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SLEEP QUALITY OF POST-PARTUM MOTHERS WITH YOGA AND PILATES EXERCISE PROVISION: A COMPARATIVE STUDY

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ABSTRACT

Background: Role changes that occur during the postpartum period cause mothers to experience sleep disturbances because they have to wake up in the middle of the night to breastfeed their babies. Fatigue and changes in sleep patterns are one of the impressive things in the first year after a woman gives birth, which can have a negative effect on work, family life, and social relationships. One way to improve sleep quality is with yoga and pilates exercises. The purpose of this study was to determine the effectiveness of yoga and pilates exercises on the sleep quality of postpartum mothers at Welahan II Health Center. This research method was quantitative research, quasi-experimental design with two group pre and post test design, the study population was all postpartum mothers at Welahan II Health Center in March 2024. A sample of 10 yoga exercise respondents and 10 pilates exercise respondents. The results of this study There is effectiveness of yoga and pilates exercises on the sleep quality of postpartum mothers at Welahan II Health Center (p value 0.032 <0.05). The conclusion of the two interventions that is more effective on sleep quality is the provision of yoga exercise intervention.

Keywords: Pilates Exercise; Postpartum Mothers; Sleep Quality; Yoga.

INTRODUCTION

Mothers who have given birth need the best possible care during the postpartum period (postpartum period), as they have experienced a stressful and draining experience that can lead to fatigue (Wagiyo et al., 2016). The postpartum period begins after the delivery of the placenta and ends when the reproductive organs return to their pre-pregnancy state, which can last from 2 hours after delivery to 6 weeks (42 days) thereafter (Dewi Ciselia & Vivi Oktari, 2021).

The postpartum period is associated with maternal pain (Grylka-Baeschlin et al., 2019). Women experience physical, emotional, and social changes related to their baby and family. Other physical conditions that impact the mother's physical and social health include fatigue, perineal disorders, cesarean section, back problems, hemorrhoids, headaches, constipation, urinary incontinence, sleep disturbances, lack of sexual desire, and painful intercourse (Arie Anggraini, S.ST., Bdn. et al., 2023). Pain can limit a mother's ability to perform routine tasks. Prolonged fatigue can lead to declining health and negatively impact maternal mortality (Harahap & Silitonga, 2021).

Sleep disturbances are not a direct cause of maternal death, but the body releases cytokine proteins during sleep. These proteins are essential when experiencing stress, infection, or inflammation. Postpartum mothers need adequate sleep, 7-8 hours at night and 1-2 hours during the day. This can boost the body's immunity during the postpartum period, aiding recovery from postpartum stress, infection, and inflammation. This is because infection is a leading cause of maternal death (Khayamim et al., 2016).

The physical and psychological condition of postpartum mothers requires more intensive monitoring by healthcare professionals. In the early stages after delivery, a mother must adapt to her body's condition for postpartum recovery and adapt

to her social environment, where a new baby requires extra attention and care. This will cause fatigue and anxiety which results in a lack of rest time (Harahap & Silitonga, 2021).

Fatigue and changes in sleep patterns are common in the first year after childbirth, which can negatively impact work, family life, and social relationships (Khayamim et al., 2016). Various causes of postpartum sleep difficulties include perineal pain, bladder discomfort, and fetal distress, which can affect memory and psychomotor skills. However, sleep patterns typically return to normal within 2-3 weeks after delivery (Dewi Ciselia & Vivi Oktari, 2021).

The opportunity to rest and sleep is as important as the need for food, activity, and other basic needs. Every individual needs rest and sleep to restore their health, and women do too after childbirth. With adequate rest and sleep, the body can function optimally and carry out daily activities. Rest and sleep have different meanings for each individual. In general, rest is a state of decreased physical activity, resulting in a more refreshed body. Sleep, on the other hand, is a relatively unconscious, tranquil state without activity, consisting of a series of repetitive cycles, each representing a different phase of brain and bodily activity (Harahap & Silitonga, 2021). Nearly one-third of our waking hours are spent sleeping. The purpose of sleep is unknown, but it is believed to be necessary for maintaining mental, emotional, and health balance. During sleep, a person reviews daily events, processes them, and uses them for the future (Daulay, 2024).

