



The Effect of Massage for Babies Aged 0-6 Months on Sleep Quality

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ABSTRACT

Scientifically, massage provides a stimulus to hormones in the body, a substance that regulates functions such as appetite, sleep, memory and learning, temperature regulators, mood, behavior, vascular function, muscle contraction, endocrine system regulators (regulators of metabolism, growth, and puberty) and depression. The research method is carried out using quantitative research methods with a Quasi-Experimental approach using Wilcoxon statistical tests (Abnormally Distributed). The population in this study was all mothers who had babies. The sample in this study was mothers who had babies aged 0-6 months in Bantarjaya Village using the total sampling technique, the total sample number of 40 people. Data collection with questionnaires. Data analysis is a univariate, bivariate and multivariate analysis. The output of this study is an article published in an Accredited National Journal and the production of HKi in the form of a baby massage pocket book. The results showed that out of 40 babies based on the quality of baby sleep during pretest, the most in babies whose sleep quality was not good, which was 60.0% compared to the quality of good sleep of babies. After a baby massage (post test), the quality of a good baby's sleep increased to 31 people (77.5%). Meanwhile, the quality of sleep of babies who are not good is reduced to 9 people (22.5%). The results of statistical tests are known to Asymp. Sig is worth 0.000 ($P < 0.05$), then it can be concluded that the hypothesis is accepted. This means that there is a difference between the Pretest and Posttest results, so it can also be concluded that there is an influence on the implementation of baby massage by improving sleep quality in babies aged 0-6 months in Bantarjaya Village, Pebayuran District, Bekasi Regency in 2022. The dominant characteristic variable is Education. There needs to be a role from health workers and the Health office to increase the knowledge and motivation of mothers in doing baby massage, the aim is to improve the quality of baby sleep and prepare for baby growth and development through community empowerment such as cadres, community leaders and religious leaders.

Keywords: Baby, Massage, Sleep Quality

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INTRODUCTION

Infants are children under one year old who are just entering the early stages of life marked by rapid development. One of the factors that influence development in infants is rest or length of sleep. The baby's body will produce growth hormone when sleeping, so the baby needs enough sleep to get optimal development.¹

Sleep disorders in babies become a form of problems faced by parents.² Based on WHO data in 2012 in the journal *Pediatrics*, as many as 33% of babies experience sleep disturbances.³ In Indonesia, from research conducted by Sekartini in 2004, 44.2% of children under 3 years of age experienced sleep disturbances.⁴ In the Yogyakarta area in 2018, as many as 13.6% of babies who were not routinely given massage therapy experienced sleep problems.⁵

Baby sleep quality is a measure used to assess the ease with which a baby can initiate and maintain sleep. Sleep quality is good if the length of sleep is balanced between sleep at night and during the day.³ Babies with poor sleep quality have a negative impact on their development, such as babies becoming easily emotional and decreasing concentration and body immunity. Factors that affect the quality of sleep in infants include activity or fatigue, environment, health conditions and nutritional fulfillment.⁶

Babies aged 6-12 months need sufficient sleep, so it is necessary to provide external stimulus in the form of massage therapy. One of the massage therapies that can be done is baby massage.⁴

Baby massage helps increase serotonin secretion levels. Serotonin is a neurotransmitter or hormone that carries messages from one part of the brain to another. Serotonin hormone will be converted into melatonin. The function of melatonin is to provide stimulation in the form of drowsiness and provide calm which helps the baby sleep soundly.⁷

This is supported by the research of Field et al (2016) which states that massage therapy using lotion has a significant effect on the total sleep time of babies at night compared to the sleep time of babies who are given massage therapy without using lotion. Another study conducted by Rahayu et al (2016) stated that after massage in the intervention group there was an increase in sleep quality compared to the control group. This researcher also found that one of the factors that greatly affects the quality of sleep in infants is age which influences the body's immune system. A baby's weak immune system is easily susceptible to disease germs, causing the quality of sleep to be disrupted.⁷

