

## THE EFFECT OF BABY MASSAGE WITH LAVENDER AROMATHERAPY ON BABY SLEEP QUALITY

Dita Selvianti<sup>1</sup>, Sari Widyaningsih<sup>2</sup>, Miranda<sup>3</sup>

<sup>1,3</sup>Program Studi D3 Kebidanan, STIKes Sapta Bakti, Bengkulu, Indonesia

<sup>2</sup>Program Studi S1Kebidanan, STIKes Sapta Bakti, Bengkulu, Indonesia

Email correspondence: ditaselvianti93@gmail.com

### ABSTRAK : PENGARUH PIJAT BAYI DENGAN AROMATERAPI LAVENDER TERHADAP KUALITAS TIDUR

Latar belakang : Kualitas tidur bayi merupakan mutu dari keadaan fisiologis yang didapatkan selama bayi tidur, yang memulihkan proses-proses tubuh yang terjadi pada waktu bayi bangun dengan jumlah tidur yang tepat. Pijat bayi yang dikombinasikan dengan aromaterapi lavender yang mengandung senyawa linalol asetat yang mempunyai peran memunculkan efek anti cemas atau relaksan dan mempengaruhi gelombang otak meningkatkan hormon melatonin untuk meningkatkan kualitas tidur bayi. Tujuan : pijat bayi dengan aromaterapi Lavender membantu bayi untuk mendapatkan kualitas tidur yang baik yang membantu proses pertumbuhan dan perkembangan bayi. Metode : Metode Pre Eksperimental dengan desain one-group pre test-post test control group design. Pengambilan sampel dengan teknik purposive sampling dengan rumus slovin jumlah sampel sebanyak 30 orang. Hasil penelitian : Hasil analisa univariat, dari 30 bayi sebagian besar 22 (73,3%) bayi memiliki kualitas tidur baik dan sebagian besar 8(26,6%)bayi memiliki kualitas tidur buruk. Hasil analisa bivariat data dilakukan uji normalitas dengan menggunakan saphiro-wilk. Data terdistribusi normal dengan p value 0,08 > 0,05 maka menggunakan uji paired sample t-test. Kesimpulan : Ada pengaruh pijat bayi dengan aromaterapi lavender terhadap kualitas tidur bayi. Saran: diharapkan pemberian aroma terapi lavender dapat dijadikan sebagai alternatif untuk mengatasi masalah kualitas tidur bayi.

Kata kunci : Aromaterapi, Kualitas, Lavender, Pijat Bayi, Tidur

### ABSTRACT

Background: Baby sleep quality is the quality of the physiological state obtained during baby sleep, which restores the body processes that occur when the baby wakes up with the right amount of sleep. Baby massage combined with lavender aromatherapy containing linalol acetate compounds that have a role in causing anti-anxiety or relaxant effects and affecting brain waves increasing the hormone melatonin to improve baby sleep quality. Objective: Baby massage with Lavender aromatherapy helps babies to get good sleep quality which helps the baby's growth and development process. Method: Pre-Experimental method with one-group pre-test-post-test control group design. Sampling using purposive sampling technique with the slovin formula, the number of samples was 30 people. Results: The results of univariate analysis, out of 30 babies, most 22 (73.3%) babies had good sleep quality and most 8 (26.6%) babies had poor sleep quality. The results of bivariate data analysis were tested for normality using Saphiro-Wilk. The data were normally distributed with a p value of 0.08> 0.05, then using the paired sample t-test. Conclusion: There is an effect of baby massage with lavender aromatherapy on the quality of baby's sleep. Suggestion: It is expected that giving lavender aromatherapy can be used as an alternative to overcome the problem of baby's sleep quality.

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

### INTRODUCTION

Infancy is a golden age for child growth and development so it needs special attention. One of the factors that affects infant growth and development is sleep and rest. Good sleep is very important for infant growth, because during sleep the baby's brain growth reaches its peak. In addition, during sleep the baby's body produces three times

more growth hormone when the baby is sleeping than when the baby is awake (Sembiring Br Julina, 2019).

