



## Influence of baby massage on sleep quantity in baby of 3–6 months age in Tirawuta health center, East Kolaka District, Indonesia<sup>☆</sup>



Sri Wahyuni<sup>a,\*</sup>, Sari Ari Lestari<sup>a</sup>, Wa Ode Aisa Zoahira<sup>a</sup>, Sitti Masriwati<sup>a</sup>, Lee Siew Hoon<sup>b</sup>

<sup>a</sup> College of Nursing Sciences Mandala Waluya Kendari, Southeast Sulawesi, Indonesia

<sup>b</sup> Faculty of Nursing, Lincoln University College, Malaysia

Received 25 September 2019; accepted 11 November 2019

### KEYWORDS

Baby massage;  
Quantity of sleep in  
baby;  
Sleep disorder

**Abstract** Based on the results of the initial survey it was known that the number of babies who visited Puskesmas Tirawuta in 2017 were 42 in number. Whereas in 2018 March–May there were 25 babies at Puskesmas Tirawuta, East Kolaka District. In addition, the initial interview on March 26, 2018 showed that the author did this at Puskesmas Tirawuta, and it obtained a mother who had a baby and visited for immunizations. About 7 people said the baby had trouble in sleeping and sometimes they were fussy. Besides, some report frequent waking up when sleeping at night, crying when waking up and so on. Among the mothers who brought their babies to Puskesmas, 7 mothers said they knew or had heard about baby massage but is not knowledgeable how to massage properly. About 3 people said that at the same time they did not know how to massage a baby. The purpose of this study was to determine the effect of baby massage toward the quantity of sleeping among the babies aged 3–6 month at the Puskesmas Tirawuta in East Kolaka District. The design of this study is quasi-experimental where the design used was “One Group Pretest-Posttest Design”. The population in this study was the number of babies aged 3–6 months with decreased sleeping quantity. Nearly 25 babies with a sample of 13 respondents were there. Data was processed using Paired T-Test. The results of the analysis obtained the value of  $t$  count = 3.742 > 1.356 where  $t$  table for  $df$  12 with the results of statistical tests was significant at a value  $0.003 < 0.20$ . This showed that there was a significant effect of giving baby massage on the quantity of sleep among babies aged 3–6 months at Puskesmas Tirawuta, East Kolaka District. From the results of the research, suggestions were proposed that health workers need to conduct counseling, demonstration and distribution of leaflets. Hence, mothers were motivated to massage their babies. This could be done through Integrated Healthcare Center activities.

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<sup>☆</sup> Peer-review under responsibility of the scientific committee of the 3rd International Conference on Healthcare and Allied Sciences (2019). Full-text and the content of it is under responsibility of authors of the article.

\* Corresponding author.

E-mail address: [sriwahyuni.phd83@gmail.com](mailto:sriwahyuni.phd83@gmail.com) (S. Wahyuni).

<https://doi.org/10.1016/j.enfcli.2019.11.060>

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## Introduction

Baby massage is a type of stimulation that helps in the development of cells in the brain. A child who gets a directed and regular stimulus will develop faster than a child who is less stimulated.<sup>1</sup> The quantity of infant sleep is very influential on the growth and development of the brain; therefore, the quality and quantity of infant sleep needs to be maintained.<sup>2</sup>

Research (WHO) at the American Institute of Touch Research among 20 children who performed massage for 2 × 15 min within a period of 5 weeks experienced 50% changes in brain waves compared to before massage.<sup>3</sup> A research team from Warwick Medical School and the Institute of Education from the University of Warwick examined 9 types of massage movements were applied to 598 infants under the age of 6 months. From the results of these studies one of them mentioned that massage can affect the release of the hormone melatonin for sleep as a result the infants can have regular sleep patterns.<sup>3,4</sup>

In Indonesia about 44.2% of babies experience sleep disorders such as often waking up at night. However, more than 72% of parents consider sleep disturbance in infants not a problem or just a small problem. Data from the Southeast Sulawesi Provincial Health Office shows that infant health services are 30.07% especially in East Kolaka Regency. Based on a preliminary survey at the Tirawuta Public Health Center by interviewing 25 parents of infants, 7 said their babies had trouble sleeping and were sometimes fussy. Based on the description of the problem, researchers are interested in conducting the present research.<sup>5</sup>

## Methods

This type of research is quasi-experimental where the design form used is one group pre-test-post design. The population in this study were all infants aged 3–6 months in Tirawuta Public Health Center, East Kolaka Regency in 2018 totaling 25 infants. In this study, researchers took 13 respondents with a sampling technique using simple random sampling.

There was data collection using a questionnaire, while data analysis using paired *T* test.

## Results

### Infant characteristics

**Table 1:** Infant characteristics by sex shows that from 13 respondents who were male were 5 people (38.5%) and respondents who were female were 8 people in number (61.5%).

**Table 2:** Characteristics of Infants according to age group shows that among 13 respondents were mostly in the age group of 5–6 months with the number of respondents 10 people (76.9%) and the least are at the age of 3–4 months with the number of respondents 3 people (23.1%).

