

The Effect of Bima Traditional Baby Massage on Sleep Pattern among Infants aged 5-12 Months

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ABSTRACT

Background: Massage was a tactile stimulation that has physiological and biochemical effects in the body. Baby massage was a fun way to relieve tension and anxiety, especially in infants. Gentle massage will help relax the muscles so that the baby becomes calm and sleeps soundly. Good quality sleep can achieve optimal growth and development. The purpose of this study was to determine the effect of pe'e culture (baby massage) on the sleep needs of babies aged 5-12 months.

Subjects and Method: This research was a quasi-experimental study with a pre and post test design in the same group. The number of samples in this study were 30 respondents using purposive sampling technique. The dependent variable of this study was sleep resting children aged 5-12 months. The independent variable was Bima

traditional massage (pe'e). Data analysis was performed using the Wilcoxon test.

Results: Average sleep quality of children aged 5-12 months after treatment (Mean= 2.73; SD= 6.40) is higher than before treatment (Mean= 1.47; SD= 5.07), and statistically significant ($p < 0.001$).

Conclusion: Culture Baby massage (pee) can improve sleep rest patterns in infants aged 5-12 months.

Keywords: baby massage, sleep patterns, sleep quality, age 5-12 months

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BACKGROUND

Sleep problems were one of the most common problems that are often faced by parents and their babies, around 20% -30% occur in infants and toddlers (Sadeh et al. 2009). Sleep problems can be defined as a night's sleep that is less than normal standards, researchers usually define sleep problems as long latency for sleep, short duration night sleep and often wake up at night (Field 2017).

Sleep has been linked to improved learning and memory functions throughout life, and is important for the cognitive development of infants (Pisch et al., 2019). The golden period of growth and development occurs in infancy, around 75% of growth hor-

mone is produced while the baby is sleeping (Paldi, 2015). Growth hormone was produced three times more than when awake (Nurmalasari et al., 2017). Sleep was an important factor that affects growth and development so that with good quality sleep can achieve optimal growth and development (Matalia, 2013).

Massage therapy was one of the oldest forms of treatment in the world. Baby massage was a simple, inexpensive and effective technique to support baby's development. It was accepted as a new practice that is gradually gaining popularity in infants (Gurol and Polat 2012).

In China and Greece, evidence was found that massage has existed as a medium for health therapy for thousands of years. While in Indonesia, almost all regions in Indonesia have a habit of massaging their babies from infancy to childhood. The main perpetrators of this traditional baby massage are traditional birth attendants who have acquired skills for generations. Baby massage was a slow and gentle stroking of the baby's entire body starting from the baby's legs, stomach, chest, face, hands and back. Touch sensation was the most developed sensory at birth (Liaw, 2000 in Wisdom, 2010).

Baby massage was a fun way to relieve tension and feelings of anxiety, especially in infants and help relax the muscles of the baby to be calm and sleep soundly. In Bima Regency, baby massage (pe'e) culture was a tradition of Bima culture that has been carried on for generations by the Bima community, as an effort to minimize seizures in infants. In addition, traditional infant massage (pe'e) is also believed to be able to improve sleep resting patterns in infants.

This study aims to analyze the influence of traditional massage (pe'e) on sleep pattern in infants aged 5-12 months.

SUBJECTS AND METHOD

1. Study Design

This was a quasi-experimental study conducted at Rasabou village, Bolo subdistrict, Bima, East Nusa Tenggara, Indonesia, from April to September 2017.

2. Population dan Sample

A sample of 33 infants aged 5-12 months was selected for this study by purposive sampling.

3. Study Variables

The dependent variable in this study was sleep rest of children aged 5-12 months. The independent variable in this study was the traditional Bima Massage (pe'e).

4. Operational Definition of Variables

Traditional infant massage was the process of rubbing an infant's muscles and stroking the infant using traditional technique from Bima, East Nusa Tenggara, Indonesia, which designed for infants.

Sleep pattern was defined as average length of sleeping time in infants daily.

5. Study Instruments

Data collection was carried out using observation sheets sleeping. The observation was carried out by assessing sleep rest of infants aged 5-12 months before and after giving traditional infant massage. Observation results are converted according to the table of sleep quality of infants aged 5-12 months (normal 14-15 hours / day).

6. Data Analysis

Researchers assessed the state of sleep rest of infants aged 5-12 months before and after a traditional massage (pe'e) using observation sheets. Data were analyzed using the Wilcoxon test.

7. Research Ethics

Ethics approval was obtained from the research ethics committee with serial number. 209UN18.8/ETIK/2017.

RESULTS

A. Sample Characteristics

A total of 33 infants aged 5-12 months have characteristics that are seen in terms of age, weight, and experience. Based on the results of measurements of the amount of sleep before pe'e, it was found that 83.3% (25 infants) had below normal sleep quality while 16.7% (5 infants) had normal sleep quality. After being given traditional infant massage until the sixth day, the result was that the total amount of sleep of the baby after traditional infant massage was 83.3% the quality of sleep improved. The sleep pattern in infants aged 5-12 months increased after traditional infant massage.

Table 1. Characteristics of Samples

Characteristics of respondents	n	%
Age		
5-7 months	14	46.7 %
8-10 months	9	30 %
11-12 months	7	23.4 %
Weight		
5-7 Kg	7	23.3 %
8-10 kg	22	73.3 %
12 kg	1	3.3 %
Pe'e experience		
1-2 times	13	43.3 %
3-4 times	12	40 %
5-6 times	5	16.7 %

B. Bivariate analysis

Table 2 shows the differences in the mean sleep patterns before and after traditional infant massage. Table 2 shows that the average sleep quality of children aged 5-12

months after traditional infant massage (Mean= 2.73; SD= 6.40) is higher than before treatment (Mean= 1.47; SD= 5.07), and is statistically significant (p <0.001).