Hormonal and physical changes during pregnancy and childbirth can cause changes in sleep and sleep quality (Du et al., 2021). Psychological factors also significantly influence the ability to initiate and maintain sleep. Anxiety and depression can disrupt sleep patterns. Emotional stress can cause tension and often lead to frequent sleeplessness. Side effects of sleep deprivation include lack of focus, irritability, a weakened immune system, decreased sex drive, and forgetfulness. If a mother feels sleep deprived, she should discuss it with a loved one, partner, or family member. So that they can help take care of their babies and can take time to rest (Daulay, 2024).

Interventions that can be implemented to reduce sleep disturbances in postpartum mothers can be pharmacological and non-pharmacological. Pharmacological interventions for sleep disturbances include antidepressants or sleeping pills, but special considerations are needed, especially for breastfeeding mothers. Non-pharmacological interventions are alternatives for depressive conditions that cause sleep disturbances. Interventions that include health information and education, exercise programs, support programs, meditation, and relaxation have the effect of reducing stress, depression, and anxiety and therefore can be applied to mothers with sleep disturbances (Pascawati et al., 2021).

Starting a moderate-intensity exercise program after childbirth is beneficial in many ways. Regular exercise can improve immune function and increase the body's production of antioxidants. Furthermore, exercise helps you sleep better at night and feel more energetic throughout the day. Light exercise is an effective way to overcome depression or anxiety. Exercise also helps suppress the appetite for high-calorie foods like sweets and fast food and increases the appetite for a more nutritious dinner. Flexibility and muscle strength imbalances prevent skeletal strain that can cause pain and injury over time. Strong muscles and flexible joints prevent injuries from occurring during lifting, bending, twisting, and other routine daily activities (Mayangsari, Dewi; Karimah, Nahdiyah; Yorinda Sebtalesy, Cintika; Indrianita, Vivin; Astria, Niki; A. Seran, Agustina; Nurseha, Nurseha; Lante, Nurdiana; Aprilina, Aprilina; Yuliantie, 2025).

Light physical exercises that can be used as non-pharmacological therapy for postpartum mothers experiencing sleep disorders include yoga and Pilates. Both types of exercises can be incorporated into postpartum exercise. Postpartum exercise is also inexpensive, comfortable, and virtually free of side effects, and has been shown to be effective in reducing symptoms of depression. The American College of Obstetrics and Gynecologists (ACOG) recommends that postpartum mothers without medical or obstetric complications participate in postpartum exercise, ranging from moderate to vigorous physical activity, several days a week (Kartika, 2020).

According to data from the Welahan II Community Health Center (Puskesmas Welahan II), in 2023, there were 1,084 deliveries, and 45 cases, or 4.15% of those, experienced symptoms of sleep disorders that triggered postpartum stress and depression. Considering that the prevalence of postpartum depression in the first year in Indonesia is around 10-15%, this means that the number of cases of sleep disorders that cause stress and depression in postpartum mothers in the Welahan II Community Health Center's work area is lower than the national prevalence.

Postpartum mothers at Welahan II Community Health Center complain of sleep disturbances related to physical fatigue due to the constant activities of caring for the baby, breastfeeding, bathing, and rocking the baby, which can lead to inadequate rest. Sleep disturbances can be caused by several factors, including perineal stitch pain, bladder discomfort, and infant crying.

Postpartum women can experience anxiety, leading to depression and insomnia. Difficulty sleeping in postpartum women can manifest as decreased sleep duration (Amzajerdi et al., 2023). This disturbance typically occurs from the third day postpartum, characterized by crying spells, irritability, anxiety, forgetfulness, and sadness (Sukmawati et al., 2023). Efforts by healthcare workers to address sleep disturbances in postpartum mothers at Welahan II Community Health Center include providing counseling to manage baby care and postpartum care activities with the help of family members, allowing mothers sufficient time to rest, especially at night. In 2024, Welahan II Community Health Center (Puskesmas) saw 137 postpartum women, and 68 postpartum women from January to February. Postpartum mothers at Welahan II Community Health Center experienced a variety of complaints, including: pain from perineal stitches, newborn care, difficulty sleeping due to nighttime awakenings, anemia in postpartum mothers, postpartum blues, and a lack of concern for postpartum mothers regarding postpartum checkups, which makes it difficult for health workers to monitor their health and screen for high-risk neonates. This makes it difficult to detect physical and psychological disorders in postpartum mothers. Some postpartum mothers reported feeling confused, exhausted, sleep-deprived, irritable, and anxious because their breast milk had not come in for 5 days after delivery.