### Univariate analysis

**Table 3** shows that the quantity of baby sleep before massage. The lowest quantity of baby sleep is the first

**Table 1** Distribution of respondents by gender in Puskesmas Tirawuta East Kolaka Regency.

No	Gender	Total (n)	Percentage (%)
1	Male	5	38.5
2	Female	8	61.5
	Total	13	100

**Table 2** Distribution of respondents by age group in Tirawuta Health Center, East Kolaka Regency.

No	Age group (Year)	Total (n)	Percentage (%)
1	3–4 month	3	23.1
2	5–6 month	10	76.9
	Total	13	100

**Table 3** Distribution table of respondents according to the quantity of sleep babies before and after an infant massage at the Tirawuta Health Center, East Kolaka Regency.

No.	Initials	Age	Sleep quantity		Increases sleep quality of baby
			Pre-test	Post test	
1	MB	6 month	12 h	14 h	2 h
2	MZ	6 month	13.5 h	15 h	1.5 h
3	AF	6 month	13.5 h	14 h	½ h
4	AL	6 month	13 h	14 h	1 h
5	AN	6 month	13 h	13.5 h	½ h
6	AF	3 month	13.5 h	15 h	1.5 h
7	ML	3 month	14 h	14.5 h	½ h
8	MY	5 month	14 h	14.5 h	½ h
9	JH	5 month	13.5 h	14.5 h	1 h
10	GT	5month	13.5 h	14,5 h	1 h
11	BL	5month	14 h	14.5 h	½ h
12	RS	6 month	13.5 h	14.5 h	1 h
13	RN	4 month	13 h	14.5 h	½ h

**Table 4** Distribution table of respondents according to the quantity of baby's sleep before massage at Tirawuta Health Center, East Kolaka Regency.

No	Sleep quantity pretest	Pretest	
		<i>n</i>	%
1	Enough	5	38.5
2	Less	8	61.5
	Total	13	100

**Table 5** Distribution of respondents according to the quantity of baby sleep after massage at Tirawuta Health Center, East Kolaka Regency.

No	Sleep quantity	Post test	
		<i>n</i>	%
1	Enough	12	92.3
2	Less	1	7.7
	Total	13	100

**Table 6** Effect of infant massage on the quantity of sleep.

No.	Sleep quality	Mean	SD	<i>T</i> count	<i>T</i> table	<i>p</i> value
1.	Pre test	1.62	0.506	3.742	1.356	0.003
2.	Post test	1.08	0.277			

respondent with enough sleep quantity of 12 h. While the highest quantity is the seventh and eighth respondents with a sufficient quantity of sleep for 14 h. While after massaging the lowest quantity of infant sleep is the fifth respondent with enough amount of sleep of 13.5 h. Whereas the highest quantity of sleep was seen among 2 respondents and 6 with the quantity of baby sleep that is sufficient for 15 h.

The results of data processing about the research variables can be described as follows.

Table 4 shows that at the time of the pre-test among 13 respondents there were 5 respondents (38.5%) who had sufficient quantity of sleep and 8 respondents (61.5%) whose quantity of sleep was lacking.

Table 5 shows that at the time of the post-test among 13 respondents showed that there were 12 respondents (92.3%) who had enough quantity of sleep and 1 respondent (7.7%) without optimum quantity of sleep.

### Bivariate analysis

Effect of infant massage was analyzed using sample paired *t*-test (paired test) to see the effect of infant massage on the quantity of sleep among infants aged 3–6 months. The analysis results can be seen in Table 6.

Table 6 shows that the value of the statistical test results obtained *t* value > *t* table, where  $t = 3.742 > 1.356$  where *t* table for *df* 12 with a significant  $0.003 < 0.20$ , it can be concluded that  $H_0$  is rejected, and  $H_a$  is accepted. This shows that there is a significant effect of infant massage

on sleep quantity of infants aged 3–6 months in Tirawuta health center.

### Discussion

The results of this study indicate that the statistical test results obtained *t* value > *t* table =  $3.742 > 1.356$  where *t* table for *df* 12 with a significant  $0.003 < 0.20$ . This shows after giving massage 3×/week the baby's mother says the baby sleeps  $\geq 9$  h a night, at night the baby wakes up  $\leq 3$ × and not more than 1 h, the baby is not fussy before going to sleep, and when he wakes up in the morning the baby looks fit and cheerful compared to not doing the massage based on the results of the pretest before the massage. In case of babies without giving message the baby's mother reported that the baby slept late  $\leq 9$ h, at night the baby woke up  $\geq 3$ ×, the baby was sometimes fussy when going to sleep and when he woke up in the morning the baby was seen limp.

This massage technique for infants uses "tigers in the tree" that aims to make the baby sleep more soundly so that when he wakes up the baby's concentration increases and builds bonds of affection between parents and children.<sup>6</sup> The condition of the baby when giving massage must be in a healthy condition. This massage is done 3 times a week for 4 weeks within 10–20 min using baby oil. The media used is the Baby massage procedure to spread awareness and knowledge.

Based on the results of this study, the researchers assume that baby massage is very useful in infants and it can make

babies sleep soundly. So it is hoped that the baby's mother will pay more attention to the baby especially if it is difficult to sleep because sleep is one of the factors that influence the growth and development of the baby, which greatly affects physical development also affects the development of his attitude later.<sup>7,8</sup>

Based on the results of the study it is expected to be used as an objective information about the effect of infant massage on infant sleep quantity.

### Conflict of interest

The authors declare no conflict of interest.

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