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THE EFFECT OF BABY MASSAGE ON THE WEIGHT OF BABIES AGED 3-6 MONTHS IN THE TPMB OF THE KELAPA GADING REGION, NORTH JAKARTA

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Abstract

Regular monitoring of children's growth and development must start from an early age as an effort to obtain quality human resources. Baby massage can reduce morbidity rates, baby massage is useful for increasing baby weight, increasing growth, increasing endurance, increasing breast milk production, improving blood circulation and breathing and improving sleep quality. Baby massage can also optimize baby growth and development. The aim of the research was to determine the effect of baby massage on the weight of babies aged 3-6 months in the TPMB Kelapa Gading area, North Jakarta. This research uses a Quasi Experimental method with a pretest and posttest research design. The sample in this study was 20 babies aged 3-6 months. The sampling technique uses purposive sampling. Data analysis used General Linear Model (GLM) Repeated Measures design with Pretest-Posttest Design. The type of contrast used is difference contrast. During the first week of massage, the average baby's weight increased by 102.5 grams. And by the fourth week, the average baby's weight increased to 297 grams. Overall, the average increase in baby weight was 780.5 grams, this proves that baby massage has proven effective in increasing baby weight. It was found that there was a difference in the average weight of babies before and after baby massage of 780.5 grams at TPMB in the Ranting Kelapa Gading area, Jakarta.

Keywords: Baby, Baby Massage, Baby Weight

Introduction

The baby's growth and development must be monitored by the baby's parents every month, what is observed is the child's weight, body length, development of motor and sensory movements. Regular monitoring of children's growth and development must start from an early age as an effort to obtain quality human resources (Sutriyawanet al., 2019).

Baby massage can reduce morbidity rates, baby massage is useful for increasing baby weight, increasing growth, increasing endurance, increasing breast milk production, improving blood circulation and breathing and improving sleep quality. Baby massage can also optimize baby growth and development[10].

The World Health Organization (WHO) reports that more than 200 million children under 5 years of age in the world do not fulfill their developmental potential. The incidence of developmental delays in the United States ranges from 12-16%, Thailand 24%, and Argentina 22%, while in Indonesia it is between 29.9%[16].

According to UNICEF (United Nations International Children's Emergency Fund) in 2015, data was obtained that the incidence of growth and development disorders in children under five, especially motor development disorders, was still high (27.5%) or 3 million children experienced disorders[15].

National data according to the Indonesian Ministry of Health shows that in 2014, 13% - 18% of children under five in Indonesia experienced growth and development disorders [18]. According to the Basic Health Survey (Riskesdas, 2018) organized by the Ministry of Health, the proportion of underweight children in Indonesia aged 0 - 23 months is 3.8% and the proportion of underweight children is 11.4%. In children aged 0 - 59 months, body weight was 3.9% and weight loss was 13.8%. There were 4,740,342 live births in Indonesia in 2020, of which 1.3% were at the age of 0-23 months, 1.3% were very low, 5.4% were low, 1.2% were malnourished and 4.1% were malnourished. Meanwhile, at the age of 0-59 months, very low body weight is 1.4%, low weight is 6.7%, malnutrition is 1.1%, malnutrition is 4.3% [12].

According to BPS (Central Statistics Agency) in the province of DKI Jakarta, the birth rate was recorded at 132,350 people, while in the city of North Jakarta it was 22,684 people. By looking at the high live birth rate for babies, it is very important to provide stimulus during the golden age period so that there are no developmental delays [8].

Babies' brains are twice as active as toddlers [5]. Monitoring and stimulating the growth and development of babies is one of the midwives' duties. In accordance with the Decree of the Minister of Health of the Republic of Indonesia Number 369/Department of Health/SK/III/2007 concerning Standards for Professional Midwives. Massage therapy is one of the stimulation suggestions developed to stimulate growth and development (Prasetyono, 2017). According to Health Law No. 36 of 2009, baby massage is a traditional health service which is included in the type of skill. According to Minister of Health Regulation Number 1109 of 2007, baby massage can be categorized as complementary - alternative medicine because it has been obtained through structured education based on biomedical science.

