

THE EFFECT OF BABY MASSAGES ON BABY'S WEIGHT IN PRATAMA KUSUMA MEDISCA CLINIC IN WATES, YOGYAKARTA

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Abstract

The optimization of growth and development on children are the results of interaction of various factors which are related to each other. Those factors include genetic, environment, behavior and stimulation. One of the stimulations is a tactile stimulation in the form of baby massage. Baby massages can increase the activity of *nervus vagus* which causes the production growth of enzyme gastrin and insulin so that the absorption of foods will be improved and affect on baby's weight. The purpose of this research was to understand the effect of baby massages on baby's weight. This research was conducted using quasi-experimental method with two group post-test design as the control. The subjects of this research were 66 babies who were 0-1 month of age as 33 babies were case group, while the 33 others were control group. The samples were collected using purposive sampling technique with inclusion and exclusion criteria. The baby massages intervention was conducted three times in a month and a weight measuring was done every week for a month with a specified scale. The data were analyzed using independent sample t-test. There is an effect of baby massage towards the increase in babies' weight (*p-value* 0,007<0,05). Then, there was also an effect of baby massage towards the percentage of the increase in babies' weight (*p-value* was 0.005 < 0.05). There are some effects of baby massages on baby's weight in Pratama Kusuma Medisca clinic in Wates, Yogyakarta

Keywords: baby massage, increase of weight

1. INTRODUCTION

Every child has continuous growing and developing phases [1]. The growths include the increase of weights, heights, head and arm measurements, dentitions, and some other alterations of the body. Meanwhile, growths on a child envelop motor, sensory, cognitive and psychosocial [2].

The attainment of an optimal child's growths and developments is the result of various interrelated factors which are genetic, environment, and behavior as well as stimulation. One of the kinds of stimulation usually done by parents is tactile stimulation in the form of baby massage [3].

A baby massage is one of the most old-fashioned and most popular methods known by society. A massage is an art of health treatments and it is a traditional therapy which has already been practiced for centuries. Meanwhile, a touch and a massage on babies right after a birth is a continuous body contact that is needed by babies to maintain their security[4]. A baby massage can be categorized as the applications of contact stimulation since there are affections, caring voices, eye-contacts, movements and massages. This stimulation will excite the development of brain cells structures and functions [5]. Nowadays, there are numerous researches stating that baby massages have some physical and emotional advantages. Several benefits of baby massages are the increase of appetites,

exclusive breastfeeding, weights, body endurance, sleep quality, and relationships between parents and babies

Field and Schanberg [6] cited by Roesli [5], show that there is an increase of *nervus vagus* (tenth brain nerve). The exhalation of *nervus vagus* activities causes the growth of absorbing enzyme productions such as gastrin and insulin so that the absorptions of provisions improved. Besides, a massage can also improve blood circulations and cell metabolism so that it can increase baby's weight.

A research conducted by Trisismi shows that there is an optimization effect of baby massages on the increase of baby's weight and motor developments [5].

Since 1986, experts from the Faculty of Medicines of Miami University have been researching the benefits of baby massages. It proves that the development of premature babies' weight increases 20-40% compared to babies who have not obtained massages [7]. In 2012, experts from Gajah Mada University conducted research on baby massages. The results indicated that baby massages have the possibility to increase babies' weight by 2.68%. The low birth weight babies who are given a massage treatment for 10 days have higher possibility to gain weight increase compared to those who are not given a massage treatment [8].

The results of research on the effectiveness of baby massages conducted by Puspita Kel. Bintaro, Jakarta, showed that baby massages can increase 11 times the ability of the baby to lift the chest, increase 10 times greater the ability to lift the neck, and have great effectiveness in increasing babies' growth (babies' body weight and length). Baby massages can also facilitate the circulation of the babies' blood. Therefore, it can assist the process of babies' growth and development [9].

Problems with the babies' growth in Indonesia have begun at an early age. Therefore, it needs efforts to reduce the growth disorders or to increase the weight gain percentage. This study aims to determine the effect of massages on the weight of babies aged 0 - 1 month and the percentage of the increase of babies' weight.

2. METHODS

This type of this research was quasi-experimental with two group pretest and posttest design a using control group. Subjects in the study were 66 babies aged 0 - 1 month divided into 33 babies in the case group and 33 babies in the control group. This research was conducted at Pratama Kusuma Medisca Wates Clinic.