This growth hormone is responsible for stimulating bone and tissue growth. In addition, growth hormone also allows the body to repair and renew all cells in the body, from skin cells, blood cells to brain nerve cells. This cell renewal process

will take place faster if the baby often falls asleep according to the baby's needs and sleep quality (Widodo DP & Taslim S, 2020).

Sleep quality is a certain physiological quality or state that is obtained while a person is sleeping which restores the body's processes that occur when the person is awake with the right amount of nREM and REM sleep. Babies with good sleep quality will also have good development, usually babies who are active and grow normally have good sleep times. Getting your baby used to taking a nap will increase the baby's brain intelligence, but it should also be noted not to get your baby used to sleeping in the afternoon because most babies will be fussy at night. There are several factors that affect sleep quality, namely the environment, physical exercise, nutrition, and illness. From these factors, what can be done to meet the baby's sleep needs is by doing massage (Widodo DP & Taslim S, 2020).

Baby massage is a slow and gentle stroking movement on the baby's entire body starting from the feet, stomach, chest, face, hands and back of the baby. One of the responses that can be seen if massage is done regularly is the sleep response. Baby massage has been shown to affect sleep quality if intervention is carried out 4 times for 2 weeks with a massage duration of 15 minutes, the baby looks calmer, looks fresher when waking up in the morning, sleeps more often and sleeps better. When baby massage is carried out, it is also accompanied by turning on a humidifier with a water dose of 100 ml and 3-5 drops of lavender aromatherapy essential oil. The humidifier is turned on during the massage, which is 15 minutes (Septiana & Nicky D, 2019).

One of the oils that is often used is lavender aromatherapy oil. Lavender aromatherapy is more significant in improving sleep quality compared to other aromatherapy because lavender aromatherapy contains a higher linalool content (36.2%) compared to other aromatherapy (32%). The main content of lavender flowers is linalyl acetate and linalool. Linalool has a role in causing anti-anxiety or relaxant effects so that it can improve sleep quality. Lavender aromatherapy oil has a small molecular structure so that it can penetrate the skin to the epidermis layer, these oil molecules can easily spread to other parts of the body, such as lymphatic vessels, blood vessels, nerves, collagen, fibroblasts, mast cells and others. Then lavender aromatherapy oil sends messages to the brain, releasing various neurochemicals such as relaxants, stimulants, sedatives and euphoric

properties that cause feelings of pleasure (Ika Wijayanti & Susanti et al., 2022).

Many babies have sleep problems in Indonesia, which is around 44.2%. However, almost or even more than 72% of parents do not consider sleep disorders in babies as a problem. The effects of sleep disorders on babies are reducing brain intelligence, reducing endurance, disrupting the growth process, reducing concentration and damaging moods that make children fussy. This is proven by the percentage of children who have health complaints in the year-to-year period showing an increase, such as in 2021 as much as 24.68% and in 2022 to 28.81% (Indonesian Maternal and Child Health Profile, 2022).

According to previous research conducted by Dina Arihta T and Nur Adnin (2022), it can be seen that before being given a baby massage treatment with lavender aromatherapy, a total of 3 nights of sleep were obtained, namely (72.7%) and after the intervention as many as (90.1%) experienced an increase in the frequency of waking up at night of 30 minutes, namely (81.8%) and after the intervention (100%) experienced an increase in sleep quality with the duration of waking up at night, so that the data shows an increase in the average quality of sleep. The average sleep quality in babies before the massage treatment with lavender aromatherapy (pretest) was 5.36, while after being given treatment (posttest), the average sleep quality was 9.27, so that there was an increase in sleep quality of 3.91 points. The T test produced a p value = 0.001 which is smaller than  $\alpha$  0.05. It can be concluded that  $H_a$  is accepted, namely there is an effect of baby massage with lavender aromatherapy on improving the quality of baby sleep at PMB Ny.N in Situsari Village, Cileungsi District, Bogor Regency in 2022.

