

DIFFERENCE OF STIMULATION OF MODERN MASSAGE AND CONVENTIONAL ON THE GROWTH OF INFANT

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Abstract. Massage is very beneficial in optimizing baby's growth, by increasing the absorption of food so that the baby is hungry faster and the baby will suckle more often. This absorption can increase body weight, body length, and head circumference in infants. Massage is a non-pharmacological therapy to overcome growth problems in infants in the form of gentle relaxation techniques and rarely causes side effects. Midwives as health workers provide services that support babies from birth to 2 (two) years old by conducting early stimulation of growth. This study aims to analyze the effect of modern and conventional massage stimulation on body weight, body length, and head circumference of infants aged 3-6 months. Utilizing a two-group pretest-posttest control group design, this study was an experimental quantitative study. Primary data were collected through measurement of body length, body weight, and head circumference. The independent variable is the stimulation of massage, the dependent variable is Body Length, Body Weight, and Head Circumference, and the confounding variables are the baby's gender, mother's education, mother's employment status. The population in this study were mothers who had babies aged 3-6 months who were registered in two midwives' independent practices. The sample of this study was 140 infants under the age of two, divided into groups including the intervention and control group, each of which was 70 infants. The research sample was selected using non-probability sampling with purposive sampling technique. Post-test was conducted after 4 times of massage. The analytical test used was the Wilcoxon test. This study results that there were differences in modern and conventional massage on growth during pretest and posttest ($p=0.000$). The difference was found in infant body weight and length in both the intervention and control groups. However, the difference was not found in infant head circumference. Overall, the study is convincing that both massage facilitates growth through the massage given.

Keywords: Massage; growth; midwife

1. INTRODUCTION .

Weight problems in infants are very sensitive, as evidenced by data from the World Health Organization (WHO) stating the incidence of infant weight in the world is still below the standard of more than 5% with a prevalence of underweight in Southeast Asia of 26.9%. While the prevalence of underweight in the world globally is 14% (WHO, 2017). Weight gain is also very continuous with the nutritional intake provided by the mother, according to the Indonesian Health Profile in 2017 the percentage of nutritional status caused by weight at age (0-23 months) the percentage of undernutrition was 11.3%. While compared to 2018 the percentage of undernutrition cases was 11.4%. This shows an increase in the status of malnutrition from 2017 to 2018 (Profil Kesehatan Indonesia, 2018).

Efforts can be made in optimizing body weight in infants in addition to nutrition provided by the mother and one of the other ways needs stimulus stimulation or commonly known as baby massage. Massage is one of the oldest methods of treatment in the world. Massage includes the art of health care and treatment that is able to relax joints that are too stiff and unite organs in the form of touch. With the touch of massage on circulatory muscle tissue, it can increase muscle tissue or muscle position can be restored and repaired so as to improve the functions of the body's organs as well as possible (Roesli, 2016) (Carolin et al., 2020).

Baby massage is a form of touch stimulation that has long been recognized in Indonesian society. The phenomenon of baby massage that occurs today is baby

massage performed by other people, namely baby shamans, midwives, nurses, or therapists at baby spas. Mothers prefer to hand over their children to other people for baby massage for fear of getting the wrong massage (Kementrian Kesehatan RI. 2016).

Body weight is the result of an increase or decrease in all tissues in the body including bone, muscle, fat, body fluids. Currently, body weight is used as an indicator to determine the nutritional condition and growth and development of children because body weight is sensitive to even small changes. Unqualified sleep is where the baby experiences sleep disturbances if at night the sleep is less than 9 hours, wakes up more than 3 times and the length of awakening is more than 1 hour. During sleep the baby always seems to be fussy, crying and difficult to fall back to sleep. If this often happens to the baby's sleeping habits, it will greatly affect the growth of the child, both physically and psychologically (Fauziah & Wijayanti, 2018).

One of the efforts to increase baby weight and improve baby sleep patterns is to provide stimulation or stimulation. Good stimulation or stimulation for children can be provided by parents for maximum potential development. Factors related to child growth and development are adequate nutrition, a supportive family environment is the basis for child growth and development. In addition, from a personal point of view, children can be given stimulation, one form of stimulation that is commonly done by parents for babies is tactile stimulation in the form of baby massage (Adriana, 2013), (Dinengsih & Yustiana, 2021).

