

RESEARCH ARTICLE

Effect of Massage and Bathing or Swimming toward Baby Weight Improvement

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Abstract

Body weight or anthropometric measure is the most important and most frequently used measure to see the development of infants. Stimulating the growth in infants aged 4 to 6 months can be done in two ways: massage the baby's body and continue by bathing or swimming. This study aimed to analyze the effect of massage and bathing or swimming on an infant's weight gain in Kinara Mom and Baby Spa, Kerkep village, Gurah district, Kediri regency. The research design is quasi-experimental, with one group pre-test-post-test design approach, carried out in August–October 2021. The sample was babies aged 4–6 months using purposive sampling with a sample size of 20 babies—dependent variables were baby massage and bathing or swimming on infants, and the dependent variable was weight gain. The instrument used is a weight-monitoring sheet. Data were analyzed using pairs sample t-test analysis. The results showed that all 20 babies experienced weight gain. The conclusion is that massage and bathing or swimming affect weight gain in infants aged 4–6 months.

Keywords: Baby, bathing, massage, swimming, weight gain

Introduction

According to the 2019 Indonesian Health Profile, 15.2% of infants still have malnutrition problems, with malnutrition being the main factor causing stunting. The prevalence of stunting in Indonesia in 2018 was 30.8% which is very high.¹

A baby aged 4 to 6 months provides an excellent opportunity for parents to strive for optimal growth and development. During this age, children experience rapid growth and generally reach two times their weight at birth. Nutritional disorders at 4 to 6 months are permanent and cannot be reversed even though dietary needs in the next period were met. Good nutrition and a healthy body are the keys to preventing stunting. Monitoring the baby's weight is very important because weight gain indicates whether the baby has developed optimally or not. Special efforts to improve nutritional status can be made through baby massage, bathing, or swimming. An update from previous research monitoring baby growth and development is not only in weight gain but also in the length of the baby's.²

Baby massage is also known as touch therapy, one of the most effective techniques that combine the physical benefits of human touch with emotional benefits such as an inner bond. Baby massage is also an alternative and straightforward

way to improve health. It can be done at home and create an internal bond between children and parents.³ The benefits of baby massage are to develop communication, reduce stress, relieve symptoms of pain, and reduce pain.⁴

Doing a baby spa regularly can increase the weight of babies with low body weight aged 4 to 6 months.^{5–8} Swimming is the first safe sport to be introduced to babies. Therefore, swimming and massage can help improve a baby's growth and development. In addition, children can gain new skills such as swimming and floating through activities in the water environment. The primary mechanism that can explain the effect of baby massage on increasing infant weight is the release of beta-endorphins and an increase in vagus nerve tone, which can increase the baby's appetite and stimulate suction. In addition, massage can stimulate photonic nerves, such as the smooth muscles of the intestines. Photonic nerves stimulate the release of hormones that help absorb food in the intestines so that nutrients are well absorbed.⁵ Therefore, babies aged 4–6 months need to be massaged, bathed, or swam to increase the baby's appetite, so that the baby's weight can increase. The paper analyzes the effect of massage and bathing or swimming on weight gain in infants aged 4 to 6 months at Kinara Mom and Baby Spa in Kerkep village, Gurah district,

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Methods

This research is a quantitative, quasi-experimental design with a one-group pre-test-post-test design approach, starting from August–October 2021. The study was carried out at Kinara Mom and Baby Spa in Kerkep village, Gurah district, Kediri regency, East Java province. The sampling technique used was purposive sampling with a sample size of 20 respondents (11 boys and nine girls). The criteria are that the baby's age is 4–6 months and can lift the head without assistance (show optimal growth and development). The research variables observed included baby massage and bathing or swimming in infants. In addition, the weight gain in infants was observed using an observation sheet. Statistical analysis used the pairs sample t-test (test of two samples in pairs). The ethics committee approved the study from the Research Ethics Committee of Universitas Kadiri with letter number 006/07/VII/EC/KEP/UNIK/2021.

