Jurnal Keterapian Fisik
Vol. 9, No. 2, November 2024
https://doi.org/10.37341/jkf.v9i2.448

Original Research

Impact of Infant Massage on Weight Gain: A Study in Banjar District, South Kalimantan

Noor Adha Aprilea[1*], Norlaila Sofia[2], Nur Rohmah Prihatanti[3], Rusmilawaty[4]

[1,2,3,4] Department of Midwifery, Poltekkes Kemenkes Banjarmasin, Indonesia

ABSTRACT

Background: *Underweight in children under five is still a significant health problem in many parts of the world, especially in developing countries. One such intervention that has gained cultural significance is infant massage, a traditional practice that promotes relaxation, improves digestion, and enhances weight gain. This study seeks to evaluate the impact of infant massage on weight gain in infants under 24 months within Banjar Regency, a region where undernutrition presents a significant public health issue. While infant massage is traditionally practiced and believed to benefit infant health, its effectiveness remains debatable.*

Methods: *A quasi-experimental design with a control group involving 51 mother-infant pairs was employed. Participants were divided into an intervention group (n=17) that received infant massage training and performed it over three months and a control group (n=34) that received no such intervention. This research uses an observation form instrument. Infant weight gain was the primary outcome measure, with data analyzed using independent sample t-tests to assess differences between the two groups.*

Results: *No statistically significant difference was found in weight gain between the intervention and control groups (t = -0.415, p = 0.680). However, descriptive data revealed that 88.2% of infants in the intervention group experienced weight gain compared to 85.3% in the control group, indicating a potential trend toward positive effects of infant massage.*

Conclusion: *Despite the lack of statistical significance, the observed trend suggests potential benefits of infant massage. Further research with larger sample sizes and longer durations is recommended.*

ARTICLE HISTORY
Received: October 10th, 2024
Accepted: December 2nd, 2024

KEYWORDS
baby, infant massage, weight gain;

CONTACT
Noor Adha Aprilea
✉
nooradhaaprilea@gmail.com
Department of Midwifery, Poltekkes Kemenkes Banjarmasin. Jl. H. Mistar Cokrokusumo No.1A, Kemuning, Kec. Banjarbaru Selatan, Kota Banjar Baru, Kalimantan Selatan, Indonesia 70714.

Cite this as: Adha Aprilea, N. ., Sofia, N., Rohmah Prihatanti, N., & Rusmilawaty, R. (2024). Impact of Infant Massage on Weight Gain: A Study in Banjar District, South Kalimantan. *Jurnal Keterapian Fisik*, *9*(2), 74–83. https://doi.org/10.37341/jkf.v9i2.448

INTRODUCTION

Underweight in children under five is still a significant health problem in many parts of the world, especially in developing countries. One factor affecting family consumption patterns is that they are often influenced by access to food sources and eating habits (Herlyawati & Damayanti, 2020). In coastal communities living near rivers, such as the Banjar Regency, there is a unique phenomenon where, although

access to high-protein sources, such as fish, is relatively easy to obtain, protein intake for children under five is inadequate (Fatkuriyah & Sukowati, 2023).

Research indicates that despite the availability of fish, socio-economic factors and dietary preferences often lead to insufficient consumption of these vital nutrients among young children (Tasnim, 2018). Moreover, interventions aimed at improving dietary diversity and food security have shown promise in reducing malnutrition rates in similar contexts (Renzaho et al., 2019). The people of Banjar Regency's main livelihood is fishing (Ahmadi, 2023). Fish obtained from the catch is usually processed into salted fish, which is then sold for family income, but family members, especially children under five, still need more fresh fish or fish products (Msiska et al., 2023).

Interviews with several members showed that consuming vegetables and fruits is also scarce. This situation puts children under five in these families at risk of nutritional deficiencies, especially protein and essential vitamins that are important for growth (Yue et al., 2022). The prevalence of underweight in South Kalimantan is still quite high: 21.7% in 2022 (Rusmilawaty et al., 2024).

This suggests a paradox in the consumption patterns of the Banjar Regency community, where they have abundant access to protein sources from river catches, yet their children are underweight. Research indicates that despite the availability of fish, socio-economic factors and dietary practices often lead to insufficient consumption of these vital nutrients among young children (Aboagye et al., 2022). This phenomenon has yet to be studied in depth, especially in the context of coastal communities who work as fishermen in Indonesia.

Therefore, this study aims to explore further the factors that influence the nutritional status of children under five years old. Understanding these dynamics is crucial for developing targeted interventions to improve child nutrition and health outcomes in such communities (Maidelwita, 2019). The process of growth occurs faster, with 80% of an individual's development taking place within the initial five years of life, commonly referred to as the golden era.