Table 2. Differences in mean sleep patterns before and after the intervention

Sleep pattern	Mean	SD	p
Before traditional infant massage	1.47	5.07	<0.001
After traditional infant massage	2.73	6.40	

DISCUSSION

Sleep is one of the needs of a baby that must be fulfilled. Meeting the needs of sleep is very important for babies to support the immune system and brain development. The quality and quantity of sleep is influenced by several factors. These qualities can indicate the ability of individuals to sleep and get the amount of rest in accordance with their needs. Factors that can affect the quality of baby's sleep include the condition of a safe and comfortable environment for someone can accelerate the process of sleep. The physical environment in which the baby sleeps has an important effect on the ability to fall asleep and stay asleep. Infants aged 5-12 months had weak immune system, which is easily fall ill and affect the quality of sleep (Hidayat 2008).

Several studies showed that baby massage can increase baby weight, help babies who can not sleep soundly, lack of

appetite and lack of concentration. Another thing that supports the increase in the quantity of baby sleep is the aroma of spices as a body scrub which is used as a substitute for baby oil. Aromatherapy is a form of relaxation therapy. Aromatherapy is a healing process that uses pure aromatherapy plant extracts aimed at improving health, well-being of the body, mind, and spirit (Goel et al., 2005).

Although not yet known with certainty which spices give the active aroma therapy effect. Aromatherapy has a positive effect because it is known that a fresh and fragrant aroma can stimulate sensory and receptors in the nose and then provide further information to areas in the brain that control emotions and memory and provide information to the hypothalamus. The hypothalamus is a regulator of the internal system of the body, including the sexuality system, body

temperature, and reactions to stress (Koensoemardiyah, 2009).

Based on the results of the analysis, there is an influence of traditional infant massage on infants sleep pattern.

The increase in the quantity of sleep in infants given massage is caused by an increase in the level of serotonin secretion produced at the time of massage, in addition to massage there are also changes in brain waves, namely a decrease in alpha waves and an increase in beta and theta waves which can be seen through the use of EEG (electroencephalography) (Roesli, 2008).

According to Guyton (2006) serotonin is the main transmitter substance that accompanies sleep formation by suppressing the activity of the reticular activation system and other brain activity. According to Syaukani (2015) serotonin synthesized from the amino acid triptophan will be converted into 5-hydroxytryptophan (5HTP) and then to N-acetyl serotonin which eventually turns into melatonin.

Melatonin has a role in sleep and makes sleep longer and more restful at night (Syaukani 2015). after being given a massage almost all respondents had an average quantity of sleep the respondents experienced an increase. Indirectly, massage in infants has a positive effect, one of which is that it can increase the quantity of baby's sleep.

Even so, there were 6.7% of respondents with fixed quality of sleep, in fact there were 3.3% of respondents with decreased quality of sleep. This is because when measuring the quantity of sleep, in this study environmental factors are not strictly controlled, so that it directly affects the quantity of sleep, noisy family environment tends to affect the pattern of the baby's hood. While internal factors include the health condition of the mother of the baby who has a cough so that the baby's sleep is also disturbed.

There are several factors that influence the quantity of baby's sleep. These factors include internal factors and external factors. External factors include environmental factors.

Baby massage was carried out to give a touch to the surface of the skin carried out by the hand that aims to produce the effects of neurons, muscles, respiratory system and blood circulation and lymphoma (Wati and Renityas 2014). In theory, baby massage is beneficial for improving sleep quality, gross and fine motor development and massage can improve brain function and increase the release of growth hormone, and strengthen muscles (Kusumastuti et al., 2016).

Routine massage at bedtime results in improved duration of awakening at night in children and mothers, maternal perceptions of sleep and children's moods (ie, sleep problems, ease of sleep, and morning mood), and improved quality of maternal sleep (Mindell and Williamson 2018). Massage therapy has an effect derived from stimulation of pressure receptors which leads to increased vagal activity and decreased cortisol levels (Field 2016)

Sleep patterns vary greatly during this time, generally babies who are active sleep less than babies who are calm. Generally at the age of 3-4 months babies have developed sleep patterns at night for at least 9-11 hours. The overall total sleep of a baby is more than 15 hours. The amount of naps in infants varies greatly, generally babies undergo 2-3 naps.

Having knowledge of normative sleep patterns in infancy can help calm parents with newborns and reduce their anxiety (Huang et al., 2016). Researchers explain that adequate sleep in children is important for growth and development, maternal and family health, and infant sleep is associated with health predictors in old age (Bathory and Tomopoulos, 2017). Infant massage as

an alternative in improving the quality of baby's sleep so that growth and development can be maximized (Lutfiasari 2018).

Massage makes the child more relaxed and calm so that it can increase the effectiveness of his sleep. Reducing stress and pressure, soothing massage and reducing the production of the hormone adrenaline which will further increase the baby's immune system. Gentle massage helps the body release oxytocin and endorphins, both hormones can help overcome the discomfort that your child feels. Increase the concentration of the baby, generally the baby is massaged will sleep more soundly so that when he woke up his concentration will be fuller (Field, 2017).

AUTHOR CONTRIBUTION

Kurniadi compiled a study design, a conceptual framework, a framework for collecting data, conducting data analysis, until getting results and interpreting them.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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