

## THE INFLUENCE OF BABY MASSAGE ON BABY WEIGHT

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### ABSTRACT

The coverage of weighing toddlers at the Kota Dalam Health Center in Pesawaran Regency in 2020 has only reached 75.50%. And the number of toddlers weighed who did not gain weight twice in a row in July 2021 was 23 people and in August 2021 there were 18 people. This study aims to determine the effect of baby massage on baby weight in the working area of the Kota Dalam District Health Center Offer in 2021. Type of quantitative research with a quasi-experimental design and a non-equivalent control group approach. The population was 22 people and a sample of all infants aged 0-6 months were 11 people in the intervention group and 11 people in the control group. The study was conducted three times a week for three weeks using a purposive sampling technique. The average baby weight after baby massage, with a mean of 7490.91 grams. There was a difference in the baby's weight after the intervention between the experimental group and the control group with a p-value = 0.000. It is recommended that the baby's mother play an active role in seeking information on the health of the baby, especially regarding improving nutrition in the baby and being able to do baby massage independently at home. The average baby weight after baby massage, with a mean of 7490.91 grams. There was a difference in the baby's weight after the intervention between the experimental group and the control group with a p-value = 0.000. It is recommended that the baby's mother play an active role in seeking information on the health of the baby, especially regarding improving nutrition in the baby and being able to do baby massage independently at home.

Keywords: Infant Massage-Baby's Weight

### ABSTRACT

## THE INFLUENCE OF INFANT MASSAGE IN BABY WEIGHT

*The coverage of weighing children under five at the Kota Dalam Puskesmas, Pesawaran Regency in 2020 only reached 75.50% and the number of children under five who did not gain weight twice in a row in July 2021 was 23 people and in August 2021 as many as 18 people. This study aims to determine the effect of baby massage on baby weight in the work area of the Kota Dalam Public Health Center, Pesawaran Regency in 2021. This type of research is quantitative with a Quasi experimental design and a Non-Equivalent Control Group approach. The population was 22 people and samples of all infants aged 0-6 months were 11 people in the intervention group and 11 people in the control group. The study was conducted three times a week for three weeks with purposive sampling. The data analysis test used in this study used thet test (paired t test) and not paired t test (Independent).The results showed that the average baby's weight before baby massage was done, with a mean of 6990.91 grams. The average baby weight after baby massage, with a mean of 7490.91grams. There was a difference in infant weight after the intervention between the experimental group and the control group with p-value = 0.000. It is recommended that the baby's mother plays an active role in finding baby health information, especially regarding improving nutrition in infants and being able to do baby massage independently at home.*

Keywords: Baby Massage-increasing infant weight

## INTRODUCTION

Family development is carried out to create a quality family that lives in a healthy environment. In addition to a healthy environment, the health condition of each family member is also one of the requirements for a quality family. The family plays a role in optimizing the growth, development and productivity of all its members by meeting nutritional needs and ensuring the health of family members. Within the family component, mothers and children are a vulnerable group. This is the reason for the importance of maternal and child health efforts is one of the priorities for health development in Indonesia (RI Ministry of Health, 2020).

Malnutrition and malnutrition are nutritional statuses based on weight-for-age index (BB/U). The percentage of malnutrition in children aged 0-23 months in Indonesia is 3.8%, while the percentage of malnutrition is 11.4%. Whereas in Lampung Province malnutrition is 2.70% and malnutrition is 10.20% (Riskesdas, 2018).

Based on research data from a nutrition survey in Lampung Province in 2016, the prevalence of undernutrition and malnutrition status for toddlers based on weight for age (BB/U) in Lampung Province was 15.94%. If you look at the coverage of malnutrition and malnutrition based on City Districts in Lampung Province, it can be seen that Pesawaran Regency has the highest number of cases, namely 21.3%, and the lowest is Metro City, which is 10.31% (Lampung Provincial Health Office, 2020).

Based on research data from the Lampung Province nutrition survey in 2019, the coverage of toddlers being weighed in Lampung Province in 2019 was 79%, where this figure was above the target (76.18%). Meanwhile, in Pesawaran Regency it reached 75.1%. Based on the profile of the Kota Dalam Public Health Center in Pesawaran Regency, the coverage for weighing toddlers in 2020 only reached 75.50% and up to the August 2021 period there were 4 mothers who had toddlers with

undernourished status. Meanwhile, the number of toddlers being weighed who did not gain weight twice in a row in August 2021 was 23 people and in November 2021 there were 18 people.

