



THE EFFECT OF BABY MASSAGE ON THE QUALITY OF SLEEP IN BABIES IN THE PRACTICE OF MIDWIVES JUWITA MEDAN CITY YEAR 2024

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ABSTRACT

The neonatal mortality rate in Indonesia shows a worrying dynamic, where *Maternal Perinatal Death Notification* (MPDN) data recorded a surge in infant mortality from 20,882 cases in 2022 to 29,945 cases in 2023. At Juwita's Midwife Practice, Medan Marelán District, Medan City, the practice of baby massage is still little carried out by the community as an effort to improve the quality of sleep of babies in 2016 reaching 143 toddlers. This study was conducted to assess the effect of infant massage on sleep quality in neonates using a pre-experimental design with a single group measured before and after the intervention at the Juwita Midwife Practice, Medan Marelán District, Medan City in 2024. This study falls under the category of experimental research, where the research design is used to identify cause-and-effect relationships through independent variables by the researcher. All babies born at the Juwita Midwife Practice, Medan Marelán District, Medan City were samples in the study. Data shows that during May to June there were 20 pregnant women who gave birth. Based on the results of the calculation, the p value is $0.001 < \alpha (0.005)$. These findings indicate that the alternative hypothesis (H_a) is proven, so it can be concluded that baby massage affects the sleep quality of babies at Juwita Midwife Practice, Medan Marelán District, Medan City. Therefore, healthcare workers are encouraged to regularly integrate baby massage services as an effort to improve babies' sleep quality.

Keywords: Massage, Neonatal, Sleep Quality

Introduction

Based on data from the *Maternal Perinatal Death Notification* (MPDN) under the auspices of the Ministry of Health, there has been an escalation in maternal morbidity from 4,005 cases in 2022 to 4,129 incidents in the 2023 period. A similar phenomenon that is more

significant occurs in neonatal mortality, where an increase was recorded from 20,882 cases to 29,945 cases in the same period of one year (Women, 2023).

The main goal of the pediatric health program is to ensure the sustainability of life and optimal standard of living through reducing mortality ratios,

optimizing nutritional status, and meeting minimum service standards for neonates to toddlers (Novianti and Irwinda, 2025). Although the Infant Mortality Rate (AKB) at the national level shows a downward trend, strategic and sustainable intervention acceleration is needed to realize the target threshold of 16 per 1,000 live births by the end of 2024 (Syairaji *et al.*, 2024).

One of the factors that plays an important role in the growth process of newborns is sleep. About 75% of growth hormone is produced when the child is sleeping. During the delivery process and after birth, the adequacy of oxygen and nutrition is a top priority so that the mother can meet the needs of her physical and mental activities. In the catabolic state, the body experiences an increase in the production of the hormone adrenaline (*epinephrine*), while when it switches to the anabolic state during sleep, various important processes occur, such as energy conservation, tissue repair, and growth (Andonotopo *et al.*, 2025). When the levels of adrenaline and cortisol decrease, the body begins to produce growth hormone to replace the ones that have been used (Dobrodeeva *et al.*, 2025).

In Indonesia, the practice of baby massage has been widely known in the community. Traditionally, the science of baby massage has been practiced for a long time and is still practiced by massage therapists in various regions. However, the baby massage in this context is a massage performed directly by the mother, father, or other family members (Sulistyorini, Kako and Huq, 2025).

Through infant massage, the activity of the *Vagus Nerve* can affect the mechanism of food absorption. In massaged babies, there is an increase in the tone of the *Vagus Nerve* which contributes to the increased production of gastrin and insulin enzymes. This condition contributes to a more effective nutrient absorption process, which can support the increase in the baby's weight. In addition, improvements in the baby's sleep quality are also influenced by the activation of the vagus nerve, which plays a role in regulating the body's physiological functions (Tarigan *et al.*, 2021).

In addition to proper techniques, the success of stimulating a child's growth and development is also heavily influenced by parental compliance in implementing routine care. This is in line with the Mother Cares (MOCA) concept, which emphasizes the vital role of mothers in independently monitoring their child's growth and development (Pinem, S. B., Manurung, H. R., & Damanik, 2020).

At the Juwita Midwife Practice, Medan Marelan District, Medan City, the practice of baby massage is still not widely practiced by the community as an effort to improve the quality of baby sleep. Most parents are worried about massaging their babies because of the assumption that the baby's bones are still fragile. This condition has caused the practice of baby massage as an effort to improve the quality of babies' sleep to still be not widely implemented in the area.