Sampling process used purposive sampling technique with the inclusion, namely born spontaneously and not prematurely, and exclusion criteria, namely born with Low Birth Weight (LBW).

The intervention of baby massage was conducted 3 times by midwives who had attended the training. Data collection was carried out by 2 D-IV students majoring Educator Midwives. The measurement of body weight is conducted once a week for 4 weeks with the scales which have been modified with tera.

Data analysis was carried out using a computer program. To find out the effect of baby massages with the increase of babies' weight, the researcher used independent samples t-test.

3. RESULTS AND DISCUSSIONS

Table 1. Characteristics of research subjects

Variables	Massage-given (n=33)	Control (n=33)
Sex		
Male	19 (58%)	18(55%)
Female	14 (42%)	15 (45%)
Initial weight (gr)	3117±306	3222±399
Final weight (gr)	3894±377	3801±481

Table 1 showed that babies given massage treatment were 19 male (58%) and 14 female (42%). Meanwhile, babies in the control group were 18 male (55%) and 15 female (45%). Based on the distribution, it indicated that the sex distribution of the massage-given group and the control group was homogeneous. The mean score of initial babies' body weight in the massage-given group was 3117 gram and in the control group was 3222 gram. Moreover, the mean score of babies' body weight after treatment in the massage-given group was 3894 gram and in the control group was 3801 gram.

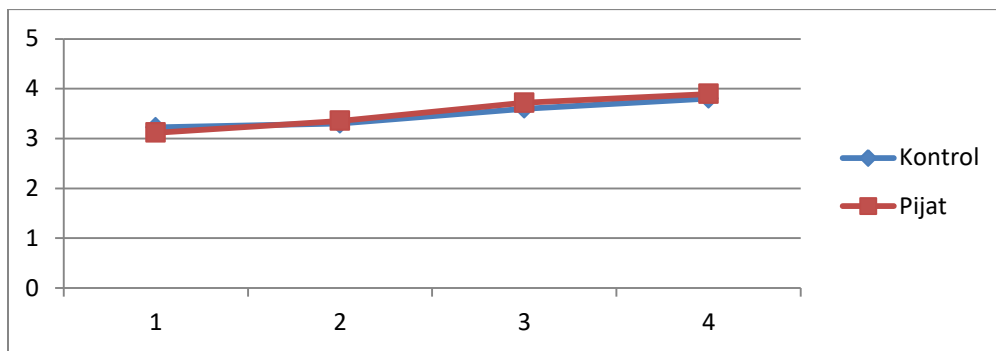


Figure 1. The average weight gain

The weekly increase in babies' weight in control and massage-given groups can be seen in Figure 1. The figure indicated that the increase of weight for babies in the massage-given group was more stable than babies in the control group. The average of the increase in babies' weight in the massage-given group in the first week was 237 grams, in the third week was 360 grams, and the fourth week was 113 grams.

Table 2. The difference (of percentage) of the increase in babies' weight

Variable	N	Median(Q1,Q3)	P
Weight gain (gr)			
Massage-given	33	820(605;992)	0,007
Control	33	460(362;860)	
Weight gain (%)			
Massage-given	33	27(19;33)	0,005
Control	33	14 (11;28)	

Table 2 indicated that the increase in babies' weight in the massage-given group was 820 grams (Q1=605;Q2=992), while the increase in babies' weight in the control group was 460 grams (Q1 = 362; Q3 = 860). The results of the statistical analysis showed that p-value was $0.007 < 0.05$. It meant that there was an effect on the baby massage towards the increase in babies' weight. The increase of the percentage of babies' weight in the massage-given group was 27% (Q1 = 19; Q2 = 33), while in the control group was 14% (Q1 = 11; Q3 = 28). The results of the statistical analysis showed that p-value was $0.005 < 0.05$. It meant that there was an effect on the baby massage towards the increase of the percentage of the babies' weight.

DISCUSSION

1. The Characteristics of Respondents

Table 1 showed that babies given massage treatment were 19 male (58%) and 14 female (42%). Meanwhile, babies in the control group were 18 male (55%) and 15 female (45%). Based on the distribution, it indicated that the sex distribution of the massage-given group and the control group was homogeneous.

The sex of the baby will greatly influence the increase in the babies' weight in which, for the same age group, the male babies have a heavier weight than the female babies have. Based on the KIA guidebook, the average weight for male babies in the first month was 3300-5800 grams and for female babies was 3100-3500 grams.

