





Original Article

The Effect of Combination Of Progressive Muscle Relaxation And Nature Sound Music Therapy On Sleep Quality Of Menopausal Women

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ARTICLE INFO	ABSTRACT
<p>Article History: Submit : Nov 4, 2022 Revised : Nov 6, 2022 Accepted : Dec 18, 2022</p> <p><i>Keywords:</i> Progressive Muscle Relaxation, Nature Sound, Sleep quality, Diabetes, Menopause</p>	<p>Background: Introduction. Menopause is a critical process that every woman will experience. Decreased function of female organs occurs because they cannot produce the hormones estrogen and progesterone, causing psychological and physiological symptoms. One of the physiological symptoms is sleep quality disorders, which if not handled properly will cause decreased concentration, anxiety and stress. Pharmacological and non pharmacological therapy to help postmenopausal women reduce their sleep disorders. The study aimed to determine the effect of combination therapy of progressive muscle relaxation and nature sound music therapy on sleep quality in postmenopause</p> <p>Methods: Quasy-Experiment research design. Population is menopause with a total of 220 people. The sample size is 102 respondents, the sampling is simple random sampling. The treatment group in combination therapy of progressive muscle relaxation and nature sound music therapy 15-20 minutes; the control group was not given any intervention. The variable studied was the value of sleep quality obtained from the results of the questionnaire (Pittsburgh Sleep Quality Index). The analysis used the Wilcoxon Signed Test for pre and post treatment and the Mann-Whitney test to determine the difference between the experimental group and the control group with a significant $\alpha < 0,05$.</p> <p>Results: The results of the sleep quality analysis using the Wilcoxon Signed Rank Test, p value 0,000 in the treatment group and p value 0,215 in the control group. The results of the analysis using the Mann-Whitney test obtained a p value of 0,000 on the value of sleep quality between the treatment group and the control group</p> <p>Conclusion: Combination therapy of progressive muscle relaxation and nature sound music therapy is effective for reducing the value of sleep quality disorders in menopause women, and this technique is easy to do, so it can be applied as a nursing intervention at the Puskesmas for the development of nursing knowledge in services</p>
<p> <i>Corresponding Author</i></p> <p> <i>Affiliation</i></p> <p> <i>Email</i></p> <p> <i>Cite this as</i></p>	<p>: Alviana Cornelia Sugijantoro</p> <p>: Program Studi S2 Magister Terapan Keperawatan Fakultas Keperawatan Dan Kebidanan Universitas Nahdlatul Ulama Surabaya, Indonesia</p> <p>: Alviana2806@gmail.com</p> <p>: Sugijantoro, A. C., Anggraini, R., & Afiah, R. K. . (2022). The Effect of Combination Of Progressive Muscle Relaxation And Nature Sound Music Therapy On Sleep Quality Of Menopausal Women. Journal of Applied Nursing and Health, 4(2), 340–348. https://doi.org/10.55018/janh.v4i2.107</p>



Introduction

Menopause in a woman's life is a critical process that every woman will experience. The natural decline in female organ function occurs in women aged 45-55, whose ovaries cannot produce the hormone estrogen and other hormones. The progressive loss of estrogen and progesterone during menopause increases a woman's health risks, affecting her quality of life (Amanda, 2019; Bais & Phansopkar, 2021). The problems that often occur in women who experience psychological menopause are emotional disturbances, feelings of fear, anxiety, irritability, difficulty concentrating, depression, and impaired libido. Physiologically, pain during intercourse, menstrual cycles and bleeding patterns that are increasingly varied, *hot flashes* (repeated periods of sweating), respiratory problems, vaginal dryness, dry skin, and disturbed sleep patterns (sleep quality). During the menopausal transition, sleep quality is among the most common and disturbing. Hormonal changes can cause hormonal imbalances, causing decreased sleep quality (Anggraini et al., 2022; Yona & Dahlia, 2020). Several factors that affect the decline in sleep quality include health problems, environmental conditions, stress, and consumption of drugs—enthusiasm in someone who does progressive relaxation.

In Indonesia, in 2025, there will be 60 million menopausal women. Menopausal women in 2016 in Indonesia reached 14 million or 7.4% of the total population. According to the health profile of East Java Province in 2017, the number of menopausal women 45-55 years old was 107,746 people (17.8%). The interviews found that 15 menopausal women were in the Surabaya area, especially at the Kebonsari Health Center, where 10 (66.7%) menopausal women complained of decreased sleep quality, while 5 (33.3%) menopausal women complained of experiencing other menopausal symptoms.