Postpartum mothers also reported receiving insufficient attention and support from their husbands because he often worked out of town. To address these complaints, midwives usually recommend postpartum exercises, encourage plenty of fluids, and ensure adequate rest when the baby is asleep. Based on interviews regarding sleep quality in 10 postpartum mothers with normal deliveries, 7 experienced sleep disturbances at night, resulting in daytime drowsiness. Three mothers, however, experienced no sleep disturbances due to assistance from family members in caring for their babies. Six mothers had engaged in light physical activity at home, both taking care of personal needs and caring for their babies. Four mothers reported having resumed normal housewife activities since the second or third day after delivery. Common measures taken by mothers include drinking warm milk before bed, wearing open clothing to avoid overheating at night, and sleeping in front of a fan or air conditioning. However, these efforts have not been successful in improving sleep quality for pregnant women. Researchers implemented an intervention using yoga and Pilates exercises to address these issues, an intervention previously unheard of at the research site. Based on the above data, the researchers were interested in examining the effectiveness of yoga and Pilates exercises on sleep quality among postpartum mothers at the Welahan II Community Health Center.

METHOD

The research location was Welahan II Community Health Center, Jepara, from September 2021 to March 2022. This study employed a quasi-experimental design with a quantitative analytical approach. The research design employed a two-group pretest-posttest design without a control group. The population consisted of all 37 postpartum mothers in the Welahan II Community Health Center's work area. A sample of 20 respondents was divided into two groups: 10 in the yoga group and 10 in the Pilates group. The

sampling technique used was accidental sampling. Univariate and bivariate data analysis were performed (Sahir, 2021). Inclusion criteria were postpartum mothers who had experienced a postpartum period of more than 2 weeks at the time of the study, including primiparous women; Postpartum mothers with normal delivery (delivery less than 24 hours, without perineal tears or first-degree perineal rupture, normal blood pressure, bleeding less than 250 ml, and no pharmacological intervention); Postpartum mothers who do not have a high risk or underlying medical conditions that could be exacerbated by treatment during the study; Postpartum mothers who gave birth at the Welahan II Community Health Center. Ethics review by the Ethics Committee of Karya Husada University, Semarang, under Number: 0337/KEP/UNKAHA/LPPM/II/2022.

RESULTS

Table 1. Sleep quality of postpartum mothers before and after yoga treatment at Welahan II Community Health Center

Postpartum Mothers' Sleep Quality	N	Mean	Median	Std. Deviation	Min	Max
Before	10	10,20	10,00	1,989	7	13
After	10	3,20	3,00	1,476	1	5

The results show that the sleep quality of postpartum mothers at Welahan II Health Center before being given yoga gymnastics intervention was an average sleep quality of 10.20, median 10.00, standard deviation 1.989, minimum sleep quality 7, maximum 13. After being given yoga gymnastics intervention, the average sleep quality was 3.20, median 3.00, standard deviation 1.475, minimum sleep quality 1, maximum 5.

Table 2. Sleep quality of postpartum mothers before and after Pilates exercise treatment at Welahan II Community Health Center

Postpartum Mothers' Sleep Quality	N	Mean	Median	Std. Deviation	Min	Max
Before	10	11,40	11,50	1,647	9	14
After	10	3,20	3,00	1,317	1	5

It can be seen that the sleep quality of postpartum mothers at Welahan II Health Center before being given Pilates Exercize intervention, the average sleep quality was 11.40, median 11.50, standard deviation 1.647, minimum sleep quality 9, maximum 14. After being given Pilates Exercize intervention, the average sleep quality was 3.20, median 3.00, standard deviation 1.317, minimum sleep quality 1, maximum 5.

Table 3. Normality test of sleep quality in the Yoga and Pilates exercise treatment groups

Data analysis	Results Shapiro wilk p value	Description
before and after yoga treatment	Before 0,499	Normal
	After 0,158	Normal
before and after pilates exercise treatment	Before 0,532	Normal
	After 0,575	Normal
effectiveness of yoga and pilates exercises	Difference in yoga exercise 0.550	Normal
	Pilates exercise difference 0.011	Abnormal

Table 4. Differences in sleep quality of postpartum mothers in the yoga and exercise treatment groups

Postpartum mothers' sleep quality	Std. Deviation	*t*	*ρ value*
Before and after yoga exercise	1,247	17,748	0,000
Before and after pilates exercise	1.033	25,107	0.000

Based on the bivariate analysis of the difference in sleep quality in the Yoga exercise treatment group using the Paired t test, the results obtained a ρ value of 0.000 <0.05 so that Ha is accepted, meaning there is a difference in the quality of sleep of postpartum mothers before and after the yoga exercise intervention. And the bivariate analysis of the difference in sleep quality of the Pilates exercise treatment group using the Paired t test obtained a ρ value of 0.000 <0.05 so that Ha is accepted, meaning there is a difference in the quality of sleep of postpartum mothers before and after the Pilates exercise treatment.

