e-ISSN: 2987-0836 DOI: https://doi.org/10.59585/ijhs

Publish: Association of Indonesian Teachers and Lecturers
International Journal of Health Sciences (IJHS)
Journal Homepage: https://jurnal.agdosi.com/index.php/IJHS/index
Volume 4 | Number 3 | September 2026 |

The Effect Of Infant Massage On Infant Sleep Quality

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ABSTRACT

Good sleep quality is essential for infant growth and development. Adequate sleep supports neurological maturation, physical growth, and cognitive development. Infant massage is a widely used non- pharmacologically intervention that provides relaxation and improves sleep quality. To determine the effect of infant massage on infant sleep quality. This quantitative study employed a pre-experimental one group pretest-posttest design. Thirty infants aged 1–6 months were selected using purposive sampling. Infant massage was performed for four weeks. Sleep quality was assessed before and after the intervention using an observation checklist and infant sleep diary. Data were analyzed using descriptive statistics, the Shapiro – Wilk normality test, and the Paired Sample t- Test . The mean sleep quality score increased from 6.45 ± 1.18 before the intervention to 8.63 ± 0.97 afterward . The Paired Sample t- Test showed a statistically significant improvement (p = 0.001). Infant massage effectively improves infant sleep quality and can be used as a complementary intervention to optimal infant support development .

Keywords **:** *Infant Massage , Sleep Quality , Infant , Tactile Stimulation , Growth And Development .*

1. INTRODUCTION

Infancy is a golden period (*golden period) The developmental period (period*) is a period of human growth and development. During this period, rapid physical, neurological, motor, and psychosocial development occurs. Good quality sleep is a crucial factor in this process. Babies spend most of their time sleeping, so adequate and quality sleep plays a crucial role in nervous system maturation, growth hormone secretion, immune system development, and brain function development.

A baby's sleep quality is determined not only by the length of sleep, but also by the continuity of sleep, the frequency of nighttime awakenings, and comfort during sleep. Babies who experience good sleep quality generally sleep longer, wake up less often without reason, are calmer, and appear refreshed upon waking. Conversely, sleep

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disturbances can cause babies to become irritable, have difficulty breastfeeding, experience growth problems, and affect emotional and cognitive development.

Various factors can affect a baby's sleep quality, including health, hunger, environment, room temperature, noise, parenting styles, and stimulation. One widely recommended form of stimulation is infant massage. Infant massage is a technique that involves applying gentle, systematic touch to the baby's body to promote comfort, promote relaxation, improve circulation, stimulate the nervous system, and strengthen the emotional bond *between* baby and parent.

Physiologically, infant massage can increase vagus nerve activity , thereby stimulating the release of serotonin and melatonin , which play a role in regulating sleep cycles. Furthermore, gentle massage can lower stress hormone (cortisol) levels, promote muscle relaxation, and help babies fall asleep more easily and sleep more soundly. Therefore , infant massage has been widely used as a non-pharmacological intervention in maternal and child healthcare.

Nurses, midwives, and other healthcare professionals play a crucial role in educating parents on proper and safe infant massage techniques. With adequate skills, parents can perform infant massage independently at home as part of their growth and developmental program. In addition to improving sleep quality, infant massage is also known to increase appetite, improve weight gain, improve blood circulation, and enhance the parent-infant bond.

Although the benefits of infant massage have been widely reported, research into its effectiveness on infant sleep quality still needs to be carried out as a basis for evidence - *based midwifery and nursing practice. practice*). Valid research results are expected to strengthen recommendations for the use of infant massage as a supporting intervention in infant health services.

2. RESEARCH METHODS

a. Research Design

This research uses a quantitative approach with a pre-experimental design. one group pretest-posttest This design aims to determine changes in infant sleep quality before and after an intervention in the form of infant massage. Measurements were taken twice: before the intervention (*pretest*) and after the entire series of infant massages were completed (*posttest*), so that the effects of the intervention could be directly evaluated.

b. Location and Time of Research

The study was conducted at Integrated Health Posts (Posyandu) and Independent Midwife Practices (PMB) during January–April 2026. The location selection was based

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on the high number of infant visits for growth and development monitoring and the implementation of maternal and child health service programs.

c. Population and Sample

The research population was all infants aged 1–6 months who participated in Posyandu activities and health services at the Midwife Independent Practice.