Infancy is a golden period as well as a critical period of growth and development. It is called the golden age because infancy is very short and cannot be repeated. While it is called a critical period because at this time babies are very sensitive to the environment and need good nutrition and stimulation for their growth and development (Roesli, 2016).

Baby massage is believed to be able to maintain health and is able to stimulate and optimize the growth and development of babies. But without the correct massage technique, baby massage is actually dangerous. even can cause death in babies. Until now, not all dukuns understand the correct baby massage technique. Often found, the baby's head becomes the object of massage. Apart from that, often the baby massage technique is almost the same as that of the baby's mother because it becomes one with the delivery assistance package. Baby massage can be started immediately after the baby is born, according to the wishes of the parents. By starting massage sooner, the baby will benefit more. Especially if massage can be done every day from birth until the baby is 6-7 months old (Roesli, 2016).

The positive impact arising from baby massage is that babies who get massages regularly will be more relaxed and calm. Through a touch of massage to the muscle tissue, blood circulation can increase more smoothly, or the position of the muscles can be restored and repaired automatically to improve the functions of the body's organs as well as possible. Meanwhile, the negative impact caused when baby massage is done in the wrong way and not in accordance with medical provisions, the side effects are swelling, bruises, pain in the baby so that the baby becomes fussy, tendon shifts, injury, and can even cause death in the baby. Therefore, many parents are reluctant to do baby massage, they are afraid that there will be a risk of baby massage on their children.

Factors that influence child growth

and development, namely: nutrition, chronic diseases/congenital disorders, physical and chemical environment, psychological, endocrine, socio-economic, parenting environment, developmental stimulation requires stimulation or stimulation, especially within the family, for example providing toys, socializing children as well as the involvement of mothers and other family members in children's activities (Adriana, 2013).

Research conducted by Sawitry., Kuntjoro., Ariyanti (2019) concerning the effect of baby massage on increasing body weight and sleep duration of infants aged 1-3 months in the Sendang Mulyo Region, Semarang. Quasi Experiment Method with Pre and Post test with control group design, data analysis using dependent and independent T test. The results of the study revealed that the increase in body weight in the experimental group was better. There is an effect of baby massage on increasing the weight of babies aged 1-3 months with a p-value of 0.002.

## **METHOD**

This type of quantitative research with a Quasi experimental design and Non-Equivalent Control Group approach. A population of 22 people and a sample of all infants aged 0-6 months were 11 people in the intervention group and 11 people in the control group. The study was conducted three times a week for three weeks using a purposive sampling technique. The data analysis test used in this study used a paired t test and an independent t test.

## RESULTS AND DISCUSSION

### 1. Characteristics

#### a. Education

**Table. 4.1**  
Characteristics of mother-infant education

Education	Frequency	Percentage %
a. SD	2	9.10%
b. JUNIOR HIGH SCHOOL	8	36.36%
c. SENIOR HIGH SCHOOL	12	54.54%
<b>Amount</b>	<b>22</b>	<b>100%</b>

Based on Table 4.1, it can be seen that the educational characteristics of mothers of infants in the work area of the City Health Center in Pesawaran Regency in 2021, the majority are high school with 12 respondents (54.54%), junior high school with 8 respondents (36.36%), and elementary school with 2 respondents (9.10%).

#### b. Work

**Table. 4.2**  
Characteristics of the baby's mother's work

Work	Frequency	Percentage %
a. Self-employed	6	27.28%
b. Housewife (IRT)	12	54.54%
c. Laborer	4	18.18%
<b>Amount</b>	<b>22</b>	<b>100%</b>

Based on Table 4.2, it can be seen that the characteristics of the work of mothers with babies in the work area of the City Health Center in Pesawaran Regency in 2021, the majority are housewives (IRT) with 12 respondents (54.54%), entrepreneurs with 6 respondents (27.28%) ) and laborers as many as 4 respondents (18.18%).

