

## Application of Sleep Hygiene and Elderly Gymnastics Against Sleep Pattern Disorders in the Elderly

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### Abstract

**Introduction:** Elderly are individuals aged 60 years and over. Sleep disturbance is a common problem that is often experienced by many elderly people. As they get older, their sleep patterns tend to change. Sleep disturbances in the elderly can be in the form of difficulty sleeping, maintaining sleep, frequent awakenings, and waking up early in the morning. The prevalence of sleep disorders in Indonesia is quite high, reaching 67%, while in the elderly it can reach up to 50% who experience some form of sleep disturbance.

**Objective:** Of this study was to determine the application of sleep hygiene and exercise for the elderly against sleep disorders in the elderly. **Method:** The writing method used in this case study is a case study with a nursing care approach. **Results and Discussion:** Obtained after nursing care for 3 meetings were that the sleep patterns of the elderly improved as evidenced by the decrease in the results of the PSQI (Pittsburgh Sleep Quality Index) study. **Conclusion:** It can be concluded that the elderly who experience sleep pattern disorders can be given intervention or non-pharmacological therapy in the form of the application of sleep hygiene and elderly gymnastics

**Keywords:** Sleep; Elderly Exercise Sleep; Hygiene;

## **Introduction**

Sleep is a state of rest of the whole body that occurs repeatedly and is one of the basic human needs. Every individual needs adequate sleep to function optimally (Rozy, 2019). Each individual's sleep needs vary depending on age. According to the Ministry of Health, the sleep needs of adults and the elderly are about 6-8 hours per day. If the need for sleep is met or sufficient, then a person can restore stamina and increase endurance. Sleep is often considered an unproductive activity and a waste of time, even though if in sufficient portions, sleep can provide health benefits for the body.

The sleep needs of every human being have their own differences both in terms of quality and quantity of sleep, of course, it is greatly influenced by several factors such as age, health conditions, environment, and lifestyle. Therefore, it is important to pay attention to sleep needs and maintain sleep quality so that the body can function optimally (Syaharani and Kurniawati 2020).

Seniors are individuals aged 60 years and over (Ministry of Health RI 2019). Sleep disorders are a common problem that is often experienced by many elderly. As people age, their sleep patterns tend to change (Sunarti and Helena 2018). Sleep disorders in the elderly can include difficulty sleeping, maintaining sleep, frequent awakenings, and waking up early in the morning.

The elderly take longer to get into sleep and have less or shorter deep sleep. Changes in sleep patterns in the elderly are influenced by several factors such as decreased brain function, brain changes due to the aging process, and the environment (Sunarti and Helena 2018). Sleep disorders in the elderly can affect their quality of life, such as decreased work productivity, behavior changes, negative moods, and increased risk of accidents. Therefore, it is important to improve sleep patterns in the elderly in order to improve their quality of life (Hasibuan and Hasna 2021).

Sleep disorders in the elderly are influenced by several factors such as age, medical conditions (such as hyperthyroidism, neurological diseases, lung diseases, hypertension, heart disease, diabetes mellitus, and obesity), psychiatry (such as depression, stress, and anxiety disorders), drug consumption, environment, light, temperature, diet, and alcohol and caffeine consumption (Biahimo and Gobel 2021).

These factors can affect the quality of sleep of the elderly and cause sleep disorders such as difficulty sleeping, maintaining sleep, frequent awakenings, and waking up early in the morning. Therefore, it is important to pay attention to these factors and maintain the quality of sleep of the elderly to remain optimal. Some management to treat sleep disorders in the elderly includes non-pharmacological and pharmacological therapies, such as *Sleep hygiene* and cognitive behavioral therapy (Dhaval, Joel, and Pragnesh 2018).

