

## THE EFFECTIVENESS OF BABY MASSAGE AT 3-12 MONTH OF AGE WITH TELON LAVENDER OIL AROMATHERAPY ON BABY'S SLEEP QUALITY

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### ABSTRAK : EFEKTIVITAS PIJAT BAYI PADA USIA 3-12 BULAN DENGAN AROMATERAPI MINYAK TELON LAVENDER TERHADAP KUALITAS TIDUR BAYI

Latar Belakang: Hasil penelitian menyatakan bahwa 52% bayi mengalami masalah tidur, yakni bayi tidur kurang dari 9 jam, serta bayi terbangun tiga kali sehari selama lebih dari satu jam di malam hari. Pijat bayi merupakan salah satu upaya non-farmakologi dalam mengatasi permasalahan tidur bayi. Stimulus yang tepat untuk membuat bayi tidur nyenyak adalah pemijatan dan aromaterapi. Aromaterapi menyebarkan molekul-molekul wangi dan mengaktifkan sistem saraf pusat, yang membantu bayi tidur.

Tujuan: Penelitian ini memiliki tujuan untuk mengetahui efektivitas pijat bayi pada usia 3-12 bulan dengan aromaterapi minyak telon lavender terhadap kualitas tidur bayi.

Metode: Metode penelitian ini menggunakan quasi experiment dengan desain penelitian *pre-test post-test one group*. Sampel dalam penelitian ini adalah bayi berusia 3-12 bulan yang mengalami gangguan tidur, besar sampel yang digunakan dalam penelitian sebesar 32 bayi. Pengumpulan data dilakukan dengan cara melakukan observasi dan kuesioner yang telah teruji validitas dan reliabilitasnya.

Hasil: Hasil penelitian menyatakan bahwa pijatan pada bayi usia 3-12 bulan dengan aroma terapi minyak telon lavender efektif terhadap peningkatan kualitas tidur bayi dengan p value 0,000.

Kesimpulan: Pijat bayi usia 3-12 bulan dengan aromaterapi minyak telon lavender efektif meningkatkan kualitas tidur bayi.

Saran : Pijat bayi dengan aromaterapi minyak telon lavender disarankan sebagai alternatif untuk mengurangi gangguan tidur pada bayi usia 3-12 bulan

Kata Kunci : Pijat bayi; aromaterapi; minyak lavender; kualitas tidur

### ABSTRACT

Background: The research results stated that 52% of babies experienced sleep problems, namely babies slept less than 9 hours, and babies woke up three times a day for more than an hour at night. Baby massage is a non-pharmacological effort to overcome baby sleep problems. The right stimulus to make a baby sleep soundly is massage and aromatherapy. Aromatherapy disperses fragrant molecules and activates the central nervous system, which helps babies sleep

Purpose: The aim of this research was to determine the effectiveness of baby massage aged 3-12 months with lavender telon oil aromatherapy on the quality of baby sleep.

Methods: This research method uses quasi-experiment with a one group pre-test post-test research design. The sample in this study was babies aged 3-12 months who experienced sleep disorders. The sample size used in the study was 32 babies. Data collection is carried out by conducting observations and questionnaires whose validity and reliability have been tested. Data analysis in this study used dependent t-test analysis (paired t-test).

Results: The results of the study stated that massage for babies aged 3-12 months with lavender telon oil aroma therapy was effective in improving the quality of baby's sleep with a p value of 0.000.

Conclusion: The massage for babies aged 3-12 months with lavender telon oil aromatherapy is effective in improving the quality of baby sleep.