#### c. Baby gender

**Table. 4.3**  
Characteristics of the sex of the baby

Work	Frequency	Percentage %
a. Man	9	40.90%
b. Woman	13	59.10%
<b>Amount</b>	<b>22</b>	<b>100%</b>

Based on Table 4.3, it can be seen that the sex characteristics of babies in the working area of the City Health Center in Pesawaran Regency in 2021. There were 9 male respondents (40.90%) and 13 female respondents (59.10%).

## 1. Univariate analysis

- a. The average increase in baby weight before and after baby massage in the intervention group

**Table 4.4**

The average weight of the baby before the baby massage

Intervention Group	Means	SD	SE	Min-max
Before	6990.91	1100,413	331,787	5200 - 8500
After	7490.91	1105,852	333,427	5700 -9000

The test results showed that the average baby weight before infant massage was carried out in the intervention group in the working area of the Kota Dalam Public Health Center in Pesawaran Regency in 2021 had an average value of 6990.91 grams. The minimum value is 5200 grams and the maximum is 8500 grams. The average baby weight after baby massage has an average value of 7490.91 grams. Minimum value of 5700 grams and a maximum of 9000 grams.

- b. The average baby weight in the control group

**Table 4.5**

The average baby weight in the control group

Control Group	Means	SD	SE	Min-max
Before	5209.09	587,290	177,074	4600 - 6300
After	5372.73	569,370	171,671	4700 -6500

The test results showed that the average baby weight in the control group in the working area of the Kota Dalam Public Health Center in Pesawaran Regency in 2021 had an average value of 5209.09 grams. The minimum value is 4600 grams and the maximum is 6300 grams. The average increase in baby weight after having an average value of 5372.73 grams. The minimum value is 4700 grams and the maximum is 6500 grams.

## 2. Normality test

**Table 4.6**

Normality test

		Sig. Value
The baby's weight in the intervention group	Before	0.406
	After	0.346
Control group baby weight	Before	0.054
	After	0.095

Test normality done For know is sample Which researched normally distributed or not. In this study the sample is less than 50 respondents

so that the normality test used is the Shapiro-Wilk test. The criterion for the normality test is that the data is normally distributed if the significant level is  $< \alpha$  (0.05). From the results of the analysis it is known that the significant level before the intervention was 0.406 and after the intervention was  $0.346 < (\alpha 0.05)$ . Whereas in the control group the significant level before the intervention was 0.054 and after the intervention was  $0.095 < (\alpha 0.05)$ . So it can be said that the data is normally distributed. Because the data requirements for normal distribution are met, the hypothesis test used is the paired t test (Dahlan, 2011).

### 3. Bivariate Analysis

- a. Effect of baby massage on baby weight in the intervention group.

**Table 4.7**

Analysis of the effect of baby massage on baby weight in the intervention group

Interventi on Group	Means	SD	t	p-values	95% CI mean difference
Before	6990.91	100.00	-16,583	0.000	500.00
After	7490.91				567181-432819

The results of the analysis from the table above show that the difference in the average weight of the baby before and after the baby massage is 500.00 grams, and the standard deviation is 100.00. The test results obtained p value = (0.000 < 0.05) so that there is an effect of baby massage on increasing baby weight in the working area of the Kota Dalam Public Health Center in Pesawaran Regency in 2021.

- b. Baby weight in the control group.

**Table 4.8**

Analysis of the effect of baby massage on baby weight in the control group

Control Group	Means	SD	t	p-values	95% CI mean difference
Before	5209.09	136,182	3,985	0.003	163,636
After	5372.73				255,124-72,148

The results of the analysis from the table above can be seen the difference in the average baby weight in the control group of 163.363 grams. The test results obtained p = (0.003 < 0.05) so that there is an effect of baby massage on baby weight in the working area of the Kota Dalam Health Center in Pesawaran Regency in 2021.

- c. Comparison of baby weight after the intervention between the experimental group and the control group

**Table 4.9**

Comparative analysis of infant weight after the intervention between the experimental group and the control group

Group	Means	t	p-values	95% CI mean difference
Intervention	7490.91	5,648	0.000	2118,182 1335.9-2900.5
Control	5372.73			

The results of the analysis from the table above can be seen the difference in the average increase in baby weight after the intervention between 2118.182 grams. The test results obtained a value of  $p = (0.000 < 0.05)$  so that there was a difference in the baby's weight after the intervention between the experimental group and the control group in the working area of the City Health Center in Pesawaran Regency in 2021.

