Available on: https://nursingjurnal.respati.ac.id/index.php/JKRY/index
Jurnal Keperawatan Respati Yogyakarta, 12(3), September 2025, 203 – 208

The Effect of Progressive Muscle Relaxation Therapy on Sleep Quality in the Elderly at Pelita Hati Social Home Sigi Biromaru District Sigi Regency

Niswa Salamung[1,*)], Melinda Restu Pertiwi[2], Siti Riskika[3], Dina Palayukan Singkali[4]
[1] Nursing Science Study Program, Institute of Health Science Indonesia Jaya, Palu, Indonesia
[2] Bachelor of Hospital Administration study program, Institute of Health Science Intan Martapura, Indonesia
[3] DIII Nursing Study Program, University Bondowoso, Bondowoso, Indonesia
[4] DIII Nursing Study Program, Faculty Medical, Universitas Tadulako, Palu, Indonesia

Abstract

Sleep disorders are common in the elderly and negatively affect physical and psychological well-being, leading to reduced quality of life. Globally, insomnia prevalence among older adults is estimated at 20–29%, while in Indonesia it ranges between 20–24%. In Central Sulawesi, the prevalence among those aged 60 years and above is 4.36%. Progressive muscle relaxation (PMR) is a simple, non-pharmacological technique to improve sleep quality, yet its application in social institutions remains limited. This research contributes to examine the effect of PMR therapy on sleep quality among elderly residents of Pelita Hati Social Home, Sigi Biromaru District, Sigi Regency. A quantitative pre-experimental one-group pre-test post-test design was used. The sample consisted of 32 respondents selected purposively from 83 elderly individuals. Sleep quality was measured before and after the intervention, and data were analyzed with the Wilcoxon signed-rank test. Results showed a significant effect of PMR therapy (p = 0.001). Before intervention, 56.3% had poor sleep quality, while 87.5% had good quality afterward. The conclusion demonstrates that progressive muscle relaxation therapy effectively enhances the quality of sleep in the elderly. This research is expected It is recommended that social institutions routinely guide the elderly in applying progressive muscle relaxation therapy to improve the quality of elderly sleep.

Keywords: *Elderly; Sleep quality; Progressive muscle relaxation*

Article info: *Article info: Sending on March 14, 2025; Revision on July 1, 2025; Accepted on September 27, 2025*

**) Corresponding author: Niswa Salamung*
E-mail: niswasalamung@gmail.com

1. Introduction

The aging process is a natural phase in human life that begins at birth and lasts throughout life. As individuals age, they experience various physiological and psychological changes that affect their quality of life. One of the common problems experienced by the elderly is a decrease in sleep quality, which often manifests as insomnia (Harisa et al., 2022). Insomnia in older adults can result from several factors, including alterations in sleep patterns due to aging, certain medical conditions, and environmental influences.

Research shows that the prevalence of insomnia in the elderly is quite high, reaching around 67% of the population over the age of 65 (Haryati et al., 2022). According to data from the World Health Organization (WHO), Recent studies have reported that the prevalence of insomnia among older adults ranges between 20–29% globally (Canever et al., 2024; Endomba et al., 2023). While in Indonesia it ranges between 20–24% Several studies also show varying prevalence rates of sleep disorders in the elderly, ranging from 20–24% (national estimates), 50–67% (based on regional surveys) (Budiman et al., 2024; Juwita et al., 2023) to around 10% in specific study populations (Rahmadhani Kaban et al., 2022) These variations may be influenced by differences in study design, measurement tools, and sample characteristics. Based on data from the Central Sulawesi Provincial Health Office in 2020, the prevalence of sleep disorders in the elderly aged 60 years and over in the region reached 4.36% (Dinas Kesehatan Provinsi Sulawesi Tengah, 2020).

