



The Role of Progressive Muscle Relaxation and Cognitive Behavioral Therapy to Control Insomnia Among Elderly

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Abstract

Introduction: Insomnia is a prevalent medical condition that impacts people across a lifetime. Diagnosis is established through self-reported symptoms including daytime disruptions and poor sleep quality, notwithstanding the provision of sufficient sleep opportunities and a conducive sleeping environment. Untreated insomnia is correlated with a variety of detrimental health consequences. The aim of the study was to analyze the role of progressive muscle relaxation (PMR) and cognitive behavioral therapy (CBT) to control insomnia. **Material and Methods:** The research used is qualitative research, a review of the relevant literature constitutes this research. Themes-aligned articles from the years 2019 to 2024 were chosen, to comply with the prescribed research protocol, the investigators utilized the PRISMA method. **Results:** Nine articles were chosen from fifteen publications based on the search technique and selection criteria, and finding that PMR and CBT approach was helpful in assisting in the improvement of insomnia in elderly. **Conclusion:** Based on the conducted literature review, non-pharmacological treatments for addressing insomnia in older adults include progressive muscle relaxation (PMR) and cognitive behavioral therapy (CBT) interventions. Both of these approaches have demonstrated significant efficacy in managing insomnia in this population.

Keywords: Insomnia, Progressive Muscle Relaxation, Cognitive Behavior Therapy

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1. Introduction

Insomnia is a phrase that is used in several contexts in medical literature and the mainstream media. Insomnia is often characterized by an individual's self-reported





difficulties in sleeping (Roth, 2007). The inability to fall asleep, to stay asleep, or to wake up early in the morning are all symptoms that correspond to the condition known as insomnia. Depending on the duration of the condition (acute for less than four weeks or chronic), the severity of the condition (mild or severe), the impacted sleep components (impaired sleep onset, maintenance, or both), and the cause (situational stress-related, primary, or linked to other medical or mental illnesses), insomnia can be classified into various categories. (Matthew Ng, 2022).

Diagnostic criteria for insomnia DSM-5 (Association, 2022). Dissatisfaction with sleep is often accompanied by symptoms including difficulties falling asleep, difficulty staying asleep, frequent awakenings, or trouble falling asleep again. Early morning awakening with inability to return to sleep, cause significant distress or impairment in various areas of functioning, occur at least 3 nights per week, last at least 3 months, occur despite adequate sleep, and are not caused by a substance. Mental and physical illnesses alone cannot explain sleepiness. Specify if symptoms are episodic (1–3 months) or permanent (3 months or more) or recurrent (2+ times a year).

Insomnia has detrimental health effects on the elderly, including mental dysfunction that impairs concentration and memory and daily functioning; extreme fatigue exacerbates emotional instability, leading to stress; cardiovascular disease; headaches; visual impairments; bodily aches and pains; a sense of fatigue; alterations in sleep patterns that impact the maintenance of a positive mood; anxiety and depression (Arianti and Novera, 2019).

The prevalence of insomnia is greater among geriatric adults (>60 years) in comparison to the general population. Despite being widely regarded as the most effective treatment for insomnia, cognitive behavioral therapy may be too mentally taxing for some patients (McLaren *et al.*, 2023). Behavioral therapies are helpful and suggested as the primary treatment for insomnia in older individuals. Behavioral therapy and non-pharmacological therapies seem to be more effective in the long run and have less adverse effects compared to pharmacological interventions. Short-term medical interventions are only considered when they are ineffective or fail to achieve the desired objectives, the





intention is to alter the patient's attitudes, beliefs, and misconceptions that prevent them from sleeping (Matthew Ng, 2022).

Progressive muscle relaxation (PMR) is an additional non-pharmacological approach to treating insomnia. It is an alternative therapy that older adults can engage in to alleviate muscle tension and meet their sleep requirements. Progressive muscle relaxation can be a simple, inexpensive, and risk-free technique (Arianti and Novera, 2019).

2. Research Method

Research Design, Setting, and Sample

A review of the relevant literature constitutes this research. Themes-aligned articles from the years 2019 to 2024 were chosen. Samples constituted the exclusion procedure, table 1 provides concise descriptions of every paper examined in this review.