The prevalence of sleep disorders in Indonesia is quite high, reaching 67%, while in the elderly it can reach up to 50% who experience some form of sleep disorder (Riyadi and Sari 2020). This is a problem that often arises compared to other age groups. Sleep deprivation in the elderly can have significant negative effects on their quality of life, such as decreased cognitive function, memory impairment, depression, and an increased

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risk of falls (Chasanah 2017). Therefore, it is important to pay attention to the quality of sleep in the elderly and carry out proper management to overcome sleep disorders experienced. Some changes in sleep and rest patterns can help overcome sleep disorders in the elderly, such as lifestyle changes, cognitive behavioral therapy, and the use of certain drugs (Amanah 2022).

### **Method**

This type of research uses a descriptive design with a case study approach and explores the problem of using nursing care in patients aged over 60 years or the elderly who experience sleep pattern disorders. The subject of the case study was 1 person with inclusion criteria, namely the elderly who experienced sleep pattern disorders. This study aims to determine the application of *sleep hygiene* and elderly gymnastics in reducing the problem of sleep pattern disorders.

Before the implementation of the case study subjects are asked to fill out an informed consent sheet. Data collection is done by interview, intervention and documentation method. To determine the disturbance of sleep patterns experienced by subjects, an assessment was carried out using the PSQI (*Pittsburgh Sleep Quality Index*) questionnaire which then calculated the total score that had been summed. This PSQI assessment has an interpretation if the total score is  $<5$  then the sleep quality is still good but if the total score is  $>5$  then the sleep quality is poor.

The subject was then given an intervention in the form of health education regarding *sleep hygiene* and identifying the subject's *sleep hygiene*, after being given Health Education the subject was asked to do elderly gymnastics. Intervention is carried out for 3 meetings a week. Each subject's *sleep hygiene* meeting and the patient's elderly gymnastics were evaluated.

### **Result and Discussion**

#### **Result**

##### **1. Assessment Data**

This case study was conducted in RW 01 Bumijo with elderly subjects, the results of the study were obtained Mr. S was 62 years old, adhered to Islam, Javanese, last elementary school education, odd jobs, medical history previously patients had been hospitalized for urinary tract infections, and had a family history of hypertension. Mr. S said he had no complaints but the gap data obtained included that in a day Mr. S could spend 1 pack of cigarettes, good nutrition but after eating always drink sweet tea, never drink water, sometimes drink coffee, sleep with the lights on, tv on, and sleep on the sofa.

The results of the assessment using the PSQI questionnaire were obtained Mr. S usually goes to bed at 12 or 1 o'clock in the evening, the time needed to fall asleep is about  $>60$  minutes, wake up at 5 o'clock, estimated sleep every night 3-4 hours, often wake up because you have to go to the toilet 2-3 times, after waking up it is difficult to fall asleep Back, coughing or snoring during sleep, and the score Mr. S gave for his sleep

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quality was not good. The total PSQI score obtained is 10, the interpretation of Mr. S's total score is  $>5$  which means Mr. S has poor sleep quality

### **2. Nursing Diagnosis**

Nursing diagnosis is a clinical assessment of the client's response to health problems or life processes that he experiences either actual or potential, the purpose of this nursing diagnosis is to identify the response of the client or individuals, families and communities related to health (PPNI IDHS 2019).

Based on the analysis of data that has been collected from the assessment of Mr. S as the subject of the case study, it has been reduced to the nursing diagnosis of sleep pattern disorders related to environmental barriers (PPNI IDHS 2019). To support the research to be carried out, nursing diagnosis of sleep pattern disorders in Mr. S is made a priority with objective data in the form of PSQI assessment results with a total of 12 and subjective data, namely Mr. S said it is difficult to start sleeping which is  $>60$  minutes, Mr. S said during sleep often wake up because he has to go to the bathroom 2-3x, Mr. S said after waking up Mr. S is difficult to fall back asleep, Mr. S said he slept only for 3-4 hours, Mr. S said his sleep quality was not good.