This period is characterized by rapid cognitive development, where children are particularly receptive to learning and environmental stimuli (Putra, 2022). Toddlers require adequate nourishment to facilitate their growth and development during this critical phase (Agustina & Rahmadhena, 2020). Insufficient nutrition during this time can lead to long-term deficits in cognitive and physical abilities, emphasizing the importance of a balanced diet rich in essential nutrients. Therefore, understanding the dietary needs of children in this golden era is crucial for fostering optimal development and preventing malnutrition (Untung et al., 2023).

One such intervention that has gained cultural significance is infant massage, a traditional practice that promotes relaxation, improves digestion, and enhances weight gain. In Indonesia, infant massage is widely practiced, passed down through generations, and incorporated into routine infant care. However, while this practice is widespread, the scientific basis for its health benefits, particularly its impact on infant weight gain, still needs to be researched in rural Indonesian populations.

Empirical evidence from studies in other regions suggests that infant massage can improve digestion, enhance circulation, and strengthen the parent-infant bond. Massage helps stimulate the production of digestive enzymes, improving the baby's ability to digest and absorb nutrients more effectively. The physical touch involved in massage improves blood circulation, ensuring that nutrients are efficiently delivered to the body's

cells. Massage can increase the release of growth-promoting hormones, essential for healthy weight gain and overall development.

By calming the baby, massage reduces stress hormones that negatively impact growth and development. Regular massage can stimulate the baby's appetite, making them more likely to eat frequently and gain weight. The bonding experience during massage sessions can lead to better overall care and feeding practices, contributing to improved nutrition and weight gain (Atika et al., 2024; Fauziah & Febriyanti, 2023a; Nagel et al., 2022).

Infant massage can increase the baby's weight due to stimulation of the vagus nerve, which regulates the insulin hormone and gastrin hormone in stimulating the baby's digestive system, increasing the quality of absorption of food essence, making the baby hungry quickly. The faster the baby feels hungry, the more frequently the baby gets breast milk so that the baby has an effective weight gain (Fatmawati et al., 2021). However, studies conducted in rural Indonesian settings are limited.

This study aims to bridge this gap by investigating the impact of infant massage on weight gain in a sample of infants from the Banjar Regency, where malnutrition and stunting remain public health concerns. Empirical evidence from studies in other regions suggests that infant massage can improve digestion, enhance circulation, and strengthen the parent-infant bond (Fauziah & Febriyanti, 2023b). For instance, Atika et al. (2024) found that infant massage significantly increased weight gain in low birth weight babies (Atika et al., 2024).

Additionally, Taqwin et al., (2022) demonstrated that infant massage training for mothers in rural areas led to significant improvements in body weight and length of infants (Taqwin et al., 2022). By addressing these gaps, this study aims to contribute to the understanding of infant massage as a potential intervention for improving infant health outcomes in rural Indonesia. In Indonesia, particularly in Banjar Regency, infant massage is a traditional practice. However, scientific studies on its effectiveness in this local context are limited.

This study aims to bridge this gap by assessing the impact of mother-administered infant massage on weight gain. The findings will contribute to understanding the practice's role in supporting infant growth within the Indonesian cultural context. Studies in Indonesia have suggested that infant massages conducted by mothers can improve infant sleep quality. Click or tap here to enter text (Hartanti et al., 2019; Nurseha & Lintang, 2022). However, its influence on weight gain, particularly within Banjar Regency’s community context, has yet to be fully explored.

This study aims to bridge this gap by assessing the impact of mother-administered infant massage on weight gain in Banjar Regency. Using a quasi-experimental design with a control group, this research seeks to provide robust empirical evidence on the effectiveness of infant massage in this local context. The findings are expected to offer valuable insights for healthcare practitioners, policymakers, and parents regarding the role of infant massage in supporting optimal infant growth. Moreover, the results may serve as a foundation for developing more effective child health intervention programs in the future.

MATERIALS AND METHOD

This study utilized a quasi-experimental design with an intervention and control group. It was conducted in the Puskesmas Astambul area of Banjar Regency. The

intervention group received training in infant massage, which they performed for three months, while the control group received no intervention.

The sample included 51 mother-infant pairs from Banjar Regency, which were divided into an intervention group (n=17) and a control group (n=34). The inclusion criteria required that infants (aged under 24 months) be born via normal delivery, exclusively breastfed, and in the green zone of the Kartu Menuju Sehat (KMS) growth chart, indicating good health and growth. The accidental sampling method was employed during the implementation of posyandu activities and infant massage training, allowing for the selection of participants who were readily available during these events.

This approach ensures that the sample reflects the community's characteristics while also facilitating participation in health-promoting activities. Such sampling techniques are commonly used in public health research to gather data efficiently, particularly in settings where access to populations may be limited. However, this method may introduce selection bias, and future studies might consider using randomized sampling techniques to enhance the robustness of findings. Non-probability sampling techniques, such as convenience sampling, are often employed in these scenarios due to their practicality and ease of implementation (Elfil & Negida, 2017).

