



## The Effectiveness of Guided Imagery on Sleep Quality in the Elderly in Mojo Community Health Center Padang, Lumajang

Zainal Abidin<sup>1\*</sup>, Mashuri<sup>2</sup>

<sup>1,2</sup> Diploma III Keperawatan, Fakultas Keperawatan, Universitas Jember

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### ABSTRACT

Decreasing sleep quality is a change that happened in elderly as a part of degenerative change, but can also occur due to psychological or medical problem. Sleep quality in elderly can affect elderly's health and quality of life in general. Guided imagery is one of the nonpharmacological therapies that can be done independently. The purpose of this study is to see the effectiveness of guided imagery on sleep quality in elderly. The method that used in this study was pre-experiment with one group pretest-posttest design. Data was collected with questionnaire that filled by participant before and after guided imagery intervention to see the effectiveness of the therapy. the participant of this study was 38 elderly that registered as a patient in Mojo Community Health Center Padang, Lumajang. Data collected from the study then analyzed with Wilcoxon rank test and the result from the study show that P-value for the pre and post intervention analyze was 0.000 (p-value 0,05). This can be interpreted that guided imagery is effective to help increasing sleep quality in elderly. Hopefully, the result of this study can be used as a scientific background to considering the use of guided imagery therapy as therapy for elderly with sleeping problem.

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### Kata kunci:

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#### \*) corresponding author

Ns. Zainal Abidin, S.Kep, S.Pd, M.Kes

Nursing Diploma, Faculty of Nursing,  
Universitas Jember. Perum Semeru  
Permai No E.7 Lumajang

Email: zainalabidin@unej.ac.id

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### ABSTRAK

Penurunan kualitas tidur pada lansia merupakan hal yang dapat berlangsung akibat adanya perubahan degeneratif maupun adanya masalah psikologis dan medis. Penurunan kualitas tidur dapat mempengaruhi kesehatan serta kualitas hidup lansia. Guided imagery adalah salah satu terapi relaksasi non-farmakologis yang dapat dilakukan secara mandiri oleh lansia. Tujuan penelitian ini adalah untuk melihat keefektifan terapi relaksasi guided imagery dalam meningkatkan kualitas tidur lansia. Jenis penelitian yang digunakan pada adalah pra-eksperimental dengan rancangan one group Pretest-posttest design, dimana data diambil dua kali yakni sebelum dan sesudah pemberian intervensi pada responden. Data mengenai kualitas tidur diambil dari responden dengan kuisioner PSQI sebelum dan sesudah terapi guided imagery diberikan kepada responden. Responden pada penelitian ini adalah 38 orang lansia yang mengalami gangguan tidur, berusia 59- 73 tahun, serta merupakan peserta posyandu lansia di desa Mojo, Kecamatan Padang, Lumajang. Lansia yang ikut serta sebagai responden merupakan lansia yang kooperatif serta tidak memiliki penyakit metabolic maupun penyakit degeneratif. Hasil penelitian dianalisis dengan uji Wilcoxon untuk menemukan efektivitas guided imagery terhadap kualitas tidur dan didapatkan hasil p-value = 0.000 (p-value < 0.05). dari hasil ini, dapat diinterpretasikan bahwa guided imagery efektif dalam meningkatkan kualitas tidur lansia. Peneliti berharap agar hasil penelitian ini dapat menjadi salah satu bahan pertimbangan pada petugas kesehatan untuk menggunakan guided imagery sebagai salah satu terapi non-farmakologis untuk membantu meningkatkan kualitas tidur lansia.

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## INTRODUCTION

The Elderly is a period in which a person will slowly experience physical, mental, and social decline, little by little experiencing difficulties in carrying out daily functions. These changes call degenerative changes. Degenerative changes also occur in the skin, bones, heart, blood vessels, lungs, nerves, and other body tissues. With limited regenerative abilities, the elderly are more susceptible to various diseases, syndromes, and illnesses than adults (Kholifah, 2016). In addition, in the elderly, there is also a change in sleep patterns.