### **3. Nursing Intervention**

To overcome these nursing problems, non-pharmacological nursing interventions that can be provided are Health Education in the form of *sleep hygiene* and elderly gymnastics to overcome sleep pattern disorders experienced.

After getting the results of the study, then Mr. S was given Health Education using posters about *sleep hygiene*, then the nurse taught elderly gymnastics by modeling it first and accompanied by instructions given through videos that were shown when gymnastics was carried out. Health Education and elderly gymnastics were carried out 3 times with the aim of improving sleep pattern disorders that the subject experienced.

### **4. Nursing Implementation**

The implementation of nursing given to Mr. S for the diagnosis of sleep pattern disorders is by conducting education or Health Education *about sleep hygiene and doing elderly gymnastics which is carried out in 3 meetings where after being given education and elderly gymnastics then evaluated the next day by asking about sleep hygiene* What to do, how long it takes to fall asleep, and how many times you wake up during the night.

### **5. Evaluation**

The provision of *sleep hygiene education and elderly gymnastics* was given by researchers in 3 meetings, based on the intervention carried out at the first meeting, Mr. S tried not to drink tea, coffee, and tried to turn off the TV before going to bed but Mr. S still has difficulty starting sleep, still can't reduce smoking, starts falling asleep still  $>60$  minutes and wakes up early in the morning because he has to go to the toilet 3 times.

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The intervention of the second meeting was found that Mr. S had tried to reduce smoking, did not drink coffee, started drinking water and fell asleep <60 minutes, woke up to the bathroom 2 times because Mr. S tried to urinate before going to bed. At the third meeting Mr. S was able to fall asleep between 30-60 minutes and woke up due to going to the bathroom only 1 time.

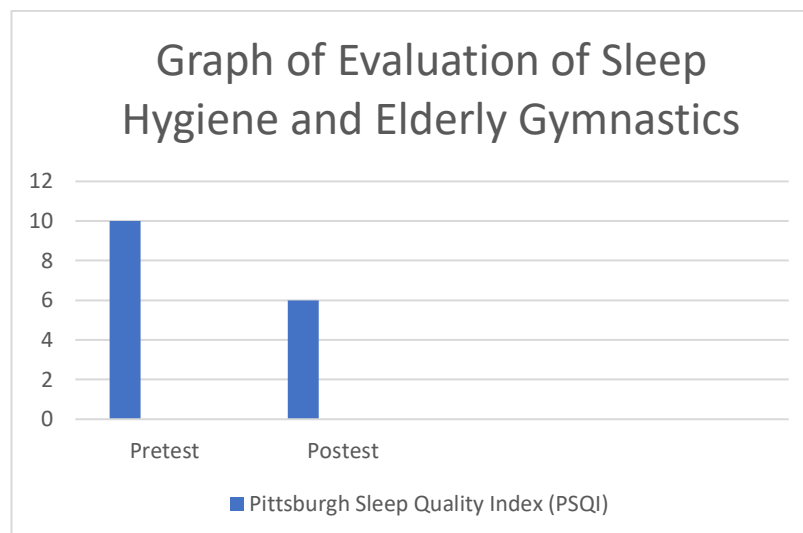
### **Discussion**

The older you get, the more likely a person is to experience physical, mental, spiritual, economic and social problems. One of the most basic problems in the elderly is health problems due to degenerative processes. The process of degeneration in the elderly causes effective sleep time to decrease, so that it does not reach adequate sleep quality and will cause various kinds of sleep complaints. The prevalence of sleep fulfillment disorders in the elderly is quite increasing, which is around 76%. According to *National Sleep Foundation* (NSF) About 67% of the 1,508 elderly Americans over the age of 65 reported sleep disturbances and as many as 7.3% of seniors complained of problems starting and maintaining sleep or insomnia (Sambeka, Kalesaran, and Asrifuddin 2018).

