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The effect of giving pumpkin pudding (*curcubita moschata*) on sleep quality postpartum

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ABSTRACT

The postpartum period is a period of recovery of reproductive organs which is a period vulnerable to discomfort after childbirth, one of which is sleep disorders. In Indonesia, around 53.9% of postpartum mothers experience sleep disorders that can reduce the quality of life and increase the risk of fatigue or postpartum blues (Rofiasari, 2024), so there is a need for safe intervention efforts to improve sleep quality, such as non-pharmacological interventions, namely pumpkin (*Cucurbita moschata*) where its content is important in sleep regulation, so it has the potential to improve the quality of sleep of postpartum mothers (Ariani, 2023). The purpose of the study was to determine the effect of giving pumpkin pudding (*Cucurbita moschata*) to postpartum. This research method used a one-group pre-test and post-test design, with sample 44 participants using independent t-test analysis. The results showed that sleep quality was categorized low in 39 participants (88.6%) before the pre-test and good in 38 participants (86.4%) after the intervention. There was also an effect of pumpkin (Curcubita moschata) pudding on sleep quality postpartum (p-value 0.000 <0.05). The conclusion of this study that pumpkin affects changes in sleep quality in postpartum. Therefore, it is necessary to prioritize rest and sleep quality through foods that support physical recovery and sleep regulation, such as pumpkin. This study recommends that social support and health education by healthcare professionals regarding good nutritional choices are needed to support postpartum adaptation.

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INTRODUCTION

The postpartum period, also known as the puerperineum, is the period following the delivery of the placenta until the woman's reproductive organs return to normal. The postpartum period begins approximately 2 hours after the placenta is delivered and lasts up to 6 weeks (42 days) after delivery (Fitriani, 2021).

This postpartum period is a very important period for health workers, especially midwives, to always monitor because less than optimal service can cause mothers to experience several problems that can interfere with postpartum mother's discomfort, including pain in the breasts and irregular milk flow, discomfort in stitches, sleep or rest disorders, heartburn due to uterine contractions, bladder problems, emotional changes (stress) and if left untreated, complications will occur during the postpartum period where excessive bleeding, high fever to seizures and sleep disorders will occur. (Astuti,2017).

The postpartum period is characterized by physiological and psychological changes after childbirth, which often impact the mother's sleep quality, with research in Indonesia noting that around 53.9% of postpartum mothers experience sleep disorders, which can reduce the quality of life and worsen fatigue and the risk of postpartum moods such as blues or depression (Rofiasari, 2024).

Sleep quality is a crucial aspect of health recovery, especially for postpartum mothers. After giving birth, many mothers experience sleep disturbances due to physical and emotional changes and new responsibilities. Prolonged sleep disturbances can contribute to mental and physical health problems, making it important to seek interventions that can improve sleep quality. Physical exhaustion from caring for a baby, breastfeeding, bathing, and constantly cuddling can lead to a lack of rest, disrupting sleep. Postpartum mothers can experience anxiety, which can lead to depression and difficulty sleeping (Prawirohardjo, 2018).

Adequate sleep will make postpartum mothers feel fitter, healthier, and more active, thus improving breast milk production. Therefore, it's important to ensure adequate sleep, which is approximately 7-8 hours per day. This sleep requirement can be met through nighttime sleep or combined with naps. If nighttime sleep is only 5-6 hours, naps of 1-2 hours can be taken during the day to meet daily sleep needs (Marwiyah, 2018).

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Pumpkin (Curcubita moschata) is known to be rich in nutrients, including vitamin A, vitamin C, and minerals like magnesium, and may play a role in improving sleep quality. Magnesium, for example, acts as a muscle relaxant and can help calm the nervous system. Given the importance of sleep quality for postpartum mothers, this study aimed to explore the effect of pumpkin pudding on sleep quality in postpartum (Hernianti, 2021).

Yellow pumpkin (Curcubita moschata) is a type of vegetable that has a fairly complete nutritional content, including carbohydrates, protein, and several minerals, including high levels of calcium and fiber per 100 grams. Yellow pumpkin contains approximately 220 mg of calcium and 2.7 grams of dietary fiber. High levels of calcium and fiber can help improve sleep quality (Dewi, 2021).

Pumpkin is also a vegetable in the Curcubitaceae family. Besides the flesh, pumpkin also benefits from its seeds. Pumpkin contains tryptophan, zinc, and magnesium, which can improve sleep quality. Tryptophan is an essential amino acid found in pumpkin flesh and seeds. Tryptophan metabolism consists of three pathways: tryptamine, serotonin, and melatonin. Melatonin can help treat insomnia in humans. Zinc and magnesium are also nutrients that can improve sleep quality. Furthermore, pumpkin contains phytochemicals that can improve the quality and quantity of breast milk. Smooth breast milk production can increase oxytocin, thereby reducing maternal anxiety and sleep disorders (Vargaz, 2022).