Stimulation can be given early by parents to children for maximum development of the child's potential. Baby massage is classified as a stimulation because in baby massage there is an element of touch that will stimulate the function of brain cells. In addition, infant massage can stimulate digestive hormones including insulin and gaselin, so that food absorption becomes better. This causes the baby to feel hungry quickly so that it feeds more often and there can be an increase in body weight (Roesli, 2016).

Baby massage is believed to maintain health and be able to stimulate and optimize baby's growth and development. However, without the correct massage technique, infant massage can actually be harmful, and can even cause death to the baby. Until now, not all traditional birth attendants understand the correct technique of infant massage. It is often found that the baby's head becomes the object of massage. In addition, often the technique of infant massage is almost the same as the massage of the baby's mother because it is one with the delivery assistance package. Baby massage can be started as soon as the baby is born, according to the parents' wishes. By starting the massage sooner, the baby will benefit more. Especially if the massage can be done every day from birth until the baby is 6-7 months old (Roesli, 2016) (Safitri et al., 2020).

There are many ways to stimulate babies. One of them is through massage. Massage is the ideal form to realize it, because when massaging a baby, the mother trains herself to get to know her baby better. By gently massaging the baby's body part by part, the mother learns to recognize her baby's body and body language individually. From this, it will be known which massages are pleasant for the baby and which ones he does not like. Over time, we will become more skillful and confident in taking care of our babies. Among Indonesians, traditional baby massage has been known for a long time, and is still often practiced by traditional healers. The science of baby massage is generally easy to learn with a few practices and parents will be proficient at doing it. Baby massage starts from the baby's feet, abdomen, chest, face, hands and back (Rosalina, 2015). Besides, baby massage is also easy because it only uses baby oil (Asih & Mirah WS, 2019). Infant massage can improve sleep patterns and can also promote weight gain (Ferber SG, Kuint J, Weller A, Feldman R, Dollberg S, Arbel E, 2002) (Bennett C, Underdown A, 2013).

Stimulation of Baduta child massage (children aged 0-24 months) is an activity to stimulate the ability of all aspects of basic development of baduta which includes touch stimulation of movement, sequence, hearing and vision by prioritizing a sense of comfort, safety, showing attention and affection so that its development will take place optimally (Kementrian Kesehatan RI., 2016). Massage Stimulation for Children Under Two Years old (Baduta) is a Ministry of Health Guideline as a reference for parents/families, cadres/communities and health workers in conducting massage stimulation that is safe, useful and accountable (Kementrian Kesehatan RI., 2016). Stimulation techniques for

infants massage is done from the face, chest, abdomen, hands, feet and back (Kementrian Kesehatan RI., 2016). In general, massage should start from the baby's feet. Because generally more babies easily amenable to massage in the leg area. Starting like this will give your baby a chance to get used to feeling the sensation of the massage before touching other parts. Hence, the order of baby massage should start from the feet, then from the stomach, chest, hands, face to the back. It is known that each movement in this stage can be repeated six times.(Utami Roesli., 2012)

East Jakarta had the third highest prevalence of undernutrition at 5.59% after Thousand Islands and Central Jakarta. The highest pneumonia cases were found in East Jakarta (6962 cases, 11.3% proportion) (Kepala Dinas Kesehatan Provinsi DKI, 2021).

Massage is a comprehensive health effort that includes: promotive, preventive, curative and rehabilitative efforts, both for basic health services or referral RI Law Number 35 of 2014 concerning Child Protection (Kemensesneg, 2014). One of the promotive efforts that can be done to address children's health is manual techniques in the form of massage stimulation Law 36 of 2009 states that traditional health services include traditional health services skills and Complementary (Presiden Republik Indonesia, 2009).(Menteri Kesehatan Republik Indonesia, 2018)(Kementerian Kesehatan RI, 2014). Permenkes RI 1109/2007 Sequential massage is included in manual healing (Kementerian Kesehatan RI, 2007). In accordance with Permenkes No. 21 of 2021 and Permenkes No. 28 of 2017 Midwives provide services that support babies who are born until the age of 2 (two) years including stimulation of early intervention detection of child growth and development. One form of stimulation that can be provided is massage stimulation (Menteri Kesehatan Republik Indonesia, 2021)(Menteri Kesehatan RI, 2017).