The period of growth and development of a child that runs normally requires support from the family and the surrounding environment. Growth and development begins during pregnancy until the age of the first two years of life. At this time, children's needs began to be considered, starting from the intake of adequate nutrition for growth, besides that stimulation was also needed during the child's development period. During the period of growth and development the child is always monitored, which is adjusted according to the age of the child.⁸

The Golden Period in the growth and development of children certainly needs special attention, one of the influential factors is sleep and rest. Good sleep is very important for the growth of the baby, with sleep the brain will reach maximum development at its peak. Growth hormone production will be produced three times more when the baby sleeps.⁸

Based on WHO data (world health organization) in 2012 which was listed in the journal Pediatrics, it was noted that around 33% of babies had sleep problems. Research conducted by Hiscock 2012 in Melbourne, Australia, found that 32% of mothers reported recurring sleep problems in their babies. The research illustrates that there are still many sleep problems experienced by infants and these events can persist or recur.⁹

According to Fauziah Rohmawati (2018) who quoted Saputra's opinion, given the importance of sleep time for baby's development, his sleep needs must be fulfilled so that it does not adversely affect his development. The stages of infant development are gross motor skills, fine motor skills, speech skills, language and intelligence, social and independent abilities. Inadequate sleep and poor sleep quality can result in physiological and psychological balance disorders. Physiological effects include decreased daily activities, feeling tired, weak, poor neuromuscular coordination, slow healing process and decreased immune system. While the psychological impact includes more unstable emotions, anxiety, lack of concentration, lower cognitive abilities and combining experiences. One way that can be done to meet the baby's sleep needs is by physical exercise. Physical exercise has a role to support the growth and development of the baby, this physical exercise can be done through massage techniques.⁵

Baby massage is a slow and gentle stroking movement all over the baby's body starting from the feet, stomach, chest, face, hands and back of the baby. A baby's instinct responds to a mother's touch as a form of protection, attention, and an expression of love. We can see babies who get touched look so comfortable and calm. The higher the frequency of touch, the closer the inner connection that exists between the baby and those closest to him. One of the responses that can be seen if massage is done regularly is the sleep response. Sleep is part of the healing, repair and physiological processes that cycle and alternate with longer periods of wakefulness. Achieving good quality sleep is important for health, as well as recovery from illness. Half of the baby's time is used for active sleep or stage sleep Rapid Eye Movement (REM).¹⁰

Scientifically, massage stimulates hormones in the body, a substance that regulates functions such as appetite, sleep, memory and learning, regulates temperature, mood, behavior, blood vessel function, muscle contraction, regulates the endocrine system (regulates metabolism, growth, and puberty) and depression. Baby massage can also increase baby's weight, help babies who can't sleep well, lack of appetite, and can't concentrate.¹¹

According to Dr. Tiffany Field, massage given to babies is more like strokes or touches, because of that it is also called stimulus touch, and can be done every day for 20 minutes for a month. Massage was not only able to make him more relaxed, but also can help stimulate the nerves of his brain.

According to Soedjatmiko, massage for babies is beneficial for helping the baby's immune system, helping to train relaxation, making sleep deeper, and helping regulate the digestive and respiratory systems.¹¹

Based on the results of Paldi's research (2016) concerning the effect of baby massage on the sleep quality of babies 6-12 months in Sungai Jaga A Village, Sungai Raya District, Bengkayang Regency, it was concluded that after being given baby massage, the data showed a change with the largest number in good sleep quality, 87.1% (27 respondents) and poor sleep quality 12.9% (4 respondents).¹²

Based on an initial survey conducted by researchers in Bantarjaya Village in October through interviews with 4 mothers who massaged their babies, there was a difference in the baby's sleep before and after the massage. Based on the description of the background above, the researcher is interested in conducting research on infant massage and takes the title The Effect of Infant Massage Aged 3-6 Months on the Sleep Quality of Babies in the Village. Bantarjaya Pebayuran District, Bekasi Regency in 2022.