This research was conducted for three months. Each baby was given the intervention twice a week, so the total treatment for each was six times. Every treatment visit, an evaluation of the child's weight and length is recorded. The spa staff carries out this treatment. The time of massage treatment is 30 minutes, while the swimming treatment is a maximum of 20 minutes. Each of these treatments was carried out on children in a state that was not fussy or quiet so that all babies received the same treatment time. Then observations were made in the treatment group without using the control group. So the observations were recorded and compared with the World Health Organisation's normal growth standards for boys and girls.

Results

Based on Table 1, it can be seen that the number of respondents was 20, with details of male sex as many as 11 babies, while female sex as many as 9 babies. The baby's age was taken at an average age of 4 months.

Based on Table 2, it can be seen, after being given massage therapy and bathing or swimming, there were changes in the baby's weight as many as 20 babies experienced weight gain.

Table 3 shows there are improvements in the

Table 1 Frequency of Age and Gender of Babies

Number	Babies	
	Age	Sex
1	4 months 2 days	Boy
2	4 months 24 days	Girl
3	4 months 1 day	Girl
4	4 months 5 days	Boy
5	4 months 7 days	Boy
6	4 months 11 days	Girl
7	4 months 8 days	Boy
8	4 months 5 days	Girl
9	4 months 1 day	Boy
10	4 months 8 days	Girl
11	4 months 12 days	Girl
12	4 months 1 day	Boy
13	4 months 8 days	Boy
14	4 months 9 days	Boy
15	4 months 12 days	Girl
16	4 months 3 days	Boy
17	4 months 2 days	Girl
18	4 months 9 days	Boy
19	4 months 10 days	Girl
20	4 months 7 days	Boy

Table 2 Distribution of Respondents' Frequency based on Changes in Baby Weight Gain

Weight Change	n=20
Weight gain	20
No weight gain	0

Table 3 Frequency of Baby's Weight before and after Baby Massage and Bathing or Swimming

Weight	Mean (kg)	SD	Min–Max
Before intervention	6.96	0.36	6.50–7.80
After intervention	7.94	0.29	7.50–8.70

weight gain of babies who are given massage and bathing or swimming. The results showed that body weight before massage and bathing or swimming was 6.96 kg, with a standard deviation of 0.36. While body weight after massage and

Table 4 Statistical Test Results in the Effect of Massage and Bathing on Baby Weight Improvement

	95% CI		t	df	Sig (2-tailed)
	Lower	Upper			
Baby weight at the first meeting (kg)– baby weight at the next meeting (kg)	-1.09220	-0.86780	-18.281	19	0.000

bathing or swimming mean 7.94 kg, with a standard deviation of 0.29. The average increase in body weight before and after is known to be 0.98 kg. This shows that more routine massage therapy is given and bathing or swimming is always followed by an improvement in the baby's weight.

The results of the t-test obtained $p=0.000$ ($p<0.05$), which means that statistically it shows there is the effect of massage and bathing or swimming on increasing the weight of babies aged 4–6 months (Table 4).

Discussion

The data obtained have been analyzed using the pairs sample t-test analysis. The results obtained are -18.281 , with a significance value of $p<0.05$. These results indicate the effect of massage and bathing or swimming on weight gain in infants aged 4–6 months. From the results of the pairs sample t-test, it is known that $\text{Sig}(p)=0.000$, $\text{Sig}(p)<\alpha$, then H_1 is accepted, H_0 is rejected, it means that there is an effect of baby massage and bathing or swimming on increasing the weight of babies aged 4–6 months. Furthermore, the significance of massage and bathing or swimming can be seen from the results of the confidence interval. The significant effect of increasing the baby's weight is $0.8678-1.0922$ kilograms or growing between $0.9-1.1$ kilograms.

The results of the difference in the average body weight after massage and bathing or swimming are that there is an average first weight (pre-test) of 6.995 kg with a standard deviation of 0.35759 and an average post-test weight of 7.935 kg with a standard deviation of 0.29069 and an average mean -0.98000 . The results of the pairs sample t-test test obtained a t value of -18.281 with $p=0.000$ ($p<0.05$), which means that statistically, it shows the effect of massage and bathing or swimming on increasing the weight of infants aged 4–6 months.