Infant weight was measured at baseline, at the end of the second month, and one month after the intervention concluded (third month). A baby weight scale and observation sheet were used to measure and record the weight gain. The results were then analyzed to determine if there was weight gain. The instrument used in the research was an observation form.

An independent t-test was used to compare the average weight gain between the two groups, following a normality test to ensure that the data met the assumptions required for this analysis. The researcher conducted data analysis using IBM SPSS Statistics 25 for Microsoft Windows, which provides robust statistical capabilities for such evaluations. This research has obtained etichal approval from Ethics Commission of Polytechnic of Health Ministry of Health Banjarmasin, numbered 326/KEPK-PKB/2024, dated 9 May 2024.

RESULTS

Based on 51 mother-baby pairs (respondents) divided into an intervention group (n=17) and a control group (n=34), the characteristics of respondents in this study showed that most mothers (76.5%) were aged 20-35 years, the ideal age for pregnancy and child-rearing. A small percentage (23.5%) were teenage mothers (15-19 years). The majority (94.1%) were housewives, and a minority (5.9%) worked in the private sector.

Table 1. Infant Weight Gain by Intervention and Control Group

Group	N	Average (kg)	Range (kg)	Increase in BW (n, %)	Not Increased (n, %)	Weight loss (n, %)
Intervention	17	0,65	0 - 1,5	15 (88,2%)	2 (11,8%)	0 (0%)
Control	34	0,72	-0,8 - 2,4	29 (85,3%)	3 (8,8%)	2 (5,9%)

Table 1 presents data on infant weight gain during the study period, comparing the intervention group (who received infant massage) with the control group. In the Intervention group (n=17), the mean weight gain was 0.65 kg, with a range of 0 - 1.5

kg. 88.2% of infants gained weight, and 11.8% did not. No infants experienced weight loss.

In the Control group (n=34), the average weight gain was 0.72 kg, with a range of weight gain: -0.8 - 2.4 kg, 85.3% of infants gained weight, and 8.8% of infants did not gain weight, while 5.9% lost weight. Although the mean weight gain in the control group was slightly higher, the percentage of infants who gained weight was higher in the intervention group. In addition, there were no weight loss infants in the intervention group.

Tabel 2. Normality Test

One-Sample Kolmogorov-Smirnov Test			Unstandardized Residual
N			147
Normal Parameters[a,b]	Mean		-.0451897
	Std. Deviation		1.91381170
Most Extreme Differences	Absolute		.107
	Positive		.050
	Negative		-.107
Test Statistic			.107
Asymp. Sig. (2-tailed)			.000[c]
Monte Carlo Sig. (2-tailed)	Sig.		.063[d]
	99% Confidence Interval	Lower Bound	.057
		Upper Bound	.069

Based on Table 3, the data shows that a normality test was conducted to verify the assumptions required for the t-test. The data result shows that the p-value is 0.063, which is larger than 0.05. The One-Sample Kolmogorov-Smirnov Test (Table 3) confirmed that the data were normally distributed. This test measures the largest distance between the sample's cumulative distribution function and the hypothesized population's cumulative distribution function, thereby providing information about the fit of the data to the expected distribution (Hatem et al., 2022).

Table 3. Free Sample T-Test Results

Group	N	Mean (kg)	Std. Deviation	t	df	Sig. (2-tailed)
Intervention	17	0.65	0.45	-0.415	49	0.680
Control	34	0.72	0.75			

The independent t-test revealed no significant difference between the intervention and control groups ($t = -0.415$, $p = 0.680$, $p > 0.05$), indicating insufficient evidence to reject the null hypothesis. This suggests that infant massage did not produce a statistically significant effect on weight gain compared to the control group. However, a positive trend was observed in the intervention group, where a higher percentage of infants gained weight than those in the control group (Table 1).

Before conducting the t-test, normality tests were performed to ensure that the data met the assumptions required for the analysis. The Shapiro-Wilk test was used to

assess the normality of weight gain data for both the intervention and control groups. The results indicated that the data were normally distributed, justifying the use of the independent sample t-test.

DISCUSSION

The results showed no significant difference in weight gain between the intervention and control groups ($t = -0.415$, $p = 0.680$). However, the intervention group had a positive trend, with 88.2% of infants gaining weight compared to 85.3% in the control group.

Influence of Infant Massage on Weight Gain

Although the study did not achieve statistical significance, the intervention group showed a positive trend in weight gain (88.2%) compared to the control group (85.3%). This aligns with prior studies suggesting that infant massage can promote weight gain, particularly over extended periods (Herman & Puteri, 2021; Lestari et al., 2021). A more extended intervention period and a larger sample size could yield more conclusive results. The absence of weight loss in the intervention group, compared to 5.9% in the control group, further underscores the potential of infant massage in supporting weight maintenance.

