

THE EFFECT OF BABY MASSAGE TOWARD BABY SLEEP QUANTITY ON THE AGE OF 3-6 MONTHS IN SOUTH SEMPAJA SUB-DISTRICT, NORTH SAMARINDA IN 2019

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ABSTRACT

Sleep is a prominent priority in babies because this time repair Neuro-brain occurs and approximately 75% of growth hormones is produced. Given the importance of sleeping time for infant's growth. The need for sleep must be fulfilled to avoid adversely influence of its growth. The way might be used to meet these needs is baby massage. The purposes of this study is to prove that massage might increase the sleep quantity for baby aged 3-6 months in South Sempaja Sub-district, North Samarinda. The study design used the Pre Experimental Design with the design of One Group Pretest and Post-test Design. The population in this study was all babies aged 3-6 months consisting of 18 respondents with sampling techniques using Non Probability Sampling selected by Purposive Sampling. The variable measured in this study is the sleep quantity of baby. This study used the Paired t-test statistical test ($\alpha = 0.05$). The results showed the sleep quantity of baby after making massage reached (13.77 hours / day) than before the massage (12.42 hours / day) with an average increase of 1.29 hours / day. The results of statistical tests showed that there was an effect of baby massage on the quantity of baby sleep aged 3-6 months with a value ($p = 0,000$). In addition, it might be concluded that there is a significant effect of baby massage on the sleep quantity. The need for the role of health professionals to enlarge promotion and education regarding the baby massage to the community, especially parents, to increase the quantity and quality of baby sleep.

Keywords: Baby Massage, Sleep Quantity

INTRODUCTION

Sleep is a prominent priority for babies because at this time repair Neuro-brain occurs and approximately 75% of growth hormone is produced. Therefore, the sleep quality and quantity of baby needs to be controlled. The quality and quantity of baby sleep might be seen from its sleeps, sleep comfort, and sleep patterns. Development of baby sleep is related to age and brain maturity. Thus, the total amount of sleep needed will be reduced by following a decrease in the proportion of babies.

Sleep is one kind of adaptation to the baby's environment. Babies aged 0-5 months will live their new life with 80-90% of sleep. Shortly after the baby is born, they usually sleep for 16-20 hours a day, which is divided into 4-5 periods. Entering the age of 2 months that the baby starts sleeping more at night than day. A newborn baby until roughly the age of 3 months will spend about 15-17 hours of sleep, with a division of 8 hours to take a nap and 9 hours to sleep at night. As the

baby grows older, their sleep time also decreases. At the age of 3-6 months the number of naps decreases, about 3 times and continues to decrease. The total amount of sleep time ranges from 13-15 hours / day. After baby aged 6 months of their sleep patterns begin to be similar to adults (Gola, 2009).

Babies have different sleep needs, in which the amount of sleep, waking up, crying will vary for each baby. During the baby phase, the growth of nerve cells is not perfect, so a longer sleep time is needed for nerve development, despite that for a maximum body, the baby needs sufficient time (Cahyaningrum & Sulistyorini, 2013; Noorbaya S, Johan H, 2018).

Furthermore, at the age of 6 months it will usually be more influenced by the surrounding environment than before and stays awake if you are angry and exhausted. Six months of age is where babies enter the prominent development stage for instances sitting, rolling, crawling, and even learning to walk. At this age, the

baby is aware of their abilities. Thus, the baby may be too excited to fall asleep or might like to wake up at midnight just because they want to practice. Sleep disorders might also be influenced by internal and external factors, including noise, congested household conditions, use of drugs, insufficient nutrition, excessive stimulation, and motivation. Babies who might not calm themselves to go back to sleep as before and they tend to be fussy. The treatment is needed to help them sleep (Guyton, 2001).

Various ways have been done to maintain human health; it is not only in adults, but it is also in children. One of the traditional treatments still grows until now is massage therapy, which has proven to be quite effective, efficient, economical, and safe. However, massage has become part of pediatrics have high effectiveness when viewed from physiological, clinical, and biochemical aspects. Given the importance of sleeping time for baby's development, the need for sleep must be truly fulfilled so as not to be affected badly by its development. One way that might be used to meet these needs is by massage. Babies who are massaged will be able to sleep well, while when they wake up, the concentration will be marvelous (Noorbaya & Reni, 2018; Roesli, 2013).

Baby massage is certainly present along with the birth of human ability to do massage therapy. Baby massage is also interpreted as a comfortable communication touch between mother and baby. Where all that has a tremendous impact on the development of the baby. Likewise, the touching is presented in gentle massage for babies is an important stimulation in the growth and development of the child. Children who get directed and regular stimulus will develop faster than children who lack or do not obtain stimulus (Syaukani, 2015).

