



## The Effect Of Progressive Muscle Relaxation On Insomnia Among The Elderly: A Literature Review

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### Abstract

**Introduction:** The term "elderly" refers to a stage of human existence characterized by a decline in the body's capacity to respond to external stress and a failure to maintain body equilibrium in physiological stress situations. Patients who are elderly are more likely to suffer from sleep difficulties, including insomnia, which is one of the effects they experience. Insomnia is a sleep disorder defined by a lack of capacity to establish or sustain regular sleep schedules; symptoms usually appear within a week. **Material and Methods:** This research is a review of the existing literature. The topic, articles from 2018 to 2023, were chosen from various online databases, including Science Direct, PubMed, and Google Scholar. The PRISMA approach was utilized by analyzing the literature review. **Results:** After sifting through 315 publications, only 16 studies were deemed suitable for analysis. The conclusion drawn from these studies is that PMT significantly decreases the prevalence of insomnia in the elderly. **Conclusion:** Progressive Muscle Relaxation has been shown in various studies to alleviate insomnia in the elderly.

**Keywords:** Progressive Muscle Relaxation, Insomnia, Elderly

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## 1. Introduction

Elderly refers to the final stage of human life, where the body experiences a decreased ability to adapt to environmental stressors and struggles to maintain physiological and psychological balance. One of the impacts experienced by the elderly is the presence of sleep disorders, including insomnia. Sleep pattern disorder is when individuals experience or are at risk of experiencing a change in the quantity or quality of their rest patterns, which causes a sense of discomfort in the elderly (Royani & Siska, 2023).

The occurrence of sleep disorders in the elderly is very high, based on information known that there are 50% of the elderly at the age of 65 years and over who experience rest problems. In Indonesia, the incidence of sleep problems at the age of 60 years and over is very high, around 67%. This figure is obtained from the total population aged 65 years and over. Based on a gender, it was found that insomnia can occur in women aged 60-74 years, as much as 78.1% (Muharningsyah et al., 2021).

Insomnia is a condition of difficulty initiating or maintaining a sleep pattern that occurs in less than seven days. Insomnia can occur at any age but can often be experienced at the age of 60 years and above (Februanti et al., 2019). This is in line with Silalahi & Astarani (2018) who say that someone with sleep disorders has several side effects, such as often waking up quickly during sleep at night, being unable to start falling asleep, and the body feeling tired when waking up in the morning. The elderly can increase their welfare by trying to achieve their fundamental requirements, which is one of the ways that they can do so. Sleep and rest are two of these fundamental requirements that must be met. On the other hand, around sixty percent of senior people suffer from sleep difficulties or sleeplessness (Ayoubi-Mahani et al., 2023).

Various ways can be done to treat insomnia that occurs in the elderly, namely with pharmacological therapy and non-pharmacological therapy. Pharmacological therapy that can be used to treat insomnia, namely Benzodiazepines and Ramelton (Abad & Guilleminault, 2018). However, if you continue to use these drugs to help you sleep, drug dependence may occur. Therefore, non-pharmacological therapy can be used to treat





insomnia with the advantage that it can be used as a therapy that does not cause side effects and is relatively easy to use. Progressive muscle relaxation training is a non-pharmacological therapy that can effectively treat insomnia in the elderly. Progressive relaxation is a methodical process of achieving physical relaxation starting from the head and moving down to the feet. This technique includes ideas and visualizations to enhance the state of relaxation and is commonly employed in treating sleep disorders (Chun et al., 2021).

## 2. Research Method

### Research Design, Setting, and Sample

This research is a review study of the literature. Articles that fit the theme were selected from 2018-2023. Inclusion criteria were full-text articles, freely accessible, with RCT or experimental research designs (Huls et al., 2018). Exclusion criteria were conference papers, chapters, editorials, theses, and dissertations, and not open access.

### Measurement and Data Collection

The sources of information for this investigation were the publications found in the electronic databases Science Direct, PubMed, and Google Scholar (Goossen et al., 2020). The researcher employed the subsequent search method on each database, utilizing the terms Progressive Muscle Relaxation, Insomnia, and The Elderly.

### Data Analytics

The researchers employed the PRISMA approach, as outlined in Figure 1, to adhere to the appropriate research protocol (Page et al., 2021).

