treatment by soaking warm water on the feet on insomnia in the elderly at the UPTD Puskesmas Pasir Putih, Depok City in 2023

Method: This research is quantitative analytical research with an experimental design with a one-group pre-test and post-test pre-experiment design. The sample in this study was all elderly people who experienced insomnia at the UPTD Pasir Putih Health Center, Depok City, totaling 30 elderly people using a total sampling technique. The research instrument used a questionnaire and warm water. The data is primary data analyzed using the T-test.

Result: It is known that the average level of insomnia in elderly women before being soaked in warm water was 21.60 with a standard deviation of 1.499. It is known that the average level of insomnia in elderly women after being soaked in warm water is 14.97 with a standard deviation of 0.890. The effect of non-pharmacological treatment of soaking warm water on the feet on insomnia in elderly women with a p-value of 0.000.

Conclusion: There is an effect of non-pharmacological treatment by soaking warm water on the feet on insomnia in elderly women at the UPTD Puskesmas Pasir Putih, Depok City in 2023.

Keywords: diaphragm breathing, anxiety, pregnancy

Introduction

The development that Indonesia has achieved so far has had a positive impact in improving the quality of life of the people, one of which is reflected in the increase in life expectancy of the Indonesian population. The consequence of increasing the life expectancy of the Indonesian population is an increase in the percentage of the elderly or elderly population (60 years and over).¹ International data shows that the world's elderly population (60 years and over) is growing very quickly compared to other age groups. In 2017, the number of elderly people in the world was around 600 million (11 percent), estimated to be 1.2 billion (22 percent) in 2025 and 2 billion in 2050, at that time there will be more elderly people than children aged 1-14 years. In 2021, in Indonesia the elderly will reach 30.16 million elderly people (seniors) in 2021.¹

Data from the Central Statistics Agency (BPS) shows that in 2021, eight provinces have entered an old population structure, namely a percentage of the elderly population that is greater than ten percent. The eight provinces are DI Yogyakarta (15.52 percent), East Java (14.53 percent), Central Java (14.17 percent), North Sulawesi (12.74 percent), Bali (12.71 percent), South Sulawesi (11.24 percent), Lampung (10.22 percent), and West Java (10.18 percent).² According to gender, there are more elderly women than elderly men, namely 52.32 percent compared to 47.68 percent. According to their place of residence, there are more elderly people in urban areas than in rural areas, namely 53.75 percent compared to 46.25 percent. Law Number 13 of 1998 concerning the Welfare of the Elderly defines the elderly population as those who have reached the age of 60 (sixty) years and over. As the level of health and welfare of the population increases, this will have an impact on increasing life expectancy in Indonesia.³ The projected number of elderly people in Depok in 2021 is 182,820 people (7.3% of the population). In Jatijajar sub-district, the projected number of elderly people in 2021 is 2,617 people (5.2% of the population).⁴ The physical condition of older individuals (seniors) is different from that of adults. Decreased physical conditions in the elderly, such as reduced hearing, vision, problems with digestion, heart, kidneys and the ability of the body's immune system are also greatly reduced. One of the physical changes in the elderly is a change in sleep patterns. Insomnia is a big problem for society, especially the elderly.⁵

Insomnia treatment can be done pharmacologically and non-pharmacologically. Pharmacological treatments such as sedative-hypnotic drugs such as Zolpidem, Tradozon, Lorazepam, Phenobarbital, Diazepam, Clonazepam, and Amitripilin will have side effects such as impaired thinking coordination, impaired mental function, dependence, and are toxic.⁶ Non-pharmacological treatment includes treatment that is safe, effective and without side effects, such as complementary therapy which includes natural medicine therapy. Complementary therapy can be done using herbal therapy, nutritional therapy, relaxation, meditation, laughter therapy, acupuncture, aromatherapy, reflexology and hydrotherapy.⁷ Hydrotherapy is the use of water to heal and relieve various complaints. Water is used as a trigger to improve strength levels and disease resistance. Regulating body circulation using water therapy can cure various diseases such as fever, pneumonia, headaches and insomnia.⁸ Warm water therapy has a physiological impact on the body, especially on the blood vessels so that blood circulation is smooth, with gout and rheumatism disorders, it is very good if warm water therapy, water has a positive impact on the heart muscle and lungs. Warm water makes us feel relaxed, relieves pain and tension in muscles and improves blood circulation. Therefore, soaking your feet in warm water can help relieve stress and make you sleep more easily. Water for therapy is set at a temperature of 33°C to 39°C above body temperature so that the patient feels comfortable.⁷