Data collection and measurement

The publications utilized for this inquiry were those discovered in the Google Scholar electronic database (M.L., Kirtley, S., Waffenschmidt, 2021). Using the following search criteria-progressive muscle relaxation, cognitive behavior therapy, insomnia, and the elderly-the investigator combed through each database.

Data Analytics

To comply with the prescribed research protocol, the investigators utilized the PRISMA method, as delineated in Figure 1.

3. Results And Discussions

a) Results

Nine articles were chosen from fifteen publications based on the search technique and selection criteria. These studies were thoroughly examined in their entirety. Figure 1 illustrates the selecting strategy for this research.

The conclusions presented in Table 1 are based on three papers that discuss the efficacy of PMR in reducing the incidence of insomnia in elderly people. The third piece employs a quantitative approach, employing an experimental method that consists of a pre-test and a post-test for a single group. The findings of research conducted using





this method demonstrated that PMR is beneficial in lowering the incidence of insomnia in elderly (Sutrisno, Herawati and Aryani, 2022), (Arianti and Novera, 2019), (Fari, Pranata and Sukistini, 2021). In the same vein, with regard to three additional articles that investigated cognitive behavioral therapy (CBT), two journals utilized systematic methods and literature reviews, as well as application-based CBT (Lee *et al.*, 2024) dan (Mijnster *et al.*, 2022), Additionally, one journal utilized the literature review method (McLaren *et al.*, 2023) and one journal utilized the literature review method (McLaren *et al.*, 2023) without application. The findings of the three journals indicated that the cognitive behavioral therapy (CBT) approach was helpful in assisting in the improvement of insomnia in elderly, regardless of whether or not the application was utilized.

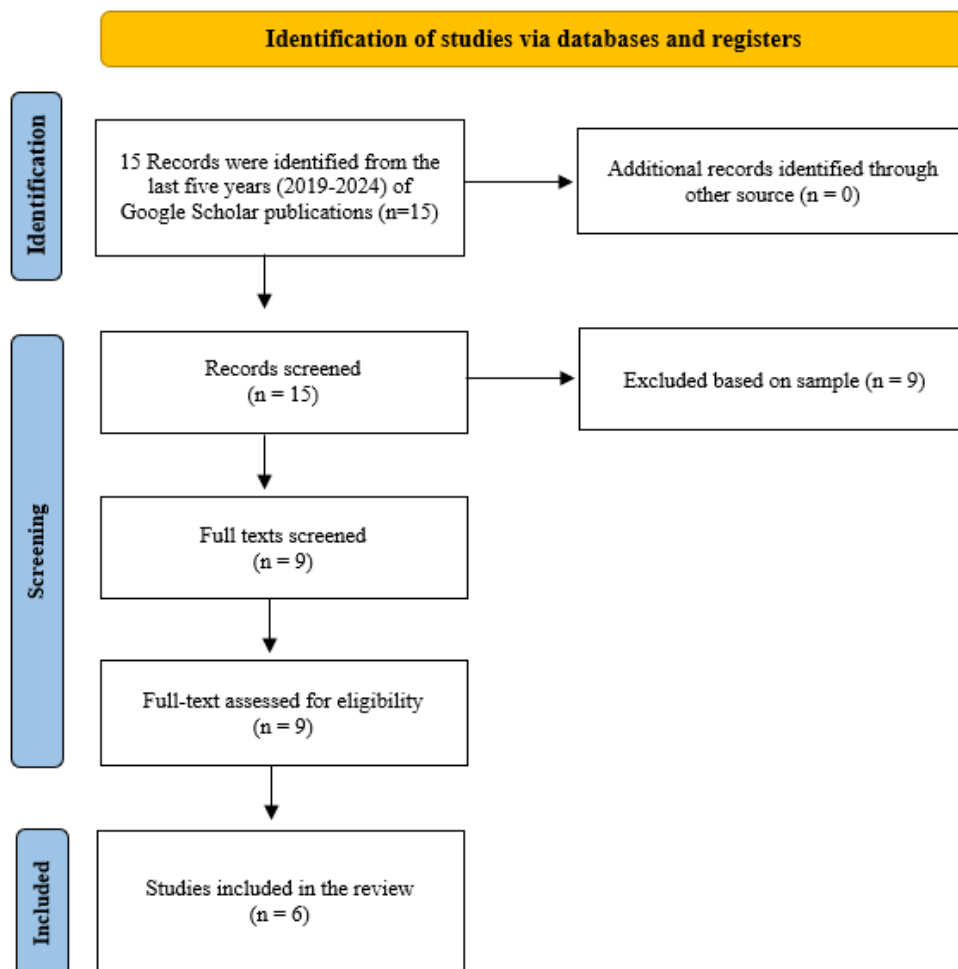




Figure 1. Selection Process of Studies Based on PRISMA
 (M.L., Kirtley, S., Waffenschmidt, 2021)