Based on a study conducted by the University of California, the influence of menopause and disturbed sleep patterns on the aging process in which many women experience

symptoms of restlessness during sleep, waking at night, and difficulty sleeping. Decreased sleep quality that occurs in the long term will cause decreased endurance, work performance, fatigue, depression, irritability, and decreased concentration power which can affect the safety of yourself and others. The results of the study (Andi Thair, 2018) stated that there was an effect of progressive muscle relaxation in improving the sleep quality of menopausal women. Progressive muscle relaxation techniques focus on muscle activity by identifying tense muscles and then reducing tension by performing relaxation techniques to get a feeling (Ismail et al., 2022; Lin et al., 2022).

In handling it, a collaboration between the medical team, postmenopausal women, their families, and the environment is needed. Education of postmenopausal women about the long-term effects will help reduce the symptoms experienced and improve their sleep quality. Decreased sleep quality that is not managed correctly will cause a decrease in physical strength in these menopausal women. In average menopausal women, sleep quality can be managed well. This can be seen by its ability to avoid the causes of decreased sleep quality and mention ways to deal with it (Aksu & Erenel, 2022; Shirzadi et al., 2021; Surya Direja et al., 2021).

Improve the quality of sleep in menopausal women, and it can also be done with *music therapy, spending time, progressive muscle relaxation*, and massage. Progressive Muscle Relaxation and *Nature Sound focus on a muscle activity accompanied by music to identify tense muscles and then reduce tension through relaxation techniques*, to get a relaxed feeling (Kalmbach et al., 2019; Shea et al., 2021). The benefits of *progressive muscle relaxation* accompanied by music can provide more satisfying results to reduce muscle tension, anxiety, and depression, facilitate sleep, reduce fatigue, muscle cramps, neck and back pain, reduce high blood pressure, mild phobias, and improve concentration (Elkins et al., 2021; Norman, 2020; Santos et al., 2021). This is supported by research (Semiha, 2018) which states that progressive muscle relaxation

exercises accompanied by music can improve sleep quality in menopausal women, including sleep time, sleep intervals, sleep deficiency, and sleep duration. Based on the description above, the researchers are interested in conducting a study titled "The Effect of Combination of Progressive Muscle Relaxation Therapy and Nature Sound Quality of Sleep for Menopausal Women at the Kebonsari Health Center Surabaya".

Methods

The type of this research is Quasi Experiment with *pre-post test with control groups*. This study only intervened in one group with a comparison. This researcher selected respondents according to the criteria and then conducted a *pretest* to measure sleep quality in postmenopausal women before the progressive muscle relaxation intervention. Researchers then conducted a *posttest* by measuring sleep quality after being given a progressive muscle relaxation intervention for seven days with an intensity of 1x/day with a time of 15-20 minutes to test the effect of the treatment. The population in this study were all postmenopausal women at the Kebonsari Health Center Surabaya in January - May 2022, as many as 220 menopausal women with a total of 120 in Jambangan Village and 100 in Kebonsari Village. The number of samples in the study was 51 people in each group. The intervention group was 51 people in Kebonsari Village, and the control group was 51 people in Jambangan Village, so the total sample was 102 people. The sampling method used at the time of the study was *non-probability sampling*, with the sampling method being *simple random sampling*. The intervention group was taken of

respondents with an odd number of absences and control groups with an even number of absences. Sampling has been determined in advance using the formula so that the results for each sample are 51 menopausal women. After determining the amount, the researcher makes missing odd numbers for the control group and even numbers for the intervention group. The inclusion criteria of the study were: Age 45-55 years and had menopause and had difficulty sleeping; Able to communicate well. Cooperative. Exclusion criteria for the study were: Menopausal women who, during the study, suffered from acute/chronic heart disease and uncontrolled hypertension, had mental disorders, had diabetes and took diabetes medication.

The reliability test was conducted to determine whether the instrument was reliable or reliable. An instrument is said to be *reliable* if the value of *r alpha* is more than 0.8. This research instrument uses one measuring instrument, the Pittsburgh Sleep Quality Index (PSQI), to measure sleep quality. Mollayeva's research (2017), the reliability value of the *Pittsburgh Sleep Quality Index (PSQI)* instrument obtained a result of 0.83 for the seven components. Analysis of the data to test the effect before and after giving progressive muscle relaxation in the intervention group and control group was carried out using the *Wilcoxon signed rank* to see the effect of progressive muscle relaxation on sleep quality after treatment between the intervention group and the control group, the *Mann-Whitney test* was used. *This research has received a Letter of Ethics with No. 0093/005/VIII/KEPK/LCHL/2022*

Results

Table 1. Description of the Characteristics of Menopausal Women at the Kebonsari Health Center Surabaya, 2022

Data Characteristics of	Treatment		Control	
	Frequency	%	Frequency	%
Age				
45 – 50 years	23	45.10	24	47.1
51 – 55 years	28	54.90	27	52.9
Total	51	100	51	100



Education				
Elementary School	31	60.8	34	66.7
Senior High School	14	27.5	11	21.6
Bachelor	6	11.8	6	11.8
Total	51	100	51	100
Menarche (Days)				
9 - 10	8	15.7	10	19.6
11-12	16	31.4	14	27.5
13-14	14	27.5	16	31.4
15-16	13	25.5	11	21.6
Total	51	100	51	100

Based on table 1, most of the respondents aged 51-55 years were in the treatment group (54.90%) and the control group (52.9%). In the education category, the experimental group mostly completed primary education (SD_SMP) (60.8%) and the control group (66.7%). Menarche's age in the experimental group was mainly 11-12 years old (31.4%), while the control group was mainly 13-14 years old (31.4%).