Based on the results of research conducted by Ariani (2023), there is an effect of giving Yellow Pumpkin (*Curcubita moschata*) pudding on sleep quality in postpartum mothers with a p-

value = 0.000 (p-value <0.05). In line with research conducted by Haghjoo (2019), pumpkin pudding has a positive effect in inducing sleep in patients with chronic insomnia.

Pumpkin has high nutritional value and has the potential to support health, such as its diverse vitamin, mineral, and antioxidant content. Several studies have shown that consuming pumpkin, either boiled or seeded, can help increase hemoglobin levels in pregnant women, a crucial factor in preventing pregnancy complications (Ulfa, 2025). Furthermore, pumpkin seed supplementation has been shown to correlate with improved overall nutritional status in pregnant women with chronic energy deficiency (Mulia, 2025). Pumpkin is rich in fiber, beta-carotene, and other bioactive compounds that support energy management and healthy metabolism. This impacts nutritional quality during pregnancy (Putri, 2025). This is supported by the results of research by Al-Bayyari (2024) that found that a diverse diet high in iron, and iron supplements is associated with anemia in pregnant women (Ali, 2025).

Previous research on non-pharmacological interventions to improve postpartum sleep quality has focused on relaxation techniques and common supplements, while the use of local foods such as pumpkin remains very limited, particularly in postpartum women. Research gaps include a lack of empirical evidence regarding the effect of pumpkin on sleep quality, unclear biological mechanisms involved, and the absence of effective guidelines for dosage, form, and duration of consumption. Furthermore, limitations in research design, sample size, and limited sociocultural studies also contribute to unaddressed gaps.

Pumpkin (*Curcubita moschata*) is widely grown in the Banten region, including in Pandeglang Regency. Because the majority of Pandeglang residents are farmers, pumpkin has high economic value due to its many beneficial contents. These benefits can be provided as medicinal ingredients in complementary midwifery care. Non-pharmacological complementary midwifery care can be provided in primary health care services, one of which is at TPMB. Based on the results of a preliminary study in 2 TPMB, in the Pandeglang Regency area, 60% of postpartum mothers experience sleep disorders due to the activity of caring for babies, which makes them feel tired and lack of sleep.

Therefore, because of this, the researcher conducted this research, where the novelty of this research is the use of pumpkin (*Cucurbita moschata*) as a non-pharmacological nutritional intervention that is easily accessible and based on local food to improve the sleep quality of postpartum mothers, which has rarely been studied specifically in the postpartum period and this research integrates a functional nutrition approach with postpartum maternal health by assessing the effect of the bioactive content of pumpkin on sleep quality, not only in the general population but specifically in postpartum.

RESEARCH METHOD

This research method uses a Quasy Experiment design with a one group pre-posttest design. The Quasy Experiment study was conducted to evaluate the effect of pumpkin pudding (Cucurbita moschata) intervention on the sleep quality of postpartum mothers. The sample size was 44 people. The sampling technique used total sampling of postpartum mothers in two TPMB areas in Pandeglang Regency. Each group of respondents was given a pretest before giving pumpkin, while the post-test was conducted after eight days of giving pumpkin. The requirement for one portion of pumpkin pudding (Curcubita Moschata) is equivalent to ±150 grams of ripe pumpkin (Cucurbita moschata) which refers to the standard portion of food and nutritional composition of food ingredients. (Ministry of Health of the Republic of Indonesia, 2018). Based on the results of Dali's research (2017), giving pumpkin is 2 times/day. 1 portion of pudding (120 gr) contains 242 potassium with the mother's need to consume 350 mg of potassium/day, given 2 portions of pudding equivalent to 484 potassium, researchers made the basic ingredients of Yellow Pumpkin amounting to 7.26 kg for 30 people or 60 puddings. The instruments used in this study were

questionnaires and observation sheets. Data analysis in this study used statistical analysis using paired t-test.

RESULTS AND DISCUSSIONS

The researcher obtained informed consent from respondents before conducting observations and interviews and conducted an ethics review under the license number KEPK/UMP/91/VI/2025. The research results are as follows:

Table 1. Frequency distribution before and after giving yellow pumpkin pudding (curcubita moschata) on sleep quality in postpartum

Sleep Quality	Pretest		Posttest	
	n	%	n	%
Good	5	11,4%	38	86,4%
Low	39	88,6%	6	13,6%
Total	44	100%	44	100%

Based on table 1, from 44 respondents, the quality of sleep of postpartum mothers before being given pumpkin pudding (Curcubita Moschata) was good for 5 respondents (11.4%), and the quality of sleep was low for 39 respondents (88.6%), the quality of sleep of postpartum mothers after being given pumpkin pudding (Curcubita Moschata) was good for 38 respondents (86.4%), and the quality of sleep was low for 6 respondents (13.6%).

