ABSTRACT

FOOT SOAK WITH WARM WATER IN ELDERLY AND THE QUALITY OF SLEEP

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Background: Sleep disorders can lead to serious problems and can even degrade the quality of life. Sleep disorder is one of the major problems experienced by many Elderly that triggered by decrement in various aspects of biological, physiological, psychosocial, and spiritual. Purpose: This study aims to identify the effects of foot soak in warm water in improving the quality of sleep in elderly. Methods: This research is pre experimental with one group pretest-posttest design. The population of this research is elderly who live in Nursing House for elderly Tresna Werda. The sample taken were 15 elderly that selected purposively. The instrument utilized in gathering data was the PSQI questionnaire. Results: The quality of sleep as before treatment was found to be in "very bad" and after foot soak treatment was found to be "good". This study indicates that there is a significant difference before and after the foot soak therapy with p value >0.05. Conclusion: This study suggests the foot soak therapy with warm water to improve sleep disorder among elderly.

Keywords: quality of sleep, foot soak, warm water

INTRODUCTION

The amount of elderly will increase even more rapidly in these times. Elderly is a continuation of the age of majority which is a natural process that's been determined by God. Elderly is categorized into: 60-70 years (elderly), 75-90 years (old), and 90 years (very old) (WHO, 2010). The most common problem that appears in elderly is the decrease of the quality of sleep or trouble sleeping, often waking up early or late, headache during the day, and difficulty concentrating. A bigger impact is depression. Sleepiness can threaten the work while doing daily activities, driving, and can cause disturbance during work when the elderly experience decrease of the quality of sleep (Raifuddin, 2007). According to World Health Organization (WHO) (2010), there are approximately 100 million elderly a year in America who experiences decrease of the quality of sleep, with a prevalence at 67%. It is predicted that around 20-50% are found with trouble sleeping. Quality sleep is a condition where a person woke up fresh and healthy after sleep. The quantity of the quality of sleep includes: the duration of sleep, the latency, and other subjective aspects such as deep sleep and rest (Khasanah, Khusnul, and Hidayat, 2012). The elderly tend to experience trouble sleeping that can damage the health because it can cause susceptibility to stress, confusion, disorientation, mood swings, decrease in decision making (Potter and Perry, 2007). Other consequences from trouble sleeping is the decreasing ability of the elderly to do their daily activity.

Ways to treat trouble sleeping that can be done such as: morning exercise, morning walks, foot soaks in warm water, back or foot massage, and other activities (Maryam, et.al., 2008). Foot soaks are one of the techniques of relaxation to decrease the effects of trouble sleeping using warm water (30°C - 39°C). Based on the physiology, the feet contain nerve endings called the flexus venosus. This is an effective way to decrease the effects of pain that is related to muscle strain and can be used to treat disorders related to hormones and circulation (Khotimah, 2012). The preliminary study done on 20th November 2016 at the Tresna Werda Nursing Home on 35 elderly consisting of 12 males, and 23 females. The result of an interview towards 5 of the elderly that had trouble sleeping, the elderly experience headaches, lack of concentration, and activity defects. To treat those problems, then the researcher: gives adequate nutrition, examine the sleep position, and doing an activity before sleep like knitting. As a result, those activities can’t fix the problem: trouble sleeping.

OBJECTIVE
The purpose of this study was to know the effectiveness of foot soak with warm water on sleep quality of the elderly.

**METHODS AND INSTRUMENTS**

The method used in this study is the pre experimental with one group pretest-posttest design. The subjects are tested using the Pittsburgh Sleep Quality Index (PSQI) questionnaire, to determine the quality of sleep before giving foot soaks in warm water, then tested again after 5 days of treatment. The requirements for the respondents are: elderly living in the Panti Sosial Tresna Werda Karitas Cimahi, age 60-74 years, not consuming any medication to help treat trouble sleeping, responden understand the Indonesian language and can understand the questionnaire given. Responden don’t suffer Diabetes Mellitus or Dimentia and voluntarily participates in the research.

The data collection and documentation of this research is done at 19th – 24th February 2017 by giving foot soaks in warm water to the respondents. They are then given foot soaks in warm water to the ankle at 4 p.m. – 5 p.m for 10 minutes. The temperature 38ºC, every 5 minutes re-measured using a thermometer to maintain the stability of the foot water immersion temperature. On the sixth day, the PSQI questionnaire was given back to determine the quality of sleep

**RESULT**

According to the data analysis with the mean equation, it is known that the average of the quality of sleep of the elderly before the therapy is very low with the interpretation “bad.”

Table 1. Quality of Sleep Before Foot Soak in Warm Water

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<tbody>
<tr>
<td>N</td>
<td>Valid</td>
<td>15</td>
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<tr>
<td>Missing</td>
<td>0</td>
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<tr>
<td>Mean</td>
<td>17.533</td>
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According to the data analysis with the mean equation, it is known that the average of the quality of sleep of the elderly after the therapy is in the category high with the interpretation “good.”

