Original Article

Baby weight gain through Sitra baby massage

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Objective: To analyze differences of baby weight before and after Sitra baby massage.

Methodology: The design of this study was quasi experiment by pretest-posttest with control group design technique**.** Sitra massage was used for 2 months (8 times) and compared with traditional massage. Weight change was checked.

Results: The study included 60 participants. There were differences in baby weight gain in post intervention of either control group or experimental group (p = 0.000). Baby weight gain through Sitra massage was greater than through traditional massage with average of difference in weight gain of 52.55 gram (p < 0.000). Sitra technique could increase variation of baby weight in 63.2%.

Conclusion: Baby weight gain through Sitra massage for 2 months was greater than traditional massage.

Keywords: Baby massage, baby weight, neonates.

INTRODUCTION

Children are God's gift for parents and every parent wants the children to grow and develop optimally. Optimal child development and growth are the result of interaction from various interrelated factors, which are heredity, environment, behavior and useful stimulation.[1] In 2012, the number of babies in Indonesia were 4,462,562.[2] West Java Province recorded the highest number of babies that were 871,297. According to Karawang Central Statistics Agency in 2016, there were many Karawang District areas that had 1262 population of babies.[3]

Body weight is the most important anthropometry measure used for babies.[4,5] The first five years is a critical period for a child's life that will significantly impact on its development.[6] In growth and development of neonate, a sensory-motor stimulus is needed which must be fulfilled and one of them is touch from the parents. This sensation has functioned since in the womb before other sensations develop.[7]

Baby massage through "Sitra" technique is a form of touch therapy that aims at helping baby weight gain. The name "Sitra" comes from the merging of two researchers, namely "Siti" and Vera. The difference between the conventional baby massage technique and the Sitra technique is that the Sitra baby massage combines massage and acupressure techniques and specifically to increase the baby's appetite at certain points of the baby's body. The conventional baby massage is a technique to massage the baby thoroughly on the baby's body without acupressure. The aim of this study was to analyze differences of baby weight before and after Sitra baby massage.

METHODOLOGY

This study was a quasi-experiment by pretest-posttest with control group design technique**.** The study was conducted from June to November 2019 and included 60 children. Sampling technique was purposive sampling method. Inclusion criteria were babies who were 3-9 months old and the baby is in good health. The exclusion criteria were baby is sick or premature.

Sitra massage was used for 2 months (8 times) and compared with traditional massage. Weight change was checked before and after intervention.

Statistical Analysis: Data were analyzed by SPSS version 25. We used t test, Man Whitney and linear regression.

RESULTS

The study included 60 children. Babies gender in control group was 53.4% or 16 baby boys and in experimental group was 56.7% or 17 baby girls. The most mother's education in control group was 66.7% or 20 mothers who had graduated from secondary education/ high school education. Likewise, 70% in experimental group or 21 mothers had graduated from secondary school/ high school. 60% or 18 mothers in control group did not work as well as in experimental group, there were 53.3% (16 mothers) who did not work (Table 1).

There was a significant difference of baby weight in pre and post providing intervention in experimental group and control group (p < 0.005) (Table 2). Variable of baby massage through "Sitra Technique was significant against baby weight gain with p = 0.0001 (Table 3). Confounding variables in this study were variable of baby's age and mother's occupation. Coefficient determination R2 (R square) was 0.632, which meant

Table 1: Demographic characteristics.

Characteristic	Control			Intervention		
	Frequency	%	Total	Frequency	%	Total
Gender:						
- Baby Boy	16	53.4	30	13	43.3	30
- Baby Girl	14	4.6		17	56.7	
Education:						
- Primary School	3	10	30	1	3.3	30
- Secondary School	20	66.7		21	70	
- Academy	7	23.3		8	26.7	
Occupation:						
- Yes	12	40	30	14	46.7	30
- No	18	60		16	53.3	
Exclusive Breast Milk:						
- Yes	22	73.3	30	23	76.7	30
- No	8	26.7		7	23.3	

Table 2: Difference of baby weight pre and post intervention.

