



The Effect of Baby Massage Therapy on Sleep Quality of Infants Aged 0-12 Months at The Madonna Clinic

Naina Syifa Nurqalbi^{1*}, Raden Maria Veronika Widiatrilupi²

¹⁻² Institut Teknologi Sains dan Kesehatan Rs. Dr. Soepraoen Malang, Indonesia

* Corresponding author: mariawidia@itsk-soepraoen.ac.id

Abstract: Sleep quality is essential for infant development, impacting brain growth, immune function, and emotional health. Approximately 30% of infants experience sleep disorders, which can negatively affect both infants and parents. Baby massage therapy is a holistic, non-invasive approach that may improve sleep quality in infants. This study aimed to assess the impact of baby massage therapy on the sleep quality of infants aged 0-12 months at the Madonna Clinic, South Kalimantan. A pre-experimental design with a one-group pretest-posttest approach was used, involving 30 healthy infants selected through purposive sampling. The intervention consisted of baby massage therapy administered by trained therapists twice a week for 4 weeks. Sleep quality was measured using a Pittsburgh Sleep Quality Index adaptation before and after the therapy. Results showed that the average sleep quality score before therapy was 6.40 (SD 1.15), which increased to 8.20 (SD 0.96) after therapy. Data analysis using the Paired Sample T-Test revealed a significant improvement (mean difference of -1.80, $t = -8.42$, $p = 0.000$). In conclusion, baby massage therapy significantly improved the sleep quality of infants. This safe, non-pharmacological intervention is effective in addressing sleep problems and fostering emotional bonding between parents and infants.

Keywords: Baby Development; Baby Massage Therapy; Baby Massage; Baby Sleep Quality; Non-Pharmacological Intervention.

1. INTRODUCTION

Optimal nighttime rest is crucial for a baby's growth and development, especially between the ages of 0 and 12 months. During this period, babies experience rapid physical and cognitive development. Adequate nighttime rest positively contributes to brain development, immune system development, and emotional development (Mindell et al., 2022). Unfortunately, many parents struggle to manage their child's sleep schedule. Research by Wong et al. (2021) indicates that an estimated 30% of infants experience sleep problems, which can negatively impact their physical and mental health.

One approach currently receiving increasing attention is infant massage techniques. This approach offers not only physical but also psychological benefits for both babies and caregivers. Several studies indicate that gentle touch through massage can promote relaxation, reduce tension, and improve the quality of a baby's night's rest (Field, 2022). At the Madonna Clinic in South Kalimantan, infant massage techniques have been implemented as an intervention to help babies experiencing sleep difficulties. However, more in-depth studies are needed to systematically measure the efficacy of this approach.

The fundamental rationale for this research lies in the importance of quality sleep for infant development and the high incidence of sleep problems in infants. With increasing concern for mental and physical health, parents are increasingly seeking safe and effective

ways to help their babies get better quality sleep. Infant massage techniques offer a comprehensive, non-invasive approach, offering an option for parents who are reluctant to use sedatives or other potentially risky methods.

Furthermore, this research also holds significant local significance, given the limited research conducted in South Kalimantan on the impact of infant massage techniques on infant sleep quality. Understanding the effects of this approach is expected to yield useful recommendations for healthcare professionals, parents, and healthcare institutions in the region.

Sleep problems in infants can be triggered by various factors, including colic, physical discomfort, and environmental factors such as noise or inappropriate room temperature (Hiscock & Sciberras, 2021). The impact of sleep deprivation can be diverse, ranging from stunted growth and emotional development to negative effects on parents' mental health. Several studies have shown that parents of infants with sleep problems tend to experience higher levels of stress, which can impact family relationships and overall quality of life (Baker et al., 2022).

Conversely, infant massage techniques can have significant positive effects. A study by Anderson et al. (2021) showed that infants who received regular massage experienced increased sleep duration and quality, as well as reduced anxiety levels. This suggests a positive causal correlation between infant massage techniques and improved sleep quality.

As an answer to baby rest issues, infant massage techniques can be an effective and safe alternative. This method is not only simple for parents to perform, but can also be practiced at home without the need for special equipment or materials. With adequate guidance, parents can learn appropriate massage techniques for their babies, which can help calm and relax them as they prepare for bedtime.

