

THE IMPACT OF SELF-MASSAGE METHOD ON THE ELDERLY'S SLEEP QUALITY

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Abstract

The purpose of this study is to ascertain how the self-massage technique affects the quality of sleep in the elderly at the Hanna nursing home, Bogor. The research method used in this study is the Pre-Experiment method. The research instrument in the form of The Pittsburgh Sleep Quality Index (PSQI) questionnaire was used to measure the quality of sleep of the elderly before and after performing self-massage. This research was conducted in May 2024 at Panti Werdha Hanna, Bogor. The sample in the study amounted to 14 elderly people who met the criteria. Sampling using purposive sampling technique. Based on the data from this study, it shows that the average value of sleep quality in the pre-test is 5.1 and the posttest results are lower with a value of 4.1. The results of the paired sample T test show that the significance value is $0.013 < 0.05$, which means that there is a significant difference between the value of the pretest results and the value of the posttest results. Based on the result, it can be said that the elderly residents of Panti Werdha Hanna benefit greatly from the self-massage they receive.

Keywords: *Self massage, sleep quality, elderly.*

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INTRODUCTION

Old age is a continuation of adulthood and is a natural process that has been determined by the creator. The elderly population is increasing as the population in a country increases. The World Health Organization (WHO) classifies the elderly into 4, namely; middle age 45-59 years, elderly 60-74 years, old over 90 years (Friska & Kemenkes Riau, 2020). The aging process is the process of slowly disappearing tissue function so that it is unable to repair or replace and maintain its normal function (Putri Utami et al., 2020), resulting in changes in anatomical and physiological mechanisms that occur in humans as they age which can ultimately

affect a series of individual activities. The health problem experienced by the elderly every day is low back pain (Siti Bandiyah, 2009). Pain felt by the elderly can cause sleep disturbances.

Sleep is believed to restore energy, sleep also provides time for recovery and healing in the body system. Sleep can relieve the work of vital organs during the day's activities, and when awakened as if to restore energy to the beginning, so that humans have the energy back to continue other activities. People who lack sleep for a long period of time can cause difficulty concentrating, changes in bodily, mental and emotional functions, and even invite various diseases.

Sleep disorders affect anyone at any time. One of the changes in the elderly is changes in sleep patterns. The prevalence of sleep disorders in the elderly is quite high, which is around 67% (Pratiwi, 2017). Sleep disorders that occur will affect the quality of sleep obtained. Sleep quality problems in the elderly are characterized by sleep episodes that tend to shorten, there is a progressive decline and almost no deep sleep time. The quality of elderly sleep is very important for the physical health of the elderly because with good sleep quality it makes the elderly less susceptible to disease and reduces the risk of disease.

The problem experienced by someone related to fulfilling their sleep needs can be called sleep disorders. Someone who experiences sleep deprivation will have many negative effects such as decreased ability to think and work, tend to make mistakes, and find it difficult to remember things (Amran & Handayani, 2012). Inadequate sleep can also have an impact on physiological aspects such as; decreased daily activity; fatigue; weakness; slow healing process; decreased endurance; and instability of vital signs (Nurlela et al., 2009).

Many ways can be used to overcome sleep problems. One of them is relaxation therapy which includes nonpharmacological therapy. Muscle aches or pains are often found in elderly people. Massage is one form of therapy to cure pain. The touch made to the skin in massage techniques provides a relaxing and

comforting effect for the elderly. Skin is the largest sensory organ in humans that has a close relationship with the central nervous system (Zainal Abidin et al., 2022). Similarly, it is claimed that massage has been demonstrated to enhance performance and successfully lessen fatigue and the onset of delayed-onset muscular soreness (DOMS), furthermore, because massage is performed by hand, it does not require a particular setting or equipment. Additionally, because massage is non-invasive and generally safe, people can learn certain massage techniques and approaches and execute physical therapies on their own (Terada & Nakatani, 2018).

Massage therapy can be done at home and not only experts can do massage, but all people can do massage, either for others or for themselves with guidance from health workers. Self-massage therapy is easy to do and also cost-effective. Self-massage with various tools, such as foam rollers, roller-sticks, and therapy balls can increase flexibility without reducing muscle strength or performance (Capobianco et al., 2019). Self-massage can be performed on a self-managed, on-demand basis that can meet the ongoing need for relief from aches or pains.

Aging or ageing process is a process of slowly disappearing the ability of tissues to repair themselves or replace themselves and maintain their normal structure and function so that they cannot defend against infection and repair the damage suffered (Nurfatimah et al., n.d.). Sleep also has several benefits, one of which is maintaining physiological functions. The body will repair and prepare energy when a person sleeps (Perry A. G. & Potter P. A., 2007), besides that sleep can also make the body fitter and more energized, sleep is also able to help the growth and development of the body, can maintain weight to remain stable and normal, become more productive, and become more focused when doing activities, and strengthen the immune system (P2TKP, 2020).