## 3. Results And Discussions

### a. Result

Based on the search strategy and the selection criteria, sixteen studies were selected from three hundred fifteen publications and subjected to a comprehensive





examination. In the end, only eleven research could be examined in their entirety. A representation of the selection procedure for this study may be found in Figure 1.

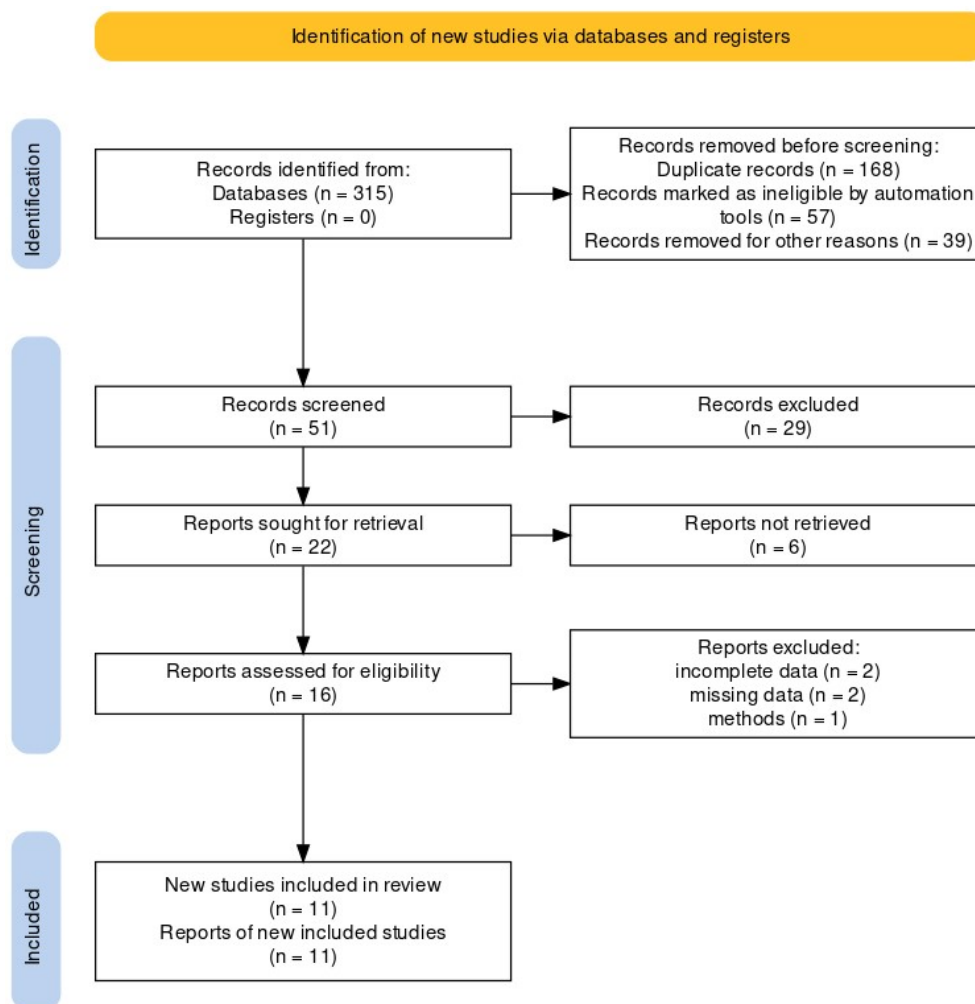


Figure 1 Selection Process of Studies Based on PRISMA (Haddaway et al., 2022)

Table 1. Result of article analysis

No	Author	Location	Method	Intervention	Result
1	(Gökşin & Aşiret, 2021)	Turki	RCT	The intervention group had PMR, which consisted of 28-minute sessions conducted three times a week for a period of eight weeks.	When comparing the Elderly Adaptation Difficulty Rating Scale between the intervention group and the control group, it was seen that there was a statistically significant