Elderly experience changes in a bedtime that shift to earlier, where the elderly will fall asleep and wake up earlier. In addition to changes in sleep time, the elderly also have difficulty initiating sleep, increased sleep latency, and an increase in the duration of NREM sleep followed by a decrease in the duration of REM sleep. Changes in REM and NREM sleep duration make it easier for the elderly to wake up with stimuli that occur around them during sleep (Abad, 2018). Based on the theory of hierarchy of needs by Maslow, sleep is one of the elements of human physiological needs that must be met to survive. Sleep can be defined as an altered state of consciousness when the individual's perception and reaction to the environment decreases. Sleep is characterized by a lack of physical activity, a decrease in varying awareness, changes in the body's physiological processes, and a decreased response to environmental stimuli (Ambarwati, 2014). Adults generally only need about 8 hours of sleep per day. However, many of the elderly complain of difficulty getting 8 hours of sleep daily. In addition to complaints about sleep duration, the elderly also complained about changes in sleep patterns with age.

Changes in sleep patterns expect in the elderly, where the older one gets, the more difficult it is to fall asleep and experience more light sleep stages than deep sleep. In the elderly, there is a change in the effectiveness of the reduced circadian mechanism, causing an earlier shift in the sleep schedule. Sleep disorders are more prevalent in the elderly than in younger adults. Snoring sounds that often appear in the elderly can indicate obstructive sleep apnea, which increases the risk of cardiovascular disease, headaches, senility, and depression. Movement disorders in the lower extremities are also common in the elderly and can interfere with sleep. Other medical problems that are also common in the elderly such as asthma, immune disorders, gastroesophageal reflux disease, physical disabilities, dementia, pain, depression, and anxiety, can also be associated with sleep disorders (Gulia and Kumar, 2018). Based on data from the population division of the United Nations Department of Economic and Social Affairs (2020), in 2020, it is estimated that there will be 727 million or more people aged 65 years worldwide. This number is projected to surpass by 2050, reaching more than 1.5 billion people. The percentage of elderly in the global population is estimated to increase from 9.3 percent in 2020 to 16.0 percent in 2050. Based on data from the Central Statistics Agency, the number of elderly Indonesians is around 26.82 million, or around 9.92 percent. When viewed from the age group, the percentage of the elderly in Indonesia is mainly filled by young elderly (age group 60-69 years) with a percentage of 64.29 percent, followed by middle elderly (age group 70-79 years) at 27.23 percent and lastly the elderly (80+ years age group) by 8.49 percent (Central Bureau of Statistics, 2020).

Meanwhile, based on 2018 BPS data, the population of Padang and Lumajang sub-districts categorized as elderly is 3,956 people from the total population of Padang sub-district

of 34,615 means that the population of Padang sub-district consists of 11.42% elderly. For more specific data on Mojo Village, it was found that the total elderly in Mojo Village were 433 people out of 3,711 people, which means that the elderly in Mojo Village made up 11.66% of the population of Mojo Village. This number is divided into several age ranges with 156 60-64 years old, 136 65-69 people, 77 70-74 years old, 64 people aged 75+ (Statistical Coordinator of Padang District, 2019), and the number of active elderly the elderly posyandu in the village of mojo as many as 42 people. The posyandu activities for the elderly in the village of mojo, which consist of 4 hamlets, namely krajan1 and 2, darungan, kebonan obtained the number of active elderly posyandu elderly in the village of mojo as many as 42 people. Of the elderly who complained of sleep disturbances, 37 people. The elderly complained of difficulty starting to sleep, often getting up during sleep, and waking up very early. The Posyandu for the elderly is an introductory-level health facility that aims to provide services to help improve the health of community members who experience health problems for the elderly (Kholifah, 2016).

One of the health problems that almost all elderly may feel is sleep disorders. Good sleep quality is a known predictor for measuring physical and mental health, fitness, and overall vitality (Ohayon et al., 2017). Sleep affects memory, mood, cognitive function, secretion of various hormones, immune function, body temperature, and kidney function. Adequate rest and sleep are factors that affect general health. In addition, sleep also plays an essential role in pain control. Rest increases the individual's tolerance to pain and the response to analgesics. Individuals who do not get enough rest usually experience daytime sleepiness and fatigue, worsening mood, and impaired concentration and memory (Williams, 2018). As we age, the levels of hormones related to sleep change. The hormone melatonin, which functions to regulate the sleep-wake cycle, and the growth hormone that encourages a person to sleep changes. A decrease in these hormones causes the circadian rhythm to change. This change in the body's circadian rhythm causes many adults to feel sleepy earlier at night and wake up earlier in the morning. In addition to cyclical changes, sleep efficiency also decreases with age. Therefore, many adults complain that they feel unrefreshed after waking up (Williams, 2016).