Suggestions : Baby massage with telon lavender oil aromatherapy is recommended as an alternative to reduce sleep disorders in babies aged 3-12 months

Keywords : *Baby Massage, Aromatherapy: Lavender Oil, Sleep Quality*

## INTRODUCTION

Infancy is a golden period for growth and development, therefore extra attention is needed during this period. Apart from that, there is an opinion that infancy is a critical period in development, especially personality development, because this period is the initial basis of a baby's life (Oti Aprillia et al., 2023), (Sinaga et al., 2022), (Pratiwi, 2021). Stimulus carried out after a newborn baby has an influence on the development of motor skills and social adaptation from the baby's development period until adulthood. This stimulus also plays a role in increasing the growth and development of babies so that they can achieve their best development. Apart from that, stimulus carried out regularly and consistently can have an impact on stimulating the development of brain cells and strengthening the connections between the nerves that have been formed (Anggraini & Sari, 2020). Fulfilling the need for rest and sleep is one of the stimuli that plays a role in the growth and development of babies. The need for sleep is not only measured in terms of quantity but also the quality of sleep. Fulfilling the need for good quality sleep can have an impact on optimal growth and development of the baby (Homina et al., 2023). (Sukmawati & Nur Imanah, 2020).

Sleep in babies has several functions, apart from giving the body time to rest, it also plays a role in increasing metabolism, namely the process of processing food into energy for the body. Sleep also influences the maturation of the central nervous system, brain development and plays a role in memory consolidation, and during sleep, growth hormones are also produced. This shows that sleep disturbances will disrupt the baby's normal growth and development (Arbianingsih et al., 2020). When the baby is asleep there will be improvements in the brain's nerves and around 75% of growth hormone is produced. On average, babies spend 60% of their time sleeping (Herlinda & Nilawati, 2022). Brain growth in babies increases by 3 times compared to the situation when they were first born or by 80% of an adult's brain compared to a baby's brain in the first year of birth. This situation only occurs once in a lifetime, therefore the baby's sleep must be of good quality so that it does not have a bad impact on the baby's development (Herlinda & Nilawati, 2022), (Soleha & Novitasari, 2019).

Currently, sleep problems among children aged 0-12 months in Indonesia are still high (31%), but the majority of parents believe that their children do not have problems sleeping. Parental awareness about children's sleep problems in Indonesia is still very low. As shown by the large differences between

parents' perceptions of the prevalence of sleep problems. Sleep needs are assessed in terms of quantity and quality. Good quality sleep ensures optimal growth and development of the baby (Wardani et al., 2023). Sleep disorders in babies are a problem that mothers often complain about. Epidemiological studies show that up to 50% of children experience sleep problems and 4% experience a formal sleep disorder diagnosis. Referring to 2012 data, there were around 33 babies experiencing sleep disorders, 25-30 of the toddlers had sleep disorders. Other data: 10 out of 359 mother and child pairs aged 6, 12, 24 and 36 months reported sleep problems. Another study, 55.3% of mothers reported that their babies could not sleep well, the majority of babies woke up 2.1 times per night for an average of 45.7 minutes per night (Yunita dkk., 2020).

In Indonesia, the prevalence of sleep disorders in children aged five years is 44.2%. 2 Parents who have babies aged 6 - 12 months complain that their babies don't sleep well because they wake up more than three times at night, causing the baby to become restless, tired easily and cranky the next day. (Arbianingsih et al., 2020). This is also in accordance with the results of a preliminary study conducted by researchers at the Posyandu in Sirnasari Village, Leles District, Cianjur Regency by conducting interview sessions with 10 mothers who had babies 3-12 months old, 8 of whom complained that their babies had difficulty sleeping soundly and were often fussy when sleeping, while the other 2 babies only woke up at night and couldn't go back to sleep.

The impact of sleep problems in children also influences the child's behavior and emotions, the child becomes more fussy, during the day the child often becomes sleepy, the child's concentration decreases, they become tired quickly, when doing physical activities the child becomes less enthusiastic, there are disturbances. on children's nutritional patterns and reduces children's memory. Problems must be handled correctly and successfully. Getting enough sleep greatly contributes to their brain development and helps organize all the incredible abilities and information gathered each day (Soleha & Novitasari, 2019), (Kalsum, 2021).

Several interventions have been developed to improve the sleep quality of infants and children. Lavender massage and aromatherapy have been proven to be effective in improving the quality and quantity of babies and children, helping overcome baby sleep problems, making babies relaxed and

more comfortable (Kalsum, 2021), (Arbianingsih et al., 2020).