Sleep disturbances in the elderly can cause a variety of negative impacts, including decreased endurance, increased risk of hypertension, metabolic disorders, and cognitive impairments that

lead to decreased quality of life. In addition, sleep disturbances also have an impact on psychological conditions, including increased anxiety and depression (Apriliani & Soetjipto, 2020). Sleep quality disorders can be influenced by several factors, including age, gender, marital status, smoking habits, consumption of caffeinated beverages, medical factors, psychological stress, and noise (Utami et al., 2021b).

Various efforts are made to overcome sleep problems in the elderly. Therapy can be done with pharmacology or non-pharmacology. Therapies that use drugs will certainly cause side effects when used for a long period. Therefore, the recommended therapy is drug-free therapy. One of the therapies used to improve sleep quality is using progressive muscle relaxation techniques (Ariana et al., 2020). Research shows that progressive muscle relaxation techniques effectively improve sleep quality in the elderly. For instance, one study found that this technique can calm and relax the body, helping seniors fall asleep more easily. Additionally, other studies suggest that progressive muscle relaxation training not only positively impacts sleep quality but also reduces anxiety, as observed in patients with COVID-19. Further research also indicates that it may help reduce fatigue and improve sleep quality in the elderly (Sucu & Citil, 2024).

Although progressive muscle relaxation therapy has been proven effective in overcoming sleep disorders in the elderly, its application in social institutions is still not optimal. The elderly in Pelita Hati Social Home, Sigi Biromaru District, Sigi Regency have not received regular guidance in performing progressive muscle relaxation therapy. Social institutions are one of the high-risk environments for the elderly to experience sleep disorders due to monotonous daily activity patterns, lack of mental stimulation, and loneliness. Therefore, effective, safe, and easy-to-implement interventions such as progressive muscle relaxation techniques are needed to help improve sleep quality in the elderly. By conducting this research, it is hoped that it can contribute to community nursing practice, especially in developing effective non-pharmacological interventions for the elderly.

2. Method

The type of research used is quantitative with a pre-experiment design using a one group pretest-posttest design. This design was chosen because the study aims to measure changes in sleep quality before and after intervention without a control group. This research was conducted at Pelita Hati Social Home, Biromaru District, Sigi District, which is a social home with the majority of elderly people who experience mild to moderate sleep disturbances.

The population in this study were all elderly people who were under the guidance of the Pelita Hati Nursing Home, totaling 83 people. The sample consisted of 32 elderly people selected using a purposive sampling technique. The selection of this sample considers the characteristics of the elderly who have a tendency to experience sleep disorders but are still able to follow therapeutic procedures independently.

The inclusion criteria in this study are: a) Elderly aged ≥ 60 years; b) Elderly who do not have chronic diseases that can affect sleep quality; c) Elderly who can hear and see well.

The exclusion criteria in this study are: a) Elderly who are not cooperative during the research process; b) Elderly who take drugs that affect sleep quality during the last week; c) Elderly who have severe physical limitations or paralysis that can hinder the implementation of the intervention.

The research phase consisted of three stages:

1. Pretest: The measurement of respondents' sleep quality was carried out Utilizing the Pittsburgh Sleep Quality Index (PSQI) questionnaire in its Indonesian adaptation, which has been proven to have good validity and reliability. According to the research (Fauzi et al., 2024), the Indonesian version of the PSQI has content validity (CVI) with a value of 0.92 to 1.00 and a Cronbach's alpha value of 0.803 for the total score, so it is considered quite reliable in measuring the quality of elderly sleep
2. Intervention: Progressive muscle relaxation therapy was administered for four weeks, conducted three times per week in the afternoon, with each session lasting 15 minutes. The researcher guided the interventions by ensuring that each movement was performed correctly to achieve the optimal relaxation effect.
3. Posttest: After four weeks, sleep quality was re-measured using the same PSQI questionnaire to assess changes.