The amount of sleep an older person gets may be the same as a younger adult human. The average sleep for the elderly at 70 is seven hours. However, the pattern experienced may change. During sleep, older adults may go through phases 1 and 2 of non-rapid eye movement (NREM) and experience less NREM 3 and rapid eye movement (REM) phases (Williams, 2016). Most of the elderly are at risk of experiencing sleep disorders caused by various factors such as retirement, which changes daily activities, changes in social patterns, death of a partner or close friend, and drug use due to illness. Changes in sleep patterns are a normal part of the aging process, but pathological processes also cause sleep disorders in the elderly. Pathological conditions can cause sleep disorders such as psychiatric diseases such as depression, Alzheimer's, cardiovascular disease, lung disease, prostatic disease, and pain syndromes (Stanley, 2006).

In a study conducted by Ernawati (2017), it was found that sleep disorders experienced by the elderly varied as follows; difficulty initiating sleep (unable to fall asleep within half an hour), awakening during sleep at night, and decreased quality of sleep. Sleep disorders often experienced by the elderly, based on Williams (2017), are insomnia, sleep apnea, sleep disorders related to circadian rhythms, and

sleep disorders due to changes in the REM phase. Putri (2018), the research revealed that the activity of the elderly participating in activities at the posyandu for the elderly affected their health level of the elderly. Where the elderly who actively participate in the elderly posyandu will be more active both physically and socially, and it can affect their health. Interventions that can be given to the elderly with sleep disorders. It can be in the form of pharmacological interventions with drugs that help induce sleep, such as orexin agonists, histamine receptor antagonists, non-benzodiazepine gamma-aminobutyric acid receptor agonists, and benzodiazepines (Abad and Guilleminault, 2018). and non-pharmacological interventions. A literature review found that several non-pharmacological therapies can be given as interventions in the elderly with sleep disorders. These interventions for the elderly are aromatherapy, laughter therapy, foot bath therapy, acupressure, sleep improvement programs, short insomnia programs, and relaxation therapy. These therapies are given by someone who understands the therapy well (Han and Kim, 2021). Guided Imagery is relaxation therapy.

Guided Imagery can help patients to relax both body and mind by creating harmony between body and mind. In guided imagery relaxation therapy, clients are helped to focus on imagination to create a calm and peaceful image in their mind, which can then provide mental freedom or escape. The advantage of guided Imagery is that this relaxation therapy can be learned by all clients and taught by nurses. This relaxation therapy can also be done independently if the client can learn it. Besides being easy, relaxation therapy is also relatively low in cost (Zaki, Ahmed, and Sayed, 2018). From his research data, Zaki (2018) found a significant change in the psychological stress level of the elderly before and after the guided imagery intervention. These changes may arise because guided Imagery can promote positive changes throughout the body. In addition, this therapy may also be able to help the elderly to regain a source of confidence and a sense of independence because of their direct involvement in the healing process. In a study conducted by Mahanani (2020), it was found that guided Imagery can help reduce insomnia, where 21 of a total of 39 research respondents experienced a decrease in insomnia disorder after giving an intervention in the form of guided imagery relaxation therapy. Onieva-Zafra (2019), in a study, suggested that guided Imagery is a beneficial alternative therapy for patients where this relaxation therapy helps patients reduce patient complaints such as anxiety and sleep disorders. Although this therapy did not significantly positively affect some respondents, guided imagery therapy was well received by the respondents as a pleasant experience.

The emergence of sleep disorders in the elderly, either due to changes in circadian rhythm or due to pathological disorders and the high percentage of the elderly in Mojo Village, Padang District, is an exciting combination of data that researchers are interested in researching the effectiveness of guided imagery relaxation on sleep quality. in the elderly in Mojo Village. So based on the existing problems, researchers are encouraged to conduct a study entitled "The Effectiveness of Guided Imagery Relaxation Techniques on Sleep Quality in the Elderly in Mojo Village, Padang Lumajang District," which aims to determine the effectiveness of guided imagery relaxation techniques on sleep quality in the elderly in Mojo Village, Padang District. Lumajang.

