

THE EFFECTIVENESS OF ERGONOMIC EXERCISES ON INSOMNIA LEVELS AMONG MENOPAUSAL WOMEN

Agi Yulia Ria Dini¹⁾, Ela Rohaeni²⁾, Aas Hasanah³⁾

Email: agiyulia.strkeb@gmail.com¹⁾, elarohaeni21@gmail.com²⁾, aas.hasanah13@gmail.com³⁾
^{1,2,3)}Bachelor of Midwifery, STIKes Cirebon, Cirebon, Indonesia

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Abstract

Insomnia is a common sleep disorder among menopausal women caused by physiological and psychological changes, leading to a decline in quality of life. Preliminary findings indicate that most menopausal women in Sindangari Village experience mild to moderate insomnia. Non-pharmacological interventions such as ergonomic exercise are considered effective because they involve muscle movements and breathing techniques that promote relaxation and improve sleep quality. This study aimed to examine the effectiveness of ergonomic exercise in reducing insomnia levels among menopausal women in Sindangari Village, Sukasari District, Sumedang Regency. A pre-experimental one-group pretest–posttest design was employed. The study population consisted of 65 menopausal women with insomnia, from which 32 respondents were selected using purposive sampling. Insomnia levels were assessed using the Insomnia Rating Scale (IRS). Data were analyzed using a paired sample t-test with a significance level of 0.05. The results showed a significant reduction in insomnia levels after the ergonomic exercise intervention ($p = 0.000$; $p < 0.05$). In conclusion, ergonomic exercise is effective in reducing insomnia among menopausal women and may be considered a non-pharmacological alternative to improve their quality of life.

Keyword: Ergonomic exercise, Insomnia, Menopausal women

Correspondence:

Agi Yulia Ria Dini. Bachelor of Midwifery Study Program, STIKes Cirebon, Cirebon, Indonesia.
agiyulia.strkeb@gmail.com

1. Introduction

Menopause is a stage that every woman inevitably encounters in her lifetime; it is a natural process associated with aging. Menopause is neither a disease nor a disorder. It is defined as the cessation of menstruation resulting from the loss of ovarian follicular activity. A woman is considered to be in menopause if she has not menstruated (amenorrhea) for at least one year [1].

The transition to menopause is often accompanied by various symptoms that affect quality of life, including sleep disturbances, hot flashes, mood changes, fatigue, and mild cognitive impairment. One of the most common complaints among menopausal women is insomnia

[3]. Poor sleep quality in the elderly leads to both psychological and physiological disturbances. Psychological impacts include depression, anxiety, ineffective coping, and impaired concentration [4]. Prolonged sleep disturbances can increase the risk of depression, anxiety, cognitive impairment, hypertension, and metabolic diseases. Therefore, managing insomnia in menopausal women is crucial for improving overall quality of life [5].

Insomnia has traditionally been managed through pharmacological therapies, such as the use of sleeping pills (hypnotics) or hormonal treatments [6]. However, the long-term use of these medications carries the risk of unwanted side effects, including dependency,

impaired liver function, and other neurological issues. Consequently, there is a need for safer, natural alternative approaches; one such option is a non-pharmacological intervention involving ergonomic exercises [7].

Ergonomic exercise movements optimize body positioning to eliminate or minimize fatigue. These movements address factors such as spinal alignment, visual positioning (distance and lighting), reach (while standing or sitting), bilateral hand coordination, and the placement of work objects, thereby achieving high levels of comfort and productivity [8].

Ergonomic exercises are effective and efficient for managing and maintaining physical health. Furthermore, they can restore the positioning and elasticity of the nervous system and blood flow, optimize blood supply to the brain, boost cognitive function, and lower levels of uric acid, blood sugar, and cholesterol, while also strengthening the immune system. When combined with breathing and relaxation techniques, these ergonomic movements optimize oxygen delivery to the brain, improve circulation, and boost serotonin levels promoting a sense of calm and drowsiness, thereby enhancing sleep quality [9].

Based on data from the Elderly Integrated Health Post (Posyandu Lansia) in Sindangari Village and demographic estimates, the majority of the approximately 3,300 elderly residents in Sukasari District live in villages like Sindangari. Many menopausal women in this village report sleep disturbances. Nationally, the prevalence of insomnia among menopausal women is reported to be between 60% and 71%, while among the elderly population, it ranges from 20% to 40% reaching as high as 65% for those aged 60–65. Meanwhile, preliminary survey data collected in 2024 in Sindangari Village, Sukasari District, Sumedang Regency, revealed that out of 45 menopausal women, 32 (71.1%) suffered from sleep disturbances or insomnia, presenting symptoms such as difficulty falling asleep, frequent waking during the night, or waking up too early.

These figures indicate that the prevalence of insomnia in the area exceeds the national average, necessitating appropriate interventions such as non-pharmacological approaches like ergonomic exercises.

Based on the foregoing, this study aims to assess the effectiveness of ergonomic exercises on insomnia levels among menopausal women in Sindangari Village, Sukasari District, Sumedang Regency.