According to research conducted by Rosi Kurnia (2016), the results showed that babies who received massage once a day experienced an average increase in body weight of 1.08 kg, and

babies who received a massage twice a day experienced an average increase in body weight of 1.08 kg. .28 Kg while babies who were not massaged experienced an increase in weight of 0.89 Kg, so it is proven that baby massage is effective in increasing baby weight[13].
In research conducted by Astriana (2017), the results showed that the average weight of babies before massage was 4.86 Kg, the average weight of babies after massage was 5.72 Kg, it is proven that there is an effect of baby massage on increasing body weight in children. babies [1].
According to a preliminary study carried out at the TPMB Ranting Kelapa Gading Region, North Jakarta. Results of interviews on 3-5 April 2023 with 10 mothers who have babies from 3-6 months old found (30%) mothers who only knew about baby massage but did not do it independently at home, (10%) mothers knew the techniques and benefits of baby massage and did it at home independently, (60%) mothers said he did not know the techniques and benefits of baby massage, one of which is to increase the baby's weight.
Mothers think that baby massage does not need to be mastered, it is only done if the child is fussy by a midwife and baby massage performed by a midwife or midwife is the same. The aim of this research is to determine the effect of baby massage on the weight of babies aged 3-6 months in the TPMB Kelapa Gading area, North Jakarta.

Method

This research uses a Quasi Experimental method with a research design pretest and posttest without control (without control group). This research uses General Linear Model (GLM) Repeated Measures design analysis with a Pretest-Posttest Design, namely before the baby's massage, the baby's body weight is weighed (Pre-test) and after the baby's massage, the baby's weight is weighed (Post-test). The type of contrast used is Difference contrast.
Weighing is carried out every week on the same day. The research was conducted for four weeks, namely in the first, second, third and fourth weeks after the baby massage.
A sample is a portion of the population whose characteristics are measured and later used to estimate the characteristics of the population [9]. Sampling was carried out using purposive sampling technique and collected using observation techniques. The sample for this study were babies aged 3-6 months in the TPMB Kelapa Gading area, North Jakarta who met the inclusion criteria and exclusion criteria, totaling 20 babies.
As a sample size relative to the current population. Guidelines for determining sample size by Roscoe (1975) to Uma Secalan (1992) state that simple experimental research with strict control of sample size can use 10 – 20 items (Hatmawan & Riyanto, 2020), after collecting data using observation sheets, analysis tests are carried out General Linear Model (GLM) data with SPSS to determine the effect of baby massage on body weight.

Results

The results of data processing and analysis use GLM Repeated Measures analysis.

Table 1
Average baby weight at first, second, third and fourth week measurements

Baby Weight	Mean	Std. Deviation	N
Intial Baby Weight	6764.00	1040.220	20
First week weight	6866.50	1045.156	20
Second week weight	7061.50	1048.323	20
Third week weight	7247.50	1033.191	20
Fourth week weight	7544.50	968.409	20

Based on table 1 above, the research results show that the 20 babies who received massage experienced an increase in body weight. Before the baby massage was carried out, the average baby's weight was 6764.00 grams. After the baby massage was carried out in the first week, the average weight increased by 6866.50 grams. Furthermore, the average weight for the second week was 7061.50 grams, the average weight for the third week was 7247.50 grams, and the averageweight for the fourth week was 7544.50 grams.

Table 2
Statistical test results for increasing baby weight after baby massage within 4 weeks

Effect		Sig.
Factor 1	Pillai's Trace	.000
	Wilks' Lambda	.000
	Hotelling's Trace	.000
	Roy's Largest Root	.000

Based on table 2 above, it can be seen that there are various testing methods such as Pillai's Trace, etc. Based on the results of statistical testing, the same value was obtained, namely p = 0.000, which means α = 0.05, rejecting the null hypothesis. If the p value obtained in the study is <0.05, it means that there is an effect of baby massage on increasing body weight aged 3-6 months in the TPMB Kelapa Gading area, North Jakarta