Water is useful for improving strength and defense levels from various diseases that want to attack the body. Therapy using water can cure various diseases, for example: headaches, pneumonia, and sleep disorders (insomnia). Warm water has many physiological impacts on body health, especially on smooth blood circulation, warm water also has a positive impact on the lungs and heart muscle. Warm water therapy provides a feeling of calm, relaxation, and can relieve tension in the muscles, eliminate feelings of panic and make you sleep soundly. Therefore, soaking your feet in water with a temperature of 39-40°C can reduce nerve pressure and make sleeping easier. The water used for therapy is set at a temperature ranging from 39°C to 40°C above body temperature so that the patient feels comfortable.⁷

The effects of insomnia include damage to the immune system, white blood cell count, brain function and heart variability. Apart from that, the impact of insomnia can also affect mood, cognition, fatigue, and delay recovery and healing of disease. The impacts caused by insomnia can reduce the quality of life of the elderly.⁹ Research conducted by Helti (2018) entitled *The Effect of Warm Water Soaking in the Feet on Insomnia in the Elderly in Tengah Village, Pantai Labu District, Deli Serdang Regency*. From the data from research conducted by researchers on 20 respondents. The average level of insomnia before soaking the feet in warm water was 14.65 and the average value (mean) after the intervention was 10.75, so an average reduction value of 3,900 was obtained with a std value. The deviation in insomnia level of 18.020 obtained a p-value of 0.000 because the p-value was (0.000).¹⁰

Based on this pre-survey, the author is interested in researching "The Effect of Non-Pharmalogical Treatment of Warm Water Soaking in the Feet on Insomnia in Elderly Women at the UPTD of the Pasir Putih Health Center, Depok City in 2023."

Method

This research uses experimental research methods. The experimental method is defined as a method with a systematic form to find the influence of one variable on another by providing special treatment and strict control under certain conditions.¹¹ This research examines the effect of non-pharmacological treatment by soaking in warm water on the feet on insomnia in elderly women at UPTD Puskesmas Pasir Putih, Depok City in 2023. The research was conducted in September 2023. The population in this study were all elderly women who experienced insomnia at UPTD Puskesmas Pasir Putih, Depok City, totaling 30 elderly people. The research instrument used a questionnaire and warm water. The data is primary data analyzed using the T-test. The independent variable is a diaphragm breathing exercise and the dependent variable is anxiety in third-trimester pregnant women. The instrument, the test used was distributing questionnaires to respondents.

Results

Table 1. The average level of insomnia in elderly women before and after being soaked in warm water at UPTD Pasir Putih Health Center, Depok City, 2023

Insomnia Before Soaking in Warm Water	Mean	SD	Min
Results	21,60	1,499	20
Insomnia After Soaking in Warm Water	Mean	SD	Min
Results	14,97	0,890	13

Based on Table 1 above, it can be seen that the insomnia results before soaking in warm water obtained an average of 21.60 with a standard deviation of 1.499. The insomnia results after soaking in warm water obtained an average of 14.97 with a standard deviation of 0.890.

Table 2. Normality Test Results for Research Variable Data

Variable	Insomnia Before	Insomnia After
Skewness	0,550	-0,561
Std. Skewness	0.427	0.427
Variable	Insomnia Before	Insomnia After

Based on Table 2 from the analysis, the skewness ratio for the previous insomnia variable is 1.28, where this value is between -2 to +2, so the data is normally distributed. The skewness ratio for the insomnia variable after being obtained is -1.31, where the value is between -2 to +2, so the data is normally distributed.