Table 5. Effectiveness of yoga and pilates exercises before and after treatment on the sleep quality of postpartum mothers at Welahan II Community Health Center

Postpartum mothers' sleep quality	*Mean Rank*	*ρ value*
Difference in yoga exercises	7,75	0,032
Pilates exercise differences	13,25	

Bivariate analysis using the Mann-Whitney correlation test showed that the difference in sleep

quality between the yoga group and the Pilates exercise group was 7.75, while the Pilates exercise group had an average sleep quality of 13.25.

The Mann-Whitney analysis results showed α = 0.05, with a ρ value of 0.032 <0.05, thus rejecting Ho. Ha was accepted. This means that yoga and Pilates exercise are effective in improving sleep quality for postpartum mothers at Welahan II Community Health Center. Of the two interventions, the most effective intervention was yoga.

DISCUSSION

Sleep Quality of Postpartum Mothers Before and After Yoga Exercise Treatment at Welahan II Community Health Center

Postpartum mothers' sleep quality scores decreased before and after yoga exercise treatment, indicating improved sleep quality. This is because the intervention resulted in changes in sleep quality.

The researcher's analysis during the fieldwork revealed that most respondents reported frequent daytime sleepiness and difficulty sleeping. This is due to the frequent nighttime awakenings caused by factors such as breastfeeding and urination, overheating at night, and uncomfortable sleeping positions. Therefore, sleep disruption is common among postpartum mothers, with frequent drowsiness during daytime activities. A cursory observation of the respondents during the pre-test revealed that most respondents appeared lethargic, had dark circles around their eyes, and were unable to concentrate fully. Respondents with good sleep quality did not have dark circles around their eyes and appeared refreshed. The improved sleep quality experienced after yoga is due to a heightened sense of comfort, calm, and peace. This decrease in frequency is due to the body's guided movements and meditation, which increase the flow of oxygen-carrying red blood cells to the brain, resulting in a feeling of refreshment, calmness, ease of concentration, and a comfortable rest.

Analysis based on the theory of adequate sleep needs is determined not only by the number of hours of sleep (sleep quantity), but also by the depth of sleep (sleep quality). Several factors influence sleep quantity and quality, including physiological, psychological, environmental, and lifestyle factors. Physiological factors can lead to decreased daily activity, weakness, fatigue, decreased endurance, and unstable vital signs. Psychological factors can lead to depression, anxiety, and difficulty concentrating (Potter et al., 2019).

Yoga calms the sympathetic nervous system while simultaneously stimulating the parasympathetic nervous system, facilitating rest and sleep. This allows the suprachiasmatic nucleus (NSC), which previously functioned abnormally due to sympathetic and parasympathetic dysfunction, to return to normal function. The NSC will re-release body temperature-regulating hormones, cortisol, growth hormone, and others that play a role in wakefulness when stimulated by bright light entering the eye. When night falls, the NSC will stimulate the release of the hormone melatonin, causing drowsiness and sleep. When the NSC is functioning normally, NREM and REM sleep are fulfilled, improving sleep quality (HS et al., 2022).

Respondents' experiences in overcoming sleep problems typically included taking a warm bath in the afternoon and taking a morning walk with their baby and husband. Furthermore, mothers also washed their faces before bed and changed sweaty clothes to freshen up.

This research is supported by research by Hidayati et al. (2021), which found that the mean sleep quality in postpartum mothers before the intervention was 8.79, after postnatal yoga, it was 5.50 (Hidayanti & Setiawati, 2021). Kristin Dwi Ratnasari's (2020) study found a mean score before and after postpartum exercise of 1.93 and 1.53, with a delta mean of 0.40, indicating that postpartum exercise can reduce sleep quality disturbances in postpartum mothers by 0.40 points (RATNASARI, 2020).

Respondents responded positively and cooperatively after the intervention, and were pleased that the yoga exercises made postpartum mothers feel fresher and more relaxed. Furthermore, postpartum mothers were able to gather and share experiences with other mothers.