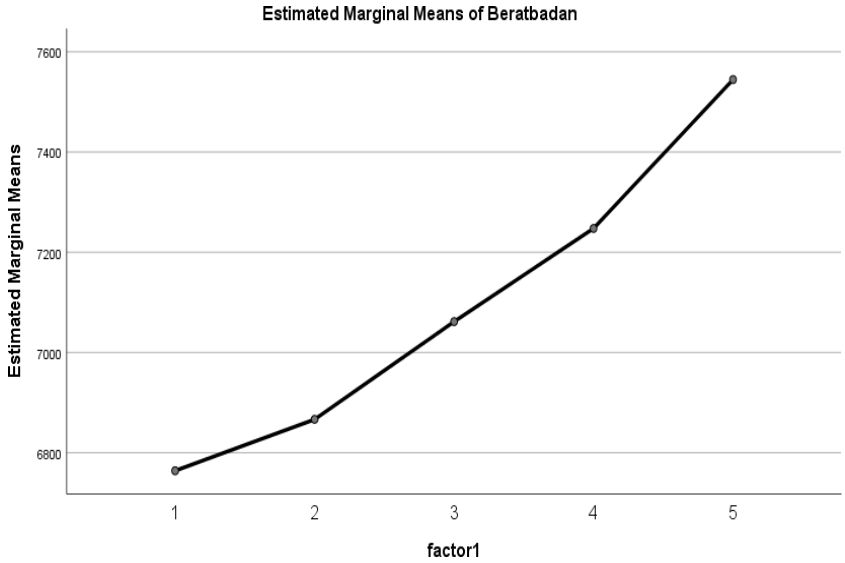
Table 3
Statistical Test Results on Increase in Baby's Weight After Baby Massage According to Comparison of Body Weight Measurements Using Difference Contrast

		df	Mean Square	F	Sig.
	weekly weight measurements				

weekly weight measurements	Initial Baby Weight vs. First Weight Week	1	210125.000	50.939	.000
	Second Weight Week vs Previous Week's Weight.	1	1212781.250	152.658	.000
	Third Weight Week vs. Previous Week's Weight	1	2452333.889	201.214	.000
	Fourth Weight Week vs. Previous Week's Weight	1	6263602.812	69.061	.000
Error(weekly weight measurements)	First Weight Week vs. Initial Baby Weight	19	4125.000		
	Second Weight Week vs. Previous Week's Weight	19	7944.408		
	Third Weight Week vs. Previous Week's Weight	19	12187.690		
	Fourth Weight Week vs. Previous Week's Weight	19	90696.891		

Based on table 3 above, the results of the baby weight measurement test per week show that the baby's weight in the first week is compared with the initial weight (p value = 0.000), the second week is compared with the initial weight and the first week (p value = 0.000), at week thirdly compared with initial body weight, first week and second week (p value = 0.000), and in the fourth week compared with initial body weight, first week, second week and third week (p value = 0.000). If each level of measurement has a p value <0.05 then there is an increase in the baby's weight every week.

Figure 1. Graph of Baby's Weight Increase After Baby Massage According to Weekly Measurements



Based on Figure 1 above, it shows that there is an increase in the average weight of babies after baby massage according to weekly measurements.

Discussion

Univariate Analysis

Average baby weight at first, second, third and fourth week measurements

Based on table 1 above, the results of the research before the baby massage was carried out, the average weight of the baby was 6764.00 grams and after the baby massage was carried out in the fourth week it was 7544.50 grams. The results of this study are in line with research conducted by Astriana (2017) which states that the average weight of babies before massage is 4.86 Kg, the average weight of babies after massage is 5.72 Kg, it is proven that there is an effect of baby massage on increasing body weight in babies [1].

The results of this research are also in line with Field's (2017) theory. One way to stimulate weight gain is with baby massage. Baby massage therapy increases baby weight. The mechanism is an increase in vagus nerve activity which stimulates gastric motility, thus stimulating the production of hormones that increase nutrient absorption, namely gastrin and insulin. Gastric motility, gastrin and insulin maximize nutrient absorption and cause the baby to gain weight. Another mechanism is the secretion of the growth hormone IGF-1 which then increases cell mitosis and affects body weight.