2. Methods

This study is a pre-experimental study utilizing a One-Group Pretest-Posttest Design, which involves administering a pretest prior to the intervention and a posttest following the intervention. Insomnia levels were measured using the Insomnia Rating Scale (IRS) questionnaire. Data analysis was performed using a paired-sample t-test at a significance level of 0.05.

Principles in ethical considerations include: Informed Consent, Anonymity, Confidentiality, and Respect for Justice and Inclusiveness.

The ergonomic exercises in this study were administered six times over a two-week period, with a frequency of three times per week.

The population for this study consisted of all 65 menopausal women residing in Sindangari Village, Sukasari District, Sumedang Regency, as of July 2025. A sample of 32 individuals was obtained using a purposive sampling technique. Sample selection was based on inclusion criteria specifically, menopausal women experiencing insomnia who were willing to participate as respondents while exclusion criteria included menopausal women with a history of severe heart disease, severe musculoskeletal disorders limiting movement, or severe vertigo or balance disorders that could increase the risk of falling during exercise.

3. Results and Discussion

Insomnia levels in this study were measured using the Insomnia Rating Scale (IRS) questionnaire.

Table 1. Frequency distribution of insomnia levels among menopausal women in Sindangari Village, Sumedang Regency, prior to the ergonomic exercise intervention

Insomnia	Frequency	%
No insomnia	0	0
Mild insomnia	11	34.4
Moderate insomnia	19	59.4
Severe insomnia	2	6.2
Total	32	100.0

Based on Table 1, it can be seen that prior to the ergonomic exercise intervention, 19 (59.4%) menopausal women in Sindangari Village, Sukasari District, Sumedang Regency, fell into the moderate insomnia category.

Insomnia in menopausal women is influenced by a decline in estrogen and progesterone, leading to physiological disturbances such as hot flashes, night sweats, and mood swings that affect sleep quality. Furthermore, sleep physiology theory posits that sleep disturbances arise from neurotransmitter imbalances associated with the regulation of the sleep-wake cycle [10].

Poor sleep quality among the elderly is linked to various influencing factors. Sleep quality tends to decline with advancing age. Sleep needs vary from person to person; older adults require 6 to 7 hours of sleep per day. Furthermore, the elderly undergo physical and mental changes that also play a role in this regard [11].

The high prevalence of moderate insomnia among menopausal women in Sindangari Village indicates that hormonal and psychological factors significantly influence sleep patterns during menopause.

Table 2. Frequency distribution of insomnia levels among menopausal women following

an ergonomic exercise intervention in Sindangari Village, Sumedang Regency

Insomnia	Frequency	%
No insomnia	4	12.5
Mild insomnia	18	56.3
Moderate insomnia	10	31.3
Severe insomnia	0	0
Total	32	100.0

Based on Table 2, it can be seen that among the 18 menopausal women (56.3%) in Sindangari Village, Sukasari District, Sumedang Regency, who received the ergonomic exercise intervention, the level of insomnia fell into the mild category.

This fact demonstrates that ergonomic exercises can reduce the level of insomnia previously experienced by respondents, shifting them from moderate or severe categories to milder levels or even eliminating the insomnia altogether.

Light physical activity, such as ergonomic exercises, plays a role in improving blood circulation and metabolism, as well as stimulating the release of serotonin and endorphins, which induce a sense of relaxation [12]. This mechanism can improve sleep quality, facilitate sleep onset, and reduce the frequency of waking up during the night [13].

Table 3. The Effectiveness of Ergonomic Exercises on Insomnia Levels Among Menopausal Women in Sindangari Village, Sukasari District, Sumedang Regency

Tingkat Insomnia	Mean	Std. Deviation	Std. Error Mean	P value
Sebelum	2.7188	.58112	.10273	0.000
Sesudah	2.1875	.64446	.11392	

Based on the results of the Paired Samples Test conducted at a significance level of $\alpha = 0.05$ a p-value of 0.000 was obtained. Since $p < 0.05$, the alternative hypothesis (H_a) is accepted, indicating

that ergonomic exercises are effective in addressing insomnia levels among menopausal women in Sindangari Village, Sukasari District, Sumedang Regency. These findings demonstrate that the ergonomic exercise intervention is capable of significantly reducing insomnia levels among the respondents.

This aligns with the theory that regular physical exercise such as ergonomic exercises can improve blood circulation, stimulate the release of endorphins, and provide a relaxing effect that enhances sleep quality. Ergonomic exercises also promote autonomic nervous system balance, thereby reducing the muscle tension and anxiety that are often contributing factors to insomnia [14].

Ergonomic exercises can restore and improve the positioning and flexibility of the nervous and circulatory systems, maximize oxygen supply to the brain, boost the body's vitality and immune system against negative energy or viruses, and eliminate negative energy from the body's systems [15].

4. Conclusion

Based on the research results above, the researcher concludes that ergonomic exercises are effective in reducing insomnia levels in menopausal women.

5. References

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