2. LITERATURE REVIEW

2.1 Infant massage

Infant massage is a non-invasive procedure that has positive effectiveness on growth, especially neonate weight gain (Mobarak, A., & Mohamed, 2018). According to research (Rad, Haghshenas, Javadian, Hajiahmadi, 2016) where baby massage is done 3 times a day for 15 minutes in each session within a period of 7 consecutive days, the average body weight in the intervention group includes an average pretest body weight of 1282 grams, while the posttest body weight is 1428 grams. In the control group, the pretest body weight was 1219 grams and the posttest body weight was 1312 grams. It can be concluded that the average body weight in the intervention and control groups both experienced an increase in body weight (Margiana & Mufliah, 2018). It is a form of pediatric massage touch based on the Certified Infant Massage Instructor (CIMI) (Livingston et al., 2009). The steps of Infant Massage (CIMI) start from the baby's feet, stomach, chest, hands, face and finally the back so that the baby is calm, relaxed and comfortable so that the entire massage is passed by the baby. (Livingston et al., 2009), (Khuzaiyah, 2018). (Rohmawati & Dewi, 2020)

2.2 Massage Stimulation for Under-five Children

Massage stimulation of under-five children is an activity to stimulate the ability of all aspects of basic development of under-five children which includes stimulation of touch, movement, sequence, hearing and vision by prioritizing a sense of comfort, safety, showing attention and affection so that their development will take place optimally (Kementrian Kesehatan RI., 2016). It is a form of touch based on the guidelines for stimulation of massage for infants (children under 2 years old) issued by the Ministry of Health. (Kementrian Kesehatan RI., 2016). Stimulation techniques for infants massage is done from the face, chest, abdomen, hands, feet and back. (Kementrian Kesehatan RI., 2016).

Baby Massage Stimulation is a manual technique that effectively affects the nervous, immune and hormonal systems and also affects the function of the gastrointestinal tract absorption of food becomes better and there is an increase in body weight so that an increase in growth hormone levels will spur optimal growth and development of brain cells (Kementrian Kesehatan RI., 2016)

Growth can be measured quantitatively, such as weight, height, or head

circumference. Development is a transition from child, to adolescent, followed by psychological and biological changes, which include the development of language, cognitive skills (e.g. memory and logic), social and emotional skills (empathy and interaction), and motor skills (running, sitting, other more complex movements) (Harahap, H, Budiman, B & Widodo, 2018).

2.3 Body Weight

Body weight is the result of an increase or decrease in all tissues in the body, including bones, muscles, fat, body fluids and others. Research by Asih et al found a significant difference in body length and head circumference of babies who did baby massage and spa with those who did not do baby massage and spa with a p value of 0.000 (Asih & Mirah WS, 2019). According to Gupte (2004), infants will weigh twice their birth weight at 5 to 6 months of age.

2.4 Body Length

Infants will experience an increase in body length of about 2.5 cm every month. The increase will gradually decrease until the age of 9 years, which is only about 5 cm/year and this increase will stop at the age of 18-20 years (Wong, 2009).

2.5 Head Circumference

In newborns the normal head circumference size is 34-35 cm, and will increase by 2 cm every month at the age of 0-3 months. At the age of 4-6 months it will increase by 1cm per month, and at the age of 6-12 months it will increase by 0.5 cm per month. Until the age of 5 years, it is usually around 50 cm. 5-12 years of age only increases to 52-53 cm and after the age of 12 years it will settle (Adriana, 2013). Head circumference measurement is done by looping a flexible measuring tape of non-elastic material through the most prominent part of the back of the head (protuberantia occipitalis) and forehead (glabella). It is better when measuring the side of the tape that shows centimeters is on the inner side so as not to increase the possibility of measuring subjectivity. Then write it on the card to be healthy, match it with the Nelheus chart. The chart for full-term male infants starts with a measurement of 32-38 cm, while the chart for full-term female infants starts with a measurement of 31-37 cm (Wong, 2009).

3. RESEARCH METHODS

This study is a quantitative research type of intervention / experiment using a one group pre test- posttest research design. Subjects/objects used in the study who met the inclusion criteria of infants aged 3-6 months who were at TPMB Anny Rahardjo and TPMB Ros Budiman. The method for obtaining data by interviewing using a questionnaire to mothers who have babies who will be massaged.