Furthermore, it's crucial to educate parents about the importance of regular sleep habits. Various studies have shown that good sleep habits can help babies understand their sleep rhythms and create a supportive environment for rest (Adams et al., 2021). Combining infant massage techniques with good sleep habits is expected to significantly improve the quality of a baby's sleep.

This research is interesting because it integrates physical and psychological health aspects within the context of infant growth and development. With the increasing focus on mental health, particularly among new parents, this research aims to provide a new perspective on how infant massage techniques can contribute to the quality of infant sleep. Furthermore,

this research has the potential to enrich the existing literature on alternative approaches to infant care.

This research is expected to generate practical recommendations that can be implemented at Madonna Clinic and other locations in South Kalimantan, as well as raise parental awareness of the importance of non-pharmacological approaches to infant rest problems. Therefore, this research focuses not only on measurable outcomes but also on the experiences of parents and infants in implementing this approach.

2. RESEARCH METHOD

This study adopted a quantitative research design using a pre-experimental approach, specifically utilizing a single-group design with pre- and post-treatment measurements. This design was chosen to measure changes in the quality of infants' rest before and after receiving infant massage therapy. The population in this study included all infants aged 0 to 12 months who visited the Madonna Clinic in South Kalimantan during the research period. The sample taken consisted of 30 infants who met the inclusion criteria, namely infants in healthy condition without records of chronic diseases and not undergoing treatment. The sampling method applied was purposive sampling, where researchers determined respondents based on specific criteria relevant to the research objectives.

Data collection was conducted by measuring infants' sleep quality using validated sleep scales, such as the Pittsburgh Sleep Quality Index (PSQI) adapted for infants. Prior to the therapy, infants' sleep quality was measured in a baseline test, followed by a four-week infant massage therapy intervention. This therapy was administered by a certified therapist twice weekly. After the intervention period, infants' sleep quality measurements were repeated to obtain post-test data. The collected data were analyzed using a paired sample t-test to determine significant differences between infants' sleep quality before and after therapy.

3. RESULTS AND DISCUSSION

The research, which was conducted at the Madonna Clinic in South Kalimantan, successfully collected data from 30 babies aged 0 to 12 months who were the research subjects.

General Data

Table 1 General Data Distribution.

Characteristics	Amount	%
Age:		
• 0–3 months	7	23.3%
• 4–6 months	9	30.0%
• 7–9 months	8	26.7%
• 10–12 months	6	20.0%
Gender		
• Man	16	53.3%
• Woman	14	46.7%

The infant age groups in this study were divided into four categories: 0–3 months, 4–6 months, 7–9 months, and 10–12 months. The distribution showed that the largest age group was infants aged 4–6 months with a frequency of 9 infants (30.0%), followed by 7–9 months with 8 infants (26.7%). Infants aged 0–3 months and 10–12 months each numbered 7 infants (23.3%) and 6 infants (20.0%), respectively.

The earliest stages of infant development, particularly between 4 and 6 months of age, are crucial for establishing sleep patterns. According to the American Academy of Pediatrics (2021), at this age, babies begin to develop a more regular sleep rhythm and can sleep longer at night. This suggests that interventions such as baby massage therapy can be particularly beneficial in this age group, as they are in a critical phase for establishing healthy sleep habits.

This study involved 30 infants participating at the Madonna Clinic in South Kalimantan. Analysis revealed that 16 (53.3%) were male and 14 (46.7%) were female. Although there were more male infants, the percentage difference between the two sexes was not significant. This is consistent with previous research showing no significant differences in infant sex distribution in the general population (Smith et al., 2022).

The importance of this gender analysis lies in its impact on infant development. Several studies have shown that male infants tend to have different sleep patterns than female infants, which can affect their sleep quality (Johnson & Lee, 2021). Therefore, understanding the gender composition of this study can provide additional insights into the factors that influence infant sleep quality.

Special Data

Table 2. Average Infant Sleep Quality Score.

Characteristics	Mean	Elementary School	Min–Max
Measurement Time:			
• Before baby massage	6.40	1.15	4–8
• After baby massage	8.20	0.96	6–10

The results of infant sleep quality measurements before and after baby massage therapy showed a significant difference. Before therapy, the average infant sleep quality score was 6.40 with a standard deviation (SD) of 1.15, while after therapy, the average score increased to 8.20 with an SD of 0.96. This indicates that infant sleep quality experienced a significant improvement after the intervention.