METHOD

The research method was carried out using quantitative research methods with a quasi-experimental approach using the Wilcoxon statistical test (non-normal distribution). The population in this study were all mothers who had babies aged 0-6 months in Bantarjaya Village, namely 40 peoples. The sample in this study were mothers who had babies aged 0-6 months in Bantarjaya Village using the total sampling technique, the number of samples was 40 peoples. Data collection with a questionnaire. Data analysis is univariate, bivariate and multivariate analysis.

RESULTS

1. Univariate Results

Table 1. Results of Univariate Analysis of the Characteristics of the Research Sample

Characteristic	n	%
Baby's Gender:		
- Man	25	62,5
- Woman	15	37,5
Maternal Education :		
- Low	23	57,5
- High	17	42,5
Mothers Employee :		
- Unemployee	15	37,5
- Employee	25	62,5
Baby's Age :		
- <3 months	20	50
- ≥3 months	20	50
Total	40	100

Based on table 1 above, it shows that the percentage of 40 babies based on the sex of babies aged 0-6 months is the most, namely in the male sex, which is 25 people (62.5%), the most maternal education

in mothers with low education, namely 23 people (57.5%) The percentage of baby age is the most at the age of 6 months, which is 14 people (35%). The most maternal work in working mothers was 25 people (62.5%), and for infants aged <3 months and (3 months) as much as 20 people each (50%).

Table 2 Percentage of Baby Sleep Quality Before (Pretest) and After (Posttest) Baby Massage

Sleep Quality	Pretest		Posttest	
	f	%	f	%
No Good	25	62,5	5	12,5
Rest Easy	15	37,5	35	87,5
Total	40	100 %	40	100 %

Based on table 2 above, it shows that the quality of sleep for babies during the pretest was mostly in babies whose sleep quality was not restful, namely 62.5% compared to the quality of sleep for babies who had a good night's sleep. After the baby massage, the quality of the baby's sound sleep increased to 35 people (87.5%). Meanwhile, the quality of sleep for babies who were not soundly reduced to 5 people (12.5%).

2. Bivariate Results

Table 3 Statistical Test Results Wilcoxon test The Effect of Baby Massage on the Quality of Baby Sleep

Sleep Quality	Asymp. Sig
Pretest	0,000
Posttest	

Based on table 3 above, it shows that the statistical test results are known to be Asymp. Sig has a value of 0.000 (P <0.05), so it can be concluded that the hypothesis is accepted. This means that there is a difference between the results of the Pretest and Posttest, so it can also be concluded that there is an effect of doing baby massage with improving sleep quality in babies aged 0-6 months in Bantarjaya Village, Pebayuran District, Bekasi Regency in 2022.

Table 4. The relationship between the sex of the baby being massaged and the quality of the baby's sleep

Baby's Gender	Baby Sleep Quality				Amount		P. Value	OR (CI 95%)
	No Good		Rest Easy		n	%		
	f	%	f	%				
Male	19	76,0	6	24,0	25	100	0,018	6,333 (1,543-26.003)
Female	5	33,3	10	66,7	15	100		
Total	24	60,0	16	40,0	40	100		

Based on table 4 above, the quality of sound sleep for babies with the characteristics of babies who are female is 10 people with a proportion of 66.7% and male sex as many as 6 people with a proportion of 24%. The difference in proportion between the sex characteristics of baby girls and boys is 42.7%.

From the statistical test, the value of $P = 0.018$ ($p < 0.05$) which means that the difference in proportions is significant, thus there is a significant relationship between the sex characteristics of the baby who is massaged to the quality of the baby's sleep.

The results of the OR calculation show the results of $OR = 6.333$ (95% CI: 1.543-26.003) meaning that it can be concluded that the sex of baby girls who do baby massage has a 6.333 times greater risk of experiencing quality baby sleep well compared to babies with male sex man.