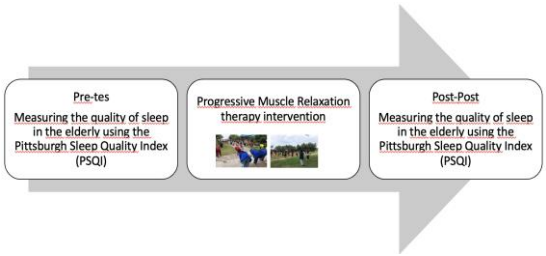

Figure 1: Conceptual Framework

Data analysis was carried out using univariate and bivariate tests. The bivariate test uses the Wilcoxon test to determine the effect of progressive muscle relaxation therapy on the quality of elderly sleep because the data is not

normally distributed according to the normality test results with the Shapiro-Wilk formula.

Approval from the Research Ethics Committee was secured for this study of STIKES Intan Martapura with Number 003/KE/YBIP-SI/I/2025. Written informed consent was obtained from each respondent before the study began, and the confidentiality of their data was maintained at every stage of the study. The participant's right to withdraw without consequence was fully guaranteed throughout the research process

3. Results and Discussion

Respondent characteristics in this study included gender and education level. The frequency distribution of respondents can be seen in Table 1.

Table 1. Shows that 32 elderly respondents became research respondents, and more were women, totaling 96.9% while men amounted to 3.1%. Respondents' education is higher in undergraduate education, 31.3%, and junior high school, 15.6%.

Table 1. Frequency distribution of respondent characteristics based on gender and education

Characteristics	Frequency (n=32)	Percentage (%)
Gender		
Male	1	3.1
Female	31	96.9
Education		
Elementary	9	28.1
Junior High	5	15.6
High School	8	25
Bachelor's degree	10	31.3

Research conducted by (Utami et al., 2021a) shows that elderly women tend to be more at risk of sleep disorders than elderly men. This is due to biological factors such as hormonal changes that occur post-menopause, which have an impact on sleep patterns. In addition, women are more prone to anxiety and depression which can affect their sleep quality. Societal and psychological factors like loneliness also contribute to sleep disturbances in older female adults in care homes.

Research shows that individuals with higher levels of education tend to have a better understanding of the importance of healthy sleep patterns and adopt better sleep habits (Purnama & Silalahi, 2020). However, other studies have found no significant relationship between education level and sleep quality (Harisa et al., 2022).

Table 2. The results showed that progressive muscle relaxation therapy significantly improved sleep quality in the elderly. Before the intervention, there were 18 respondents (18%) with poor sleep quality and 14 respondents (14%) with good sleep quality. After the intervention, of the 18 respondents who previously had poor sleep quality, 14 people (15.8%) had improved to good sleep quality, while 4 people (2.3%) still had poor sleep quality. All respondents who previously had good sleep quality maintained this condition. Overall, good sleep quality increased to 28 people (28%).

Table 2. Effect of Progressive Muscle Relaxation Therapy on Sleep Quality in the Elderly at Pelita Hati Social Home, Sigi Biromaru District, Sigi Regency

Sleep quality before intervention	Sleep quality after intervention				Total		P Value
	Poor sleep quality		Good sleep quality				
	n	%	n	%	n	%	
Poor sleep quality	4	2.3	14	15.8	18	18.0	0.001
Good sleep quality	0	1.8	14	12.3	14	14.0	
Total	4	4.0	28	28.0	32	32.0	

Research conducted at Pelita Hati Social Home, Sigi Biromaru District, Sigi Regency Indicates a substantial impact between PMR on the quality of elderly sleep, with a p-value of 0.001 ($p < 0.05$). This demonstrates that the PMR intervention effectively enhances sleep quality among the elderly. This research Is consistent with the findings of research conducted by Bidang, which shows that PMR therapy is Proven to be beneficial in enhancing sleep quality among the elderly. In the study, 25 elderly people were given PMR intervention, and the results indicated a notable enhancement in sleep quality following the intervention.

In addition, research revealed that PMR not only improves sleep quality but is also capable of fostering a sense of comfort and mental relaxation, which aids in enhancing sleep quality among the elderly. Another study by Kholik & Aryati, (2024) showed that the application of PMR for 20 minutes per day for five consecutive days was effective in reducing Pittsburgh Sleep Quality Index (PSQI scores among elderly individuals with sleep pattern disorders. Before the intervention, the PSQI score in the elderly was 19 (poor category), but after the intervention, the score decreased to 8 (severe category), demonstrating a considerable improvement in sleep quality.