## RESEARCH METHODS

The type of research used in this study is Quasi Experiment designs with a one group pretest-posttest design. Where measurements are taken before treatment (pretest), then treatment is carried out, namely baby massage, then after treatment is given, measurements are taken again (posttest).

The inclusion criteria for this study were healthy babies, aged 3-12 months, babies with sleep problems, and parents of babies willing to participate. The exclusion criteria in this study were babies who had allergies, babies who were sick, babies who were not of the appropriate age.

To find out the differences before and after baby massage with lavender aromatherapy. The population in this study was all babies who visited

the Betungan Health Center working area in Bengkulu City from November to February 2024, namely 42 babies aged 3–12 months.

The sampling technique used in this study is purposive sampling. So the sample taken in this study was 30 babies with an age range of 3-12 months and this study was assisted by one midwife who already had a certificate of infant massage training.

## RESEARCH RESULTS

The data obtained from the research is then grouped and tabulated according to the researcher's needs, then the researcher carries out data processing and analysis, the results of which can be displayed in the form of tables and narratives as follows:

### Analisis Univariat

**Table 1**  
**Fequency Distribution of Respondent**  
**Characteristics in the Work Area of**  
**Betungan Health Center**

Karakteristik	Frekuensi (n)	Presentase (%)
Usia		
3-4 bulan	6	20
4-6 bulan	11	36,7
6-9 bulan	9	30
9-12 bulan	4	13,3
Jenis Kelamin		
Laki-laki	17	56,7
Perempuan	13	43,3

Based on table 1, it can be seen that the characteristics of the majority of respondents are babies aged 4-6 months at 36.7% and at the age of 6-9 months at 30%, because at this age babies still make many visits to the health center to do integrated health posts and get immunizations. While based on gender, most of the 17 babies with a percentage of 56.7% are male and 13 babies with a percentage of 43.3% are female, the results of this study are based on samples that have met the criteria that have been set based on inclusion and exclusion criteria.

## DISCUSSION

The results of research conducted on respondents showed that the age characteristics of

the majority were 18 babies (60%) aged 3-4 months, and a small number of 12 babies (40.0%) aged 5-6 months. During infancy there are several changes in sleep patterns, the baby's sleep pattern will continue to increase with age, at the age of 3-6 months it can be measured regarding the fulfillment of the baby's sleep time, namely the proportion of sleep more at night (Ubaya, 2017).

Fulfillment sleep is a certain quality or physiological state obtained during a person's sleep, which restores the body processes that occur when the person wakes up. If sleep is good, it means that the body's physiology, in this case the brain cells, for example, returns to normal when you wake up. According to researchers, sleep plays a very important role in increasing a baby's immune system and its growth and development. If sleep is disturbed, the effectiveness of the baby's immune system can decrease so that the baby is easily stimulated and restless Gola (2018).

This is in accordance with Dewi's (2020) opinion that babies in the 3rd and 4th months can easily regulate their drinking and sleeping schedules, entering the age of 3-4 months, the baby's eyes can work well to focus and can follow the direction of moving objects, so that the baby can be disturbed by bright lights or moving objects, using dim lights when the baby sleeps can help the baby sleep soundly. At this age the baby's nutritional needs are 120-180 ml of breast milk, and the baby's frequency of breastfeeding is 7-8 times a day with a period of 3-4 hours.

If the baby puts his hand in his mouth, sucks his hand or other objects that can be reached, it shows that the baby is still hungry. Breast milk greatly influences the growth and development of babies, apart from psychological factors which play a role in fostering a close relationship between baby and mother which is very necessary for normal baby development, especially in the first months of life, breast milk also contains important macro and micro nutrients (Akhiriyanti et al., 2020).

There is no formula milk that can replace breast milk considering that the composition of breast milk can change according to the baby's needs. Breast milk contains enzymes that help the digestive process and contains immune substances that can prevent babies from various infectious diseases. Although almost all mothers breastfeed their children after birth, only 4.3% carry out exclusive breastfeeding for at least three months.

