

CHAPTER I

INTRODUCTION

1.1 Background

The degenerative process in the elderly causes a decrease in sleep quality, which is characterized by a decrease in the amount of effective sleep time. Poor sleep quality is one of the health problems often experienced by the elderly. Sleep disorders in the elderly include difficulty sleeping, frequent waking up at night, and feeling tired when waking up. This condition can affect physical balance, cognitive function, and increase the risk of various diseases such as hypertension, diabetes, and depression. Poor quality sleep also has an impact on the overall quality of life.

According to the World Health Organization (WHO), the elderly population in Southeast Asia is 8 percent, or around 142 million people, and is expected to triple by 2050. Around 29 million people, or 12 percent of Indonesia's population, are categorized as elderly, according to the 2023 Indonesian population census. WHO reports that around 18% of the world's population has experienced sleep disorders, and this figure continues to increase every year. In addition, in Indonesia, sleep disorders in the elderly are a fairly major problem. Data from the Indonesian Journal of Health Development (2022) states that around 67% of the elderly experience sleep disorders. Insomnia occurs in around 49% of the 9.3 million elderly people in Indonesia (Hadi et al., nd). Results of a preliminary study conducted in January 2025 at the Wijaya Kusuma Elderly Posyandu RW 10, Madyopuro

Village, showed that 4 out of 4 elderly people whose sleep quality was measured using the PSQI questionnaire had poor sleep quality. Patients complained of difficulty starting sleep, inability to return to sleep, and waking up at night.

In the elderly, hormonal changes due to degenerative processes cause disturbances in sleep patterns. This process contributes to a reduction in effective sleep duration, making it difficult to achieve ideal sleep quality. Sleep patterns are influenced by several hormones, such as Adrenocorticotropic Hormone (ACTH), Growth Hormone (GH), Thyroid Stimulating Hormone (TSH), and Luteinizing Hormone (LH), which are produced by the anterior pituitary gland through the hypothalamus pathway. This mechanism also periodically affects the release of neurotransmitters such as norepinephrine, dopamine, and serotonin, which play an important role in regulating the sleep process (Sari & Halawa, nd-b).

The degenerative process in the elderly also causes a decrease in the production of the hormone melatonin. Melatonin production is influenced by the availability of serotonin and exposure to light. During the day, the body produces more serotonin to support physical activity, while at night, some serotonin is converted into melatonin to help the sleep process. Melatonin plays an important role in regulating the circadian rhythm, which is a biological cycle that affects a person's sleep and wake patterns. This hormone is usually secreted in higher amounts at night, helping the body

feel sleepy and prepare for sleep (Wahyudi, 2016). Insomnia experienced by the elderly can have an impact on decreasing the quality of their sleep.

One effective method to improve sleep quality is fitness gymnastics (Faidah et al., 2020). Exercise or gymnastics performed by older people can increase the activity of the HPA (Hypothalamic-Pituitary-Adrenal) axis and increase oxygen distribution throughout the body. In addition, this exercise helps the HPA mechanism produce serotonin and melatonin from the pineal gland. Furthermore, signals from the hypothalamus are forwarded to the pituitary gland to produce beta-endorphins and enkephalins, which produce a relaxed sensation.

Based on these problems, this is the reason why researchers want to find out the differences in sleep quality in the elderly before and after elderly fitness exercises.

1.2 Formulation of the problem

Based on the background above, the author formulates the problem, namely: "Is there a difference in sleep quality before and after elderly fitness exercise in the elderly at the Wijaya Kusuma RW 10 Madyopuro Elderly Posyandu?"

1.3 Research purposes

1. General purpose

To determine the difference in sleep quality of the elderly before and after elderly fitness gymnastics in the elderly at the Wijaya Kusuma RW 10 Madyopuro Elderly Posyandu.

2. Special purpose

- a. Analyzing sleep quality before providing elderly fitness exercise intervention to the elderly at the Wijaya Kusuma RW 10 Madyopuro Elderly Posyandu.
- b. Analyzing sleep quality after providing elderly fitness exercise intervention to the elderly at the Wijaya Kusuma RW 10 Madyopuro Elderly Posyandu.
- c. Analyzing the differences in sleep quality before and after elderly fitness exercise intervention at the Wijaya Kusuma Elderly Posyandu RW 10 Madyopuro.

1.4 Benefits of research

1. Theoretical Benefits

The findings of this study can support the theory of nursing science, especially elderly fitness gymnastics. So that it can be a nursing intervention to improve sleep quality in the elderly.

2. Practical Benefits

a. For Researchers

It is hoped that researchers will be able to scientifically prove the differences in sleep quality in the elderly before and after the

elderly fitness exercise intervention at the RW 10 Madyopuro elderly posyandu.

b. For Health Workers

The findings of this study can be used to improve health services for the elderly at the elderly posyandu RW 10 Madyopuro. In addition, it also increases the insight of health workers towards the elderly who experience sleep disorders so that they can carry out elderly fitness exercises.

c. For Respondents

Providing information related to non-pharmacological treatment of sleep disorders, namely elderly fitness exercises.