The sample size was 30 babies selected using purposive sampling technique with inclusion criteria including babies aged 1-6 months, in healthy condition, not experiencing congenital abnormalities or neurological disorders, not experiencing fever or acute infection, and parents willing to participate in the entire series of research by signing an *informed consent form. consent*). Infants who did not complete all intervention sessions or experienced certain medical conditions during the study were excluded from the analysis.

d. Research Variables

Independent Variables

- Baby massage.

Dependent Variable

- Baby sleep quality.

e. Research Instruments

The instruments used in the research include:

1) Baby and parent characteristics sheet.
2) Observation sheet for implementing baby massage according to standard procedures.
3) Diary (*sleep diary*) to record the duration of daytime and nighttime sleep, frequency of waking, and the length of the baby's sleep.
4) Baby sleep quality assessment sheet based on indicators of duration, continuity, and sleep comfort.

All instruments have been adapted to the research objectives and used consistently with each respondent.

f. Data collection technique

Data collection is carried out through the following stages:

1) Arrange research permits with relevant agencies and obtain approval from the baby's parents.
2) Conducting initial measurements (*pretest*) of the baby's sleep quality through observation and recording of sleep patterns.
3) Provide infant massage intervention for four weeks , with a frequency of 2–3 times per week and a duration of approximately 15–20 minutes per session according to infant massage procedures.

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4) Monitor the implementation of interventions to ensure uniformity of massage techniques.
5) Conduct a final measurement (*posttest*) of the baby's sleep quality after all interventions are completed.
6) Conduct data completeness checks before the statistical analysis process.

g. Data analysis

Data analysis was carried out using statistical software through the following stages:

1) Univariate analysis was used to describe the characteristics of respondents and the average value of sleep quality before and after the intervention.
2) Normality test Shapiro – Wilk was used to determine the distribution of data because the sample size was less than 50 respondents.
3) Bivariate analysis using Paired Sample t- Test with a significance level of $\alpha = 0.05$ to determine the effect of baby massage on the quality of baby sleep.

3. RESEARCH RESULTS AND DISCUSSION

a. Respondent Characteristics

Table 1. Distribution of Infants by Age

Baby Age	Frequency (n)	Percentage (%)
1–2 months	8	26.7
3–4 months	12	40.0
5–6 months	10	33.3
Total	30	100

Based on Table 1, it is known that the majority of babies are aged 3–4 months, namely 12 babies (40.0%). Babies aged 5–6 months are 10 babies (33.3%), while babies aged 1–2 months are 8 babies (26.7%).

Table 2. Average Sleep Quality Before and After Infant Massage

Measurement	Mean	Elementary School
Before intervention	6.45	1.18
After the intervention	8.63	0.97

Table 2 shows that the average infant sleep quality score increased from 6.45 ± 1.18 before infant massage to 8.63 ± 0.97 after the intervention. These results indicate an improvement in sleep quality after four weeks of infant massage.

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Table 3. Normality Test Results Shapiro – Wilk

Variables	p- *value*
Pretest	0.172
Posttest	0.218

The Shapiro - Wilk test results showed a p-value > 0.05 for both pretest and posttest data , indicating a normal distribution. Therefore, the analysis was continued using Paired Test. Sample t- Test.

Table 4. Paired Test Results Sample t- Test

Variables	Mean Difference	t	p- value
Sleep quality before–after baby massage	2.18	10.84	0.001

Paired test results the sample t- test showed a p-value of 0.001 ($p < 0.05$) . This indicates a significant effect of infant massage on improving infant sleep quality. After receiving infant massage intervention, infants tended to have longer sleep durations, reduced frequency of nighttime awakenings, and more restful sleep compared to before the intervention.