Table 2. Quality of Sleep After Foot Soak in Warm Water

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<tr>
<td>N</td>
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<td>Missing</td>
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<td>Mean</td>
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Table 3. Comparison Quality of Sleep Before and After Foot Soak in warm water

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<tr>
<th>Mean</th>
<th>Std. Deviation</th>
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<th>df</th>
<th>Sig (2-tailed)</th>
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<tr>
<td>1.15333E1</td>
<td>2.13363</td>
<td>20.935</td>
<td>14</td>
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Based on the statistic data result, the average score before and after foot soak therapy in warm water, \( t_{\text{count}} \) is 20,935 and \( t_{\text{table}} \) is 1,761. According to Sunyoto (2012), if \( t_{\text{count}} < t_{\text{table}} \), then \( H_0 \) is accepted and \( t_{\text{count}} \) is with an absolute value, so it is not seen (+) or (-) based on the result, then 20,935>1,761 so \( t_{\text{count}}>t_{\text{table}} \), which means \( H_0 \) is rejected and \( H_A \) is accepted with a trust significance of 95%. \( \alpha = 0.05 \) and \( df = 15-1=14 \). Analysis of the three identification problem shows that there is a significant difference before and after foot soak therapy in warm water towards the quality of sleep of the elderly at Tresna Werda Nursing Home.
DISCUSSION

The result of the study showed that after foot soak therapy in warm water, quality of sleep of the elderly increased. Soaking the feet with warm water is one way to reduce pain by applying heat to the body. A good sleep will be attained if a person is in a relaxed state. One of the non-pharmacological ways that can be used to increase the quality of sleep, especially for the elderly, is soaking their feet with warm water (Carpenito, 2009).

Physiologically, the feet consist of nerve endings that are connected to the whole body. Soaking the feet with warm water will stimulate the nerve endings on the feet to work. Raffini is a nerve ending that is sensitive to heat, therefore creating a neurotransmitter, which is a priority nerve to control sleep. This nerve bundle will be extended to the kornu posterior then continued to the medulla spinalis, moving on to the lamina I, II, III Radiks Dorsalis, then continued to the ventro basal thalamus, on to the brain precisely at the rafe beneath the pons and medulla. Reticular is part of the pons that determines whether or not the person wants to sleep or also called the soporific effect (Guyton & Hall, 2011). The heat during physiotherapy is used to increase the blood flow at the skin by dilating the blood vessels to increase oxygen and nutrition supply. Heat also increases muscle elasticity to decrease muscle stiffness (Intan, 2010).

Some of the developed countries applied the stimulus control therapy using warm water many times before. According to Kneipp and Priesnisz (2007), soaking the feet with warm water at the temperature of 30°C - 39°C for 1 week with the boundary to the ankle of the feet. This therapy is very useful in decreasing muscle contraction to the feeling of relaxing and cbath an treat trouble sleeping and infection. The results of the study by Seyyedrasooli et al (2013) with blinded randomized clinical trial method, showed that footbath is effective in sleep quality of the elderly, decreases sleep latency, and increases efficient sleep duration. The study was done by 46 old men, were separated into two groups: intervention group and control group. The intervention group participants were asked to put their feet in warm water (41-42°C) for 20 minutes before sleeping for 6 weeks. Before and after the intervention they completed the PSQI. A research done by Utami (2015) about the benefit of using foot-soak towards the elderly. The research is done for seven days with 10 respondents ranging from 60-74 years old, is given the therapy with the temperature of 39°C for 15 minutes. The result is that there is an impact by soaking the feet with warm water. The hypothesis test result uses a Wilcoxon test with a significant result of 0.004 (<0.05). Another research done by Ningtiyas (2014) with the sample of 20 respondents age 60-74 years old, with the temperature of 37°C for 15 minutes and done for 2 weeks. The sleep quality of the group that is given the intervention shows that 10 respondents (100%) are good, while the group that wasn’t given the intervention shows that 2 respondents (20%) showed good quality of sleep while 8 respondents (80%) showed bad quality of sleep. The results show that there is a significant impact of soaking the feet in warm water for elderly towards their sleep quality.

CONCLUSION

Based on the research that was done, it can be concluded that soaking the feet with warm water is effective to increase the sleep quality of the elderly. For most of the elderly who had trouble sleeping, soaking the feet with water can be given as a non-pharmacological therapy as a nursing intervention that is both cheap and safe to use. This can also be done as a non-pharmacological therapy for both adults and nurses that also experiences difficulty sleeping.

FOOTNOTES

Authors Contribution: Evie Novita Silaban participated in design and data collection. Jeanny Rantung, contribute to data analysis and writing of the manuscript.

DAFTAR PUSTAKA