During the aging process, changes in sleep patterns are associated with disruptions in sleep regulation mechanisms in the brain (Agustina 2022). Sleep disorders can affect all age groups, but insomnia is a common symptom in older people, with nearly half of the elderly population having difficulty initiating and maintaining sleep. Insomnia in the elderly can be caused by various factors, including intrinsic factors, primary or secondary sleep disorders due to other diseases, psychological or physical disorders, environmental factors, and side effects of drugs (Sunarti and Helena 2018). The elderly can also experience changes in the quantity and quality of their sleep patterns so that they are more susceptible to sleep disorders (Wang et al. 2020).

Sleep disorders in the elderly can be overcome with education *sleep hygiene* and elderly gymnastics. *Sleep hygiene* is a set of education about lifestyle and environmental factors (e.g., light, noise, temperature) that can interfere with sleep. Sleep hygiene can include education about normal sleep, avoiding substance use, regular exercise, bedroom environment, bedtime and wake times, and avoiding naps (Edinger et al. 2021). Education *Sleep hygiene* according to *American Psychiatric Association* (2022) & CDC (2021) Among them are avoiding eating and drinking that contains caffeine, nicotine and alcohol before going to bed, regulating regular sleep hours, cleaning the sleeping environment from noise, light, regulating room temperature, and comfort of the sleeping environment.

In addition to sleep hygiene, one intervention that can be done is elderly gymnastics which has many benefits, namely reducing hypertension, controlling sugar, reducing joint stiffness and other benefits are overcoming sleep pattern disorders in accordance with research conducted by Alpha (2017) That by doing elderly gymnastics before doing elderly gymnastics, the quality of elderly sleep is classified as poor and after doing elderly gymnastics, the quality of elderly sleep is normal so that it can be concluded that by doing elderly gymnastics can improve sleep quality.

**Graph 1** Evaluation of Sleep Hygiene and Elderly Gymnastics

Before the intervention, the total PSQI (Pittsburgh Sleep Quality Index) score was 10 with an interpretation result of  $>5$  was poor, but after the intervention was given in the form of sleep hygiene education and elderly gymnastics, the total PSQI (*Pittsburgh Sleep Quality Index*) score was 6 with a poor interpretation result of  $>5$ . Although the interpretation results still show  $>5$  or still in the bad range, with the implementation of sleep hygiene and elderly gymnastics, there is an improvement in sleep quality in the elderly seen from the decrease in PSQI numbers.

Research results are in line with research conducted by Moradi et al., (2021) It was found that the provision of education regarding *Sleep hygiene* can help reduce sleep problems experienced by the elderly because by providing education can change behavior that can interfere with the quality and quantity of sleep in the elderly, Other research conducted by Tarnoto et al., (2023) Get results by applying *Sleep hygiene* As a non-pharmacological therapy can improve the quality of sleep of the elderly.

In addition to education *Sleep hygiene* Other non-pharmacological therapies that can overcome sleep disorders in the elderly are elderly gymnastics. According to Research conducted Juliani et al., (2020) Elderly exercise can reduce the level of insomnia experienced by the elderly which is in line with the results obtained by researchers. Proven by the conduct of elderly gymnastics there are changes in the level of insomnia that the elderly experience, this is in line with research Sitorus & Alfiani, (2020) Where by doing elderly gymnastics can affect the quality of elderly sleep because elderly exercise is a physical activity that can stimulate a decrease in adrenaline, norepinephrine, and catecholamine hormones. In addition, elderly gymnastics can also provide a relaxing effect after doing it because blood vessels can experience vasodilation so that oxygen transport throughout the body, especially the brain, becomes smooth and can lower blood pressure.

### **Conclusion**

Based on the results of the case report above, it can be concluded that the elderly who experience sleep pattern disorders can be given intervention or non-pharmacological therapy in the form of the *application of sleep hygiene and elderly gymnastics because with the application of sleep hygiene and elderly gymnastics* can reduce the disruption of elderly sleep patterns which include frequent awakenings at night, difficulty starting sleep and lack of quality and quantity of sleep.

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