b. Discussion

The results of the study showed that infant massage significantly improved the quality of infant sleep. Based on analysis using Paired A sample t- test obtained a p value of 0.001 ($p < 0.05$), indicating a significant difference between sleep quality before and after infant massage. The average sleep quality score increased from 6.45 ± 1.18 to 8.63 ± 0.97 after the intervention. These results indicate that infant massage is an effective non-pharmacological intervention to improve infant sleep quality.

parasympathetic nervous system, specifically the vagus nerve. Activation of the vagus nerve increases the release of the hormone serotonin, which is then converted into melatonin, a hormone that plays a role in regulating the sleep cycle. Furthermore, gentle massage also helps lower stress hormone levels (cortisol), promote muscle relaxation, improve blood circulation, and provide a sense of comfort, making it easier for babies to fall asleep and sleep more soundly.

Most babies show positive changes in sleep patterns after receiving regular infant massage. They appear to fall asleep faster, sleep duration increases, awakenings decrease, and babies appear calmer and more refreshed upon awakening. These changes indicate that sleep quality is influenced not only by sleep duration but also by the continuity and comfort of sleep, which improves after massage stimulation.

Infant massage also contributes to overall growth and development. The touch provided during massage can enhance the emotional bond *between* parent and baby,

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provide a sense of security, increase breastfeeding, and support motor and sensory development. Therefore, infant massage is not only beneficial for physical health but also supports a baby's psychological and emotional development from an early age.

The results of this study align with previous research that reports that infant massage can improve sleep quality, prolong nighttime sleep duration, reduce the frequency of awakenings, and increase infant comfort. Several studies also show that babies who receive regular massage experience weight gain, improved blood circulation, and more optimal neurological development compared to babies who do not receive regular massage stimulation.

The success of infant massage is influenced by several factors, including correct massage technique, frequency of application, the baby's health, a comfortable environment, and parental involvement. Performing massage in a calm environment, at an appropriate room temperature, and in a relaxed state of mind will yield optimal results. Therefore, educating parents about safe and correct infant massage techniques is crucial to maximize the benefits of the intervention.

In obstetrics and pediatric nursing practice, infant massage is a relatively simple, safe, non- invasive procedure that is easy for parents to learn. Healthcare workers, particularly midwives and nurses, play a crucial role in training parents in standard infant massage techniques. This allows parents to continue this stimulation independently at home as part of efforts to improve their baby's health and development.

This study has several limitations. Pre-experimental design. one group the pretest-posttest did not use a control group, so it is not possible to compare the effectiveness of infant massage with other interventions. The relatively small sample size and the study's implementation at several integrated health posts (Posyandu) and independent midwife practices also limit the generalizability of the results. Future research is recommended to use a quasi-experimental or randomized design. controlled trial, involving a larger number of respondents, and evaluating the benefits of infant massage on other indicators such as weight, motor development, and the quality of the mother–infant bond.

Research results show that infant massage is an effective non-pharmacological intervention in improving infant sleep quality. Regular infant massage can be part of a growth and development stimulation program recommended in maternal and child health services.

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4. CONCLUSION AND SUGGESTIONS

a. Conclusion

This study shows that infant massage significantly improves infant sleep quality. The average sleep quality score increased after the infant massage intervention, and the results of the paired-rater analysis showed that the sample t- test showed a p-value of 0.001 ($p < 0.05$). Thus, infant massage can be used as an effective non-pharmacological intervention to improve sleep quality and support infant growth and development.

b. Suggestion

1) For Health Workers
Midwives and nurses are expected to provide education and training to parents regarding correct infant massage techniques so that they can be applied safely both in health care facilities and at home.

2) For Parents
Parents are advised to perform baby massage regularly according to the correct procedures to help improve the quality of sleep, comfort, and development of the baby, as well as strengthen the emotional bond between parent and child.

3) For Health Service Facilities
Integrated health posts (Posyandu), community health centers, and independent midwife practices are expected to develop educational programs or baby massage classes as part of promotive and preventive services to support infant health.

4) For Further Researchers
Further research is recommended to use an experimental design with a control group, a larger sample size, and to assess the effect of infant massage on other indicators such as weight gain, motor development, duration of breastfeeding, and the quality of the mother-infant relationship.

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