The purpose of this study is to determine the effect of baby massage on sleep quality at the Juwita Midwife

Practice, Medan Marelan District, Medan City in 2024

Research Method

This research is included in the category of experimental research, where the research design is used to identify cause-and-effect relationships through independent variables by the researcher (Benasseur *et al.*, 2022). The approach used is pre-experimental through the type of *one group pretest - posttest design*. This method aims to analyze the cause-effect relationship by involving a group of study subjects. Observations are made before the intervention is given, then it is carried out again after the intervention is applied (Bierer *et al.*, 2025).

The design of a single group of pretest and posttest design is described as follows:

Table 3.1 Research Design

Group	Prest st	Interv ention	Pos t Tes t
Eksperi men	O1	X	O2

Information:

A1 : Pre test
X : Intervention
O2 : Post Tes

The research location is the place used to collect data to support the research being conducted. In this study, the location chosen was the Juwita Midwife Practice

located in Medan Marelan District, Medan City. The research schedule refers to the time span required in the implementation of the research. This research lasted from March to June 2024.

In this study, the sample was all babies born at the Juwita Midwife Practice, Medan Marelan District, Medan City. The data shows that during May to June there were 20 mothers who gave birth, based on the results of the initial survey. The sampling technique used is using total sampling, where the entire population is used as a research sample.

Univariate analysis is a data analysis that is carried out on each variable separately, the purpose of which is to describe the characteristics of each variable being studied. The results of this analysis are generally presented in the form of frequency and percentage distributions (Riduwan, 2012). In this midwifery study, univariate analysis is used to explain and describe the study-independent variables (For, 2025).

To assess the relationship between independent variables and dependent variables in a research bivariate analysis is the analysis used (Kurth, 2026). This analysis aims to test the research hypothesis by looking at the relationship between independent variables and bound variables through the application of numerical statistical tests.

Result

This research on the effect of baby massage on sleep quality was carried out at Juwita Clinic, Medan Marelan District, Medan City. Data collection was carried out

in the period from May to July 2024 with a total of 20 babies.

The number of babies who were massaged was 20 people and babies who were not massaged were 20 people. The

presentation of data included infants who were massaged and babies who were not massaged at the Juwita Clinic, Medan Marelan District, Medan City

Table 1. Differences in Sleep Quality No massage is done and massage is done at the Midwife Juwita Practice, Medan Marelan District, Medan City in 2024

Sleep Quality	Before		After		P
	n	%	n	%	
Good	5	25.0	17	85.0	<0.001
Less	15	75.0	3	15.0	
TOTAL	20	100	20	100	

Based on the research results table, it is known that before being given baby massage intervention, most respondents experienced poor sleep quality, namely 15 babies (75%), with a p-value > 0.05. After being given infant massage interventions, there was an improvement in sleep quality, where most of the babies had good sleep quality as many as 17 babies (85%).

Data analysis was carried out using a nonparametric statistical test with the help of the SPSS program at a significance level of 5% ($\alpha = 0.05$) to determine the influence between the free variable and the bound variable. The results of the statistical test showed a p value of 0.01 ($p < 0.05$), so that the alternative hypothesis (H_a) was accepted. Thus, it can be concluded that baby massage affects the quality of baby sleep at the Juwita Midwife Practice, Medan Marelan District, Medan City

Discussion

The research conducted at Juwita Midwife Practice, Medan Marelan District,

Medan City, shows that before the implementation of infant massage intervention, the majority of babies had poor sleep quality, with 15 babies (75%), while babies with good sleep quality numbered 5 (25%). This condition indicates that before receiving infant massage, most babies experience less than optimal sleep quality.

After being given infant massage intervention, there was an improvement in the sleep quality of the babies, indicated by most of the babies having good sleep quality, namely 18 babies (85%), while babies with less good sleep quality amounted to 3 babies (15%). Statistically, these results show the effect of baby massage on improving the quality of baby sleep.

Massaging the baby for 15 to 30 minutes using a special oil can help the baby sleep better and contribute to the development of intelligence. A massage for

30 minutes every day is also known to reduce stress and anxiety, improve sleep calmness, and reduce the frequency of baby crying. Babies who get enough sleep have a greater chance of optimal brain development (Tarigan *et al.*, 2021). A study from Queensland, Australia, states that baby massage not only provides benefits for the child's physical condition, but also affects brain function, which can ultimately improve intelligence.

