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The influence of infant massage on infant sleep duration 3-12 months in posyandu delima desa bersujud kecamatan simpang empat kabupaten tanah bumbu

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Abstract: The infant sleep duration on an average of ± 14 hours/day, where the number of naps on average 2 times for 1-2 hours, while at night is spent on average 11-12 hours. Infants ages 3-12 months on his own began to fail because it can recognize people, crawling, and exploring the environment. Given the importance of sleep for the baby's development, the necessary of sleep to be completely fulfilled in order not to adversely affect development. One non-pharmacological therapy to overcome the problem of sleeping baby is a baby massage. The aim of this study to determine the influence of infant massage on sleep duration ages 3-12 months. The study design was pre experimental with one group pretest posttest. The sample in this study were 20 infants aged 3-12 months with a random sampling technique. The study results was Wilcoxon test, there are differences in pretest value less than the normal duration of sleep as many as 12 infants (60%) and value posttest normal sleep duration were 12 infants (60%) indicated that the p value of 0.000 (<0.05). The conclusion of this study there was influence of infant massage on infant sleep duration. In suggesting to the baby's mother to the routine gave her baby and to find information on how to massage the baby.
Keywords: Infants 3-12 months, Sleep Duration, Infant Massage.

1. Introduction

Infancy is a golden period for children's growth and development so it needs special attention. One of the factors that influence a baby's growth is sleep and rest. Deep sleep is very important for a baby's growth because during sleep the baby's brain growth reaches its peak. Also, during sleep, the baby's body produces three times more growth hormone when the baby sleeps than when the baby wakes up (Vina, 2010, in Minarti, N.M.A & Kadek, C.U, 2012).

Sleep is a top priority for babies because at this time neuro-brain repair occurs and approximately 75% of growth hormone is produced. Newborns usually sleep long, around 17-18 hours/day in the first week after birth. A newborn baby until about 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. Babies are said to have good sleep quality when the length of sleep is usually almost balanced between day and night, babies can sleep peacefully, babies feel very fresh when they wake up in the morning and babies feel excited to do other light physical activities (Siti, MA, et al., 2015).

According to Wong, DL (2003) in the pediatric nursing book suggested the need for baby sleep, infants aged 1 week - 1 month were 16½ - 15½ hours/day, ages 3-6 months 15 - 14¼ hours/day, and ages 9-12 months 14 - 13¾ hours/day. In general, babies aged 3-12 months usually sleep an average of 14 hours a day, where the average nap time is 2 times for 1-2 hours. While night time is spent an average of 11-12 hours. Babies at this age have a disturbed sleep pattern because they are used to recognizing people, crawling and like to explore the environment.

In Indonesia, there are quite a lot of babies who experience sleep problems, which is around 44.2% of babies experience sleep disorders such as frequent waking at night. But more than 72% of parents consider sleep disorders in infants, not a problem or just a small problem, this was revealed by a 2004-2005 study conducted in five major cities in Indonesia (Jakarta, Bandung, Medan, Palembang, and Batam) (Minarti, NMA & Kadek, CU, 2012).

Roesli (2013, in Mardiana, L & Diah, E.M, 2014), considering the importance of sleeping time for infant development, the need for sleep must be truly fulfilled so as not to adversely affect its

development. Currently, various therapies have been developed, both pharmacological and non-pharmacological therapies. According to Dr. Andreas, one of the non-pharmacological therapies to overcome the problem of infant sleep is a baby massage. Baby massage is a slow and gentle swipe on the entire baby's body starting from the legs, abdomen, chest, face, hands, and back. Baby massage is a form of tactile stimulation. Feeling stimulation is the most important in development. Sensory touch is the most developed sensory at birth. (Hikmah, 2010, in Yuliana, I & Hani, R.M, 2015).

Increasing the quantity or length of sleep a baby does is caused by an increase in the levels of serotonin secretion produced during the massage. Serotonin is the main transmitter substance that accompanies the formation of sleep by suppressing the activity of the system activating reticulation and other brain activities. Serotonin, which is synthesized from the tryptophan amino acid, will be converted to 5-hydroxytryptophan (5HTP) and then into N-acetyl serotonin which eventually changes to melatonin. Melatonin plays a role in sleep and makes it sleep longer and more sleepy at night.

Every movement related to massaging has benefits, for example swipe movements can soothe the baby, feeling squeeze can make the baby's muscles strong and blood circulation. Whisk technique is used to loosen tissue, all baby massage techniques complement each other, if done in full, the results will be better (Shadik Naimah, 2011).

T. Field from the University of Miami, USA (2008) states that massage therapy can make sleep more sound, massage therapy as part of alternative medicine, is now accepted empirically as a means to help growth, reduce pain, increase alertness, reduce depression and improve immune system function in newborns. This baby massage will provide greater benefits if done every day from birth until the age of 12 months. The benefits of this baby massage can be done easily because in general the science of baby massage is easy to do with several exercises and does not require expensive fees.