Table 2. The effect of giving yellow pumpkin pudding (curcubita moschata) on sleep quality in postpartum

	Mean	*p-values*
Sleep Quality Pretest-Posttest	17,00 0,0	0,000

Based on table 2, the posttest value is smaller than the pretest value and the p-value is 0.000 (<0.05), so there is a statistically significant difference between the pretest and posttest, so it can be concluded that H0 is rejected or there is an effect of giving pumpkin pudding (*Curcubita moschata*) on sleep quality in postpartum mothers.

Sleep quality in postpartum mothers explains that the postpartum period is a challenging transition period, both physically and emotionally, which can significantly impact the mother's sleep patterns and quality. Postpartum mothers often experience sleep disturbances caused by a combination of biological, psychological, and environmental factors. Biologically, hormonal changes, such as decreased progesterone and estrogen levels after childbirth, affect circadian rhythms and sleep quality. Psychologically, anxiety about the new role as a mother, concerns about the baby's health, and the emotional burden of childbirth itself can disrupt the peace of mind needed for restful sleep. Meanwhile, environmental factors, postpartum mothers tend to wake up periodically due to the baby's crying or nighttime breastfeeding routines, resulting in fragmented sleep. These sleep disturbances not only reduce the quality of the mother's rest but also have the potential to cause chronic fatigue, slow physical recovery, reduce immunity, and increase the risk of mood disorders such as baby blues or postpartum depression. Therefore, understanding the theory of poor sleep quality in postpartum mothers is important as a basis for interventions and support efforts aimed at improving maternal well-being after childbirth (Hunter, 2021).

Yellow squash (*Cucurbita moschata*) is a type of squash plant belonging to the Cucurbitaceae family. This fruit has orange flesh that is rich in beta-carotene, vitamin A, vitamin C, and dietary fiber, making it very good for health, especially in maintaining eye health and boosting the immune system. Furthermore, yellow squash also contains antioxidant compounds that play a

role in warding off free radicals. In the fields of nutrition and food, yellow squash is often used as an ingredient in processed foods due to its naturally sweet taste and abundant nutritional content. Yellow squash also has potential as a functional food ingredient due to its comprehensive nutritional content and diverse health benefits (Rachmawati, 2021).

Pumpkin contains various essential nutrients that are beneficial for health. Its main nutrients include carbohydrates, dietary fiber, vitamin A (in the form of beta-carotene), vitamin C, vitamin E, and various minerals such as potassium, magnesium, and iron. Beta-carotene in pumpkin acts as a powerful antioxidant, helping maintain eye health and boosting the immune system. Furthermore, its fiber content supports digestive function and helps control blood sugar levels. Pumpkin also contains phenolic compounds and flavonoids that have anti-inflammatory and antioxidant properties, making it a potential functional food ingredient for development in various processed products (Fauziah, 2020).

The sleep quality of postpartum mothers through pumpkin pudding intervention is based on the utilization of the nutritional content of pumpkin, which plays a role in supporting relaxation and healthy sleep patterns. Pumpkin contains tryptophan, an essential amino acid that functions to help produce serotonin and melatonin, two hormones that play a vital role in regulating mood and sleep cycles. Adequate tryptophan content in food can increase feelings of calm and accelerate the sleep process. In postpartum mothers, sleep quality is often disturbed due to hormonal changes, stress, and the responsibility of caring for a baby. By consuming pumpkin pudding as a healthy snack, mothers can obtain nutrients that support hormonal function and calm the nervous system. In addition, the soft texture and natural sweetness of pumpkin pudding also make it easier to consume, especially for mothers who have lost their appetite after giving birth. Therefore, this theory states that providing pumpkin pudding can be a natural and effective way to help improve sleep quality in postpartum mothers (Yadav, 2019).

According to functional food theory, foods containing certain bioactive substances can provide additional health benefits beyond their basic nutritional value, including supporting sleep quality. Pumpkin is one such food ingredient classified as a functional food because it is rich in tryptophan, magnesium, and vitamin B6, all of which play a role in the formation of melatonin and serotonin, two hormones that significantly influence sleep cycles and mood. The magnesium in pumpkin is also known to help relax muscles and the nervous system, thus providing a calming effect on the body. In the context of postpartum mothers, who often experience stress, fatigue, and sleep disturbances due to their new role as mothers, providing pumpkin pudding can help meet nutritional needs while providing a natural relaxation effect. Therefore, based on functional food theory, regular consumption of pumpkin pudding is believed to improve sleep quality for postpartum mothers through the mechanism of nutritional influence on the body's nervous and hormonal systems (Silva, 2020).