## METHODS

The population in this study is the elderly who are residents of Mojo Village and active in the elderly posyandu. This research method is quantitative, with the type of research used being pre-experimental using one group pretest-posttest design. Meanwhile, the inclusion criteria for the elderly who became respondents were:

The elderly who were active in the elderly posyandu.  
Elderly who have sleep disorders.

Elderly (elderly), namely the age group 60-74 years.

1. Cooperative elderly.
2. The elderly are willing to be respondents.
3. Elderly who do not have a congenital, metabolic, or degenerative disease.
4. Elderly who have a total MMSE score > 21.
5. Furthermore, the exclusion criteria for the elderly who are not respondents are:
6. Elderly with hearing loss.
7. Elderly with mental health disorders.
8. The elderly who take anti-depressant drugs.

This study used 38 samples. Determination of the sample using the Slovin formula as much as 38,009 is rounded to 38. There are two variables: the independent variable is guided imagery, and the dependent variable is the sleep quality of the elderly.

This research was conducted from March 2021 to August 2021. In Mojo Village, Padang District, Lumajang Regency, researchers used the instrument on the independent variable was the Standard Operating Procedure (SOP), and the dependent variable was the Pittsburgh Sleep Quality Index (PSQI) questionnaire. The questions in this questionnaire contain 17 questions that make up seven components of the assessment, including subjective sleep quality, sleep latency, sleep duration, daily sleep efficiency, sleep disturbances, use of sleeping pills, and dysfunction of daytime activities. The sum of these seven component scores results in one global score. Score Each component has a value range of 0 – 3, with 0 indicating no sleep difficulties and 3 indicating severe sleep difficulties. The scores of the seven components are added up to become 1 (one) global score with a value range of 0 – 21. The number of scores is adjusted according to the assessment criteria: good sleep quality: 5 and poor sleep quality: > 5. Researchers teach guided imagery (guided imagination) during 2x meetings outside the 6x interventions determined so that the treatment group respondents will get 8x interventions. Respondents selected are expected to participate in the entire series of guided imagery therapy for 15 minutes with locations in Mojo Village. After following guided imagery therapy for 4 weeks, the researchers assessed sleep quality through a post-test using the PSQI questionnaire.

The researcher gave 15 minutes to the respondents to fill out the questionnaire. This study's validity test was not carried out because it used a standardized questionnaire (PSQI). Meanwhile, the data analysis used two univariate and bivariate analyses. Univariate analysis was used to determine the frequency distribution: respondents' initials, age, sex, pre, and post-intervention. While the bivariate analysis was used to find the effectiveness of guided imagery on sleep quality, this analysis used the Wilcoxon test. The results obtained a p-value = 0.000 (p-value <0.05).

## RESULTS AND DISCUSSION

**Table 1. Frequency Distribution by Gender of Respondents in Mojo Village, Padang District, Lumajang Regency (n=38)**

Variable	Frequency	Percentage (%)
<b>Gender</b>		
Female	30	78.9
Male	8	21.1
<b>Total</b>	<b>38</b>	<b>100</b>

Source: Primary Data 2021

**Table 2. Frequency Distribution by the age of Respondents in Mojo Village, Padang District, Lumajang Regency**

Variable	Frequency	Min-Max
Usia Responden	63	59-74

Source: Primary Data 2021

Based on table 1. It is known that there are more female respondents compared to men reaching 30 respondents (78.9%). While in table 2. It shows that the respondents' age data distribution is abnormal, so it uses a median of 63 years. The youngest respondent is 59 years old, and the oldest respondent is 74 years old.

**Table 3. Distribution of Respondents' Cognitive Function Status in Mojo Village, Padang District, Lumajang Regency**

Variable	Before
<b>Fungsi Kognitif (MMSE)</b>	
Fungsi Kognitif Normal	12 (31,6%)
Gangguan Kognitif Ringan	26 (68,4%)
Gangguan Sedang	0 (0%)
Gangguan Berat	0 (0%)
<b>Total</b>	<b>38 (100%)</b>

Source: Primary Data 2021

Table 3. describes the distribution of data regarding the cognitive function status of the elderly. Of 38 respondents, 12 elderly people (31.6%) still have normal cognitive function, and 26 others have mild cognitive impairment (68.4%).