Table 1. Article Analysis

No	Author	Purpose	Population & Sample	Intervention	Study Design	Result
1.	(Sutrisno, Herawati and Aryani, 2022)	Examining the impact of progressive muscle relaxation on older individuals suffering from sleeplessness in Pucangan Village, Kartasura.	30 elderly people who suffer from insomnia	Progressive relaxation therapy	An exploratory method utilizing a one-group pre-test and post-test design.	p-value is less than 0.05. The study's findings indicate that progressive relaxation therapy has a notable impact on senior individuals suffering from sleeplessness.
2.	(Arianti and Novera, 2019)	Determine the role that progressive muscle relaxation plays in the treatment of insomnia in senior citizens who are patients at the Kuranji Padang health facility.	With a total sample size of fifteen individuals, the research population consisted of all senior people in the Padang Kuranji region, which numbered 94 in total.	Progressive muscle relaxation	Quantative with the design of one group pretest-posttest	In the work area of the Kuranji health facility in Padang, the findings of the study indicated that progressive muscle relaxation had an effect regarding sleeplessness in the older population.
3.	(Fari, Pranata and Sukistini, 2021)	To decrease sleep disorders in the elderly.	12 elderly.	Progressive muscle relaxation (PMR)	One group pretest-posttest	Elderly with sleep difficulties were able to fall asleep quickly, despite the lack of meaningful data. Progressive muscle relaxation (PMR)





						can effectively alleviate sleep difficulties in elderly.
4.	(Lee <i>et al.</i> , 2024)	For older persons who live in the community and suffer from sleeplessness , cognitive behavioral therapy should be administered .	100 community-dwelling older adults aged 65 years and older.	Applications for cognitive behavioral therapy that are based on information and communication technology were developed.	ICT-based application to administer CBT to community dwelling older adults with insomnia using a mixed-methods research design	Based on the findings of this research, a new mobile application called Smart Sleep was successfully designed, installed, and reviewed for older persons who live in the community and suffer from insomnia. Through the provision of individualized treatments for insomnia, smart Sleep apps have the potential to improve the quality of sleep and general well-being of senior adults.
5.	(Mijnster <i>et al.</i> , 2022)	Give an account of the modifications that have been made to CBT-I and the effectiveness of these adjustments in certain mental health groups.	Articles on studies with a minimum sample size of 20 and a control condition	-	Using standard search engines, we were able to find a literature review as well as scientific publications that evaluated the effectiveness of cognitive and/or behavioral therapy for the treatment of insomnia in particular health populations.	When cognitive behavioral therapy for insomnia was implemented in a variety of settings, including residential care, community settings, and home settings, it was found to be equally effective in lowering the occurrence of concurrent insomnia in older people who were also suffering from depression.





6.	(McLaren <i>et al.</i> , 2023)	Specifically, to examine the research that has been conducted on the effectiveness of behavioral therapies for the treatment of insomnia in older people, with the added goals of examining the influence that these therapies have on mood and everyday performance.	1689 articles; 15 studies, summarising the results of 498 older adults, were included – three focused on stimulus control, four on sleep restriction, and eight adopted multicomponent treatments comprised of both interventions.	-	Systematic review.	This review shows that behavioral therapies can have significant beneficial effects on outcomes important for insomnia condition.
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b) Discussions

The elderly have a distinct sleep pattern in comparison to the young. Young people have the ability to enter a deep sleep phase during each of the four phases of sleep. However, due to inadequate sleep, the elderly experience a diminished sleep phase, characterized by restlessness and heightened susceptibility to awakenings, both of which can negatively impact the quality of their sleep (Satria Nanda, Istichomah, Monika Rika, Theresia Firmina, 2023). The elderly population is particularly susceptible to sleep disturbances, the vast majority of which remain undetected. Seventy-five percent of individuals aged sixty-five and older are estimated to suffer from sleep disturbances, with thirty percent of this adult population suffering from insomnia. An extensive array of comorbidities and polypharmacy are prevalent among the elderly, contributing to a diverse range of insomnia-related factors (Matthew Ng, 2022).