The length of massage time is not set by default, but based on common practice, a baby's full-body massage can last about 15 minutes. After the massage process is complete, the baby is recommended to be bathed so that the baby's body remains clean and fresh from the rest of the massage oil used (Priyadarshi, 2022).

Conclusion and Suggestion

Based on the results of research and statistical analysis regarding the effect of baby massage on the quality of infant sleep at Juwita Midwife Practice, Medan Marelan District, Medan City in 2024, it was found that before the baby massage intervention, most respondents had poor sleep quality, with 15 babies (75%) having a p-value > 0.05. After receiving the treatment in the form of baby massage, there was an improvement in sleep quality, with 17 babies (85%) showing good sleep quality.

Hypothesis testing was carried out using nonparametric statistical tests with the help of the SPSS program at a significance level of 5% to determine the relationship between independent variables

and dependent variables. The results of the analysis showed a p value of 0.001 which was smaller than α (0.05), so the alternative hypothesis (H_a) was accepted. Thus, it can be concluded that baby massage has a significant effect on improving the quality of baby sleep at the Juwita Midwife Practice, Medan Marelan District, Medan City.

References

- Andonotopo, W. *et al.* (2025) 'Nutriepigenomics in perinatal medicine: maternal nutrition as a modulator of fetal gene expression and long-term health', *Journal of Perinatal Medicine*, pp. 1–14. Available at: <https://doi.org/10.1515/jpm-2025-0289>.
- B., Manurung, H. R., & Damanik, L. (2020) 'The Role Of Mother Cares (MOCA) For Compliance Applications Of Parents In Stimulating Growth And Development Of Children Aged 24 To 36 Month In Working Area Of.', 1st Sari Mutiara Indonesia International, Pp. 282–288.
- Benasseur, I. *et al.* (2022) 'A comparison of confounder selection and adjustment methods for estimating causal effects using large healthcare databases', (July 2021), pp. 424–433. Available at: <https://doi.org/10.1002/pds.5403>.
- Bierer, S.B. *et al.* (2025) 'Moving Beyond Simplistic Research Design in Health Professions Education: What a One-Group Pretest-Posttest Design Will Not Prove', pp. 1–9.
- Dobrodeeva, L.K. *et al.* (2025) 'Features of the Balance of Counter-Insular Hormones in the Peripheral Blood of Practically Healthy Inhabitants of High Latitudes', 52, pp. 1–9. Available at: <https://doi.org/10.1134/S10623590246>



- 14472.
- For, G. (2025) 'Purposive Sampling : A Review And Guidelines For', 9(1), Pp. 1–23. Available At: [https://doi.org/10.47263/JASEM.9\(1\)01](https://doi.org/10.47263/JASEM.9(1)01).
- Kurth, I. (2026) *Private and Collaborative Kaplan-Meier Estimators*. Available at: <https://doi.org/10.1145/3689943.3695039>.
- Novianti, L. and Irwinda, R. (2025) 'Exploring prenatal risk factors associated with congenital anomalies among newborns in national referral hospital , Indonesia', 80(5), pp. 582–588.
- Priyadarshi, M. (2022) 'Effect Of Whole-Body Massage On Growth And Neurodevelopment In Term Healthy Newborns : A Systematic Review', 12. Available At: <https://doi.org/10.7189/Jogh.12.12005>.
- Sulistiyorini, D., Kako, M. And Huq, K.A.T.M.E. (2025) 'Exploring Cultural Factors Contributing Maternal Mortality Among Pregnant Women : An Ethnographic Study In The Banjarnegara Community , Central Java , Indonesia', (October), Pp. 1–12. Available at: <https://doi.org/10.3389/fgwh.2025.1677072>.
- Siti Nurmawan. et al. (2021) 'Home Care Baby Spa Dan Baby Gym Untuk Optimalisasi Pertumbuhan Dan Perkembangan Bayi', Prosiding PKM-CSR, 4, pp. 456–460.
- Syairaji, M. *et al.* (2024) 'Trends and causes of maternal mortality in Indonesia : a systematic review', 6, pp. 1–14.
- Women, H. (2023) '著', 23(11), pp. 1164–1169. Available at: <https://doi.org/10.13604/j.cnki.46-1064/r.2023.11.07>.