**Table 4. The quality of sleep of respondents before guided imagery therapy with the PSQI. Questionnaire**

Variable	Before
<b>Quality of sleep</b>	
Good	(0%)
minor disturbance	(0%)
moderate disturbance	34 (89,5%)
severe disturbance	4 (10,5%)
<b>Total</b>	<b>38 (100%)</b>

Source: Primary Data 2021

Table 4 shows that all respondents experienced sleep disturbances from moderate to severe. A total of 34 people (89.5%) respondents experienced moderate sleep disturbances (scores 8-14), and four people (10.5%) experienced severe sleep disturbances (scores 15-21). This research is in line with Tichumpa (2018) in Thailand regarding the sleep quality of the elderly and related factors. The study also found that the majority of the elderly (44%)

had poor sleep quality, whereas of the 44%, 9.4% of them had used sleeping pills, 27.1% had low-income family relationships, and 12% had moderate depression. In this study, it was also found that the disturbances experienced can be in the form of getting up in the middle of the night to go to the restroom (71.8%), waking up in the middle of the night, or early morning (64.9%) and having difficulty falling asleep within 30 minutes (57.3%).

The quality of sleep in the elderly, based on research results conducted by Li et al. (2020), can be influenced by various things such as gender, education level, family economic status, and ownership of health insurance. The elderly with anxiety about things such as economic status and health insurance ownership are more likely to experience decreased sleep quality due to anxiety. In another study conducted by Lataima (2019), it was also found that the elderly who have medical problems may not be able to meet the need for sleep compared to the elderly who do not have medical problems (or value = 5,806). Ismahmudi (2020) also revealed that physical activity also influences sleep quality. Light physical activity such as walking or walking is one of the essential things in maintaining the quality of sleep in the elderly. From the study results, the researcher assumes that the sleep quality of the elderly is poor or has moderate or severe disturbances. Apart from being caused by degenerative changes, it can also be influenced by other factors such as physical activity, changes in family relationships, and medical problems.

**Table 5.5 Respondents' sleep quality after guided imagery therapy with the PSQI questionnaire**

Variabel	After
<b>Sleep Quality</b>	
Good	37 (97,4%)
Minor disturbance	1 (2,6%)
Moderate disturbance	(0%)
Severe disturbance	(0%)
<b>Total</b>	<b>38 (100%)</b>

Source: Primary Data 2021

Table 5 shows a change in the respondent's sleep quality after being given guided imagery relaxation therapy. Respondents' sleep quality tends to improve, with 37 respondents (97.4%) having a good level of sleep quality (score 0-5) and only one respondent (2.6%) still complaining of mild sleep disturbances (score 6-7). This is supported by the results of another study conducted by Nooner (2016); guided imagery therapy given within the scope of clinical care was felt to help improve patients' sleep quality with methods that were easy to follow and applied independently by patients.

The effectiveness of guided imagery in patients in hospitals and it was found that guided imagery is a non-pharmacological therapy that is considered easy to do and significantly impacts improving patients' sleep quality. Guided imagery improves sleep quality and therapeutic feeding, which is easy to do with the therapist or independently. In addition to positively improving sleep quality, Acar (2019) also investigated that guided imagery could help increase client satisfaction and reduce anxiety and pain. The researcher's assumption from the study results is that the elderly experience an increase in sleep quality after being given guided imagery relaxation therapy intervention.



**Table 6. Changes in sleep quality before and after guided imagery relaxation therapy with the Wilcoxon sign rank test**

Variable	N	Mean Rank	Sum of Rank
Pre-intervention post-intervention sleep quality			
Negative rank	38 <sup>a</sup>	19.50	741.00
Positive rank	0 <sup>b</sup>	0	0
Ties	0 <sup>c</sup>	0	0
<b>Total</b>	<b>38</b>		

Source: Primary Data 2021

- a. Post-intervention < pre-intervention
- b. Post-intervention > pre-intervention
- c. Post-intervention = pre-intervention