The samples were divided into two group, which are modern massage or called as intervention group and conventional massage or called as control group. The research protocol used in intervention group is based on the SOP for the Toddler Massage Stimulation technique issued by the Ministry of Health whereas for the control group used the SOP for infant massage according to CIMI (Certified Infant Massage Instructure). Examination of Height, Weight and Head Circumference was filled in at the time of pretest before baby massage and posttest was done after 4 times of baby massage. The population in this study were mothers who had babies aged 3-6 months who were at TPMB Anny Rahardjo and TPMB Ros Budiman.

Each of group amounted to 70 samples with a total sample of 140 infants. Inclusion criteria for the intervention group: (1) All infants aged 3-6 months who are willing to be massaged at TPMB Ros Budiman (2) All infants aged 3-6 months whose parents are willing to have their babies as respondents. (3) Infants born at full term (4) Infants sleeping with their mothers and not hungry (5) Safe and comfortable sleeping conditions. Control group inclusion criteria: (1) All infants aged 3-6 months who are willing to have massage at TPMB Anny Rahardjo (2) All infants aged 3-6 months whose parents are willing to have their babies as respondents. (3) Infants born at full term (4) Infants sleeping with their mothers and not hungry (5) Safe and comfortable sleeping conditions. Exclusion Criteria: (1) Infants with congenital anomalies from birth (2) All

infants aged 3-6 months who are sick (3) Infants with a family history of stunting (4) Infants with premature birth (5) Infants with low birth weight birth (6) Obese infants (7) Infants with health problems such as a history of seizures and meningitis (8) Infants who did not participate in at least one of the intervention series.

The sampling method was carried out by nonprobability sampling purposive sampling technique. The research location was at TPMB in the East Jakarta area and the research time was November 7 to November 28, 2022 Observed Variables Independent Variables Stimulation of Toddler Massage, Dependent Variables Body Weight, Body Length, Head Circumference. Confounding Variables: Gender, Age, Mother's education, Mother's occupation. Univariate and Bivariate data analysis using Wilcoson Statistical test. This research instrument uses the respondent's identity sheet, observation sheet, scales with (gr), Length board, tape (meter) with centimeter size (cm), which has been calibrated as a research instrument. The identity sheet is used to record respondent identity data. The observation sheet was used to fill in data on body weight, body length and head circumference of respondents from the beginning to the end of the study. Calibrated baby scales as a measurement tool for baby weight, Length board as a measurement tool for baby body length and meter tape (cm) as a measurement tool for baby head circumference.

This research has obtained ethics from the Health Ethics Commission of the Faculty of Nursing and Midwifery, Binawan University in the form of ethical approval No: 040/PE/FKK-KEPK/VI/2022.

4. RESULTS AND DISCUSSION

Based on the table 1 below, it can be seen that in the group of intervention mostly consists of 3 months old (55.7%), female (58.6%), mother's education in high school level (52.9%) and having mothers whose working (91.4%). Meanwhile, the control group was mostly male (64.3%), the age of the baby was 3 months (55.7%), the mother's education was college (77.2%), and having mothers whose working (61.4%).

Table 1. Frequency Distribution of Infant Massage Stimulation

Characteristic	Intervention group		Control group	
	n	%	n	%
Age of children (month)				
3	39	55,7	39	55,7
4	12	17,1	22	31,4
5	7	10	9	12,9
6	12	17,1		
Gender				
Male	29	41,4	45	64,3
Female	41	58,6	25	35,7
Mother's education				
Elementary – Junior High School	0	0	0	0
Senior High School	37	52,9	16	22,9
College	33	47,2	54	77,2
Mother's Occupation				
Working	64	91,4	43	61,4
Non Working	6	8,6	27	38,6

Table 2. Differences in Mean Infant Weight after Massaging Between Groups

Group	N	Mean	St Deviation	St Error	P Value
Intervention					
Pre- test	70	6.5886	.91216	-	0,00

Post- test	70	7.4729	.87988	-	0,00
Control					
Pre-test	70	6,1671	1,26591	0,15131	0,00
Post-test	70	6,9271	1,47313	0,17607	0,00

Based on the results above, there is significance value in the intervention and control groups which resulted in differences in the baby's weight before and after the intervention.

Based on Table 2, the body weight before being given massage stimulation was 6,588 grams in intervention group. While the post-test value obtained an average value of 7,472 grams. The difference in baby weight is 884 grams and the p value is 0.000, which mean that there is a difference in baby weight before and after being given a baby massage. Table 2 also shows that the results of the pre-test value in the control group average value was 6,167 grams. Meanwhile, the post-test value obtained an average value of 6,927 grams. The difference in baby weight is 760 grams and obtained a p value of 0.000 which means that there is a difference in baby weight before and after being given conventional massage.