## DISCUSSION

### Univariate

#### a. Average baby weight in the intervention group

It is known that the average baby weight before infant massage was carried out in the intervention group in the working area of the Kota Dalam Public Health Center in Pesawaran Regency in 2021 had an average value of 6990.91 grams. The minimum value is 5200 and the maximum is 8500. The average increase in baby weight after baby massage has an average value of 7490.91 grams. Minimum value of 5700 grams and a maximum of 9000 grams

*Baby massage* is massage that is carried out closer to gentle strokes or tactile stimulation that is carried out on the surface of the skin, manipulation of tissues or organs of the body aims to produce effects on the muscles nerves, and the respiratory system and improve blood circulation (Roesli, 2016).

Massage is a touch therapy from the masseuse's hands to a person's skin with certain movement techniques. Massage therapy is the oldest known popular human therapy to date. Baby massage is health care

in the form of touch therapy with certain techniques given to babies so that treatment and therapy can be achieved. The purpose of giving massage is to release endorphins so as to provide a feeling of relaxation in the baby's muscles which will make the baby more comfortable carrying himself both physically and psychologically (Juwita., Jayanti, 2019).

In this study, initially the researcher submitted an application for a permit to carry out the research to the institution used by the researcher as the research location, namely the Posyandu in the working area of the Kota Dalam Health Center. After receiving recommendations for research implementation from Aisyah Pringsewu University and permission from the research location, the researchers carried out research data collection. Preliminary data collection by weighing all infants aged 0-6 months at Posyandu in each village, after obtaining prospective respondents who match the research criteria, the researcher explains to prospective respondents who have met the criteria regarding objectives, benefits, procedures and asks the willingness of prospective respondents, after the prospective respondent is willing, the researcher makes a massage schedule to the prospective respondent's house, after that the researcher

starting the baby massage research activities to the respondent's homes, when the researcher arrived to give informed consent and the respondent's mother was asked to sign it, the researcher came to the house three times a week (in the morning after the baby had bathed) for three weeks.

The results of this study are supported by research conducted by Safitri., Latifah., Iqmy (2021). Regarding the effect of baby massage on increasing neonatal weight at BPS Wirahayu, S.Tr., Keb Panjang Bandar Lampung in 2020. using a one group pre-test – post-test experimental design. It is known that the mean (mean) weight of neonates before being given baby massage is 3143.75 grams and after being given baby massage is 3425.00 grams.

Based on this, the researchers argue that baby massage can increase the baby's weight and improve the baby's conditions such as improving the baby's digestive tract, appetite and other things. This is very important for parents of babies to pay attention to, because apart from having positive benefits, parents can learn how to massage their babies themselves so that parents no longer need to go to health workers to massage their babies.

**b. The average baby weight in the control group**

It is known that the average increase in baby weight in the control group in the working area of the City Health Center in Pesawaran Regency in 2020 has an average value of 5209.09 grams. The minimum value is 4600 and the maximum is 6300. The average increase in baby weight after having an average value

average 5372.73 grams. The minimum value is 4700 grams and the maximum is 6500 grams.

The results of this study are in line with research conducted by Harahap (2019). Regarding Baby Massage Increasing Baby Weight Age 0-6 Months at BPM Siti Hajar R, Am.Keb, SKM Jl. Mesh IX Medan Marelan. The data analysis used was paired sample T test analysis. True Experimental Research Design with a randomized control group Pretest-Posttest Design approach. By doing massage 2 times/week for 10-15 minutes for 4 weeks. The results showed that the baby's weight gain in the group that was not carried out was 570 grams, the group that was carried out was 1250 grams.

**Bivariate**

**a. Effect of baby massage on baby weight in the intervention group**

The difference in the average weight of the baby before and after the baby massage was 500.00, and the standard deviation was 100.00. The test results obtained  $p = (0.000 < 0.05)$ , so that there is an effect of baby massage on baby weight in the working area of the City Health Center in Kota Dalam, Pesawaran Regency in 2021.