Table 6 shows that the PSQI scores in all the elderly decreased after being given therapy. The PSQI score is inversely proportional; the smaller the PSQI score, the better the sleep quality of the elderly. This means guided imagery has succeeded in improving sleep quality in the elderly. From the results of the analysis of sleep quality scores with the PSQI questionnaire before and after the intervention, it was found that the p-value was 0.000 (p-value < 0.05), which means that the therapy provided was influential in helping to improve the sleep quality of the respondents—involved in the research. Data that supports that guided imagery therapy affects sleep quality improvement were found in a study by Mahanani (2020), showing guided imagery helps elderly patients with insomnia. In his research, Mahanani found that 6 of 26 research respondents felt their insomnia reduced after guided imagery therapy. In another study by Afshar (2018), the analysis of pre-intervention and post-intervention scores showed a mean difference of 0.877 and a significance score of 0.007. These results indicate that guided imagery is significantly effective in helping to improve the sleep quality of the elderly. Winsor (2017), in his qualitative research on the benefits of guided imagery for the elderly, revealed that guided imagery is an effective therapy in helping improve sleep quality. In addition to sleep quality, guided imagery also helps the elderly in reducing pain, depression, anxiety, and the health of the elderly in general. Besides helping improve sleep quality, guided imagery can also be used as a therapy to reduce anxiety and pain. This is evidenced by research conducted by Cole (2021). In this study, guided imagery therapy was proven effective in

reducing anxiety in hospitalized patients where (p < 0.001). In another study, Kiley (2018) also found that his research participants experienced a significant anxiety reduction and improved sleep quality after being given guided imagery intervention. Imagery for four weeks with a p-value of 0.02 (<0.05). Based on the research results and with the support of other literature, the researcher assumes that guided imagery relaxation therapy is effective in helping patients with sleep disorders.

**Table 7. Significance of changes in sleep quality before and after guided imagery relaxation therapy with the Wilcoxon sign rank test.**

Variable	z	p-value
Sleep quality pre-test post-test	-5.395	0.000

Source: Primary Data 2021

Table 7 shows the effectiveness of guided imagery therapy. In the elderly, guided imagery was significantly effective in helping the elderly to change their sleep quality, with a significance score of 0.000 (<0.05). The data from this study were analyzed using Wilcoxon calculations to see if guided imagery therapy was effective in helping to improve the sleep quality of the elderly in Mojo Village. From the results obtained, guided imagery therapy effectively improves the sleep quality of the elderly, where the p-value is 0.000 <0.05.

**Table 8. Crosstab of sleep quality before and after guided imagery therapy.**

		Post-therapy sleep quality		Total
		Good (0-5)	Minor disturbance (6-7)	
Pre-therapy sleep quality	Moderate disturbance (8-14)	34	0	34
	Severe disturbance (15-21)	3	1	4
<b>Total</b>		<b>37</b>	<b>1</b>	<b>38</b>

Source: Primary Data 2021

The data from this study were analyzed using Wilcoxon calculations to see if guided imagery therapy was effective in helping to improve the sleep quality of the elderly in Mojo Village. From the results obtained, guided imagery therapy is effective in improving the sleep quality of the elderly where the p-value is 0.000 <0.05.

collection process because efforts had to be made not to endanger the respondents. During the intervention, the researcher encountered obstacles in providing the intervention because the elderly sometimes took time out for reasons of activities such as helping neighbors even though they had agreed during the previous time contract.

**LIMITATION OF THE STUDY**

The research was conducted in a pandemic situation, so the researcher's movement was quite limited in the data

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## ETHICAL CONSIDERATIONS

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### Conflict of Interest Statement

we certify that there is no actual or potential conflict of interest in relation to this article..

## CONCLUSIONS AND SUGGESTIONS

The study's results on the elderly in Mojo Village, Padang Lumajang District, showed that the elderly had sleep disorders, where 34 people had moderate sleep disturbances (89.5%). After being given intervention in the form of guided imagery relaxation therapy, the elderly who previously experienced moderate to severe sleep disturbances experienced an increase in sleep quality for as many as 37 people (97.4%). Guided imagery is an effective therapy to help improve sleep quality in the elderly ( $p < .000$ ). Besides having a positive effect, guided imagery is a low-risk therapy because it is non-pharmacological. In addition, guided imagery is an easy therapy for the elderly, both with the therapist's guidance and when the elderly want to carry out therapy independently.

Research on this therapy can be developed more widely. Future researchers may be able to explore other therapies that can help the elderly in improving sleep quality or conduct a more in-depth study of guided imagery in the elderly.

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