When a baby massage is done, of course, it provides many benefits for parents, especially mothers. Massage or touch to the baby provides benefits, namely making the baby feel calm, improving the quality of the baby's sleep, teaching the baby early on about body parts and stimulating the baby's appetite (Julianti, 2018). When a baby massage is done, of course, it provides many benefits for parents, especially mothers. Massage or touch to the baby provides benefits, namely making the baby feel calm, improving the quality of the baby's sleep, teaching the baby early on about body parts and stimulating the baby's appetite (Roesli, 2016)

Massage stimulation is a manual technique skill that effectively affects the nervous, immune and hormonal systems. Massage performed with the aim of stimulation will provide a sense of comfort reduce or divert pain, anxiety and stress and can improve the immune response. Massage stimulation also affects the function of the gastrointestinal tract for better absorption of food and an increase in body weight. In addition, increased levels of growth hormone will spur optimal growth and development of brain cells (Kementrian Kesehatan RI., 2016). This study is in accordance with research in the work area of Alanda Care Pangkalpinang City, Bangka Belitung Province, which stated that there was an increase in bay weight in the intervention group almost twice as much as the control group (Carolyn et al., 2020).

Table 3. Comparison of Average Infant Weight Post Intervention Between Groups

Group	N	Mean	St Deviation	St Error	T	P Value
Intervention	70	7,47290	0,87988	0,10517	2,661	0,009
Control	70	6,92710	147.313	0,17607	2,661	0,009

Based on the result above, the significance value for the intervention and control group is 0.009, which can be concluded that there is a difference between modern and conventional group. The results of the analysis obtained the average body weight of infants after modern massage stimulation is 7.47 kg. The average body weight after given modern massage is 6.92 kg. The statistical test results obtained a value of $p = 0.009$ means that there is a difference in the stimulation of modern and conventional massage where the increase is more happened in the modern massage stimulation group.

Weight gain in the post neonatal period (29 days-1 year) is striking. During this period, the baby's weight gain is usually in the first 3 months of 750 grams / month, which then decreases over time. The results of this study are in accordance with the theory put forward by Roesli (2016) which says one of the benefits of baby massage is to increase the baby's weight and baby massage can cause positive biochemical and physical effects. Baby massage causes an increase in the activity of the digestive hormone nerve, including insulin and gastrin (Roesli, 2016).

This study is the same as Carolin 2020, there was an increase in baby weight in the intervention group by 793 grams and in the control group by 400 grams. There were differences in pretest and posttest results in each intervention ($p=0.000$) and control ($p=0.000$) group and there was an effect of giving baby massage on baby weight ($p=0.000$) (Carolin et al., 2020).

Weight gain is achieved in the modern massage group because modern massage stimulation is performed from the face as the beginning of the child's interaction with the masseuse at the age of 3 months the baby already knows his parents so that the baby relaxes which made benefits for the baby in reduces stress hormones, and help regulate the digestive system and eventually affects weight gain (Kementrian Kesehatan RI., 2016).

Table 4. Comparison of Infant Body Length Before and After Giving Massages to Each Group

Group	N	Mean	St Deviation	P Value
Intervention				
Pre- test	70	64.0000	4.13539	.000
Post- test	70	66.9000	4.02942	.000
Control				
Pre-test	70	61.0143	5.15975	.000
Post-test	70	69.5571	4.94209	.000

Based on the results above, the significance value for the intervention group is 0.000, which can be concluded that there is a difference in body length between the pretest and posttest data. The result also showed same condition in control group.

Table 5. Comparison of Mean Difference in Infant Body Length Post Intervention Between Groups

Group	N	Mean	St Deviation	P Value
Intervention	70	69.5571	4.94209	.001
Control	70	66.9000	4.02942	.001

Based on table 5, the significance value for the modern and conventional massage groups is 0.001 which can be concluded that there is a difference in the length of infant data between two group. The difference in body length is longer in the modern massage group. The results of this study were in line with research conducted by Field et al. in Desi (2018) which showed an increase in the body length of newborns who were moderately massaged by their parents for one month compared to the group that was only given gentle rubbing. Field et al. research showed an increase in body length of 3 cm (Hidayanti, 2018).