Table 2. Description of Data Analysis Before Intervention on Menopausal Women at Kebonsari Health Center Surabaya, 2022

Group	Pre Test		Mann Whitney	P Value
	Mean±SD	Min-Max		
Treatment	16.04±2.254	11 - 20		
Control	16.53±1.912	10 - 20	2422.500	0.164

The analysis results based on table 2 above explain that the treatment group and control group have an average value of sleep quality disorders before the intervention of combination therapy for progressive muscle relaxation and music (*Nature Sound*) is 16 (severe sleep disorder). The value of sleep quality based on the PSQI (*Pittsburgh Sleep Quality Index*) questionnaire in the experimental and control groups was analyzed using the Mann Whitney and obtained a p-value of 0.164. It means there is no significant effect in the treatment group and the control group before the combination therapy of progressive muscle relaxation and music (*Nature Sound*) is given.

Table 3 Description of Data Analysis After Intervention on Menopausal Women at Kebonsari Public Health Center Surabaya, 2022.

Group	Post Test		Mann Whitney	P Value
	Mean±SD	Min-Max		
Treatment	6.57±1.676	4 - 10		
Control	16.82±1.506	14 - 20	1326.000	0.000

The analysis results based on table 5.4 above explained that the treatment group experienced a decrease in average sleep quality after being given a combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*) is 6 (mild sleep disturbance). In contrast, the control group has an average sleep quality score of 16 (severe sleep disorder). The value of sleep quality after being given a combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*) in the treatment and control groups was analyzed using the *Mann Whitney* obtained a p-value of 0.000. It means there is a significant effect in the treatment and control groups after being given a combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*).



Table 4. Description of Differences in Sleep Quality Values in Menopausal Women at Kebonsari Health Center 2022

Group	Pre Test		Post-test		P Value
	Mean±SD	Min-Max	Mean±SD	Min-Max	
Treatment	16.04±2.254	11-20	6.57±1.676	4 - 10	0.000
Control	16.53±1.912	10-20	16.82±1.506	14-20	0.215
Data Analysis			Test Wilcoxon		

The results of the analysis based on table 5.5 above explain that the treatment group has an average value of sleep quality after being given a combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*) decreased by 6 (mild sleep disturbance), meaning that the value was lower than before the combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*). Meanwhile, the control group who was not given any therapy had an average value of 16, meaning there was no change in sleep quality in postmenopausal women. The value of sleep quality in the treatment group and the control group was analyzed using the *Wilcoxon Signed Ranks Test statistical test*. There was a *p-value* of 0.000 in the experimental group, and there were 14 respondents who experienced a decrease and a *p-value* of 0.215 in the control group. There was no change in the control group. This means that there is a significant effect on providing a combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*).

Discussion

The results of the research conducted at the Kebonsari Public Health Center Surabaya based on Table 5.3 explained that the treatment group and the control group, before being given a combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*), had an average value of 16 (severe sleep disturbance). While the results of the analysis using the *Mann-Whitney*, the *p-value* of 0.164 was obtained on the value of sleep quality before the

combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*) in the treatment group and the control group, which means there was no difference in the value of sleep quality in the experimental group. And a control group in postmenopausal women.

The description above shows that in the age range of 51-55 years, women experience changes in the levels of the hormones estrogen and progesterone, which can trigger changes in lifestyle, especially in sleeping habits. This is because the role of the hormone progesterone decreases, making it difficult to sleep. Opinions (Townsend, 2010) that poor sleep quality can be adequately managed if postmenopausal women can do physical exercise, one of which is a combination therapy of progressive muscle relaxation and music (*Nature Sound*). In the range of education, it will make it easier for someone to receive information. Some menopausal women overcome the decreased quality of sleep they experience using only drugs so that the fulfillment of physical activity is not paid attention to. Doing physical activity can load the attention of tense muscles and then reduce the tension so that they get a relaxed feeling.