Sleep quality is defined as a person's contentment with their sleep, as evidenced by their lack of symptoms such as fatigue, restlessness and agitation, lethargy and apathy, blackness around their eyes, swollen eyelids, red conjunctiva,

sore eyes, headaches and frequent yawning and drowsiness (Aziz Alimul Hidayat, 2014). Sleep quality can be characterized by a person's ability to stay asleep and get a good amount of Rapid Eye Movement (REM) and Non Rapid Eye Movement (NREM) sleep so that sleep will cause a sense of calm, refreshed in the morning and eager to do activities.

NREM sleep is a stage of sleep with slow eyeball movements, a decrease in breathing rate, heart rate, and blood pressure. This happens because brain waves at this stage are slower than alpha and beta waves in someone who is awake or in a conscious state (Saifullah, 2018). While REM Sleep is sleep in an active condition and with dreaming conditions, irregular breathing rates and heart rates, irregular muscle movements, and rapid eye movements. Usually occurs for 90 minutes after falling asleep and has an average duration of 20 minutes.

METHOD

The study employed a pre-experimental approach with a single group design for the pretest and posttest. The research was conducted in May at Wredha Hanna Nursing Home, Bogor. The population in this study were elderly people totaling 17 elderly people at the Hanna Wredha home. Technique with purposive sampling to determine the sample with certain considerations.

A questionnaire served as the study's tool. The Pittsburgh Sleep Quality Index (PSQI) questionnaire is used to measure a person's sleep quality and pattern. Sleep quality is satisfaction with sleep, so that the person does not show anxiety, feel tired, easily agitated, lethargic and apathetic and blackness around the eyes, divided attention to feel headaches and frequent yawning or drowsiness. Sleep satisfaction perceived by the elderly is based on the length of sleep, the number of times woken up during sleep and the condition and

feelings when waking up.

Subjective sleep quality, latency sleep, efficiency, duration sleep, sleep disturbances, use of sleeping pills, and daytime sleep dysfunction are the seven indicators used to assess good and poor quality. Each question type has different calculation method, and when all the scores were added up, the result were divided into two groups: If the score ≤ 5 then it is said to be in good sleep quality and If the score ≥ 5 then it is said to be in poor sleep quality

Data on elderly sleep quality was obtained from filling out the PSQI questionnaire. The researcher accompanied the respondent in filling out the questionnaire to avoid misunderstanding the questionnaire questions. The steps in data collection are: 1) Initial test data collection (pretest), 2) Self-massage treatment is carried out with 12 meetings, 3) Collection of final test data (posttest).

RESULT AND DISCUSSION

To find out the results of the research data carried out, the next step is for researchers to analyze data and process data of the research results. Researchers will discuss the description of the presentation of the results of research data processing in the form of descriptions, testing the requirements of the analysis and the results of the analysis.

Table 1. Basic Characteristics of Elderly in the Panti Wredha Hanna

Variable	Mean	SD	Min	Max
Age (years)	76,57	8,2	61	89
Height (cm)	162,4	9,4	153	181
Body Weight (kg)	55,8	10,6	41	73
BMI (kg/m ²)	21,4	5,0	14,7	30,3

Table 1 above shows the basic characteristics of the elderly at Wredha Hanna home. These characteristics are important in terms of considering an appropriate and effective self-massage program. The results of data obtained, on the age variable, obtained a mean of 76.57 with a standard deviation of 8.2. The youngest age is 61 years and the oldest is 89 years. In the height variable, the average value is 162.4 cm with a standard deviation of 9.4. Height in the elderly shows significant

variation with a minimum value at 153 cm and a maximum at 181 cm. In the weight variable in the elderly with average value of 55.8 kg with a standard deviation 10.6. The lowest weight with a value of 41kg and the highest is 73 kg. And on the Body Mass Index (BMI) variable, the average value is 21.4 with a standard deviation of 5.0. The BMI minimum value is 14.7 and maximum is 30.3.

Table 2. Data Statistical Analysis

Sleep Quality Result	N	Mean	Sd	Min	Max
<i>Pretest</i>	14	5,1	3,5	1	12
<i>Posttest</i>	14	4,1	2,7	1	10

Table 2 above shows data on the results of sleep quality of 14 elderly people before and after doing self-massage. The results of pretest show an mean value of 5.1 and a standard deviation of 3.5, a minimum value of 1 and a maximum value of 12. Then after doing the self-massage method, the posttest results were obtained with average value of 4.1 and standard deviation of 2.7, the minimum value remained 1 but the maximum value decreased to 10.

Normality test with Shapiro wilk is carried out to ensure that the data to be analyzed meets the assumptions of normal distribution. The test in this research uses the Shapiro-wilk method, which is considered suitable for small to medium sized sample data. The results of the normality test are presented in the following table;

Table 3. Normality Test (Shapiro wilk)

Sleep Quality Ederly	df	Sig
<i>Pretest</i>	14	0,156
<i>Posttest</i>	14	0,189

Table 3 above shows that the pretest data has a significance value (sig.) of 0.156, which means the p-value is greater than 0.05. So the sleep quality data at the pretest stage is considered normally distributed. The posttest results have a

significance value (Sig.) of 0.189, the same as the pretest stage, namely p-value is greater than 0.05, which means that the elderly sleep quality data at the posttest stage is also normally distributed.