Research conducted by Apriyeni & Patricia (2020) also supports these findings, which show that PMR is effective in enhancing sleep quality among older adults with sleep disorders. This finding is reinforced by the results of research conducted at PSTW Budhi Luhur Kasongan Bantul,

which shows that PMR has a positive effect on the quality of elderly sleep. Significantly Enhanced sleep quality was observed in the intervention group compared to the control group (Monika et al., 2023).

The effectiveness of PMR is not only limited to the elderly, but has also been shown to be beneficial in other groups. Research conducted by (Sucu & Citil, 2024) showed that PMR was effective in improving sleep quality in post-menopausal women who performed PMR exercises daily for 8 weeks, which resulted in a significant improvement in sleep quality and a decrease in fatigue symptoms compared to the control group. Another study by Simon et al., (2022) revealed that individuals who performed PMR before napping spent more time in slow-wave sleep, which plays an important role in physical and cognitive recovery. In addition, research by Bidang showed that PMR effectively alleviates anxiety among nursing students before clinical practice, yielding significant results ($p < 0.05$) compared to the control group. A further study by Bidang conducted in Salatiga showed a notable reduction in sleep disturbances from 33.21% to 2.89% post-intervention, confirming that PMR is effective in fostering a sense of comfort and enhancing sleep quality among older adults.

In addition to the benefits on sleep quality, PMR is also effective in reducing Emotional strain, nervousness, and depressive symptoms. A systematic review conducted by (Muhammad Khir et al., 2024) that included 46 publications from 16 countries with over 3.402 participants, showed that PMR significantly lowered levels regarding emotional stress, anxiety, and depressive conditions, the effectiveness of PMR was further amplified when integrated with additional interventions, exceeding its effectiveness as a single intervention.

The benefits of PMR are not only limited to psychological aspects but also have a positive effect on physical health. PMR exercises are effective in reducing muscle tension and pain, such as back or neck pain, as well as helping to lower high blood pressure (Ferdisa & Ernawati, 2021). This technique plays an important role in reducing levels of anxiety and stress, and helping individuals who have difficulty sleeping (Gurning & Sari, 2020). In addition, PMR is known to increase parasympathetic activity, which contributes to improved sleep quality, especially in the elderly (Simbung et al., 2022).

Another important benefit is its ability to lower blood pressure and improve heart rate. Research conducted by (Sri Wanti et al., 2022) showed that after PMR exercise, the systolic blood pressure experienced a reduction from 157.56 mmHg to 133.17 mmHg, while the diastolic blood pressure decreased from 91.95 mmHg to 78.29 mmHg. The comforting effect produced by this exercise provides a sense of calm and relaxation, which has a positive impact on sleep quality (Simbung et al., 2022)

With these benefits, progressive muscle relaxation can be an effective and safe method as a non-pharmacological intervention to improve sleep quality, reduce anxiety, and improve physical and psychological well-being in the elderly and other population groups.

4. Conclusions and Suggestions

The results of this study indicate that progressive muscle relaxation therapy effectively improves sleep quality in the elderly at Pelita Hati Social Home, Sigi Biromaru District, Sigi Regency. This intervention was able to significantly improve sleep quality, with most respondents who previously experienced sleep disturbances showing an increase in good sleep quality after undergoing therapy. Thus, Progressive muscle relaxation therapy can serve as an alternative non-pharmacological intervention. that is safe, easy to implement, and effective for overcoming sleep disorders in the elderly. It is recommended that social institutions routinely guide the elderly in applying this technique to improve their sleep quality and overall health. In addition, further research with a broader design and a larger control group can be conducted to strengthen scientific evidence of the effectiveness of this therapy.

5. Acknowledgments

The authors would like to thank Panti Sosial Pelita Hati Biromaru District Sigi for the permission and support provided during the data collection process. The authors extend their appreciation to the respondents who willingly took part in this study.

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