Table 3. Effect of Non-Pharmacological Treatment by Soaking in Warm Water on the Feet on Insomnia in Elderly Women at UPTD Puskesmas Pasir Putih Depok City in 2023

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Insomnia Before Soaking in Warm Water	21.60	30	1.499	.274
	Insomnia After Soaking in Warm Water	14.97	30	.890	.162

Paired Samples Test

		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Insomnia Before Soaking in Warm Water - Insomnia After Soaking in Warm Water	6.633	1.691	.309	6.002	7.265	21.480	29	.000

Based on Table 3, it is known that the average insomnia before soaking in warm water was 21.60 with a standard deviation of 1.499. Meanwhile, insomnia after soaking in warm water was found to be an average of 14.97 with a standard deviation of 0.890. It can be seen that the mean value of the difference between knowledge before and knowledge after is 6.633 with a standard deviation of 1.691. The results of the T-Test statistical test showed a p-value: of 0.000, so it can be concluded that there is an effect of non-pharmalogical treatment by soaking in warm water on the feet on insomnia in elderly women at the UPTD of the Pasir Putih Health Center, Depok City in 2023.

Discussion

Levels of Insomnia in Elderly Women Before Being Soaked in Warm Water

Based on Table 3, it can be seen that the insomnia results before soaking in warm water obtained an average of 21.60 with a standard deviation of 1.499. According to The International Classification of Sleep Disorders, insomnia is difficulty sleeping that occurs almost every night, accompanied by discomfort after the sleep episode. So, insomnia is a symptom of sleep disorders in the form of repeated difficulty falling asleep or maintaining sleep even though

there is an opportunity to do so. Insomnia is not a disease, but rather a symptom that has causes such as emotional disorders, physical disorders and the use of drugs. Insomnia can affect not only energy levels and mood, but also health, performance and quality of life.¹²

Factors that influence insomnia in the elderly include stress, worries about work, health, school or family, death or illness of a loved one, divorce or loss of job can make the mind active at night, making it difficult to sleep, anxiety and depression. . drugs. caffeine, nicotine and alcohol, coffee, tea, cola and drinks containing caffeine are well-known stimulants. medical conditions. changes in environment or work schedule.¹² This research is by research conducted by Kristina (2018) entitled *The Effect of Soaking Warm Water on the Feet on Insomnia in the Elderly in Tengah Village, Pantai Labu District, Deli Serdang Regency*. It was found that the level of insomnia before soaking warm water on the feet was moderate in the majority of 10 people (50.0%).¹³

According to researchers, the insomnia that occurred in the elderly during research was due to some elderly people experiencing stress and suffering from certain diseases such as hypertension, rheumatism, etc. where the elderly took medication prescribed by doctors. So that the elderly experience difficulty sleeping, stress and illnesses suffered by the elderly result in disrupting the quality of the elderly's sleep, resulting in insomnia in the elderly.

Levels of Insomnia in Elderly Women After Being Soaked in Warm Water

Based on Table 3, it can be seen that the insomnia results after soaking in warm water obtained an average of 14.97 with a standard deviation of 0.890. Complementary therapy can be done using herbal therapy, nutritional therapy, relaxation, meditation, laughter therapy, acupuncture, aromatherapy, reflexology and hydrotherapy. Hydrotherapy is the use of water to heal and relieve various complaints. Water is used as a trigger to improve strength levels and disease resistance. Regulating body circulation using water therapy can cure various diseases such as fever, pneumonia, headaches and insomnia. Warm water therapy has a physiological impact on the body, especially on the blood vessels so that blood circulation is smooth, with gout and rheumatism disorders, it is very good if warm water therapy, water has a positive impact on the heart muscle and lungs. Warm water makes us feel relaxed, relieves pain and tension in muscles and improves blood circulation. Therefore, soaking your feet in warm water can help relieve stress and make you sleep more easily. Water for therapy is set at a temperature of 33°C to 39°C above body temperature so that the patient feels comfortable.⁷

This research is by research conducted by Hardono (2018) entitled *Soak your feet in warm water, one of the therapies that can overcome insomnia in the elderly*. The average insomnia score after being given a foot soak in warm water from 17 elderly people or respondents was 17.18, which means average. -The average elderly no longer experiences insomnia.¹⁴

According to researchers, insomnia that occurs in the elderly is reduced because the warm water soak given to the elderly makes the elderly feel relaxed and comfortable. so that the stress and complaints felt by the elderly such as rheumatism, pain and so on are reduced so that the elderly's sleep patterns become better.