In the research conducted by Wulandari, the average increase of weight for male babies at ages 0 - 6 months in the 50th percentile was 730.1 grams. Moreover, at ages 6 - 20 months, it decreased, namely 231.2 grams/month. The average increase of weight for female babies at ages 0 - 6 months was 634.6 grams. Moreover, the average of the increase of weight for female babies at ages the second 6 months in the 50th percentile decreased, namely 271.3 grams/month. Male babies have a heavier birth weight than female babies. The comparison curve of male and female babies' weight almost coincides at the age of 0 - 4 months, then the growth curve of male babies' weight is greater than that of female babies at the age of 5 - 12 months [10].

The average of initial babies' weight in the massage-given group was 3117 grams and in the control group was 3222 grams. Meanwhile, the average of babies' weight after given treatment in the massage-given group was 3894 grams and in the control group was 3801 grams. Based on these data, it can be concluded that the increase in the average of babies' weight in the massage-given group was 777 grams and in the control group was 579 grams.

2. The Effect of baby massage on the increase in babies' weight

The results of this research showed that the increase in babies weight in the massage-given group was 820 grams (Q1 = 605; Q2 = 992), and in the control group was 460 grams (Q1 = 362; Q3 = 860). The results of the statistical analysis showed that p-value was $0.007 < 0.05$. It meant that there was an effect of baby massage towards the increase in babies' weight. Meanwhile, the increase in the percentage of babies' weight in the massage-given group was 27% and in the control group was 14%. The results of the statistical analysis showed that p-value was $0.005 < 0.05$. It meant that there was an effect of babies massage towards the percentage of the increase in babies' weight.

This result is in line with the theory put forward by Roesli said that one of the benefits of baby massage is to increase the baby's weight and baby massage can cause positive biochemical and physical effects⁽⁴⁾. Baby massage causes the increase of the nervus vagus activity, and will stimulate digestive hormones including insulin and gastrin [4,6]. Insulin plays a role in metabolism, causing an increase in carbohydrate metabolism, glycogen storage, fatty acid synthesis, amino acid synthesis of protein. Therefore, insulin is an important anabolic hormone which works on various tissues including the liver, fat, and muscle. The increase of insulin and gastrin can stimulate digestive function so that absorption of food juices gets better [14,15]. The better absorption of food will cause the baby to starve quickly and therefore suckle more often.

Another possibility of the difference in the increase in babies' weight is also caused by growth hormones in which the effects of growth hormone are synergic with the insulin hormone [4,15,16].

Based on the research conducted by Shoim, baby massage also affected the weight changes in which the control group experienced a decrease / change in waz by -0.27 and the massage-given group experienced a decrease / change in waz by -0.03 or in other words the control group experienced growth disorders with speed of -0.27SD for one month and the massage-given group experienced growth disorders with speed of -0.03SD. It indicates that baby massage can reduce (prevent) growth disorders for babies [11].

According to Soetjiningsih, environmental factors have an effect on achieving the optimal genetic potential [12]. If the babies' environmental conditions are less supportive, the optimal genetic potential cannot be achieved. Less stress and stimulation are factors that can interfere with child growth. According to Acolet, the baby massage is able to improve emotions and reduce stress hormones [17]. Moreover, the massage can provide good stimulation to increase growth and development, increase the amount and activity of natural killer cells from the immune system and stimulate the digestive function [13,16]. Therefore, growth disorder can be minimized.

The results of this research were also supported by the research conducted by Prof. T. Field & Scafidi cit Shoim [11]. which indicated that 20 premature babies (weight of 1280 grams and 1176 grams) who were massaged for 10 minutes gain the increase of weight of more 20% - 47% per day

days than those who are not massaged. Moreover, babies born not prematurely aged 1 - 3 months who were massaged for 15 minutes twice a week for 6 weeks showed more weight gain than babies in the control group. Babies who are massaged for just 5 days will have an immune system that has increased by 40% compared to babies who are not massaged.

4. CONCLUSION

- a. There is an effect of baby massage towards the increase in babies' weight at the Paratama Kusuma Medisca Wates Clinic, Kulon Progo, Yogyakarta (p-value was $0.007 < 0.05$).
- b. There is the effect of baby massage towards the percentage of the increase in babies' weight at the Paratama Kusuma Medisca Wates Clinic, Kulon Progo, Yogyakarta (p-value was $0.005 < 0.05$).

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