

The Effect of Massage on Body Weight Improvement in 0 - 12 Month-Old Babies

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ABSTRACT

Background: Massage had widely known as a solution to facilitate baby growth and development which impact on optimizing blood flow, normalizing heart rate, maintaining digestion, and improving immunity. Massage intervention will preserve the adequate nutrition by increasing the absorption of macronutrient and micronutrient by stabilizing basal metabolism and induce the insulin and adrenalin secretion and prevent the cortisol secretion. **Objectives:** The purpose of the study had identified the effect of massage intervention towards baby weight enhancement in the first year of baby's life. **Method:** A quasi-experimental study with total sampling. A total of 83 babies demographic data had assessed by completing body weight measurement before and after the massage intervention. The moderate and light pressure massage had applied during 15 minutes baby massage intervention once a week in one month. Descriptive statistics and independent T-test had used for analyzing the data. **Results:** The results had provided the basic data related to baby weight enhancement before and after baby massage intervention. The weight enhancement result had surpassed the minimum standard of weight gain in one month. **Conclusion:** this result had supported the evidence-based practice in assisting the baby mothers to provide baby massage regularly during the first year of baby's life.

Keywords: *Massage, Baby Weight Improvement, Baby 0-12 months old*

INTRODUCTION

Baby massage intervention or widely known as massage therapy will support the optimal weight gain, especially in preterm newborn and baby during their first year of life (Field et al., 2004). The development of massage intervention for baby has significantly risen since The Lancet Series on Maternal and Child Under nutrition in 2008 (Bhutta et al., 2013). However, the most recent Cochrane reviewed that no significant evidence proofed the affectivity of baby massage intervention to enhance baby weight, but some study showed that by administering the baby massage regularly would stimulate baby's tactile and kinesthetic and increase the baby weight until 53 percent (Gonzalez et al., 2009). Furthermore, the baby who experienced massage intervention regularly compared to a baby in the regular intervention as control group could stay alert and active, less crying, and had lower cortisol levels in salivary gland which indicated relax (Massaro, Hammad, Jazzo, & Aly, 2009). The massage intervention becomes one alternative and solution to improve baby development during the first year period which improved health, nutrition, cognition, overall enhancement of physical, cognitive, and reproductive performance (Ruel, Alderman, Maternal, & Group, 2013).

The practice of traditional massage towards baby had studied continuously in the African, Asian continents, South Pacific and the former Soviet Union since the several decades and concluded that this intervention may accelerate bilirubin excretion with the possibility of reducing neonatal jaundice (Chen, Sadakata, Ishida, Sekizuka, & Sayama, 2011). Baby massage also had been used widely to accommodate communication and relationships between mother and baby, especially children with disabilities or new mothers with their newborn (Vickers & Zollman, 1999). The clear mechanism of baby massage stimulation is optimizing the vagal activity that releases gastrin and insulin, so supporting baby weight gain. The full baby massage might affect the skin, soft tissues, and muscles to increase the blood circulation and lymph fluids. Thus, the nerve ending stimulated and facilitated the transportation of nutrition and waste throughout the baby skin (Lee, 2006).

The improved interaction during the baby massage activity which started after newborn discharge from the hospital and continued until first year period of baby live as parent-infant interaction treated to become long-term cognitive development period (Kleberg, Westrup, Stjernqvist, & Lagercrantz, 2002). The first year period of baby life is essential for the baby's psychological development due to the sense of basic trust is formed (Gürol & Polat, 2012). Hence, this period is very critical to start the baby massage intervention. The baby massage needs 15 minutes in each phase. The duration is one time per day for 30 days which consisted of three standardized 5 minutes phases. The first and third phase Tactile stimulation was applied, and the middle phase applied kinesthetic stimulation (Field, 2002).

METHOD

The massage intervention started at first week of January 2014 until February 2014. The baby and mother had completed the pre-intervention phase, which consisted of the signed informed consent, baby anthropometric measurement, and baby massage training from the baby physiotherapist as an expert in massage technique. Furthermore, the mother got the baby massage equipment kit and baby massage book for guiding them during the massage intervention. The baby's mother had followed all the instructions and tried to apply the baby massage after the training time under the supervision. The home visited had conducted once a week to report the anthropometric development, and the result recorded and compared with the World Health Organization (WHO) Child Growth Standard after the one-month intervention. The sharing experience of baby massage intervention had conducted during the home visit, in order to monitor the problem that might be happened.

