

# Differences in Sleep Quantity in Babies Aged 3-6 Months between before and after the Massage Babies at Posyandu Anggrek Pojok Village of Kediri City in 2023

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## ABSTRACT

Sleep is one of the growth factors for babies. Where during sleep all the muscles stop working and the nerves work according to their position. Putting a baby to sleep is not easy, there are many things we have to do. Sometimes babies' sleep is not optimal, this is due to many factors, one of which is because the body is tired after excessive activity. From the initial survey conducted by researchers at Posyandu anggrek Pojok Village, Kediri City in 2023, there were 10 babies, babies who were fussy and after having a baby massage experienced a sound sleep (40%), babies who had not had a baby massage and experienced disturbances in their sleep (60 %). This shows that babies who have not had massage experience problems sleeping. The aim of this study was to determine the difference in sleep quantity in babies aged 3-6 months between before and after baby massage at Posyandu anggrek Pojok Village, Kediri City in 2023. The design used in this research was pre-experiment, with pre-test and post-test methods. The variables measured in this study were (Y1) the quantity of baby sleep before the baby massage and (Y2) the quantity of baby sleep after the baby massage. This research uses the Wilcoxon Signed Ranks Test statistical test. The results of the research from a total of 20 respondents showed that the baby's sleep quantity was good after baby massage and previously the baby's sleep quantity was insufficient (80%), while the baby's sleep quantity was good after baby massage and previously the baby's sleep quantity was sufficient (20%). The results of data analysis using the Wilcoxon Signed Ranks Test statistical test at a significance level of  $\alpha = 0.05$  showed statistical test results with a significance value of  $p = 0.000 < 0.05$ , which means that  $H_0$  was rejected, meaning there was a difference in the quantity of baby sleep between before and after baby massage. at Posyandu anggrek Pojok Village, Kediri City in 2023. Based on the results of this research, it is hoped that the respondent's family will carry out baby massage because the benefits of baby massage are very good for optimizing growth and development in babies.

## I. Introduction

Sleep quality is a person's satisfaction with sleep, where a person can easily start sleeping and maintain sleep, the quality of sleep itself can be described by looking at the length of sleep time, sound sleep during sleep, and feeling fresh when waking up and sleep quality can also affect health and quality. life as a whole (Delaune & Ladner, 2011).

One of the factors that influences a baby's growth and development is fulfilling his sleep needs. One of the stimuli for brain development is sleep. When a child sleeps, about 75% of the growth hormone will be excreted from the body, because when the baby is asleep,



the cell renewal process will be faster than when he is awake. In the first year of birth, a baby's brain will grow three times its size after birth (Ifalahma, 2016).

Sleep disorders in babies are a problem faced by parents, because they can affect the emotions and sense of comfort felt by the baby. When a baby has stable and comfortable emotions, he will usually have good physical growth because it will be easier for him to provide food, and easier to communicate with, so that the incoming information can enrich his knowledge, make him more creative, calmer, and so on. To manage a baby's emotions, there are several things parents can do from the time the baby is in the womb or after birth. If the mother allows her emotions to explode, become angry, afraid, sad, or even too happy, it will affect the baby's psychological growth because she will also feel what the mother feels. (Abdurrahman, 2015).

Based on 2012 WHO data published in the journal *Pediatrics*, around 33% of mothers reported that their babies had sleep problems. Meanwhile, researchers at Cincinnati Children's Hospital Medical Center stated that sleep disorders in babies will not always disappear when they grow up. Meanwhile, in research conducted by Hiscock (2002) in Melbourne, Australia, it was found that 32% of mothers reported repeated incidents of sleep problems in their children.

In Indonesia, quite a lot of babies experience sleep problems, a study conducted by Sekartini in 2004 showed that 44.2% of children under 3 years of age suffered from sleep disorders (Nugraheni et al., 2018). However, more than 72% of parents do not consider baby sleep disorders as a problem in their baby's development. In fact, sleep problems can interfere with a baby's growth, weaken immune function and disrupt the regulation of the endocrine system (Trivedi, 2015).

Based on data obtained from an initial survey conducted by researchers at Posyandu x Pojok Village, Mojoroto District, Kediri City in 2023, as many as 10 babies, 4 (40%) babies were fussy and after massage the babies slept soundly, 6 (60%) babies before the baby massage is carried out and the baby experiences sleep disturbances. Meanwhile, conditions in the Wilangan area after a preliminary study were carried out: 10 babies slept for 12 ½ hours per day from interviews with parents. The babies slept restlessly, or were not sleeping so they often woke up during sleep. This shows that the baby's sleep quantity after baby massage will be better.