Several phenomena that occurred in the area around the research location made researchers interested in conducting research to see the gaps with previous research. Based on the data above, it appears that there has been a lot of research on baby massage, especially in West Java, but there has been no specific research discussing baby massage with telon oil aromatherapy on baby sleep quality carried out in Cianjur. Therefore, it is hoped that this research can provide new data which aims to see the effectiveness of massage for babies aged 3-12 months with Telon Lavender Oil Aromatherapy on the Sleep Quality of Babies in Cianjur Regency.

## RESEARCH METHODS

This research uses a quasi-experimental method with a one group pretest and posttest design approach. The research location was carried out at the Posyandu in Sirnasari Village, Leles District, Cianjur Regency. This research will be carried out in the period July-August 2024. The sample in this research is all babies aged 3-12 months at Posyandu in Sirnasari Village, Leles District, Cianjur Regency with a total of 32 babies. The sampling technique in this research used total sampling.

The data in this study was collected directly from research subjects who were given baby massage with lavender telon oil aromatherapy using a sleep quality observation sheet. Before data collection is carried out, each potential respondent who has the potential to be used as a sample is first identified. Respondents who met the inclusion criteria were used as the research sample.

The intervention carried out consisted of several stages. In the initial stage (pre-test), 32 babies aged 3-12 months were assessed for their sleep quality. In the intervention stage, researchers massaged the baby. The intervention given to babies was baby massage using lavender telon oil aromatherapy with a frequency of 1 time with a massage duration of 30 minutes for 14 days. In the final stage (posttest) a post-intervention evaluation is carried out. The evaluation was carried out using a questionnaire to assess the quality of the baby's sleep after being given treatment in the form of baby massage with lavender telon oil aromatherapy. The questionnaire used has been tested for validity and reliability with a Cronbach's result of 0.953.

## RESEARCH RESULTS

### Univariate Analysis

**Table 1**  
**Characteristics of Respondents Based on Age and Gender of Baby**

Characteristics	N	%
Age		
3- 6 months	8	25
7-9 months	14	43,75
10-12 months	10	31,25
Gender		
Boy	18	56,25
Girl	14	43,75

Based on table 1, it shows that the largest number of respondents aged 7-9 months was 14 people (43.75) with the largest gender being male, amounting to 18 people (56.25%).

**Table 2**  
**Frequency Distribution of Baby Sleep Quality Before Baby Massage with Telon Lavender Oil Aromatherapy**

Sleep Quality	N	%
Sleep quality is good	1	3,12
Sleep quality is not good	31	96,88

Based on table 2, it shows that the average sleep quality before being given a baby massage using telon lavender oil aromatherapy was in the poor category of 31 people (96.88%) and the sleep quality was in the good category of 1 person (3.12%).

**Table 3**  
**Frequency Distribution of Baby Sleep Quality After Baby Massage with Telon Lavender Oil Aromatherapy**

Sleep Quality	N	%
Sleep quality is good	29	90,62
Sleep quality is not good	3	9,38

Based on table 3, it shows that the average sleep quality of babies after being given baby massage using lavender telon oil aromatherapy was in the good category of 29 people (90.62%) and the sleep quality was in the poor category of 3 people (9.38%).

## Bivariate analysis

Table 4

### Analysis of the Effectiveness of Baby Massage at the Age of 3-12 Months with Telon Lavender Oil Aromatherapy on Baby Sleep Quality

Variable	Mean	SD	S.E	P Value
Pretest	1,03	0,177	0,031	0,000
Posttest	1,94	0,246	0,043	0,000

Based on the data obtained, the results of the mean value, standard deviation and standard error in the pretest obtained a mean value of 1.03 with a standard deviation of 0.177 and a standard error of 0.031, while in the posttest the mean value was 1.94 with a standard deviation of 0.246 and the standard error of 0.043. The results of bivariate analysis using the Paired T-Test on the pretest and posttest obtained a sig value (P Value < 0.05) which indicates that there is an influence between the quality of the baby's sleep before and after baby massage with lavender telon oil aromatherapy.