The benefits of baby massage increase body weight and growth, endurance, concentration of the baby, making the baby sleep soundly, fostering a bond of love for parents and children (bonding), and increasing milk production. In addition to the benefits, baby massage also has complications if it is done incorrectly due to massages for instances, trauma or bruising of the skin and muscles, pain in the baby. Thus, the baby becomes fussy, muscle and bone injuries, swelling, and baby becomes increasingly fussy. But if the baby massage is done properly and softly as the result baby massage is safe, even beneficial to the duration of the baby's sleep

(Cahyaningrum & Sulistyorini, 2013).

The government in this case has given an attention to the baby through the role of the midwife itself as stated in the decision of the Minister of Health of the Republic of Indonesia Number 369 / MENKES / SK / III / 2007 concerning midwife professional standards that midwives have the authority to conduct monitoring and stimulate growth of infants and children . One form of stimulus to stimulate growth that has been done so far is baby massage (Kepmenkes RI, 2007).

Based on a preliminary study in the South Sempaja Sub-District of North Samarinda on October 2018, by interviewing 6 parents of babies aged 3-6 months, 66.7% said that babies had difficulty sleeping at night, often waking at night more than one hour, the total amount of sleep per day is less than 13 hours, and 33.3% only have a normal number of hours of sleep with an average of 14 hours per day. Babies who have not had enough sleep, the next day they often cry and fuss. However, the data above shows that there are still many babies who do not have enough sleep.

Nevertheless, giving the importance of sleep time for baby's development, the need for sleep must be truly fulfilled to avoid the adversely, which affects its development. One way that can be used to meet these needs is by massage. Babies who are massaged will be able to sleep soundly, while when they wake up, their concentration will be marvelous (Roesli, 2013). Increasing the quantity or length of sleep for babies who obtained massage is caused by an increase in the levels of serotonin secretion produced during massage (Roesli, 2013). Serotonin is the main transmitter substance that accompanies the formation of sleep by suppressing the activity of the reticulory activation system and other brain activities (Guyton, 2001). Then tryptophan will be converted to 5-hydroxytryptophans (5HTP) then into N-acetyl serotonin, which eventually changes to melatonin (Mas'ud, 2001). Melatonin has a role in sleep and makes it sleep longer and better at night (Pierpolli, 2005). This is because melatonin is produced more in the dark when the light that goes to the eye decreases (Mas'ud, 2001).

METHODOLOGY

The research design used in this study was the Pre-Experimental Design with the design of One Group Pretest-Post-test Design. The sample was some babies

aged 3-6 months in South Sempaja Sub-District of North Samarinda were 18 babies. The sampling technique used Nonprobability with purposive sampling technique. Data collection used observation sheets. One day before the massage was done, the researcher performed the pretest of the baby's sleep quantity then the next day massage is done three times per week in 2 weeks. One day after the massage the researcher conducted a post-test the quantity of baby sleep.

RESULT

RESEARCH RESULTS

1) General Data

Age distribution of babies

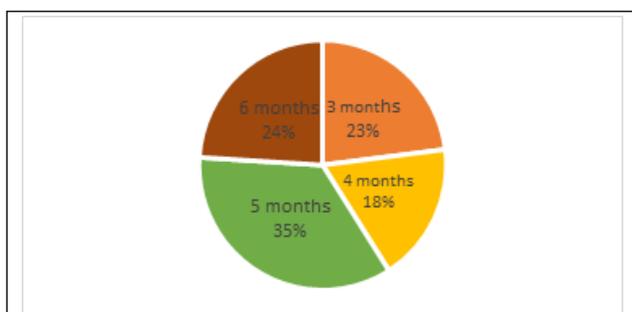


Figure 1: Age distribution of babies in South SempajaSub-district, North Samarinda in 2019.

Diagram 1 shows that of the 17 babies, almost half of them were aged 5 months as many as 6 respondents (35.2%), and a small percentage of 4 months were 3 respondents (17.6%).

2) Distribution of baby gender

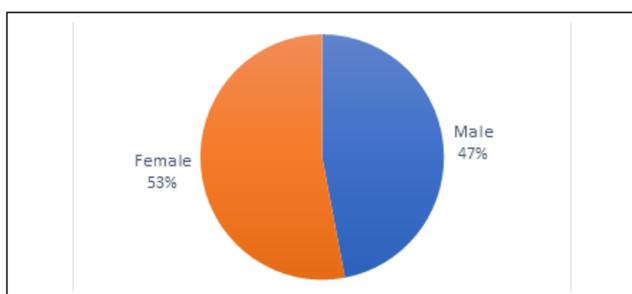


Figure 2: the distribution of respondents by age in South SempajaSub-district, North Samarinda.