The paired sample T-test test was used to test the average difference between pretest and posttest results on the quality of sleep of the elderly's at the Hanna nursing home. This test aims to determine significant changes in the quality of elderly sleep after doing self-massage. The results of the paired sample T-test are presented in the following table:

Table 4. Paired Sample T Test

Research Result Data	df	Sig (2-tailed)
<i>Pretest – Posttest</i>	13	0.013

The show on table 4.5, it can be explained that the significance value (Sig. 2 tailed) is 0.013 with a degree of freedom (df) of 13 or ($p < 0.05$) which means that there is a significant difference between the pretest and posttest results on the quality of sleep of the elderly at the Hanna nursing home. So it can be concluded that the self-massage method carried out has a real impact on improving the quality of sleep of the elderly at the Hanna nursing home.

DISCUSSION

Sleep quality is one of the important aspects in maintaining one's health and quality of life, especially in the elderly. Quality sleep not only provides adequate rest for the body, but also affects cognitive, emotional and physical functions. In the elderly, sleep disorders are a common problem. Decreased sleep quality in the elderly can result from changes in sleep patterns, such as difficulty initiating sleep, waking up frequently at night, or waking up too early. In addition, deteriorating health conditions, the use of certain medications, and changes in circadian rhythms related to aging also contribute to sleep disturbances in the elderly. The impact of poor sleep quality in the elderly is significant. Seniors who experience sleep

disturbances are at higher risk of various health problems, such as increased risk of cardiovascular disease, diabetes, cognitive impairment, and decreased immunity.

As we age, the body's organs do not function as optimally as when we were younger. This can cause the elderly to be susceptible to various diseases and the condition also disrupts the quality of sleep of the elderly. Poor sleep quality can have a negative impact on physical, mental, quality of life, cognitive and memory dysfunction in the elderly. Long-term effects of poor sleep quality can have a direct impact on health and increase the risk of various diseases such as type 2 diabetes mellitus, obesity, stroke and heart disease (Ali et al., 2019). Handling sleep disorders can be done in 2 ways, namely pharmacologically and non-pharmacologically. Pharmacologically by giving sedative hypnotic drugs such as the benzodiazepine group (Ativan, valium and diazepam), but in the elderly there are changes in pharmacodynamics, as well as drug metabolism in the elderly body which causes pharmacological management to be very risky in the elderly (Putra, 2014).

Elderly sleep quality is obtained from subjective sleep quality, sleep latency, sleep duration, sleep habit efficiency, sleep disturbances, use of sleeping pills, daytime activity disorders. Based on the results of the study, it shows that of the 14 respondents at Panti Wredha Hanna Bogor, it is known that the significant value of sleep quality is 0.013, which means that there is a significant difference after doing self-massage. These results indicate that there is a significant difference in the quality of sleep of the elderly before and after doing self-massage, as evidenced by a decrease in the score results, namely the average post-test score ≤ 5 , which means that it is in the category of good sleep quality after doing self-massage.

Massage is a commonly used treatment for chronic pain, massage therapy can reduce pain in various conditions. Such as, short-term improvement in pain and function in fibromyalgia, chronic low back pain or chronic pain (Da Rocha

Rodrigues et al., 2023). In line with previous research which says that self-massage can relax and lower heart rate through inhibiting the sympathetic nervous stress response and making the muscles of the arteries, veins, and the whole body feel comfortable and relaxed. The decrease in norepinephrine levels in the body is affected by the relaxation that occurs in these body muscles. After that, a stimulus is sent to the hypothalamus, which is part of the central nervous system. This creates a sense of calm and suppresses the sympathetic nervous system, which in turn reduces the production of epinephrine and norepinephrine hormones (Aristawati et al., n.d.). In another study, it was also found that there was a relationship between self-massage intervention on the quadriceps muscle after performing self-massage and provided benefits for patients who solution to chronic symptoms in the knee (Dorothea V. Atkins, 2013).

This self-massage method can be an alternative non-pharmacological intervention that is effective and easy for the elderly to do to improve their sleep quality. Thus, the application of self-massage techniques is recommended to be included in elderly health care programs, both at home and in health facilities. However, although the results of the study showed an improvement in sleep quality, there are several factors that need to be considered such as certain characteristics of respondents that can affect the results such as physical activity, general health conditions and sleeping habits before the intervention, and self-massage is individualized which means it does not give the same results to all elderly people.

CONCLUSION

The results of the research and discussion that has been carried out, it can be concluded that the self-massage method has an influence on the quality of sleep of the elderly with the average value of the pretest results showing an mean value of 5.1 and a standard deviation of 3.5 and then after carrying out the self-massage method, the posttest results are obtained with an mean value of 4.1 with a standard

deviation of 2.7 this indicate that the elderly in wrehda hanna nursing home had significantly difference sleep quality scores on the pretest and posttest. So it can be concluded that the self-massage method carried out has a real impact on improving quality of sleep of the elderly at the Hanna nursing home. Elderly people who do self-massage show a significant improvement in sleep quality compared to before the intervention was carried out, this is evidenced by the results of sleep quality scores in the good category.

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