The results of the research conducted at the Kebonsari Public Health Center Surabaya based on table 5.4 explained that the treatment group had an average sleep quality after the intervention of combination therapy of progressive muscle relaxation and music (*Nature Sound*) 6 (mild sleep disturbances). Meanwhile, the



control group had an average score of 16 (severe sleep disturbance). Based on the results of the analysis test using the *Mann Whitney* found that the p-value of 0.000 on the value of sleep quality (*Post*) intervention between the treatment group and the control group, which means there is a difference in the value of sleep quality between the experimental group and the control group in postmenopausal women. So in this study, the results of hypothesis testing stated that the combination therapy of progressive muscle relaxation and music (*Nature Sound*) could reduce the value of sleep quality in postmenopausal women (Koçak & Varişoğlu, 2022; Yang et al., 2022).

Combination therapy of progressive muscle relaxation and music (*Nature Sound*) is helpful as a center of attention on muscle activity accompanied by music to identify tense muscles to relax by relaxation techniques (Townsend, 2010). Combination therapy of progressive muscle relaxation and music (*Nature Sound*) is also helpful in providing better results to reduce muscle tension, anxiety, and depression, facilitate sleep, reduce fatigue and muscle cramps, and increase concentration (David, 2015). This is also supported by research (Semih, 2018) which states that progressive muscle relaxation accompanied by music can improve sleep quality for menopausal women, including sleep time, sleep intervals, sleep deficiency, and sleep duration.

The results of research conducted at the Kebonsari Public Health Center Surabaya, the value of sleep quality in postmenopausal women based on the table above, it was found that the average value of sleep quality in the treatment group had an average value after a combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*) 6 (sleep disturbances mild), which means that it has decreased from the value before the

combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*) with an average value of 16 (severe sleep disturbance). Meanwhile, the control group that was not given any therapy had an average score of 16 (severe sleep disturbance). The value of sleep quality in the treatment group and the control group was analyzed using the *Wilcoxon Signed Ranks Test*. The results obtained a p-value of 0.000 in the treatment group. Fourteen respondents experienced a decrease in the value of their sleep quality. Moreover, the p-value of 0.003 in the control group has a significant effect on the provision of a combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*).

Decreased sleep quality in the long term can cause decreased endurance, fatigue, depression, irritability, and decreased concentration power. The research results in table 5.3 prove that there is a decrease in the value of sleep quality from severe sleep disorders to mild sleep disorders, as evidenced by the p-value of 0.000. This is also supported by research (Astutik, Dwi Nanik, 2017) showing that combination therapy for progressive muscle relaxation and music (*Nature Sound*) is effective in reducing the value of sleep quality in menopausal women with ($p = 0.015$). Also supported by research (Annisa, 2017), it can improve sleep quality in menopausal women with a p-value of 0.000.

The high complaints of sleeplessness problems require appropriate treatment to meet their sleep needs. There are many ways to treat sleep disorders, including relaxation. A relaxation is a form of technology that can move the limbs and be done anywhere. The relaxation method consists of diaphragmatic breathing, imagery training, and progressive muscle relaxation (Duman & Timur Taşhan, 2018; Kang et al., 2021; Taufiq & Apriyanib,

2021). Research (Marks, 2017) progressive muscle relaxation is a technique to reduce muscle tension and then relax again. In addition to improving sleep quality, relaxation therapy is also helpful in reducing anxiety, reducing stress, and depression. Music therapy (*nature sound*) is the sound produced by the natural environment, such as the sound of water splashing, the sound of birds, or the sound of waves. With a unique and universal approach, music therapy can also reduce stress, reduce levels of depression, overcome anxiety and improve sleep quality. (Susan, 2017) explaining that in the human body, there are analgesics, including Jenkins, endorphins, and dynorphins. The relaxation process will signal the hypothalamus to reduce neuropeptides so that it can stimulate the sympathetic nervous system, producing a relaxed and comfortable condition (Cox et al., 2021; Indrayani et al., 2021; Inoue et al., 2021). Physiologically, *nature sound* can stimulate ascending nerve axons to RAS neurons. This stimulus will be transmitted to the cerebral cortex area, the limbic system, which will be stimulated to produce phenylamine secretion and maintain a person's mood before bedtime.

Sleep disorders in menopausal women can be overcome by one of the non-pharmacological therapies, namely the combination therapy of progressive muscle relaxation and music (*Nature Sound*), which can reduce muscle tension and be done quickly so that the body will relax. This therapy can be done for 15-20 minutes once a day for one week in postmenopausal women. Combination therapy of progressive muscle relaxation and music (*Nature Sound*) will stimulate all of its work functions against the sympathetic nervous system so that a relaxed and calm state is achieved so that it can overcome sleep disturbances. Researchers believe that

applying a combination therapy of progressive muscle relaxation and music (*Nature Sound*) done repeatedly will provide a comfortable and relaxed state. Therefore, a combination therapy intervention of progressive muscle relaxation and music (*Nature Sound*) can help overcome sleep disorders in menopausal women.

Authors Contributions

The author carries out tasks from data collection, data analysis, making discussions to making manuscripts

Conflicts of Interest

There is no conflict of interest

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