As explained in Roesli's baby massage guidebook (2013), reducing tactile sensation will increase the release of a neurochemical beta-endorphine. So that if there is a reduction in tactile sensation, it will also reduce the formation of growth hormone, due to the decrease in the amount and sensitivity of ODC (Ornithine Decarboxylase) tissue activity. Where ODC as a trigger for growth hormone is very influential on the growth process that is not responsive to certain hormones, but only responds actively to stimulation. So that tactile stimulation or baby massage is very helpful to increase the responsiveness of ODC (Roesli, 2013). This study is in line with research conducted by Jing Jin, et al (2011), which states that the provision of massage and movement training can increase the physical development and intelligence of infants from birth to 6 months

of age with $p = 0.019$ on the results of body length growth in the experimental group compared to the control group.

Growth in body length occurs due to changes in cartilage into hard bone. Where osteoblasts and osteoclasts play a role in the process of bone formation, both work in opposition (osteoblasts trigger bone growth while osteoclasts inhibit bone growth) in order to achieve a balanced bone formation process. The formation of hard bone comes from cartilage (cartilage derived from mesenchyme). Cartilage has cavities that will be filled by osteoblasts (bone-forming cells). Osteoblasts form osteocytes (bone cells). Each unit of bone cells will circle blood vessels and nerve fibers to form a havers system. The matrix will secrete lime and phosphorus which causes the bone to become hard. So it is expected that in early infant growth osteoblasts are formed more than osteoclasts. Osteoblasts and osteoclasts are influenced by growth hormone (Jing, 2011).

This study is in accordance with Napirah 2017 which resulted infant massage had a major effect on the growth of body length of infants aged 6-12 months in Nifuboke Village, Noemuti Sub-district (Napirah Ryman, 2017)

The increase in body length was greater in the baduta massage stimulation group because massage stimulation of baduta children is an activity to stimulate the ability of all aspects of basic development of baduta which includes stimulation of touch, movement, sequence, hearing and vision by prioritizing a sense of comfort, safety, showing attention and affection so that growth hormones will be stimulated, including body length (Kementrian Kesehatan RI., 2016)

Table 6. Comparison of Head Circumference Before and After Massaging Each Group

Group	N	Mean	St Deviation	St Error	P Value
Intervention					
Pre- test	70	41.5000	1.68325		.000
Post- test	70	43.7500	1.89153		.000
Group					
Pre-test	70	41.2857	1.46597		.000
Post-test	70	43.1914	.74944		.000

Based on table 6, the significance value for the modern massage group is 0.00. It can be concluded that there is a difference between the head circumference data before and after the intervention, whereas the difference also occurs in the group of Baby Massage.

Table 7. Comparison of Mean Difference of Infant Head Circumference after Massaging between Groups

Group	N	Mean	St Deviation	St Error	T	P Value
Intervention	70	43.1914	.74944			.052
Control	70	43.7500	1.89153			.052

Based on table 7, the significance value for the modern massage and conventional massage groups is 0.052, which can be concluded that there is no difference in head circumference data between two group. The increase in head circumference in the modern massage group is higher than the conventional massage group.

This study is in accordance with another study by Warlinda, there was an increase in head circumference after three weeks in both the experimental group and the control group, the increase in head circumference in the intervention group was higher than the control group (Warlinda, 2021).

Baby Massage can stimulate the development of the structure and function of brain cells. The size and growth of the brain can be seen through monitoring the size of the

head circumference and fontanel. Brain size is considered to have a correlation with intelligence quotient (IQ) performance (Lange N, Michael F, Erin B, 2010)(Figuera CF, Barros1 AJ, Santos IS, Matijasevich A, 2014). Children who have a small head circumference from birth to the first year are likely to have a small IQ, language and gross motor impairments (Lange N, Michael F, Erin B, 2010).

CONCLUSION

1. Characteristic of modern massage group is mostly aged 3 months old, female sex, educational level of mother was high school, and most of the mother's states is having a job.
2. Characteristic of conventional massage group is mostly aged 3 months old, male sex, educational level of mother was in college, and most of the mother's states is having a job.
3. The results of pre-test and post-test there were differences whether in modern and conventional massage group.
4. The results of the pre-test and post-test there were differences in the body weight of infants whether in modern and conventional massage group.
5. The results of the pre-test and post-test there were differences in the body length of infants whether in the modern and conventional massage group.
6. The results of the pre-test and post-test there were differences in the head circumference of infants whether in the modern and conventional massage group.

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