The Effect of Non-Pharmacological Treatment of Soaking in Warm Water on the Feet on Insomnia in Elderly Women at the UPTD of the Pasir Putih Health Center, Depok City in 2023

Based on Table 3, it is known that the average insomnia before soaking in warm water was 21.60 with a standard deviation of 1.499. Meanwhile, insomnia after soaking in warm water was found to be an average of 14.97 with a standard deviation of 0.890. It can be seen

that the mean value of the difference between knowledge before and knowledge after is 6.633 with a standard deviation of 1.691. The results of the T-Test statistical test obtained a p-value: of 0.000, so it can be concluded that the effect of non-pharmacological treatment is warm water soaking in the feet on insomnia in elderly women at the UPTD Pasir Putih Health Center, Depok City in 2023.

Warm water soaking of the feet is a sleep stimulation technique which is done by soaking the feet in warm water with a temperature of 37°C-39°C and soaking the feet up to the ankles (2-3 liters) for 15-20 minutes. This is due to the physiology that in the foot area there are skin nerves, namely the flexus venosus. From this series of nerves, stimulation is transmitted to the posterior cornus, then continues to the spinal cord, to the dorsal roots, then to the ventro basal thalamus and enters the brain stem, which is precisely in the area of the spinal cord. Under the pons and medulla, this is where the sophistication effect (wanting to sleep) occurs.¹⁵ This research is by research conducted by Mestika Rija Helti, Dedi (2018) entitled *The Effect of Warm Water Soaking in the Feet on Insomnia in the Elderly in Tengah Village, Pantai Labu District, Deli Serdang Regency*. The results of data analysis using the paired sample T-test were that the average level of insomnia (Mean) before soaking in warm water on the feet was 14.65, and after soaking in warm water on the feet was 10.75, so the average decrease value was 3,900 and the p-value = 0.000 with (< 0.05), with a value of $t = 18.020$, thus the research hypothesis is accepted that there is an effect of soaking warm water on the feet on insomnia in the elderly in Tengah Village, Pantai Labu District, Deli Serdang Regency in 2018.¹⁰

According to researchers, warm water immersion can improve sleep quality fulfill sleep needs and reduce discomfort in the elderly so that the elderly feel relaxed. Warm water soaking stretches stiff nerves so that symptoms of insomnia are reduced. This decrease in insomnia in the elderly occurs because warm water can convey a feeling of relaxation and comfort and can stimulate the brain to order the hypothalamus to increase the production of the hormone melatonin which is a derivative of the hormone serotonin which regulates human sleep patterns and human circadian waves. Apart from that, personal hygiene for respondents, a clean and comfortable sleeping place, a clean and comfortable environment also play a role in increasing the comfort of respondents (elderly) while sleeping so that they can improve sleep quality and reduce insomnia. There is a need for a support system for elderly people from family or those closest to them to provide emotional support which will be very beneficial for elderly people who are experiencing stress. Support systems can reduce stress reactions and improve physical and mental well-being.

Conclusion

Based on the results of research and discussion regarding the effect of non-pharmacological treatment by soaking in warm water on the feet on insomnia in elderly women at the UPTD Puskesmas Pasir Putih, Depok City in 2023, it can be concluded that the average level of insomnia in elderly women is known. before being soaked in warm water at the UPTD Pasir Putih Health Center, Depok City in 2023 with 21.60 with a standard deviation of 1.499. It is known that the average level of insomnia in elderly women after being soaked in warm water at the UPTD Pasir Putih Health Center, Depok City in 2023 is 14.97 with a standard deviation of 0.890. There is an effect of non-pharmacological treatment by soaking warm water on the feet on insomnia in elderly women at the UPTD of the Pasir Putih Health Center, Depok City in 2023 with a p-value of 0.000.

Conflict of Interest

The researcher declares that this research is independent of individual and

organizational conflicts of interest.

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