Based on the Preliminary Study On March 17, 2016, from interviews, there were still many parents of infants who did not know the benefits of baby massage. The reason parents massage their babies.

2. Research Methodology

2.1. Research methods

This study uses the Pre Experiment design with one group pre-test post-test, this design also has no control group, but at least the first observation (pretest) has been done which allows testing of changes that occur after the existence of an experiment (program). Samples consist of affordable sections of the population that can be used as research subjects through sampling. The sampling technique is not based on literature, random or regional, but based on the existence of certain objectives, the technique is usually done because of limited time, energy and funds so that it does not take large samples (Arikunto, 2010). The sample selection was also based on inclusion and exclusion criteria. With the following criteria. The sampling technique in this study is using probability sampling with simple random sampling, namely the selection of samples in the simplest way and each element randomly selected (Nursalam, 2013).

3. Result and Discussion

Result

3.1 Characteristics of Respondents

3.1.1 Characteristics of Respondents by Age

Table of Frequency Distribution of Respondents by Age in the Region of Posyandu Delima Desa Bersujud District of Simpang Empat, Regency of Tanah Bumbu

No	Age (Month)	Frequency	(%)
1	3 – 6 month	11	55
2	7 – 9 month	5	25
3	10 – 12 month	4	20
	Total	**20**	**100**

Based on the table above it is known that the majority of infants aged 3-6 months were 11 babies (55%), a small percentage were 10-12 months old as many as 4 babies (20%), and a small proportion was aged 7-9 months as many as 5 babies (25%).

Based on the results of data analysis it can be seen the changes in duration of infants aged 3-12 months in the Delima Village Bersujud Posyandu Area before and after the delivery of infant massage interventions. Before being given a baby massage, it was found that most of the sleep duration was less than normal as many as 12 babies (60%) and almost half the normal sleep duration was 6 babies (40%). After being given a baby massage it was found that most of the sleep duration was normal as many as 12 babies (60%), a small duration of sleep was less than 3 babies (15%), and nearly half of sleep duration was more than 5 babies (25%). Because the baby's massage accompanied by the mother is why the baby feels safe and comfortable, the pressure during massage is only gentle pressure so the baby does not feel pain and cry. And as a result of the interview, the baby sleeps better, does not fuss, increases body weight.

It was seen the change in the duration of sleep aged 3-12 months in the Posyandu Delima Desa Bersujud District, Simpang Empat District, Tanah Bumbu Regency before and after giving a baby massage intervention. It was found that after hypothesis testing using the Wilcoxon Signed Rank Test on a computerized program with 95% confidence level ($p < 0.05$) conducted to determine the presence or absence of the influence of infant massage on the sleep duration of infants aged 3-12 months in the Region Posyandu Delima Bersujud Village Simpang Empat Subdistrict Tanah Bumbu Regency obtained asymptote sig (2-tailed) value or p-value = 0,000 <a = 0.05 so it can be concluded that there was an effect of infant massage on the duration of sleep for infants aged 3-12 months in the Posyandu Area Delima of Bersujud Village, Simpang Empat District, Tanah Bumbu Regency.

3.1.2 Characteristics of Respondents by Gender

Table of Frequency Distribution of Respondents by Age in the Region of Posyandu Delima Desa Bersujud District of Simpang Empat, Regency of Tanah Bumbu

No	Gender	Frequency	(%)
1	Male	9	45
2	Female	11	55
	Total	**20**	**100**

Based on the table above, it is known that most of the 11 babies (55%) were women and almost half were 9 babies (45%) were men. This study is consistent with the study of Ningtyas, DA (2011) differences in sleep duration at 0 - 6 months of age who obtained and did not receive infant massage therapy at RSKIA Ummi Khasanah, Banyul Regency, Yogyakarta, indicating that the sleep duration distribution of infants aged 0-6 months may be of sleep duration Infants treated with infant massage were as many as 15 infants (75.7%), an increase of 8 infants (30.8%) and the lowest was a decrease of 3 infants (11.5%), indicating that infant massage therapy can maintain and increase the duration of baby's sleep.

Babies who have been given massages on average sleep duration are normal. Indirectly, massage on babies has a positive effect, one of which increases the duration of infant sleep. However, there are a small number of 3 respondents who did not experience changes in sleep duration after being given a massage. This is because at the time of measuring the duration of sleep, the baby experiences pain and several factors influence that is a crowded environment and not conducive will affect the duration of the baby's sleep.