Table 5 The relationship between the education of mothers who do baby massage on the quality of baby sleep

Mothers Education	Baby Sleep Quality				Amount		P. Value	OR (CI 95%)
	No Good		Rest Easy		n	%		
	f	%	f	%				
Low	18	78,3	5	21,7	23	100	0,009	6,600 (1,621-26.871)
High	6	35,3	11	64,7	17	100		
Total	24	60,0	16	40,0	40	100		

Based on table 5 above, the quality of a good baby's sleep with the characteristics of mothers who are highly educated is 11 people with a proportion of 64.7% and low education is 5 people with a proportion of 21.7%. The difference in the proportion between the characteristics of mothers with high education and mothers with low education is 43%.

From the statistical test, the value of $P = 0.009$ ($p < 0.05$) which means that the difference in proportions is significant, thus there is a significant relationship between the educational characteristics of mothers who do baby massage to the quality of baby sleep.

The results of the OR calculation show the results of $OR = 6.600$ (95% CI: 1.621-26.871) meaning that it can be concluded that highly educated mothers who do baby massage have a 6.600 times greater risk of experiencing a good quality baby's sleep compared to mothers with low education.

Table 6. The relationship between the work of mothers who do baby massage and the quality of baby sleep

Mothers Job	Baby Sleep Quality				Amount		P. Value	OR (CI 95%)
	No Good		Rest Easy		n	%		
	f	%	f	%				
Unemployee	12	80,0	3	20,0	15	100	0,056	4,333 (0,978-19,202)
Employee	12	48,0	13	52,0	25	100		
Total	24	60,0	16	40,0	40	100		

Based on table 6 above, the quality of the baby's sleep is sound with the characteristics of mothers who work as many as 13 people with a proportion of 52% and mothers who do not work as many as 3 people with a proportion of 20%. The difference in proportion between the characteristics of working mothers and mothers who do not work is 32%.

From the statistical test, the value of $P = 0.056$ ($p > 0.05$), which means that the difference in proportions is not significant, thus there is no significant relationship between the characteristics of the work of mothers who massage their babies to the quality of their sleep.

The results of the OR calculation show the result of $OR = 4.333$ (95% CI: 0.978-19.202) meaning that it can be concluded that working mothers who do baby massage have a 4.333 times greater risk of experiencing quality baby sleep compared to mothers who do not work.

Table 7. The relationship between the age of babies who are massaged by babies and the quality of sleep for babies

Baby Age	Baby Sleep Quality				Amount		P. Value	OR (CI 95%)
	No Good		Rest Easy		n	%		
	f	%	f	%				
<3 Monts	16	80,0	4	20,0	20	100	0,022	6,000 (1,458-24,686)
≥3 Months	8	40,0	13	60,0	20	100		
Total	24	60,0	16	40,0	40	100		

Based on table 7 above, the quality of sound sleep for babies with the characteristics of babies aged ≥ 3 months is 12 people with a proportion of 60% and babies aged < 3 months are 4 people with a proportion of 20%. The difference in the proportion between the characteristics of the baby's age ≥ 3 months and the baby's age < 3 months is 40%.

From the statistical test, the value of $P = 0.022$ ($p < 0.05$), which means that the difference in proportions is significant, thus there is a significant relationship between the age characteristics of babies who are massaged to the quality of baby's sleep.

The results of the OR calculation show the results of $OR = 6,000$ (95% CI: 1,458-24,686) meaning that it can be concluded that babies aged ≥ 3 months who have baby massage have a 6,000 times greater risk of experiencing quality baby sleep quality compared to babies aged < 3 months.

3. Multivariate Analysis

Table 8 Results of simple logistic bivariate selection between independent characteristic variables and infant sleep quality

Variabel	P Value	OR
Jenis kelamin bayi	0.013	52,344
Pendidikan ibu	0.007	76,698
Pekerjaan ibu	0.258	4,371
Usia Bayi	0.015	28,764

Based on the results of the bivariate selection, the variables that proceed to the multivariate modeling stage are those that have a P value < 0.25 . These variables are gender, education, occupation, and age of the baby.