	Baby Weight Gain in Gram		Mean CI 95%	*t-test*	*p-value*
	Pre	***Post***			
Intervention Group	2167.23	2692.00	-436.6	-64.5	0.001
			-422.34- (-360.5)		
Control Group	2204.54	2484.55	-564	-45.3	0.000
			-570.32-(-487,12)		

Table 3: Difference of baby weight post intervention in control and experimental group.

Variable	Total	Median	Min-Max	P Value
Posttest				
- Intervention Group	30	5500	4500-6600	0.00
- Control Group	30	4300	4000-6150	

Table 4. Linear Regression Analysis of providing baby massage through "Sitra" technique against baby weight gain.

Variable	Coefficients	SE	P Value	R Square
Constanta	6.864	0.854	0.0001	0.632
Baby's Age	0.452	0.057	0.0001	
Mother's Occupation	0.643	0.463	0.068	

that the variable of baby massage through "Sitra" technique could explain variations in baby weight of 63.2% and the others were explained by other variables. Every one month in baby's age would gain the baby weight by 0.452 kg after being controlled by mother's occupation. Meanwhile, for mothers who did not work,

every one month in baby's age would gain the baby weight by 0.643 kg higher (Table 4).

DISCUSSION

In this study, most of babies were 3-9 months old and the average of babies' age was 6 months. According to WHO, baby's age in first few months of life, which was 1 to 6 months old was very important age for babies, because at this age, babies needed high nutritious food to achieve optimal growth and development level. Minimum mother's age was 22 years, maximum mother's age was 40 years, and the average of mother's age was 37 years 5 days.

Age was crucial for maternal health because it related to the condition of pregnancy, childbirth, postpartum period, and how to breastfeed and care for her baby and child care.[8] Most of the respondents in this study were baby boys who were 53.4%. The growth spurt of baby boys was greater than baby girls.[9]

In this study, 66.7% of mothers had secondary education. Such parents would be easier to receive education about how to care for babies with low birth weight as a result of higher knowledge. In occupation status, most of mothers (60%) did not work when this study was conducted. In this study, 73.3% of babies in control group had exclusive breast milk, as did in the dominant experimental group, which 76.7% of babies had exclusive breast milk. Mothers who did not breastfeed every two or three hours certainly affected the process of fulfilling nutritional needs for babies. These results are similar to results by Karbasi et al who found that there was a significant difference in baby weight gain between babies with low birth weight.[10]

Field suggested that baby massage could be done for 15 minutes twice a day and could be done one hour after the baby was breastfed or while the baby was on stand by.[11] According to Vickers et al, massage for baby with low birth weight must be done by using slow and gentle massage but it was not too smooth and it should consist of giving a tactile stimulation, kinesthetic stimulation, tactile stimulation again, and each was done for 15 minutes.[12]

One of basic mechanisms in baby massage was the release of beta endorphins from baby's body which could hypnotize the growth process. Moreover, reducing tactile sensations would increase neurochemical beta-endorphin, which would reduce ornithine decarboxylase (ODC) activity as an impact of being able to increase growth hormone. Field compared moderate pressure massage and light pressure massage and found that baby massage with moderate pressure could significantly reduce stress in fussy babies and improve sleep quality.[11]

Ho et al by using Test of infant motor performance (TIMP) and infant weight assessment found that there was a significant disparity between baby with very low birth weight group who had baby massage than those who did not have baby massage.[13] Sur et al found that low birth weight babies who were only given breast milk experienced a significant difference in weight gain than babies who had been given prelacteal feeds.[14]

Generally, newborn babies would lose 7-10% of their birth weight and this would occur for the first 3 to 5 days after birth. After that, the baby must gain 110 to 200 gr/week or 20/28 gr/day. According to WHO, an adequate baby weight gain in second week for babies was 15 gram/day.[15]

CONCLUSION

There are significant differences of baby weight in pre and post having baby massage by using "Sitra" technique and conventional technique.

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Analysis and interpretation of data: Siti Rahmadani, Vera Suzana Dewi Haris.
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