The results of this research are in line with research (Kalsum, 2021) which states that there is an effect of baby massage with lavender essential oil on the quality of baby sleep. The results of the study stated that there was an increase in the quality of sleep in babies after baby massage with telon lavender oil aromatherapy.

Baby massage can control stress hormones, which causes babies to sleep more quickly and feel comfortable, reducing muscle tension, making them calm and fall asleep. The results of this study are in line with (Soleha & Novitasari, 2019), (Kusuma & Kamidah, 2024) which states that massage given to babies can change brain waves, which can make babies sleep more soundly and concentrate more optimally. Apart from that, massage the baby with telon lavender oil for six hours without washing to make the oil absorb into the skin and makes the baby feel calm and comfortable. Baby massage can cause changes in the baby's sleep time because the linalool acetate content in lavender telon oil can relax and relax tense muscles. This also helps sleep more soundly and reduces the occurrence of insomnia (Soleha & Novitasari, 2019).

Massage can improve the quality of a baby's sleep, this is because when massage can change the brain waves, experiencing a decrease in alpha waves, an increase in beta waves, and a decrease in theta waves. Babies will remain alert (attentive) when they wake up after falling asleep because of brain waves like this. Other studies have also found that the essential oil, lavender oil, absorbed through breathing, decreases cortisol secretion or increases

serotonin, causing a person to be calmer. Increased levels of serotonin, which is then converted into melatonin. The hormone melatonin is synthesized and secreted directly into the bloodstream by the pineal gland, then distributed throughout the body. Melatonin secretion increases in response to darkness, triggering sleep by suppressing wakefulness-inducing signals in the SCN (suprachiasmatic nucleus), which maintains consciousness and inhibits the desire to sleep. Melatonin functions in the sleep mechanism by reducing sleep delays through a sleep switch model, which maintains the sleep state at night and provides a longer sleep effect (Raniah et al., 2021). The non-optimal quality of a baby's sleep can also be influenced by several factors, including environmental factors. An uncomfortable and crowded environment can also affect a baby's sleep. Apart from that, there are nutritional factors. Babies who get enough nutrition (milk) before going to sleep will sleep longer because milk contains a lot of alpha protein, which helps regulate the baby's sleep (Akib & Merina, 2019).

Apart from baby massage, another approach to treating sleep disorders known as aromatherapy can also increase a person's relaxation by affecting the limbic part of the brain. The scent of lavender, one such fragrance, is reported to have anxiolytic and sedative properties. The scent of lavender, scientifically named *Lavandula angustifolia*, belongs to the mint family. An effective combination of ingredients is Linalone and Linalyl Acetate, which acts as a sedative on the central nervous system through the utilization of gamma-butyric acid. Research shows that lavender aromatherapy impacts the body, mind and spirit, reducing stress and therefore, providing a relaxing experience, improving the quality of sleep and its essence shortens the time to fall asleep, improves the second stage of sleep, and reduces rapid eye movement. Lavender has a relaxing role in the central nervous system, with its active ingredients such as linalone and linalyl acetate acting on gamma butyric acid receptors. Inhaling aroma oils (such as Lavender and Rosa damascena essential oils and orange oil) can improve group sleep quality, restful sleep, and reduce the amount of crying time before going to bed (Shahidi et al., 2020). Lavender can improve patients' sleep quality by reducing stress and anxiety (Davari et al., 2021)

Lavender oil has a lot of potential because it consists of several ingredients. Research shows that 100 grams of lavender oil contains essential oils (13%), alpha-pinene (0.22%), camphene (0.06%), beta-myrcene (5.33%), p-cymene (0.3%), limonene

(1.06%), cineol (0.51), and linalool acetate (26.12%). Referring to this information, it can be concluded that linalool acetate is the main ingredient in lavender oil (Ohorella, 2022).