Table 9. Results of multivariate logistic regression analysis between the characteristics of the baby's sex, mother's education, mother's occupation and baby's age and sleep quality

Variabel	P Value	OR
Jenis kelamin bayi	0.013	52,344
Pendidikan ibu	0.007	76,698
Pekerjaan ibu	0.258	4,371
Usia Bayi	0.015	28,764

Of the four variables that passed the selection for bivariate analysis, there were three (3) variables. namely gender, education and age of the baby. Thus the work variable is excluded because the P value is > 0.05 (P value = 0.258).

Table 10 Results of multivariate logistic regression analysis between the characteristics of the baby's gender, mother's education, and baby's age and sleep quality.

No	Variabel	B	P-Value	OR	95% CI
1.	Jenis kelamin bayi	4,042	0,009	56,949	2,764 - 1173,483
2.	Pendidikan ibu	3,973	0.008	53,134	2,864 - 985,764
3.	Usia Bayi	3,130	0.012	22,883	1,994 - 262,652

After removing the occupational variable, the changes in the OR values for gender, education and age of the baby were observed.

Table 11 Results of analysis of changes Odd Ratio (OR) between variables Occupation was excluded from modelling

No	Variabel	Odd Ratio Variabel Pekerjaan masih ada	Odd Ratio Variabel Pekerjaan dikeluarkan	Presentasi Perubahan OR
1.	Jenis Kelamin	52,344	56,949	-8,79 %
2.	Pendidikan	74,698	53,134	28,86%
3.	Usia Bayi	28,764	22,883	20,44%

With result Odd Ratio (OR) above, there is an OR value that changes > 10%, then the work variable re-enters the modeling selection.

Table 12 Results of multivariate logistic regression analysis between the characteristics of gender, education, occupation and age of the baby and the quality of the baby's sleep

No	Variabel	B	P-Value	OR	95% CI
1.	Jenis Kelamin bayi	3,958	0,013	52,344	2,283-1199,994
2.	Pendidikan ibu	4,340	0,007	76,698	3,273-1797,269
3.	Pekerjaan ibu	1,475	0,258	4,371	0,339-56,278
4.	Usia Bayi	3,359	0,015	28,764	1,941-426,263

The final model of the multivariate analysis shows that gender, education and age of the baby are variables related to the quality of baby sleep in Bantarjaya Village, Pebayuran District, Bekasi Regency in 2022.

The sex of male babies has a 52.344 times greater risk for poor sleep quality compared to female babies, after controlling for educational variables, and the baby's age (95% CI: 2.283-1199.994).

Mothers with low education have a 76.698 times greater risk of experiencing poor sleep quality compared to mothers with higher education, after controlling for the variables of sex and age of the baby (95% CI: 3.273-1797.269).

Infants aged <3 months have a 28.764 times greater risk of experiencing poor sleep quality compared to infants aged 3-3 months, after controlling for gender and mother's education variables. (95% CI : 1.941-426.263).

Mother's education is the most dominant variable related to sleep quality, after controlling for baby's sex and age. OR Education value of 76.698. There is a confounding factor, namely the job variable (P Value 0.258).

DISCUSSION

Effect of massage for babies aged 0-6 months on sleep quality in Bantarjaya Village, Pebayuran District, Bekasi Regency in 2022

Based on table 3 above, it shows that the statistical test results are known to be Asymp. Sig has a value of 0.000 ($P < 0.05$), so it can be concluded that the hypothesis is accepted. This means that there is a difference between the results of the Pretest and Posttest, so it can also be concluded that there is an effect of doing baby massage with improving sleep quality in babies aged 0-6 months in Bantarjaya Village, Pebayuran District, Bekasi Regency in 2022.

Negative Rank or the difference indicates that there is no deductible value from pretest to posttest. Positive Ranks or difference (Positive) shows that there are 37 positive data (N), which means that the 37 babies experienced an increase in sleep quality from the pretest and posttest scores. The Mean Ranks or the average increase is 19.00 while the number of positive rankings or Sum of Ranks is 703.00.