Interventions can improve sleep quality because yoga for postpartum mothers focuses on comfort and safety during practice, providing numerous benefits such as increased energy, vitality, and

endurance, relieving stress and anxiety, improving sleep quality, relieving muscle tension, reducing general physical complaints during postpartum, such as back pain, pelvic pain, and swelling, aiding the healing and recovery process after childbirth, stabilizing the fluctuating emotions of postpartum mothers, strengthening determination and courage, enhancing self-confidence and focus, building positive affirmations and mental strength during labor, calming and stilling the mind through relaxation and meditation, providing quiet time to foster a bond between mother and baby, and instilling patience, intuition, and wisdom.

Sleep Quality of Postpartum Mothers Before and After Pilates Exercise Treatment at Welahan II Community Health Center

Sleep quality of postpartum mothers before and after Pilates exercise treatment decreased, indicating improved sleep quality. This is because the intervention resulted in changes in sleep quality.

The researcher's analysis, based on fieldwork, revealed that most respondents stated that during the postpartum period, babies typically require frequent feedings at night, which results in mothers frequently waking up after sleep onset. This reduces sleep duration and nighttime sleep time for postpartum mothers. Pilates exercise is effective in improving sleep quality during the early postpartum period. Changes in postpartum sleep patterns can affect respondents, especially postpartum mothers, with several physiological and psychological issues, such as mood swings, fatigue, loss of mother-infant bonding, and early cessation of breastfeeding. If the decreased sleep quality persists or worsens, it can lead to postnatal depression. Interventions to significantly improve sleep quality are needed to improve postpartum maternal health, both physically and mentally after childbirth.

Theoretical analysis suggests that Pilates exercises combine flexibility and strength training, breathing, and relaxation. Pilates has a basic movement pattern that emphasizes pelvic and abdominal muscles. In the Pilates method, these basic movements are often known as the "stable core," because the pelvic and abdominal muscles are considered the muscles with the highest stability (Amzajerdi et al., 2023).

Respondents' experiences have shown that coping strategies include drinking Javanese herbal medicine for aches and pains and herbal remedies to reduce fatigue and promote deeper, more restful sleep.One way to address poor sleep quality is to sleep with your baby. One of the best ways for mothers to avoid sleep deprivation while breastfeeding is to sleep with their baby. This way, when the baby wakes up, they will be more energetic. When sleeping, remember to turn off all gadgets and lights to create a calming environment and ensure quality sleep (Harahap & Silitonga, 2021).

Supported by research by Ade Angraini (2016), the results showed that before Pilates exercise, the average sleep quality was 6.50 with a standard deviation of 1.049, and after Pilates exercise, the average sleep quality was 4.83 with a standard deviation of 0.753 (Argaheni, 2021). Research by Rahmaini Fitri Harahap and Lisbeth Laora Silitonga (2021) found that sleep quality before Pilates exercise (pretest) averaged 4.03, and after Pilates exercise (posttest) averaged 15.37. The standard deviation before Pilates exercise was 0.490 and after Pilates exercise (posttest) 1.712 (Harahap & Silitonga, 2021).

Respondents responded very favorably after the intervention. Pilates exercise made postpartum mothers feel fresher and more relaxed, and it also relaxed leg muscles caused by lack of sleep. This intervention can improve sleep quality because physical exercise, as a complement to remediation approaches, can be used to improve sleep quality and reduce sleep-related problems easily and cost-effectively. During critical periods of life, such as the early postpartum period, especially in primigravida mothers, physical training conducted at home to improve maternal physical fitness and maternal function can help improve the physical and mental health of postpartum mothers. Pilates, as a physical activity, has been shown to have beneficial effects on postpartum maternal physical and mental health by increasing core strength, reducing musculoskeletal pain, and improving circulation. Evidence supports the positive effects of Pilates on individual health through increased flexibility, dynamic balance, and, at moderate levels, increased muscular endurance.

Effectiveness of Yoga and Pilates Exercise Before and After Treatment on Sleep Quality in Postpartum Women at Welahan II Community Health Center

Yoga and Pilates exercise after treatment on sleep quality in postpartum women at Welahan II Community Health Center were found to be effective. Both yoga and Pilates exercises improved sleep quality in respondents.

The researcher's analysis, based on field findings, was conducted over 7 days in the yoga and Pilates exercise group, conducted every 3 days with 20 respondents. The results showed that the intervention improved sleep quality in postpartum women. This was because postpartum women performed the movements diligently according to the researchers' instructions. Furthermore, family support was very helpful during the exercise sessions, with some being accompanied by husbands and relatives. This demonstrates family concern and high cooperation among respondents, which contributed to the intervention's positive impact on sleep quality.