					difference within the intervention group PMR ( $P < 0.05$ ).
2	(Muharningsyah et al., 2021)	Indonesia	Quasi eksperiment	This study was conducted with progressive muscle relaxation therapy intervention on 25 respondents aged 60-95 in the elderly category. The intervention was applied with a therapy duration of 15-30 minutes in one action once a week.	Muscle relaxation intervention's impact on improving sleep quality in the elderly with insomnia from 25 older adults who have difficulty sleeping quality found the results of the Wilcoxon Sign Rank Test calculation with a value of 0.000.
3	(Sutrisno et al., 2022)	Indonesia	RCT	The intervention was administered daily in the afternoon, three times, to a group of 30 older persons who were selected using the purposive sample technique.	With a p-value of 0.001, the findings of the analysis indicate that progressive relaxation therapy has a substantial impact on the incidence of insomnia in the older population.
4	(Li et al., 2020)	China	Quasi-experiment	By Jacobson's PMR, the patient is instructed to relax their muscles while lying down or sitting in a comfortable position. They only gave one performance before retiring for the night and taking a nap. Over ten minutes, the patient is provided with direction until they have mastered the appropriate training method. After that, they can do the entire training on their own.	APS mixed with PMR has been shown to work very well for older people with heart-spleen deficiency type insomnia. It improves their mental health, quality of life, and sleep quality.
5	(Nazari et al., 2022)	Indonesia	Quasi-experiment	The control group comprised 30 patients who received usual care. Thirty patients in the muscular relaxation group participated in biweekly sessions of progressive relaxation techniques for one month.	There was no significant decrease in the sleep quality score of the control group. Nevertheless, the average sleep quality score in the relaxation group intervention declined significantly from $13.90 \pm 2.23$ before the intervention to $8.03 \pm 2.01$ afterward ( $P < 0.001$ ).





6	(Bagheri et al., 2021)	Iran	RCT	Patients in the BR and PMR groups participated in their designated activities twice daily for four weeks. The Pittsburgh Sleep Quality Index was employed to evaluate the sleep quality before and after the intervention.	The findings of this study demonstrate that a four-week intervention consisting of Progressive Muscle Relaxation (PMR) and Breathing Retraining (BR) can significantly enhance the quality of sleep in patients. Significant within-group comparisons were seen in both the BR group ( $p = 0.001$ ) and the PMR group ( $p < 0.001$ ).
7	(Elsalam & Kholy, 2020)	Egyptian	Quasi-experiment	Fifty individuals, all aged 60 or above, were randomly divided into two study groups of equal size. Group 1 consisted of older persons who underwent sleep restriction therapy (SRT), while Group 2 comprised older adults without any specific intervention. The SRT was carried out on an individual basis throughout seven weeks. The participants in group 2 were administered Progressive Muscle Relaxation (PMR). This technique was implemented individually throughout ten sessions, each occurring twice weekly for five weeks. Each session lasted around 30 minutes.	Implementing the suggested interventions led to a considerable improvement in sleep quality. The average score for Sleep Restriction Therapy (SRT) was $63.0 \pm 5.05$ , while the average score for Progressive Muscle Relaxation (PMR) was $44.50 \pm 5.50$ . The difference between the two scores was statistically significant, with a p-value of 0.001.
8	(Satria et al., 2023)	Indonesia	Pre-experiment	The intervention was conducted daily at 7:30 am for 15-20 minutes regularly for two consecutive weeks.	They found that progressive muscle relaxation therapy significantly impacted the quality of sleep experienced by elderly individuals in the intervention group ( $p = 0.001$ ).
9	(Lufianti et al., 2023)	Indonesia	Quasi Experiment	Performing progressive muscular relaxation	Individuals who are elderly and suffer from





				techniques for twenty to thirty minutes once a day on a consistent basis for a period of one week	sleeplessness can benefit from progressive muscle relaxation practices. Insomnia has decreased, as demonstrated by a p-value of 0.000, which is less than the threshold of 0.05.
10	(Royani et al., 2020)	Indonesia	Pre-experiment	The respondents, aged 45-90 years old, had progressive muscle relaxation therapy for 15 minutes daily for three weeks. The therapy sessions were conducted in the morning, afternoon, and evening, based on the respondents' availability.	The p-value of 0.000, below the significance level $\alpha$ of 0.05, indicates a significant difference. This suggests that there is a noticeable effect on lowering insomnia before and after progressive muscle relaxation therapy.
11	(Seyedi Chegeni et al., 2018)	Iran	RCT	PMR training sessions will be held twice a day, every weekday for eight weeks. The patient is instructed to relax and contract sixteen significant muscles. Patients were instructed by the researcher and instructed to practice the exercises for twenty minutes.	Specifically, the treatment group improved global sleep quality and subscales associated with sleep latency, sleep duration, sleep disturbance, and daytime ( $p < 0.05$ ).