Ties are value similarities pretest and posttest, here value Ties equal to 0, so it can be said that there is no equal value between values pretest and posttest

The results of research conducted in Touch Research Institute Amerika which showed that children who were massaged for 2x15 minutes every week for a period of 4 weeks, slept more soundly so that when they woke up their concentration was better than before being given the massage.⁷

Another study was conducted by Roth (2012) regarding the relationship massage infant with pattern and sleep in infants. This study concluded that the touches given during baby massage have a relationship with improving the quality of baby's sleep as indicated by an increase in the amount of baby's sleep duration and reduced baby sleep disturbances. The increase in the quantity of sleep in babies who are given the massage is caused by an increase in the secretion of serotonin levels produced during the massage, besides that during the 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).⁸

Serotonin is the main transmitter substance that accompanies the formation of sleep by suppressing the activity of the reticular activating system and other brain activities. Melatonin has a role in sleep and makes you sleep longer and deeper at night.¹² This is because more melatonin is produced in dark conditions when the light entering the eye is reduced. This is in accordance with the opinion.⁷

That massage can increase serotonin levels which will produce melatonin which plays a role in sleep and makes you sleep longer and deeper 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 adrenaline hormone levels (stress hormone) so that babies who are given massage treatment will appear calmer and less fussy. Massage also increases the absorption mechanism of food by the vagus nerve so that the baby's appetite also increases. In this study there were also babies who did not get baby massage but had good sleep quality. This could be influenced by several factors, namely environmental factors, nutrition, disease and stimulation.⁸

The results in this study indicate that nutritional factors, namely the habit of drinking milk before going to bed, affect the quality of sleep. The habit of drinking milk before going to bed will also affect the quantity and quality of the baby's sleep. Milk contains alpha protein which can increase tryptophan levels. Tryptophan is a precursor of the hormones melatonin and serotonin which serve as a neurotransmitter between nerves and a regulator of habits (neurobehavioral) which affect patterns of consciousness, perception and pain which will also affect sleep patterns. In this study, some babies in the control group had a habit of drinking milk before going to sleep. Babies who are given milk before going to bed sleep better and longer than those who do not drink milk before going to bed. In the case group, even though they had received baby massage, there was still 1 baby (5%) who had poor sleep quality. From the results of the researcher's interview with the mother of the baby who had poor sleep quality, the mother of the baby said that the factors that affect the quality of her baby's sleep are environmental factors that are crowded and not conducive.¹³

Environmental conditions greatly affect the baby's sleep process. Conditions that are safe and comfortable for the baby can speed up the process of sleep. The physical environment in which a baby sleeps has an important effect on the ability to fall asleep and stay asleep. A crowded and unconducive environment can reduce the quality of a baby's sleep.¹⁴

Characteristics of respondents who did baby massage according to the age of the baby

Babies with an age range of 0-6 months tend to have irregular sleeping habits and babies at that age should have good sleeping habits because this is very important to support the acceleration of the process of growth and development in babies which is very optimal when the baby is asleep. Meanwhile, the age of the respondents who did the least amount of baby massage was 10-12 months, but this figure was not much different from the age range of 8-9 months.¹⁵

Sleep disorders in toddlers show that sleep disturbances occur mostly in infants with an age range between 9-12 months. This shows that there is a relationship between infant massage and age.¹⁵ Research conducted by Ningtyas (2011) said that babies aged 0-6 months tend to have irregular sleeping habits and babies at that age should have good sleeping habits because this is very important to support the acceleration of the process of growth and development in infants. which is very optimal takes place in a sleeping baby condition. While the age of the respondents who did the least amount of baby massage was 10-12 months, this figure was not much different from the age range of 8-9 months. According to Sakartini and Nuri (2006) in their research on sleep disturbances in toddlers, it was shown that sleep disturbances occur mostly in infants aged between 9-12 months. This shows that there is a relationship between infant massage and age.¹⁶

Characteristics of respondents who did baby massage according to mother's education

Work is an activity that is carried out and gets income for this activity, in this study work is divided into 2 categories, namely working and not working. In the research conducted, most of the mothers did not work with less knowledge, as many as 33 people (76.7%). The results of this study are in line with the research conducted,¹⁷ which shows that there is a relationship between the mother's occupation with knowledge of infant massage. This research is also in line with the theory which states that the work environment can make a person gain experience and knowledge both directly and indirectly. If at work the mother gets health education about infant massage, the mother's knowledge of infant massage will be good. Because work indirectly influences a person's level of knowledge, work is closely related to factors of social interaction, culture, and the process of exchanging information. Especially knowledge and information about baby massage in the workplace.