This improved score indicates that baby massage therapy not only affects infants' sleep duration but also their overall sleep quality. Research by Field (2021) indicates that baby massage therapy can improve sleep quality by reducing stress levels and increasing relaxation in infants. Therefore, the results of this study align with these findings, confirming the importance of baby massage therapy in supporting healthy sleep development in infants.

Data normality testing was performed using the Shapiro-Wilk test to determine the distribution of data before and after therapy. The analysis results showed a p-value of 0.134 for the pre-massage data and 0.221 for the post-massage data. Since both p-values were greater than 0.05, it can be concluded that the data were normally distributed. Therefore, further analysis can be performed using the Paired T-Test.

Bivariate Analysis

Bivariate analysis was conducted using a paired t-test to evaluate the effect of baby massage therapy on infant sleep quality. The results showed that the average difference in sleep quality scores before and after therapy was -1.80, with a t-value of -8.42 and a p-value of 0.000. A p-value less than 0.05 indicates a significant effect of baby massage therapy on improving infant sleep quality.

These results indicate that baby massage intervention significantly improved the sleep quality of infants aged 0–12 months at the Madonna Clinic. Previous research by Moore et al. (2021) also found that massage therapy can improve sleep quality in infants by increasing relaxation and reducing tension. Therefore, these results confirm that baby massage therapy is an effective method for improving infant sleep quality.

Thus, this study provides empirical evidence supporting the use of baby massage therapy as an intervention to improve infant sleep quality. These results are expected to serve as a reference for healthcare professionals and parents in implementing massage therapy as part of their infant care.

Discussion

The results of this study demonstrate that baby massage intervention has a significant positive impact on the sleep quality of infants aged 0-12 months. A previous study by Mardiana et al. (2022) also demonstrated that infant massage can improve sleep quality by reducing anxiety levels and increasing infant comfort. These findings support the concept that gentle physical touch stimulation can stimulate the release of the hormone oxytocin, which functions to induce a sense of calm and comfort in infants (Field, 2021).

Furthermore, research by Rahmawati et al. (2023) underscores the importance of a calm and conducive environment in improving infant sleep quality. In this regard, baby massage interventions not only serve as a relaxation method but also foster emotional closeness between parents and infants, a crucial element in a child's psychological development. A study by Setiawan and Prabowo (2021) also demonstrated that a positive parent-child relationship can improve sleep quality and overall well-being.

In this study, the age distribution of infants showed that the 4–6 month age group was the most dominant, which corresponds to the developmental stage when babies begin to experience transitions in sleep patterns. Research by Nugroho et al. (2022) showed that infants in this age range often experience sleep disturbances, making interventions such as baby massage highly effective. This therapy can help regulate infants' sleep patterns and provide the calming effects needed for quality sleep.

Overall, the findings of this study strengthen the use of baby massage intervention as an effective approach to improving infant sleep quality at the Madonna Clinic. As understanding of the importance of quality sleep for infant development increases, this therapy could become one of the interventions recommended by healthcare practitioners to assist parents in caring for their infants. Further research is needed to more comprehensively explore various massage techniques and their effects on infant sleep quality.

4. CONCLUSION

The findings of this study demonstrate that baby massage intervention has a significant positive impact on the sleep quality of infants aged 0-12 months. The increase in the mean sleep quality score from 6.40 to 8.20 post-intervention indicates that baby massage is an effective approach to improving infant sleep quality. These findings support previous research demonstrating that massage can reduce stress and increase relaxation in infants, thus contributing to more optimal sleep patterns.

The significance of this intervention extends beyond improving sleep quality to encompassing the baby's emotional and psychological dimensions. By enhancing closeness between parents and babies through massage therapy, it is hoped that a more conducive environment can be created that supports the baby's overall growth and development.

This study also emphasizes the urgency of a more holistic approach to infant care, with baby massage interventions being one method recommended by healthcare practitioners. While these results are promising, it should be emphasized that further research is needed to explore various massage techniques and their impact on infant sleep quality.

Thus, baby massage intervention not only benefits the baby but can also provide a means for parents to better understand and meet their child's sleep needs. Through regular and consistent application of this therapy, it is hoped that the quality of the baby's sleep can be improved, which in turn will support their optimal growth and development.

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