The intervention started after the general examination by a pediatric nurse who makes sure that the baby condition stable with no disease. The baby mother interviewed regarding the problem that might be happened prior to the intervention. The baby mothers would be excluded when missed more than one session for in each week. The total sampling rate who agree to participate after the training session was 100%. All baby have the same exclusive breastfeeding in first 6 months after birth. The total attrition rate for any reason after less than 3 days of participation in the study was 20%. The problem which caused the dropout was changed in baby health condition. The condition was observed by home visits.

Massage therapy applied the moderate pressure and stroking towards the baby. The baby laid down with a prone position in the bed with the exposed body. The baby massage phase consisted of the 15-minutes session was divided into two segments: first, by lying prone, and second by supine position. The baby was turned over in the middle of this two segments. The baby massage technique was adapted from Brazy et al.'s technique (Brazy,

Goldstein, Oehler, Gustafson, & Thompson Jr, 1993). The time needed for each segment was 7 min, 30 s, which comprised into two parts: in the initiation part (in 10 seconds), mother hand were laid on the baby's head with no movement. The next part was the main treatment (in 7 minutes and 20 seconds), the mother stroked the baby slowly with hand movements starting from the head to the legs and then repeated to the baby's head, back and forth. The baby chest and stomach were not being massaged (Ferber et al., 2002). The measurement of anthropometric includes weight and waist circumference. The baby demographic data include the age and gender were recorded from the pre-intervention phase. This research had recruited nine research assistants, supervised by two senior pediatric nurses and three midwifery which blind to the treatment subjects.

The paired t-test statistic had applied in this study. The total sample size of 83 babies and mothers is sufficient to show a significant effect of the massage therapy with the power of 95% and 5% risk of an alpha error probability based on G power 3.1.9.2 calculation. The effect size calculation with t-test family for means different between two dependent (matched pair) was 0.40 and the degree of freedom 82. The critical value for the t-statistic, two-tailed test was 1.99. The Institutional Review Board for Human Experimentation from medical centers which participating in the study approved the protocol and all parents provided written informed consent.

RESULTS AND DISCUSSION

The participants in this study were 83 baby and mother which had participated starting from January until February 2014. The attrition rate was zero, and all the participants were able to follow the procedure completely. As mentioned in table 1 below, the participants consisted of 43 baby boys and 41 baby girls. The mothers accompanied their babies during the procedure and actively participated during the massage intervention under supervision.

Table 1. Baby Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	2.4	2.4	2.4
	2	14	16.9	16.9	19.3
	3	9	10.8	10.8	30.1
	4	12	14.5	14.5	44.6
	5	6	7.2	7.2	51.8
	6	10	12.0	12.0	63.9
	7	8	9.6	9.6	73.5
	8	6	7.2	7.2	80.7
	9	6	7.2	7.2	88.0
	10	4	4.8	4.8	92.8
	11	5	6.0	6.0	98.8
	12	1	1.2	1.2	100.0

Table 2. Baby Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Boy	42	50.6	50.6	50.6
	Girl	41	49.4	49.4	100.0

The results showed a significant difference between two means from one another. The table 3 shown the t-value = 8.412, which was greater than the critical value 1.99, at $p \leq .05$ (two-tailed test). The mean of baby weight before massage intervention was 6.9940, and after the intervention was 7.3253. The average difference between two value was 0.3313.

There were so many massage intervention studies on premature baby have been conducted, but still limited which identify the effects of massage intervention on thenormal baby in Indonesia. The result of this study was that the massage interventioncould become one alternative method which supports baby’s weight enhancement. However, the initial weight was significantly different before the massage intervention started, and after 4 weeks of intervention, the weight increased compared with before the intervention (Lee, 2006).

However, some study shows that the rate of weight gain in the first month of baby life, and any other related determinants, such as the baby feeding type, could affect the baby weightduring the childhood period (Stettler, Zemel, Kumanyika, & Stallings, 2002). Thus, in relation to that evidence-based, this study should be refined related to another confounding factor which might be interfered during the research, such as baby gender, age, nutritional intake. Therefore, future studies related this topic should also include baseline measurement by identifyingbaby’s behavior and activity which promote the significant result.

During the first year of baby’s life is a period for rapid weight gain, with the doubling of weight in the first 4 to 6 months. In this study, where the participants had similar characteristics which had 6 months exclusive breastfeeding. Thus, the baby who had breast milk that contains bioactive factors that may regulate fat deposition and appetite control which influence the baby weight gain (Kalies et al., 2005).

CONCLUSION

In conclusion, the effect of massage intervention towards baby weight enhancement at the first year period of their lifehas resulted in a consideration to promote baby massage in optimizing the baby weight gain.The further identification of related factor is needed to fill the gap on the long-termmassage intervention on baby weight gain early childhood.

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