One of the main components of lavender oil is Linalool and Linalyl. Both have analgesic and sedative properties, stimulating the parasympathetic system causes a decrease in heart rate and improved heart function. Massage can be calming by lowering heart rate and breathing and improving the central nervous system, causing a calming effect that influences sleep by stabilizing the cardiovascular system, relaxing the body, dilating blood vessels, and regulating the nervous system (Her & Cho, 2021), (Cheraghbeigi et al., 2019). In addition, the aroma of lavender has sedative and anxiolytic effects that can relax and induce sleep. After inhaling lavender aromatherapy, linalool and linalyl acetate will connect to the olfactory bulb receptors and exert a therapeutic influence on the limbic system (Salamung & Elmiyanti, 2023). The scent of lavender can increase sleepiness (Hirokawa et al., 2012).

Several studies have examined the role of massage and aromatherapy in improving sleep quality (Cheraghbeigi et al., 2019). The research results can be assumed that the method of application rather than the time of application of aromatherapy has a significant influence on sleep quality. Therefore, if you use massage with aromatherapy as an intervention treatment or complementary therapy to improve sleep quality, the aromatherapy massage method is recommended for no more than 4 weeks with a frequency of no more than 12 times (Her & Cho, 2021).

Lavender essential oil given to respondents for baby massage is thought to relax tense muscles and nerves after activity, so that babies fall asleep more easily at night and do not appear weak. and cried when I woke up with lavender essential oil. Therefore, the quality of baby's sleep can be improved as they grow. Babies who have received massage will experience an increase in the amount of the serotonin secretion hormone produced during massage in babies. Apart from that, massage can also improve sleep quality because the ester compounds contained in lavender oil are very good and useful for calming and relieving muscle tension. The essential oils from lavender massage relax the central part of the nervous system, which helps increase oxytocin production. Lavender is an aromatherapy that works on the brain's amygdala and can have a calming impact (Rohmah et al., 2024).

The addition of lavender essential oil to baby massage therapy is one factor that can improve the

quality of baby sleep. Used as a support for baby massage therapy because lavender oil has the property of increasing the sleep duration of newborns and infants, reducing sleep disorders, cortisol levels, colic symptoms, pain caused by invasive interventions, and pain during vaccine injections (Başdaş et al., 2023). Apart from that, it is also efficacious in providing calm, comfort and reducing stress (sedative), antispasmodic, analgesic, antiseptic, treating various skin disorders and the external compounds found in lavender oil are very good and useful for relaxation, reducing muscle tension (Rohmah et al., 2024).

Baby massage with lavender essential oil is also thought to calm babies, help them fall asleep more easily at night, and prevent dizziness, not appearing weak and crying when they wake up after a massage with lavender essential oil so that it can improve the quality of baby's sleep as they develop. This is caused by an increase in levels of the hormone serotonin secretion that occurs during massage in babies (Rohmah et al., 2024).

The researchers' assumptions regarding the results of this study indicate an increase in sleep quality with an increase in the mean before and after massage with telon lavender oil on babies. This is because when a baby is massaged, there will be an increase in serotonin secretion which occurs during massage therapy. As a result, massage with lavender essential oil has a great influence on the quality of the baby's sleep because lavender telon oil aromatherapy causes the baby's blood circulation to become smoother and the baby's body becomes more relaxed and more comfortable, calmer and there is a reduction in stress after the massage so that the baby sleeps more soundly. Babies who are massaged regularly will sleep better than babies who are not massaged because the external compounds contained in lavender oil help relax and soothe muscles. Massaging for about 30 minutes will make the baby feel more relaxed, sleepier, and sleep longer. In addition, massage results in an increase in the activity of the neurotransmitter serotonin, which increases the ability of receptor cells to bind glucocorticoids (adrenaline, a stress hormone), contributing to an increase in the amount of sleep of babies who are massaged.

As a result, when the baby is massaged, adrenal hormone levels (stress hormones) fall. Apart from that, massage can also change brain waves positively, reducing alpha waves and increasing beta and theta waves, where alpha waves make a person's mental state relaxed (Detty Afriyanti, 2018).

## CONCLUSION

Massage for babies aged 3-12 months with lavender telon oil aromatherapy is effective in improving the quality of baby sleep at Posyandu, Sirnasari Village, Leles District, Cianjur Regency in 2024.

## SUGGESTIONS

Baby massage with telon lavender oil aromatherapy is recommended as an alternative to reduce sleep disorders in babies aged 3-12 months

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