Increased knowledge of mothers about infant massage can be obtained from co-workers during social interactions or a program to improve the health of workers by the company in the form of health education in collaboration with the nearest health agency. Working mothers will have good knowledge because they get a lot of information from various sources such as the environment, co-workers, mass media and others. In the process of social interaction, of course, there is often an exchange of information, especially if a co-worker knows about baby massage, other friends will know too, conversely if the mother is not working her knowledge will be limited about any kind of health, especially baby massage.

Characteristics of respondents who did baby massage according to the mother's occupation

Work is an activity that is carried out and gets income for this activity, in this study work is divided into 2 categories, namely working and not working. In the research conducted, most of the mothers did not work with less knowledge, as many as 33 people (76.7%). The results of this study are in line with the research conducted¹⁶ which shows that there is a relationship between the mother's occupation with knowledge of infant massage. This research is also in line with the theory which states that the work environment can make a person gain experience and knowledge both directly and

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The dominant factor that influences the mother in doing baby massage

In this study, it was shown that of the 4 variable characteristics of mothers and babies studied, namely the sex of the baby, the mother's education, the mother's occupation and the age of the baby. Only 3 variables can be candidates in the multivariate analysis, namely gender, mother's education and age of the baby.

The results of the multiple logistic regression statistical test also show that the dominant variable that influences the mother in doing baby massage is the mother's education, with OR = 76.698, which means that mothers who are highly educated have a risk of 76.698 times greater in doing baby massage so that it affects the quality of baby's sleep. more soundly than mothers with low education.

This is in line with Setyaningrum's research (2018), there is an effect of health education on knowledge about baby massage for mothers with children aged 0-12 months at the Posyandu in Joho Village, Prambanan, Klaten. The statistical test results obtained a p value of 0.031 (<0.05) so it can be concluded that there is an effect of health education on knowledge about infant massage. Knowledge itself is influenced by formal education factors. Knowledge is very closely related to education, where it is hoped that with higher education the person will also have a wider knowledge. However, knowledge is not absolutely obtained from formal education, but can be obtained through non-formal education.¹⁹ The level of knowledge is influenced by the level of education, the higher the level of education, the higher the absorption of information so that the information found can be understood properly. conversely, the lower the level of education, the lower the mindset so that the absorption of information becomes less and less.¹⁸

The higher the mother's education, the better the mother's knowledge. The more often mothers are given education about infant massage, the better the mother's knowledge about infant massage, and vice versa. The education level of mothers, most of whom are only in the upper middle category, of

course, makes access to information received by mothers also limited, which results in low knowledge of mothers about infant massage.²⁰

CONCLUSIONS

Based on the results of univariate, bivariate and multivariate analysis of research regarding the Effect of Massage for Infants Aged 0-6 Months on Sleep Quality in Bantarjaya Village, Pebayuran District, Bekasi Regency in 2022, the authors conclude as follows: There is an effect of doing baby massage with improving sleep quality in babies aged 0-6 months in Bantarjaya Village, Pebayuran District, Bekasi Regency in 2022 (P value = 0.000). The quality of the baby's sleep before the baby massage was mostly found in babies who had not slept well, namely 25 people with a proportion of 62.5% compared to babies who slept well, namely 15 people (37.5%). The quality of the baby's sleep after the baby massage was mostly found in babies who did not sleep well, namely 5 people with a proportion of 12.5% compared to babies who slept well, namely 35 people (87.5%). The dominant factor in the characteristics of infant massage on the quality of infant sleep is mother's education.

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