3.2 Research Results

3.2.1 Duration of Sleeping Babies Before Doing Baby Massage

Duration Distribution of Baby Sleep Frequency Before Performing Infant Massage in the Subdistrict of Delima Desa Bersujud Simpang Empat District, Tanah Bumbu Regency, 2016

No	Sleep duration before	Frequency (baby)	(%)
1	Less	12	60
2	Normal	8	40
3	Over	0	0
Total		**20**	**100**

Based on the table above it is known that most of the sleep duration is less than normal as many as 12 babies (60%) and almost half of the duration of sleep is normal as many as 6 babies (40%). The results of this study are in accordance with T. Field's research from the University of Miami, USA (2008) which states that massage therapy can make sleep more sound, massage therapy as part of alternative medicine, is now accepted empirically as a means to help growth, reduce pain, improve alertness, reduce depression and improve immune system function in newborns. This baby massage will provide greater benefits if done every day from birth until the age of 12 months. The benefits of this baby massage can be done easily because in general the science of baby massage is easy to do with several exercises and does not require expensive fees.

Babies who get baby massage treatment have a longer sleep duration, sleep more calmly and not fussy. This is consistent with the opinion of Roesli (2009) that infant massage can increase serotonin levels which will produce melatonin which plays a role in sleep and makes sleep longer and sleep at night. Serotonin will also increase the capacity of receptor cells that function to bind glucocorticoids (adrenaline, a stress hormone). This process causes a decrease in the levels of the hormone adrenaline (stress hormone) so that the baby after the massage will appear calmer and not fussy.

3.2.2 Duration of Baby Sleep After Baby Massage

The Distribution of the Duration of Baby Cribs After Massage for Babies in the Regional Areas of Delima Desa Bersujud in Simpang Empat District, Tanah Bumbu Regency, 2016.

No	Sleep duration after	Frequency (baby)	(%)
1	Less	3	15
2	Normal	12	60
3	Over	5	25
	Total	**20**	**100**

Based on the table above it is known that most of the sleep duration is normal as many as 12 babies (60%), a small duration of sleep is less than 3 babies (15%), and nearly half of sleep duration is more than 5 babies (25%). A calm and relaxed state causes brain waves to slow down, the slower it finally makes a person can rest and fall asleep. Changes in brain waves that occur are a decrease in alpha waves and increased beta theta waves, where brain waves are very influential in the process of sleep (Roesli, 2009; Yahya, 2011).

3.3 Effect of infant massage on sleep duration

The Influence of the Duration of Babies' Sleep Before and After Baby Massage in the Delima Desa Bersujud Posyandu Area, Simpang Empat District, Tanah Bumbu Regency, 2016

		After						Total	%	P= *value*
		Less	**%**	**Normal**	**%**	**Over**	**%**			
Before	**Less**	3	25	8	66,7	1	8,3	12	100	0,000
	Normal	0	0	4	50	4	50	8	100	
Total		3		12		5		20	100	

Based on the table above, it was found that from 12 babies the duration of sleep was less normal before the massage, after massage, most (66.7%) had normal sleep duration and from 8 babies the normal sleep duration before massage, after massage (50%) the duration of sleep be above normal.

The results of Wilcoxon test above that the baby massage on sleep duration has increased after a baby massage with a significant value of p-value 0,000 or can be called <0,05, therefore H0 is rejected and H1 is accepted which means there is an influence of infant massage on sleep duration 3-12 months. But in this study, several factors influence the duration of infant sleep. These factors include internal and external factors. External factors include environmental factors. A busy and not conducive environment will affect the duration of sleep. In this study environmental factors are not tightly controlled, which affects the duration of sleep. While the internal factors include the health condition of the baby.

In addition to these factors, the habit of drinking milk before going to bed will also affect the duration of infant sleep. Milk contains alpha protein which can increase tryptophan levels. Tryptophan is a precursor of the hormones melatonin and serotonin which serve as a link between nerves (neurotransmitters) and regulators of habits (neurobehavioral). So that in addition to influencing the pattern of awareness, perception, and pain will also affect sleep patterns (Widianto, 2005). The age factor also affects the duration of infant sleep. As age increases, the duration of sleep decreases.

4. Conclusion

Most (60%) of a baby's sleep duration before the massage is less normal. Most (60%) of the baby's sleep duration after the massage is normal. There is the effect of infant massage on the duration of sleep for infants aged 3-12 months in the Posyandu Delima Berujud Village in Simpang Empat District, Tanah Bumbu Regency.

5. Recommendations

In the next study, it was hoped that the parents of infants who did their baby massage, could use a larger number of samples, could use the research design with the dick group, and control the influential outside variables on this study so that the results of the study could be more significant. Posyandu officers and health workers from the Delegation of Bersujud Village are expected to disseminate the method of giving babies massage to the community, especially for mothers who have recently given birth or are immunizing their babies so that the mother can do the baby massage as early as possible. one intervention that can help increase the duration of infant sleep.

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