It is similar to research by Prastiani and Setyaningrum⁵ regarding the relationship between the frequency of baby spa and an increase in baby weight at the Oemah Moengil Baby Spa Clinic, Tegal city. There is a relationship with $p=0.01$ ($p<0.05$) between the frequency of baby spa with an increase in baby weight. This study is in line with research conducted by Marni,⁹ which stated that there is an effect of baby massage on increasing infant weight in Giripurwo village, Wonogiri district, with $p<0.025$. In addition, this research is in line with the study conducted by Ekasari and Arum⁷ regarding the relationship between the frequency of baby spa visits with the increase in body weight of babies aged 3–12 months at the Luqi Medika Clinic. The study results showed a significant relationship with $p=0.001$.

The results are supported by the research conducted by Utami et al.,¹⁰ on the effect of baby massage and spa on weight gain. This is also under the results of Margiana and Muflihah's⁸ research, which states that there is a relationship between a baby spa and baby weight at *Rumah Sehat Kita*, Purwokerto.

The results showed that after being given massage therapy and bathing or swimming, there were changes in the baby's weight. As many as 20 babies experienced weight gain. The babies were given massage stimulation therapy and bathed or swam regularly (every two weeks for three months, the treatment was carried out six times). Several previous studies state that baby massage is an alternative effort to improve health status, which is the simplest thing at home.^{2,3,9} Besides, baby massage can also cause an inner bond between parents.^{3,4} In addition, babies are often given massage at home, which makes the baby's sleep pattern regular.¹⁰⁻¹⁴ There is a decrease in the stress hormone cortisol, and it creates a sense of comfort and well-being affection.¹⁵ Babies can feel relaxed through baby spa activities with massage stimulation, bathing, and swimming.

Relaxation for the baby is not only to relieve stress but also an important thing for the baby's growth and development process. In addition, the increased growth that occurs in babies who have taken massage and bathing or swimming can also increase the baby's appetite, so that the baby's weight increases and the baby looks healthy. This is associated with vagal nerve stimulation, which can increase the absorption of nutrients by the digestive tract. Massage therapy can improve sleep patterns, circulation, and more stable brain activity. Massage and bathing or swimming in infants make the baby calmer, so it is not often fussy.^{10,15}

Based on the results of the study, it can be seen that there are differences in the weight gain of babies who are given massage and bathing or swimming infants. The results showed that body weight before massage and bathing or swimming was 6.96 kg, with a standard deviation of 0.36, with a minimum body weight of 0.50 kg to a maximum weight of 7.80 kg. Meanwhile, body weight after massage and bathing or swimming means 7.94 kg, with a standard deviation of 0.29, with a minimum body weight of 7.50 kg to a maximum weight of 8.70 kg. The average increase in body weight before and after is 0.98 kg for three months of treatment. While the effect can be seen in the confidence interval, the significant impact of increasing the baby's weight is 0.8678 kg to 1.0922 kg, or the baby's weight grows between 0.9 to 1.1 kg. It shows that the more routine massage therapy is given, the increase always follows bathing or swimming in the baby's weight.

Babies with no increase in weight, possibly because the baby has a history of low birth weight. Low birth weight is also possible because the baby is sick with coughs and colds, so the frequency of breastfeeding is reduced.¹⁶ The baby's weight gain can also be hampered if the mother does not give breast milk and the nutrition is not fulfilled.^{17,18} Several factors can affect a baby's weight, namely child nutrition, child health status, immunization, genetics, housing, environmental sanitation, chromosomal abnormalities, socioeconomic status, and drugs.¹⁷⁻²¹ Therefore, health workers should provide counseling about the importance of the child's growth and development period and apply infant massage therapy and bathing and swimming to help improve the baby's growth and development so that it is more optimal. And for the community to optimize baby growth by

increasing baby weight through baby massage and bathing or swimming because massage and bathing or swimming can improve baby's weight.

Conclusion

It can be concluded that there is an improvement in the baby's weight gain after massage and bathing or swimming.

Conflict of Interest

There are no conflicts that occur in this study.

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