**Table 2**  
**Frequency of Sleep Quality Before Baby Massage with Lavender Aromatherapy in the Work Area of**  
**Betungan Health Center, Bengkulu City**

<b>Sebelum (Pre)</b>		
<b>Kualitas Tidur</b>	<b>Frekuensi (n)</b>	<b>Presentase (%)</b>
Total waktu tidur malam		
≤ 9 jam	19	63,3
≥ 9 jam	11	36,7
Total	30	100
Frekuensi terbangun malam		
≥ 3 kali	22	73,3
≤ 3 kali	8	26,7
Durasi setiap terbangun malam		
≥ 1 jam	23	76,7
≤ 1 jam	7	23,3
Total Tidur Siang dan Malam		
≤ 14 jam	27	90
≥ 14 jam	3	10
Kondisi saat bangun		
Lemas dan Rewel	16	53,4
Bugar dan ceria	14	46,6

From the table in 2 above, it can be seen that before being given baby massage treatment with lavender aromatherapy, the total night sleep was ≤ 9 hours, namely 19 babies (63.3%) and 11 babies (36.7%) had a total night sleep of ≥ 9 hours. The frequency of waking up at night ≥ 3 times, namely 22 babies (73.3%) and 8 babies (26.7%) with a frequency of waking up at night ≤ 3 hours. The duration of waking up at night ≥ 1 hour, namely

23 people (76.7%) and 7 babies (23.3%) had a duration of waking up at night ≤ 1 hour. The total night and day sleep of respondents was ≤ 14 hours, namely 27 babies (90%) and 3 babies (10%) had a total night and day sleep of ≥ 14 hours. Meanwhile, 16 babies (53.4%) were weak and cranky when they woke up, while 14 babies (46.6%) were fit and cheerful when they woke up.

**Table 3**  
**Frequency of Sleep Quality After Baby Massage with Lavender Aromatherapy in the Work Area of**  
**Betungan Health Center**

<b>Sesudah (Post)</b>		
<b>Kualitas Tidur</b>	<b>Presentase (%)</b>	<b>Presentase (%)</b>
Total waktu tidur malam		
≤ 9 jam	4	13,3
≥ 9 jam	26	86,7
Frekuensi terbangun malam		
≥ 3 kali	3	10
≤ 3 kali	27	90
Durasi setiap terbangun malam		
≥ 1 jam	6	20
≤ 1 jam	24	80
Total Tidur Siang dan Malam		
≤ 14 jam	0	0
≥ 14 jam	30	100
Kondisi saat bangun		
Lemas dan Rewel	6	20
Bugar dan ceria	24	80

From the table in 3 above, it can be seen that after being given a baby massage treatment with lavender aromatherapy, there was an increase in total night sleep  $\geq 9$  hours, namely 26 babies (86.7%) and 4 babies (13.3%) still had a total night sleep  $\leq 9$  hours. The frequency of waking up at night  $\leq 3$  times increased, namely 27 babies (90%) and with a frequency of waking up at night  $\geq 3$  decreased to 3 babies (10%). The duration of waking up at night  $\leq 1$  hour increased to 24 babies (80%) and 6 babies (20%) with a duration of waking up at night  $\geq 1$  hour. Total night and day sleep showed an increase in total night and day sleep  $\geq 14$  hours in respondents, increasing overall, namely 30 babies (100%). The condition when waking up was fit and cheerful increased to 24 babies (80%)

and 6 babies (20%) when waking up were weak and fussy. The results of this research data were obtained based on the checklist and observation sheets that had been filled out by respondents after the baby massage with lavender aromatherapy. From the data, some still did not meet the 100% percentage, then after the research, a survey was conducted again and the results showed several causes of babies having difficulty sleeping and being fussy even though they had massaged their babies with lavender aromatherapy because the babies were still hungry, lack of mother's hygiene, the babies were seen to be uncomfortable because their diapers were dirty or wet, and the room temperature was too hot.