Sleep quality impacts overall health and quality of life. A mother's sleep quality during the postpartum period is significantly influenced by the physical and psychological changes she experiences. Sleep difficulties often occur during the postpartum period due to an active mind and feelings of inability to control stress, even depression, related to physical changes, especially childcare (Sukmawati et al., 2023).

Respondents' experience has shown that coping strategies include wearing a pilates pad on the temples. Furthermore, mothers sleep when their babies sleep, and some engage in household activities, which can lead to drowsiness and deeper sleep when tired.

Non-pharmacological interventions, according to existing theory, are an alternative for depressive conditions that cause sleep disturbances. Interventions such as health information and education, exercise programs, supportive programs, meditation, and relaxation have been shown to reduce stress, depression, and anxiety and can be applied to mothers with sleep disorders (Annisa et al., 2022).

Regular Pilates practice can improve breathing and blood circulation, making mothers feel more relaxed and comfortable, thus improving sleep quality. Furthermore, Pilates exercise is a low-impact exercise that is effective for weight loss because it shares many similarities with low-impact aerobic exercise in terms of characteristics, dosage, and the benefits required for the body. First, Pilates is a sport that requires oxygen to burn energy sources systematically, with a gradual and continuous increase in load to prevent fatigue during exercise (Manca et al., 2024).

This is in line with the research of two clients, Anggita Putri Hadiningsih et al. (2020), which found that both clients had poor sleep quality before yoga and had comorbidities such as hypertension. Mrs. N's PSQI score was 12 (poor sleep quality), while Mrs. R's PSQI score was 8 (poor sleep quality). After practicing yoga for 7 consecutive days for 20 minutes each session, results showed an improvement in sleep quality, with Mrs. N's PSQI score being 6 (poor sleep quality) and Mrs. R's PSQI score being 4 (good sleep quality). Therefore, yoga practice is effective in improving sleep quality in elderly people in Dliwang village (Hadiningsih & Hadiningsih, 2021).

This is in line with research by Farzaneh Ashrafinia et al. (2015), which found that poor sleep quality in the early postpartum period (24 hours after delivery) can be improved after 8 weeks of Pilates exercise. The intervention group experienced significant improvements in subjective sleep quality, sleep latency, daytime dysfunction, and PSQI global scores, from 9.97 to 5.45 (Ashrafinia et al., 2015).

This is supported by research by Shih-Yi Wena et al. (2018), which showed that the prevalence of poor sleep quality at 3 months postpartum was higher in older mothers (61.6%) than in younger mothers (38.4%, $p < 0.01$). Multiple logistic regression revealed that poor sleep quality was positively correlated with the severity of postpartum physical symptoms, lack of exercise, and rooming with the baby. After adjusting for these variables, older mothers were three times more likely to have poor sleep quality than younger mothers (odds ratio = 3.08; 95% confidence interval 1.52–6.23) (Wen et al., 2018). Respondents responded to the intervention, generally enjoying the yoga and Pilates exercises. Furthermore, they also felt the benefits of doing the exercises regularly for seven days.

Postpartum mothers were more interested in trying the exercises at home because they perceived significant health benefits.

The intervention can improve sleep quality because exercise causes endocrine changes that can positively impact brain function. Changes in progesterone levels can cause women to experience poor sleep quality, which impacts their quality of life during the postpartum period. Exercise can increase brain serotonin and influence circadian rhythms, improving sleep quality.

CONCLUSION

Both interventions demonstrated differences in postpartum women's sleep quality, consistent with recommendations for yoga and Pilates. Both yoga and Pilates training were equally effective both before and after the intervention on postpartum women's sleep quality at Welahan II Community Health Center. Of the two interventions, yoga was the most effective in improving postpartum women's sleep quality.

Based on the research results, it is recommended that primary health care services, particularly the Welahan II Community Health Center, implement yoga as a non-pharmacological intervention in their postpartum maternal support program to improve sleep quality. Yoga has been shown to be more effective than Pilates and is relatively easy to implement, safe, and low-cost, making it suitable for primary health care. However, Pilates can still be an alternative physical exercise for postpartum mothers with specific preferences or conditions, allowing interventions to be tailored to individual needs. Future research is recommended to involve a larger sample size, a longer intervention duration, and consider other factors that influence sleep quality, such as psychological conditions, family support, and breastfeeding patterns, to obtain more comprehensive results.

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