It is possible that the early identification of the elements that contribute to insomnia could give insight on the triggering events that, if addressed, could result in





an improvement in sleep quality. In certain people, the symptoms of insomnia may continue to be present even after the comorbid conditions and the incident that caused the insomnia have been cured, which can lead to the development of insomnia disorder. Insomnia that is not treated is linked to a wide range of negative health and psychological outcomes, and sleep issues that are not recognized are commonly associated with it (Grima, Bei and Mansfield, 2019).

App-based CBT is now available for use by insomnia sufferers, particularly the elderly, because of the current rapid growth of technology and digitalization systems. The software offers management screens, educational films, relaxation training movies, real-time counseling and exercise, sleep assistants, sleep information, and sleep-habit modification programs. To make the application easier to use for older folks, pictograms were included and the font size was increased. The goal of this application is to increase the participation of older persons with insomnia in CBT-I by providing monitoring, alarms, feedback, and incentives. The quality of older individuals' sleep and overall life satisfaction will increase with further development and validation of these therapies as research in this field advances (Lee *et al.*, 2024). The same thing also occurs in MM's study, which shows that CBT-I is effective in lowering symptoms of insomnia in a variety of mental health populations. Large therapeutic responses and substantial remission rates are reported by these difficult patients. In mental health settings, a brief variant of CBT-I (also known as BCBT-I or BBTI) is frequently selected due to reasons such as increased adherence, greater access, or budgetary availability. These quick methods usually have comparable, albeit occasionally somewhat smaller, beneficial impacts on treatment response, recovery pace, and insomnia symptoms. It is frequently impossible to directly compare the effectiveness of CBT-I with shorter variants within a study, making it challenging to make firm conclusions about its advantages outside of the typical protocol (Mijnster *et al.*, 2022).

Another research by (Ebben, 2021) discuss that the homeostatic drive to sleep diminishes with age and goes away more slowly during the night. Lighter, more sporadic sleep is the result of increased stage 1 sleep, sleep latency, and wakefulness





following sleep initiation. Furthermore, alterations in lifestyle that frequently lead to retirement-related flexibility in the daytime schedule, alone or in conjunction with advancements in the circadian phase, result in a marked reduction in the quality of sleep overall. CBT-I, especially the parts of therapy that concentrate on boosting homeostatic sleep drive, has been demonstrated to alleviate insomnia in the aged and should be utilized to counteract the consequences of aging on sleep.

Insomnia following treatment with progressive relaxation. The findings of the research (Sutrisno, Herawati and Aryani, 2022) indicated that patients who received progressive relaxation therapy experienced a reduction in the amount of sleeplessness they experienced. Prior to the implementation of the progressive relaxation therapy, there were seventeen (76.6%) respondents. 13 respondents (43.3%), mild insomnia (46.7%), and severe insomnia (ten percent) decreased after receiving progressive relaxation therapy. The number of respondents who experienced severe insomnia fell to three (10 percent). The results of this study align with those of a previous investigation (Satria Nanda, Istichomah, Monika Rika, Theresia Firmina, 2023) which demonstrated the impact of progressive muscle relaxation therapy on the sleep quality of the elderly. A noticeable disparity in sleep quality was observed among the elderly participants in the intervention group both before and after the administration of progressive muscle therapy.

4. Conclusion

Based on the conducted literature review, non-pharmacological treatments for addressing insomnia in older adults include progressive muscle relaxation (PMR) and cognitive behavioral therapy (CBT) interventions. Both of these approaches have demonstrated significant efficacy in managing insomnia in this population.

5. Compliance With Ethical Standards

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Disclosure of conflict of interest

Regarding this research, there is no possibility that any of the stakeholders will have a conflict of interest.

Statement of informed consent

Every action that we take in our role as writers constitutes a mutual agreement or agreement between any of us.

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