Babies aged 3-6 months need enough sleep, so they need to be given external stimulation, namely massage therapy. One of the massage therapies that can be done is baby massage (Nugraheni et al., 2018). Massage is a health and medical art that has been practiced for hundreds of years. The benefits of baby massage are to reduce stress hormone levels, so that it can reduce stress, improve sleep quality, increase body weight, reduce colic (babies cry for more than 3 hours), improve blood circulation and improve the relationship between parents and babies. Contact therapy, especially infant massage, has been shown to produce beneficial physiological changes that can be measured scientifically. Apart from that, the benefits of baby massage for mothers are that it can improve the internal relationship between mother and baby, improve sleep quality and improve the mother's mood (Mindell, 2017).

Baby massage will stimulate the secretion of serotonin which encourages bone growth in babies, thereby increasing the body's immune system. Serotonin stays in the hypothalamus and stimulates secretion, which influences the secretion of growth hormone, which ultimately results in bone lengthening. if the baby is being massaged (A. S. Dewi, 2019).

## II. Methods

### Design and Samples

The design of this research is one group pretest - posttest. The population in this study is all babies aged 3-6 months in the Posyandu anggrek Pojok Village, Mojoroto District, Kediri City in 2023. The total population is 20 babies, in September of 2023.

### Data Collections

The sampling technique used in this research was Quota Sampling, namely all babies aged 3 - 6 months in posyandu anggrek Pojok Village, Mojoroto District, Kediri City. The instrument used to reveal the dependent variables (Y1) and (Y2) is a questionnaire. Blue print interview or observation sheets.

### Data Analysis

The statistical test used in this research is the Wilcoxon Signed Rank test.

## III. Results and Discussion

Table 1. Frequency Distribution of Respondents Based on Age of Infants at Anggrek Posyandu, Pojok Village, Mojoroto District, Kediri City, 2023.

| No.   | Age     | Frequency | Percent (%) |
|-------|---------|-----------|-------------|
| 1.    | 3 month | 3         | 15%         |
| 2.    | 4 month | 10        | 50%         |
| 3.    | 5 month | 4         | 20%         |
| 4.    | 6 month | 3         | 15%         |
| Total |         | 20        | 100%        |

Based on table 1, it can be interpreted that almost half of the 10 respondents (50%) are 4 months old.

Table 2. Frequency Distribution of Respondents Based on Assessment of the Quantity of Baby's Sleep Before Baby Massage at Posyandu Anggrek, Pojok Village, Mojoroto District, Kediri City, 2023.

| No.   | Criteria   | Frequency | Percent (%) |
|-------|------------|-----------|-------------|
| 1.    | Good       | 2         | 10%         |
| 2.    | Enough     | 8         | 40%         |
| 3.    | Not Enough | 10        | 50%         |
| Total |            | 20        | 100%        |

Based on table 2, it can be interpreted that the majority of babies' sleep quantity before the baby massage was carried out was less, namely 10 respondents (50%).

Table 3. Frequency Distribution of Respondents Based on an assessment of the quantity of baby sleep after baby massage at Posyandu Anggrek, Pojok Village, Mojoroto District, Kediri City, 2023

| No.   | Criteria   | Frequency | Percent (%) |
|-------|------------|-----------|-------------|
| 1.    | Good       | 14        | 70%         |
| 2.    | Enough     | 6         | 30%         |
| 3.    | Not Enough | 0         | 0%          |
| Total |            | 20        | 100%        |

Based on table 3, it can be interpreted that the majority of babies' sleep quantity after baby massage was good, namely 14 respondents (70%). This is because all babies have had baby massage.

Table 4. Cross Tabulation of Baby Sleep Quantity between Before and After Baby Massage at Posyandu Anggrek, Pojok Village, Mojoroto District, Kediri City in 2023.

| No.   | The baby's sleep Quantity before massage | Good     |     | The baby's sleep quantity after massage |     | Not enough |    |
|-------|--|----------|-----|---|-----|------------|----|
|       |  | $\Sigma$ | %   | $\Sigma$                                | %   | $\Sigma$   | %  |
| 1.    | Good                                     | 2        | 10% | 0                                       | 0%  | 0          | 0% |
| 2.    | Enough                                   | 8        | 40% | 0                                       | 0%  | 0          | 0% |
| 3.    | Not Enough                               | 4        | 20% | 4                                       | 20% | 0          | 0% |
| Total |  | 15       | 70% | 4                                       | 20% | 0          |    |

Based on table 4, it is interpreted that there are 8 respondents (40%) the baby's sleep quantity is good after the baby massage and previously the baby's sleep quantity was sufficient, while 4 respondents (20%) the baby's sleep quantity was good after the baby massage before the baby's sleep quantity was insufficient. This means that there is a difference in the quantity of baby sleep after baby massage.