Bivariate Analysis

Statistical test results for increasing baby weight after baby massage within 4 weeks

Based on the results of statistical testing, the same value was obtained, namely $p = 0.000$, which means $\alpha = 0.05$, rejecting the null hypothesis. If the p value obtained in the research <0.05 means that there is an effect of baby massage on increasing body weight aged 3-6 months in the TPMB Ranting Kelapa Gading area, North Jakarta. The results of this research are in line with research conducted by Virgia which stated that based on research results processed using the Mann Whitney test, a P value of 0.000 was found to be smaller than the α value (0.05), which means that there is a significant influence of baby massage on the development of neonates [16].

Statistical test results regarding the increase in baby weight after baby massage according to comparison of weight measurements using difference contrast

The test results measuring the baby's weight per week show that there is a value (p value = 0.000). If the measurement p value is <0.05 then there is an increase in the baby's weight every week. These results are in line with research conducted by Irva et al which stated that there was an increase of 700 grams after massage for two weeks with a p value of 0.000 (p < 0.05) (Irva, et. al., 2014). The results of this research are in line with research conducted by Elvira and Azizah which stated that the weight gain of babies who received massage was 800 grams/month, and babies who did not receive massage was 233.33 grams/month [1].

Graph of Baby's Weight Increase After Baby Massage According to Weekly Measurements

The results of the study showed that there was an increase in the average weight of babies after baby massage according to weekly measurements. This research is in line with research conducted by Rosi Kurnia (2016). The results of the study showed that the average weight of babies who received massage once a day increased by 1.08 kg, and babies who received a massage twice a day experienced an average increase in body weight. -an average of 1.28 kg, while babies who were not massaged experienced an increase in weight of 0.89 kg, so it is proven that baby massage is effective in increasing baby weight [13]. In line with the theory of Juwita and Jayanti (2019) that the benefits of massage for babies are that it can increase body weight, increase the growth and development of the baby, increase the baby's concentration, make the bounding stronger, create a feeling of comfort and can stimulate blood circulation. According to researchers' assumptions, baby massage provides enormous benefits for the baby's growth, especially increasing the baby's weight, whether carried out by professionals or the baby's mother herself. Baby massage can be done by anyone, including parents, as an expression of love for their child and baby massage will provide great benefits if done regularly. Baby massage does not completely affect weight gain because weight gain can be influenced by providing quality breast milk. The reason why there is no weight gain in the following week is because the baby is sick so the baby is fussy and reluctant to breastfeed. Based on the testimony given by the baby's parents at the end of the research activity, there was a difference felt after the massage, namely an increase in the quality of the baby's sleep, the baby became less fussy, the recovery when the baby had a cough and cold was faster, the parents felt happy because of the weight gain. more babies than the previous month when baby massage was not carried out, and the baby's parents were very grateful because participating in this activity was a moment to increase knowledge about baby massage, thus breaking the assumption that baby massage carried out by midwives and dukuns is the same as that. is not true, and parents of babies are also motivated to continue giving baby massages and are no longer afraid to massage their babies independently at home. Researchers concluded that baby massage can increase body weight because with baby massage the blood circulation becomes smoother, the quality and quantity of the baby's sleep becomes better, which will affect the baby's weight.

Limitation

This research has limitations that can be taken into consideration by future researchers in order to obtain better research results. These limitations include, urgent needs or the holiday atmosphere making respondents return home for a long time so they are scheduled for a massage but cannot attend. If the baby has a fever or post-immunization, the researcher must reschedule the baby massage schedule, when the baby's condition allows for a massage, and this research only examined 20 respondents due to limited time and energy and the absence of a comparison group to strengthen the research.

Conclusion

Based on the results of research regarding the effect of baby massage on the weight of babies aged 3-6 months in the TPMB Ranting Kelapa Gading area, North Jakarta. So the author can conclude that of the 20 babies who will be massaged, the average weight of the baby is 6764.00 grams. After massage for 4 weeks, the average baby weight was found to be 7544.50 grams and it was found that there was a difference in the average baby weight before and after the baby massage was 780.5 grams.