The results of this study are supported by Roesli's theory (2016). Today, experts have been able to scientifically prove that baby massage is a touch therapy that has many benefits. Massage (touch therapy) can produce physiological changes that are beneficial and scientifically measurable, including by measuring urine stress hormone (catecholamine) levels, salivary cortisol levels, plasma cortisol levels.



radio immune assay, and examination EEG  
(*electroencephalogram*) or brain wave images.

Furthermore Roesli (2016). stated that massage will improve the development and growth of children. The (tactile) strokes will cause a decrease in the ODC (ornithine decarboxylase) enzyme, an enzyme that guides cell and tissue growth. Decreased growth hormone production and decreased sensitivity of tissue ODC to growth hormone administration.

The results of this study are in line with research conducted by Harahap (2019). Regarding Baby Massage Increasing Baby Weight Age 0-6 Months at BPM Siti Hajar R, Am.Keb., SKM Jl. Mesh IX Medan Marelan. The data analysis used was paired sample T test analysis. True Experimental Research Design with a randomized control group approach Pretest-Post test Design. By doing massage 2 times/week for 10-15 minutes for 4 weeks. The results showed that the baby's weight gain in the group that was not carried out was 570 grams, the group that was carried out was 1250 grams. The result is  $p = 0.000$  ( $p < 0.05$ ), it can be concluded that  $H_a$  is accepted. Research has the effect of baby massage on weight gain in babies aged 0-6 months.

In this study, there was a difference in the timing of the massage with what the researchers did. The massage was carried out 2 times/week for 10-15 minutes for 4 weeks which was assessed by a checklist sheet. Where the baby's weight gain is weighed after four weeks so that the baby's weight gain is greater

compared to what the researchers did.

#### **b. Effect of breastfeeding on infant weight in the control group**

The results of the analysis can be seen the difference in the average increase in baby weight in the control group of 163.363 grams. The test results obtained  $p = (0.003 < 0.05)$  so that there is an effect of baby massage on baby weight in the working area of the Kota Dalam Health Center in Pesawaran Regency in 2021.

In the control group study, infant massage was not carried out, however, the baby was still given exclusive breastfeeding. The researchers found that the baby's weight gain in the control group was not massaged, with a pre-test weight of 4700 grams and a post-test of 6500 grams. This is because in this group the babies did not get baby massage. Meanwhile, in the massage group, 6990.91 grams were given after 3 baby massages for 1 week with a massage duration of 15 minutes. In the control group, the increase in baby weight was only influenced by the nutritional status of the mother through breast milk given to the baby. whereas in the intervention group, in addition to getting breast milk, the baby also received treatment with infant massage where there was an effect after the massage the baby was found to feel comfortable, sleep well, have good blood circulation, the digestive system is also good, so the baby quickly feels hungry and feeds frequently. This will accelerate weight gain.

In the opinion of researchers, weight gain in

In the intervention group and control group respondents, there were very different comparisons and differences in weight gain. In the intervention group the baby's weight gain was 500 grams. In the group that was not massaged, the baby's weight increased by 163 grams. So it can be concluded that body weight is not only influenced by stimulation but many factors, namely genetic factors, nutritional factors and disease, environmental factors including prenatal factors, postnatal factors which include biological environmental factors, physical environmental factors and social environmental factors.

### **c. Comparison of Baby's Weight After Intervention Between Experimental Group and Control Group**

The results of the analysis can be seen that there is a difference in the average increase in baby weight after the intervention between the experimental group and the control group of 2118.182 grams. The test results obtained  $p = (0.000 < 0.05)$  so that there is a difference in baby weight after the intervention between the experimental group and the control group in the working area of the City Health Center in Pesawaran Regency in 2021.

This also agrees with the statement which states that baby massage is an expression of affection between parents and children through touching the skin. A mother's touch and hugs are the basic needs of babies. The touch that is presented in gentle massages for babies is a stimulus that important in the development of children's development. Massage is the oldest touch therapy known to man. One of the basic mechanisms of infant massage is

the activity of the Vagus Nerve increases the volume of breast milk, namely the absorption of food becomes better because the increased activity of the Vagus Nerve causes the baby to get hungry quickly so that he will breastfeed more often from his mother. As is known, more breast milk will be produced the more it is requested. besides that, mothers who massage their babies will feel calmer and this has a positive impact on increasing the volume of breast milk (Harahap, 2019).