The purpose of pumpkin pudding was to determine the specific effects of pumpkin. Pumpkin pudding is a milk pudding combined with pumpkin flesh and seeds. Pumpkin and milk contain tryptophan. Circadian rhythms are regulated by the body's clock, which is largely influenced by light exposure and diet. By consuming tryptophan-rich foods for breakfast and exposing oneself to light during the day, the onset of melatonin secretion at night can be accelerated. Melatonin, synthesized from tryptophan via serotonin, is known to induce sleep onset in humans (Ariani, 2023).

Giving pumpkin pudding (*Curcubita moschata*) has been proven to have a significant effect on improving sleep quality in postpartum mothers. This study used a quasi-experimental design with a treatment group given pumpkin pudding and a control group given milk pudding for 7 consecutive days. The results showed that the sleep quality score (measured by PSQI) in the pumpkin pudding group decreased from an average of 7.625 to 3.375, meaning that sleep quality improved significantly (p-value = 0.000). Meanwhile, the control group also showed improvement, but not as good as the treatment group (from 7.625 to 6.313). Previous research has shown that

consuming pumpkin pudding (*Curcubita moschata*) at a dose of 120 grams has a positive effect in inducing sleep in patients with chronic insomnia. The average sleep quality score of mothers before being given pumpkin pudding was 7.625 (762.5%) and after being given pumpkin pudding was 3.375 (337.5%). So, from the research results, it was concluded that the quality of the mother's sleep after being given pumpkin pudding was in the good category (Ariani, 2023).

Experimental animal studies have shown that ethanol extract of pumpkin seeds (Cucurbita moschata) significantly increased sleep duration in phenobarbital-induced mice, with the highest dose (120 mg/kg bw) resulting in an increase in sleep time of approximately 95.9 minutes, indicating pumpkin's potential as a sleep-promoting agent through its tryptophan content that can support serotonin and melatonin production (Pratiwi, 2022). Furthermore, a literature review related to the role of pumpkin seeds in neurological health also reported that pumpkin seed consumption may influence neurotransmitters that support relaxation and better sleep, although the exact mechanism still requires further research (Mokua, 2025).

In addition, the results of Sari (2023) found that giving pumpkin pudding had a significant effect on improving sleep quality in postpartum mothers. The p-value of 0.000 (<0.05) indicates that giving pumpkin pudding consistently affects improving sleep quality, both in the control group and in the treatment group, supported by Mindel (2015) that the quality of postpartum mothers is influenced by biological and behavioral factors including diet and nutrition that are included in the regulation of the central nervous system, where nutrition can help reduce sleep disorders and fatigue in postpartum mothers, thus potentially reducing the risk of postpartum blues.

According to the researchers' assumptions in this study, giving pumpkin pudding has an effect on improving sleep quality in postpartum mothers, because this study used pumpkin fruit that was processed directly by the researchers and maintained its cleanliness. Then, it was packaged properly according to the dosage, namely 120 grams per serving. By regularly consuming pumpkin pudding for 5 days, according to the results of interviews with postpartum mothers, postpartum mothers can feel calmer, less anxious, and sleep better. In addition, its soft texture and delicious taste also make this pudding easy to accept, especially for mothers who are tired after giving birth. So, besides being a healthy snack, pumpkin pudding can also be a natural solution to help postpartum mothers have good quality sleep.

CONCLUSION

Based on the research that has been done, it can be concluded that before the intervention on postpartum mothers from 44 people there were) good sleep quality of 5 respondents (11.4%), and poor sleep quality of 39 respondents (88.6%) but after being given pumpkin pudding (Curcubita Moschata) good sleep quality changed to 38 respondents (86.4%) and poor sleep quality of 6 respondents (13.6%) and the posttest value was smaller than the pretest value with a p-value of 0.000 (<0.05), then there is a statistically significant difference between the pretest and posttest, then it can be concluded that H0 is rejected or there is an effect of giving pumpkin pudding (Curcubita Moschata) on sleep quality in postpartum mothers. This study is a source of information, especially for postpartum mothers with sleep disorders and the provision of pumpkin pudding as a functional food has been proven to have a significant effect in improving the quality of sleep of postpartum mothers, so that this study becomes the basis for developing midwifery policies in encouraging the use of alternative non-pharmacological interventions based on local food in postpartum midwifery care that are safe and easy to implement. The results of this study have implications for the need for integration of functional nutrition education in the use of pumpkin, this policy is to support promotive and preventive programs for MCH with a safe, affordable, and sustainable approach, while reducing dependence on pharmacological therapy for postpartum sleep disorders, and further research is needed with a more comprehensive approach, including randomized controlled trials with control groups to assess cause-and-effect relationships,

as well as standardization of the dose, frequency, and duration of pumpkin pudding administration.

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