Diagram 2 shows that of the 17 babies, most of them were female about 9 respondents (53%), and almost half were male about 8 respondents (47%).

3) Distribution of education level for babies' mother

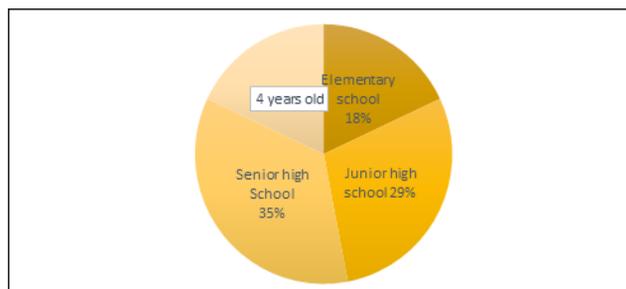


Diagram 3: The frequency distribution of education of respondents in South Sempaja Sud-district, North Samarinda in 2019.

Based on the diagram 3, it might be seen that almost part of the education of the respondent's mothers is the high school about 6 respondents (35.4%), and a small percentage is the elementary school and graduate education respectively is 3 respondents (17.6%).

4) Work distribution of babies' mother

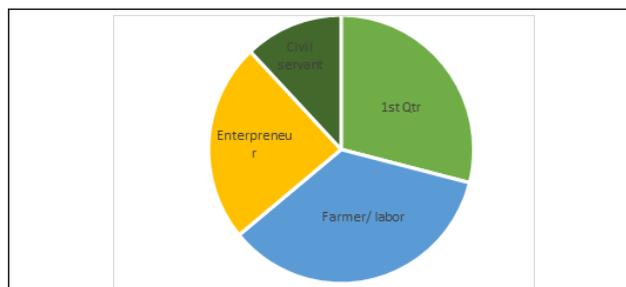


Diagram 4: shows work frequency distribution of mothers' respondents in South Sempaja Sub-district, North Samarinda in 2019.

Diagram 4 shows that almost all of the work of the respondent's mothers were self-employed about 6 respondents (35.3%), and a small percentage were housewives about 2 respondents (11.8%).

1. Special Data

1) Quantity of baby sleep before and after massage

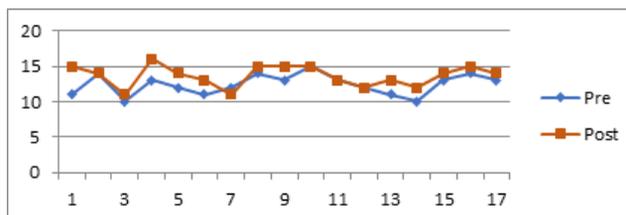


Figure 5: Distribution of quantity of baby sleep before and after massage.

Figure 5 above shows that after the massage, almost all respondents have more sleep quantity than before the massage. The data above are strengthened by the data in the table below.

Table 6: Distribution of quantity of baby sleep quantities with the ages 3-6 Months before and after massage in South Sempaja Sub-district, North Samarinda in 2019.

	N	Min	Max	Mean
Sleep quantity (pre-test)	17	10.00	15.00	12.4206
Sleep quantity (post-test)	17	11.00	16.30	13.7765

Table 6 above shows that from 17 respondents before the massage, the average quantity of respondents' sleep is 12.42 hours / day and after the massage, the average quantity of respondents' sleep is 13.78 hours / day.

Despite that from the results of the Paired *t*-test, the value of $p = 0.00$ where $p < 0.05$, so that H_0 is rejected, which means that there is the effect of baby massage on the quantity of babies aged 3-6 months in South Sempaja Sub-district, North Samarinda.

DISCUSSION

The research was conducted from January to February 2019 as shown in table 4.5 showed that the average quantity of baby sleep before massage was 12.42 hours / day and after the massage was 13.78 hours / day with an average increase of 1.29 hours. The results of the Paired *t*-test found that massage in babies might increase the quantity of sleep. The results of this study were consistent with the research conducted at the American Touch Research Institute, which shows that children who were massaged for 2x15 minutes every week for a period of 4 weeks, marvelous sleep and when they wake up the concentration is marvelous than before being given massage (Roesli, 2013).

The function and purpose of sleep are clearly unspecified, but it is believed that sleep can be used to maintain mental, emotional, health balance, reduce stress in the lungs, cardiovascular, endocrine, and others. Energy is stored during sleep, hence, it can be redirected to important cellular functions. In general, there are two physiological effects of sleep: first, effects on the nervous system that are expected to restore normal sensitivity and balance include various nervous structures and both effects on body structure by restoring health and function in body organs because

during sleep there is a decrease (Hidayat, 2006).