**Table 4**  
**Differences in Baby Sleep Quality Before and After Baby Massage with Lavender Aromatherapy in the Work Area of Betungan Health Center**

Kelompok Intervensi	Sebelum (Pre)		Sesudah (Post)	
	F	%	F	%
Kualitas Tidur Baik	12	40	22	73,3
Kualitas Tidur Buruk	18	60	8	26,7

Based on table 4 above, it can be seen that before the baby massage with lavender aromatherapy, most of the 18 babies (60%) had poor sleep quality and 12 babies (40%) had good sleep quality. While after being given a baby massage with lavender aromatherapy, it was found that most of the babies had good sleep quality, namely 22 babies (73.3%) and 8 babies (26.7%) had poor sleep quality. The results of this research data were obtained from the checklist sheet so that it could determine the score of the baby's sleep

quality, from the data above, an increase in the baby's sleep quality was obtained even though the percentage had not reached 100% because there were still other factors that caused poor baby sleep quality such as the environment, nutrition and cleanliness.

#### Analisa Bivariat

Untuk mengetahui apakah data terdistribusi normal atau tidak, maka dapat diperhatikan pada table Test Of Normality dibawah ini :

**Table 5**  
**Tests of Normality**

Variable	Shapiro-Wilk	
	Sig	Keterangan
Sebelum Pijat Bayi Dengan Aromaterapi Lavender	0,07	Data berdistribusi normal
Sesudah Pijat Bayi Dengan Aromaterapi Lavender	0,08	Data berdistribusi normal

In the Kolmogorov-Smirnov and Shapiro Wilk Data normality test, data is said to be normally distributed if it has a significance value (p), which is more than 0.05. To find out the significance value (p) of data, it can be seen in the Sig section, which means significance.

In this study, the researcher looked at data from Shapiro Wilk because in this study the sample was <50 people. Based on the Shapiro Wilk data

normality test, it can be seen that the significance value before the baby massage with lavender aromatherapy was 0.07 ( $p > 0.05$ ) and after the baby massage with lavender aromatherapy was 0.08 ( $p > 0.05$ ). Based on the significance value, it can be said that the Shapiro Wilk test shows that the data is normally distributed, so it can be continued with statistical analysis of the T test.

**Table 6**  
**Effect of Baby Massage with Lavender Aromatherapy on Baby Sleep in the Work Area of Betungan Health Center**

Pijat Bayi Dengan Aromaterapi Lavender	N	Min	Max	Mean	Std Dev	P Value
Sebelum Pijat Bayi Dengan Aromaterapi Lavender	30	32	54	36,73	8,61	0,01
Sesudah Pijat Bayi Dengan Aromaterapi Lavender	30	65	97	77,80	7.92	0,01

Based on table 4.6, the t-test results show a p-value of 0.01 <alpha (0.05), meaning  $H_0$  is rejected and  $H_a$  is accepted. Before the baby massage with lavender aromatherapy, the average percentage value of sleep quality was 36.73%, while after the baby massage with lavender aromatherapy, the average percentage value of sleep quality increased to 77.80%. Therefore, it can be concluded that there is an effect of baby massage with lavender aromatherapy on the quality of baby sleep.

### CONCLUSION

Based on the research results obtained, the following conclusions can be drawn: Before the baby massage with lavender aromatherapy was carried out, the results showed that 18 (60%) babies had poor sleep quality in the work area of the Betungan Health Center, Bengkulu City in 2023. After the baby massage with lavender aromatherapy was carried out, the results showed that 22 (73.3%) babies had good sleep quality in the work area of the Betungan Health Center, Bengkulu City in 2023.

There is a significant effect between baby massage with lavender aromatherapy on sleep quality in the work area of the Betungan Health Center, Bengkulu City in 2023 with a sig value = 0.01  $\alpha$  < 0.05.

### SUGGESTION

It is expected that giving lavender aromatherapy can be used as an alternative to overcome the problem of baby's sleep quality

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