Based on Table 1, four studies used RCT research design, five studies were quasi-experimental, and two studies used pre-experimental. All of them were intervention studies. Six studies were from Indonesia (Lufianti et al., 2023) (Royani & Siska, 2023) (Satria et al., 2023) (Sutrisno et al., 2022) (Nazari et al., 2022) (Muhaningsyah et al., 2021). Turkey 1 research study (Gökşin & Aşiret, 2021), China 1 research study (Li et al., 2020), Egyptian 1 Research (Elsalam & Kholy, 2020). 2 researches from Iran (Bagheri et al., 2021) (Seyedi Chegeni et al., 2018). The overall result of the study states that progressive muscle relaxation exercises have a significant impact on reducing the level of insomnia in the elderly.

## b. Discussion





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With increasing age, the aging process will affect the time and quality of one's sleep, especially in old age, which will cause degeneration of cells and organs that can affect the function and mechanism of sleep. One of the things that can affect sleep is age, health status, environment, motivation, psychological stress, diet, lifestyle, and medication.

It is imperative to address insomnia in older individuals in order to prevent its adverse effects on daily functioning and overall well-being. The aged individuals who have insomnia will endure several consequences, including heightened daytime tiredness, sadness, cognitive decline, and reduced overall well-being.

Progressive Muscle Relaxation is a method for developing the skill of consciously relaxing all of the body's muscles. Loosening and relaxing all muscle groups and distinguishing between relaxed and tense will accompany a relaxed mentality to help someone fulfill their sleep needs. According to the theory of Edmund Jacobson) progressive muscle relaxation techniques performed in 20-3 minutes, once regularly, effectively reduce insomnia. The study conducted by Seyedi Chegeni et al., 2018) demonstrates that Progressive Muscle Relaxation (PMR) positively impacts various aspects of sleep quality, including subjective sleep quality, sleep latency, sleep duration, and sleep habit efficiency.

The quality of sleep is one of the factors that influences senior citizens' experience. These factors include the influence of pharmaceuticals that are used, the presence of other diseases, excessive activity, smoking, inadequate diet, and psychological issues such as stress and a lack of physical activity (Bollu & Kaur, 2019). This is in line with the research of Ainun et al (2020) on the causes of older adults who sleep excessively during the day, lifestyles such as (consuming liquor, drinking coffee, smoking drugs, and sporadic working time), mental factors (mental disorders), actual diseases (asthma, sinusitis, and influenza), mind factors (stressed), and environmental factors. Meanwhile, according to the results of research (Himani et al., 2018), there are several factors associated with insomnia that occurs in the elderly, such as increasing age, gender, marital status, employment status, average monthly income, education level, and BMI (body mass index) which does not significantly affect.





The elderly experience similar insomnia symptoms, including numerous awakenings throughout the night, trouble initiating sleep, excessive sleepiness during the day, and weariness. The consequences of these concerns are that the elderly encounter disruptions in their activities and social engagements. Therefore, in this problem, it is imperative to address insomnia in the elderly in order to combat the sleep disorder effectively. Stimulating and motivating sleep can be achieved through relaxation, which involves specific actions. The act of moving the limbs to induce relaxation facilitates the relaxation of specific muscle groups in the body through the use of progressive muscle relaxation techniques. This enables the elderly to discern the contrasting sensations of tense and relaxed muscles.

Progressive muscle relaxation techniques are very effective in fulfilling the elderly's sleep needs and reducing sleep disturbances. PMR is an intervention to increase relaxation to meet elderly sleep needs. Relaxation therapy is the cheapest and most accessible, so it can be done anywhere and anytime to stretch tense muscles to reduce sleep disturbances and stress.

#### **4. Conclusion**

A literature evaluation was conducted to provide a comprehensive understanding of the effectiveness of Progressive Muscle Relaxation (PMR) as a treatment for insomnia in older people. Research studies suggest that Progressive Muscle Relaxation can effectively treat insomnia in the elderly.

#### **5. Compliance with ethical standards**

##### **Acknowledgements**

The authors would like to express their gratitude to everyone who participated in this piece of research. Institutional leadership in the facilitation of research assistance for the advancement of health research for the benefit of the general public.

##### **Disclosure of conflict of interest**

There is no potential for any stakeholder to have a conflict of interest in this research.





### Statement of informed consent

In our capacity as writers, every action we perform constitutes a joint agreement or consent.

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