Ethical Considerations

This study was approved by the local ethics committee (registration no. 014/KEPK/UNPRI/VI/2023)

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Conflict of Interest

None, a complete expression of interest form can be viewed online for supporting information.

Author contribution

RY, RK and JAS conceptualized and initiated the research. All authors commented and provided feedback on the manuscript and approved the final version for publication.

References

1. Astriana, & Lilis Suryani, I. (2017). Pengaruh Pijat Bayi Terhadap Peningkatan Berat Badan Pada Bayi Di Bps Masnoni Teluk Betung Utara Kota Bandar Lampung. *Jurnal Kesehatan Holistik (The Journalof Holistic Healthcare).* 11, (2), 72-76.
2. Badan Pusat Statistik Provinsi DKI Jakarta, 2021https://jakarta.bps.go.id/indicator/12/418/1/registrasi- kelahiran-kematian-perkawinan-perceraian-dan-pengesahan- pengakuan-anak-menurut-kabupaten-kota-di- provinsi-dki-jakarta.html, diakses 8 Mei 2023.
3. Elvira, M., & Azizah, S. (2017). Pengaruh Pemberian Pijat Bayi Terhadap Kenaikan Berat Badan Bayi Umur 0-6 Bulan Di BPS Bunda Bukittinggi. *Jurnal Pembangunan Nagari*, *2* (1), 85. https://doi.org/10.30559/jpn.v2i1.16
4. Fiel. (2017) *Pengaruh Terapi Pijat Terhadap Peningkatan Berat Badan Bayi*. Jom PSIK.

Vol. 1 No. 2
5. Guyton, & Hall. (2016). Buku Ajar Fisiologi Kedokteran. Elsevier Singapore Pte Ltd.
6. Irva, T. S., Hasanah, O., & Woferst, R. (2014). *Pengaruh Terapi Pijat Terhadap Peningkatan BeratBadan Bayi*. *1*(2).
7. Juwita, & Jayanti. (2019). Pijat Bayi. CV Sarnu Untung.Galenia, T. (2014). Home Baby Spa. Penerbit plus.
8. Kemenkes RI. (2021). Profil Kesehatan Indonesia 2020. Kemenkes RI.
9. Notoatmodjo, (2018). Metode Penelitian Kesehatan . Jakarta: RinekaCipta
10. NURSEHA, NURSEHA, and SANTI SUNDARY LINTANG. "Efektifitas Pijat Bayi Terhadap Kenaikan Berat Badan Dan Kualitas Tidur Bayi Di Puskesmas Kramatwatu." *Journal Of Midwifery* 10.1 (2022): 29-34.
11. P. McCullach and J.A.Nelder FRS, Generalized Linier Models, secondedition,1990.
12. Riskesdas. (2018). Hasil Utama Riskesdas. Kementerian KesehatanRepublik Indonesia
13. Rosi Kurnia Sugiharti. 2016. Pengaruh Frekuensi Pijat Bayi Terhadap Pertumbuhan (Berat Badan) Bayi Usia 1-3 Bulan di Desa Karangsaridan Purbadana. Jurnal Bidan Prada : Jurnal Ilmiah Kebidanan, Vol 7 No 1:41– 52.
14. Susila, I. (2018). Pengaruh Teknik Pijat Bayi Terhadap Kenaikan Berat Badan Bayi Usia 0-7 Bulan di BPS Ny. Aida Hartatik Desa Dlanggu Kecamatan Deket Kabupaten Lamongan. Jurnal Midpro,9(2), 10.
15. UNICEF (United Nations International Children's Emergency Fund) in 2015
16. Virgia. V. 2015. Pengaruh Pijat Bayi terhadap Perkembangan Neonatus. Jurnal Keperawatan & Kebidanan, STIKES Dian Husada Mojokerto, Vol 8 dan No 1 : 72-79. https://jurnalonline.lppmdianhusada.ac.id/index.php/jkk/article/view/44/23
17. WHO. (2018*). Monitoring health for the SDGs, sustainable developmentgoals. In World health statistics.*
18. WHO. (2019). *Monitoring health for the SDGs, sustainable developmentgoals. In World health statistics.*