Babies who meet their sleep needs when their sleep duration is usually almost balanced between day and night, babies can sleep peacefully, babies feel very refreshed when they wake up in the morning and the babies feel excited to do other light physical activities. Sleep has a great effect on mental, emotional and physical health, and the body's immune system. Sleeping infants experience brain cell repair and growth hormone production, therefore the level of fulfilment of sleep needs in babies must be fulfilled. The importance of sleep time for the development of the baby, the need for sleep must be truly fulfilled so as not to adversely affect its development (Prasetyono, 2009).

Baby sleep needs vary greatly depending on the age of the baby. Newborns have accumulated hours of sleep reaching 18 hours per day and continue to decline with age (Iglowstein, Jenni & Molinari, 2003). However, it concludes on average, baby aged 1-3 months need 14.2 hours of sleep per day, and in baby aged 9-12 months the average baby needs 13.9 hours per day (Iglowstein, Jenni & Molinari 2003)

Increasing the quantity of sleep in babies given massage is caused by an increase in the levels of serotonin secretion produced during massage, in addition, there are also changes in brain waves in massage, namely the decline in alpha waves and increased beta and theta waves which might be seen through the use of EEG (electroencephalography) (Roesli, 2013). The serotonin is the prominent transmitter substance that accompanies the formation of sleep by suppressing the activity of the reticular activation system and other brain activities (Guyton, 2001). Then the serotonin synthesized from the amino acid tryptophan will be converted to 5-hydroxytryptophan (5HTP) then into N-acetyl serotonin which eventually turns into melatonin (Mas'ud, 2001). Despite that melatonin has a role in sleep and makes it sleep longer and marvelous at night (Pierpolli, 2005). This is because melatonin is produced more in the dark when light entering the eye decreases (Mas'ud, 2001).

Based on Figure 3.1, almost all respondents after being given massage the average quantity of sleep increased. Indirectly, massage for babies has a positive effect, one of which is to increase the quantity of baby sleep. Nevertheless, there were a small number of 2

respondents (11.8%) who did not experience an increase in the quantity of sleep, and there was even 1 respondent (5.9%) who experienced a decrease in the quantity of sleep after being given a massage, this was due to the measurement of sleep, the baby gains sick as the result of this condition can affect the quantity of the baby.

There are several factors that influence the quantity of baby sleep. These factors include both internal factors and external factors. External factors are environmental factors. A crowded environment and not conducive will affect the quantity of the baby's sleep (Sekartini, 2010). Despite that this study environmental factors are not strictly controlled, which also has an effect on the quantity of sleep. While internal factors are the health condition of the baby, in the first week there is one baby who has a cough, but massage is not stopped because of seeing the condition of the baby who is only a mild cough and is still possible to do massage.

Furthermore, this study found some babies drinking milk before going to bed and some did not. Therefore, babies who before bed are given to drink milk, sleep soundly and longer than those who do not drink milk before going to bed. The age factor also affects the quantity of baby sleep. Increasing age, the quantity of sleep decreases. A newborn baby until about the age of 3 months will spend its sleep 15-17 hours at the age of 3-6 months the number of naps decreases, about 3 times and continues to decrease. Likewise, the total amount of sleep time ranges from 13-15 hours / day. In babies aged 6 months their sleep patterns will be similar to adults (Gola, 2009).

CONCLUSION

1. Conclusion

Based on the results of the research that has been conducted, the researcher draws the following conclusions: The sleep quantity of babies aged 3-6 months after massage increase (average 13.78 hours / day) than before the massage (average 12.42 hours / day) with an average increase amounting to 1.29 hours / day. Further, from the data it might be concluded that there is the effect of baby massage on the quantity of sleep for babies aged 3-6 months in South Sempaja Sub-district, North Samarinda in 2019.

2. Suggestion

Based on the conclusions above, there are several

efforts that need to be considered:

1) For health professionals

Health workers need to create promotions and education about baby massage to the community, especially parents to increase the quantity and quality of baby sleep. This can be organized by providing counselling accompanied by demonstrations and giving leaflets that can be done through Medial Centre by health workers.

2) For the community

This research is expected to motivate baby mothers to learn of the baby massage despite that they might massage their babies properly.

3) For researchers

Future studies should use a larger number of samples. Giving a massage treatment should be done by the researchers themselves. Likewise, the massage can be done equally between one baby and another. Furthermore, the research might be conducted by assessing the quality of baby sleep not only for the quantity.

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