Based on the results of the analysis using the Wilcoxon signed ranks test with  $p = 0.05$ , it was found that  $p = 0.000 < 0.05$ , thus  $H_0$  was rejected and  $H_1$  was accepted, meaning that there was a difference in the quantity of baby sleep between before and after the baby massage. Other evidence of differences can be seen in the rank table where the before > after value is zero or non-existent, the ranking value = 0, and the number of negative rankings = 0. The after > before value is 16 respondents, the mean ranking value = 8.5, and the total positive rank = 136. Meanwhile, the value before is the same as after or there is no difference between before and after for 4 respondents.

## DISCUSSION

The research results in table 4 show that the difference between the baby's sleep quantity before and after the baby massage is  $p = 0.000$ , so there is a significant difference between the baby's sleep quantity before and after the baby massage. Meanwhile, the Sig (2-tailed) value is  $P = 0.000 < 0.05$ , so it can be concluded that  $H_0$  is rejected and  $H_1$  is accepted, meaning that there is a difference in the quantity of baby sleep between before and after baby massage.

Baby massage is a touch that makes the baby feel comfortable, builds a bond of love between parents and children, establishes closeness between parents and babies. This baby massage contains elements of touch in the form of affection, sound or speech, eye contact, movement and massage. Babies who receive loving touch from an early age will increase the baby's concentration and make them sleep deeper/longer and when they wake up their concentration will be fuller (Ria, 2013).

The effect of baby massage is that it provides a feeling of comfort for babies, babies who get massage are more active and alert, apart from that, massage causes the neurology of babies who are massaged to mature more quickly than babies who are not massaged. Babies who receive loving touch from an early age have stronger language and reading skills, as well

as IQ. Massage can influence the release of the sleep hormone melatonin, with this hormone the baby can have a regular sleep pattern (Seyburn, 2003).

Based on research opinions, many people do not know that baby massage can help increase sleep quantity. Babies who are gently massaged can calm down and fall asleep. Massage helps reduce stress, improves blood circulation, relaxes tense muscles, relieves stress and even lowers high blood pressure. Baby massage has become a community habit, especially in Java, when babies are fussy, they are given a massage by a dukun in the hope of reducing fatigue and making them less fussy.

Baby massage does not have to be done by a mother, she can do baby massage on her child. Whole body massage is recommended, but just the head and shoulders or feet may be enough for relaxation.

The skin has millions of nerve receptors connected to our nervous system. Massaging the skin creates stimulation and releases chemicals in our brain such as serotonin which reduce stress, anxiety and depression. Massage also increases the production of endorphins, hormones that reduce pain and calm. All of this makes the baby calmer and sleeps more easily. If your baby often has difficulty sleeping, you should make massage part of your baby's nighttime routine.

The mechanisms of baby massage include the following: Beta endorphin which affects the growth mechanism, research shows that baby massage will increase the baby's growth and development. Serotonin production increases the body's resistance, massage will increase the activity of serotonin neurotransmitters which increases the capacity of receptor cells to increase the capacity of receptor cells to bind glucocorticoid (adrenaline, a stress hormone) thereby causing a decrease in adrenaline hormone levels and increasing body resistance, especially IgM and IgG.

Massage can change brain waves, baby massage will make babies sleep longer and increase alertness or concentration. Massage can change brain waves by reducing beta and theta waves which can be proven by using EEG (electro encephalogram). The physical impact of lack of sleep on babies is disruption of body growth due to "chaotic" production of hormones during sleep, vulnerability to immune function or body resistance, and endocrine system irregularity.

Meanwhile, for cognitive problems, babies lose concentration, are slow, less alert, less attentive, have learning problems and decline in academic performance. In terms of movement abilities, babies become less careful and careless. With the proven results of this research, it is necessary to implement baby massage training for mothers of babies which aims to increase the ability of mothers to carry out baby massage, so that it can increase the quantity of baby sleep and reduce infant mortality and morbidity.

#### **IV. Conclusion**

There is a difference in the quantity of baby sleep before and after baby massage at Posyandu Anggrek, Corner Village, Mojoroto District, Kediri City, 2023.

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