This is also supported by good statements (Prasetyono, 2013 in Safitri., Latifah., Iqmy (2021). Babies who are massaged experience increased activity of the vagus nerve (10th brain nerve) which will cause babies to feel hungry quickly so that the frequency of feeding them increases, besides that there is an increase in the levels of gastrin and insulin absorption enzymes, thus, the absorption of food will be more.

Although further research is still needed to confirm research results on touch/massage therapy, the findings that have been produced are sufficient reasons to carry out infant massage routinely to maintain the baby's health. Moreover, this baby massage has proven to be cheap, easy, and has been commonly done in Indonesia so it is not something new for our culture. Prof. T. Field and Scafidi in 1986 and 1990 conducted research on the benefits of massage on 20 premature babies. The results of this study showed that 20 premature babies weighing 1,280 grams and 1,176 grams who were massaged for 3x15 minutes for 10 days showed up to 20% -47% more weight gain per day than those who were not massaged (Roesli, 2016).

Research conducted by Marni (2019). The effect of baby massage on weight gain in infants aged 2-12 months in the Giripurwo sub-district, Wonogiri District. The method used is Quasi experimental design with a Pretest–Posttest design. By doing massage for 2 weeks. The results showed that the P Value = 0.000 ( $<0.05$ ), which means that there is a difference in body weight before and after the baby massage intervention.

The results of the interviews that the researchers conducted with the mothers of babies in the experimental group stated that after the baby's massage there was an increase in the frequency of breastfeeding, and the mother also said the amount of breast milk had increased, this also supported an increase in the baby's weight, especially since babies at this age still rarely move so that nutritional intake is low. admission focused on increasing growth, whereas in the control group stated that the volume of breast milk increased, but the frequency of feeding the baby did not increase, there was an increase in milk volume and frequency of breastfeeding. can cause an increase in baby weight.

Based on this, the researchers argue that babies who are massaged experience an increase in the activity of the vagus nerve (10th brain nerve) which will cause the baby to feel hungry quickly so that the frequency of feeding them increases, besides that there is an increase in the levels of gastrin and insulin absorption enzymes, thus, food absorption will increase. to be better.

## CONCLUSION

1. The average weight of the babies before the baby massage was done in the group

interventions in the work area of the City Health Center in Pesawaran Regency in 2021 have an average value of 6990.91 grams. The average baby weight after baby massage has an average value of 7490.91 grams and a standard deviation of 1105.852.

2. The average baby weight in the control group in the working area of the Kota Dalam Public Health Center in Pesawaran Regency in 2021 has an average value of 5209.09 and a standard deviation of 587.290. The average baby weight after has an average value of 5372.73 and a standard deviation of 569.370.
3. There is an effect of baby massage on baby weight in the intervention group in the working area of the Kota Dalam Public Health Center in Pesawaran Regency in 2021, with a p-value = 0.000.
4. There is an effect of baby massage on baby weight in the control group in the working area of the Kota Dalam Public Health Center in Pesawaran Regency in 2021, with a p-value = 0.003.
5. There is a difference in the baby's weight after the intervention between the experimental group and the control group in the working area of the Kota Dalam Public Health Center in Pesawaran Regency in 2021, with a p-value = 0.000.

## SUGGESTION

1. Mothers Who Have Babies  
It is recommended that the baby's mother play an active role in seeking information on the baby's health, especially regarding improving nutrition in infants and can do baby massage independently at home, and the family can contribute in efforts to improve baby health, and support mothers in doing baby massage.

2. It is recommended for Aisyah Pringsewu University so that party academic Aisyah Pringsewu University to take advantage of this research as learning for student Program Studies Midwifery And add literature as well as material reading related to infant massage.

3. Inner City Health Center  
It is recommended that health workers at the Kota Dalam Health Center, especially midwives, increase promotive efforts for mothers of babies through health counseling aimed at conveying information about infant massage and health workers and posyandu cadres so they can take part in infant massage training.

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