Several factors might explain the observed differences. Firstly, the intervention duration of three months may have been insufficient to detect significant differences. Research indicates that the effects of infant massage on weight gain become more pronounced after a longer intervention period of approximately six months. Secondly, the relatively small sample size in this study may have limited the statistical power to detect significant differences (Herman & Puteri, 2021).

Studies also demonstrate that infant massage can significantly enhance the growth and development of premature infants (Taqwin et al., 2022), promote significant weight gain in full-term infants (Suntin et al., 2020), and positively impact weight gain and motor development (Yuniati, 2021). In summary, while more extensive studies with longer intervention periods and larger sample sizes are needed to draw definitive conclusions, the current findings are encouraging. They highlight the potential of infant massage as a valuable practice in supporting infant health and maternal well-being.

Implications for Public Health Practice

Despite the lack of statistical significance, the positive trend in the intervention group's weight gain suggests that infant massage could benefit infant growth. These findings support the inclusion of infant massage training in maternal and child health programs. Educating mothers on proper massage techniques may enhance infant care and development outcomes (Windhorst et al., 2023).

In addition, the absence of weight loss in the intervention group, compared to 5.9% in the control group, indicates the potential of infant massage in maintaining infant weight stability. This finding is consistent with studies reporting that infant massage can help prevent (Al-Qahtani & Ahmed, 2018; Silitonga & Rahayu, 2023; Suntin et al., 2020). The findings of this study have important implications for public health practice.

Community-based infant massage programs can improve infant health and maternal well-being, reduce mothers' stress, and improve infant sleep quality (Andria et al., 2021). Integrating infant massage in postnatal care programs can improve maternal

and infant health outcomes (Nopri et al., 2020; Rifani & Sofiyanti, 2022; Yuniati, 2021). This research suggests that infant massage may be an effective intervention for preventing stunting by enhancing infant growth and development.

Limitations and Recommendations for Future Research

This study has several limitations that need to be considered. First, the relatively small sample size limits the generalizability of the results. Second, the relatively short duration of the intervention may not have been sufficient to detect the long-term effects of infant massage. Future studies should aim to include larger sample sizes and longer intervention periods to obtain more conclusive results.

CONCLUSION

This study highlights the potential role of infant massage in promoting weight gain in infants. While the findings were not statistically significant, the observed trends are promising. Future studies should address the limitations of this research by including a larger sample and extending the duration of the intervention.

Recommendations for Future Research: Further studies should investigate the long-term effects of infant massage, explore its impact on other health indicators, and involve larger, more diverse populations.

REFERENCES

Aboagye, R. G., Ahinkorah, B. O., Seidu, A. A., Frimpong, J. B., Archer, A. G., Adu, C., Hagan, J. E., Amu, H., & Yaya, S. (2022). Birth weight and nutritional status of children under five in sub-Saharan Africa. *PLoS ONE*, *17*(6 June). https://doi.org/10.1371/journal.pone.0269279

Agustina, S. A., & Rahmadhena, M. P. (2020). Analisis Determinan Masalah Gizi Balita. *Jurnal Kesehatan*, *11*(1), 8. https://doi.org/10.35730/jk.v11i1.466

Ahmadi. (2023). Local Knowledge and Innovation: An Ethnographic Study of Fishing Technology in Banjar Regency's Freshwater Environment Authors. *River Studies*. https://riverstudies.id/index.php/rst/article/view/3

Al-Qahtani, A. M., & Ahmed, H. M. (2018). The Effect of educational program for new mothers about infant abdominal massage and foot reflexology for decreasing colic at Najran City. In *Merit Research Journal of Medicine and Medical Sciences* (Vol. 6, Issue 12). http://www.meritresearchjournals.org/mms/index.htm

Andria, A., Wulandari, S., Handayani, E. Y., Ayuningtiyas, R., & Ovari, I. (2021). The Influence of Health Education on Mom's Knowledge and Attitude About Infant Massage. *International Journal on Advanced Science, Education, and Religion*, *4*(3), 139–146. https://doi.org/10.33648/ijoaser.v4i3.154

Atika, Djuari, L., Bachtiar, D. A., Sabrina, A. M., Manaf, H. A. G., Ismahendra, N. A., Soediono, M. R., Yuliana, S. K., Razaan, M. F., & Karim, Y. A. (2024). The Influence of Intant Massage to Weight Gains in Low Birth Weight Infant (LBW) : A Systematic Review. *Journal of Community Medicine and Public Health Research*, *5*(1), 112–120. https://doi.org/10.20473/jcmphr.v5i1.48642

Elfil, M., & Negida, A. (2017). Sampling methods in Clinical Research; an Educational Review. *Emergency*, *5*(1), 52. https://doi.org/10.1136/eb-2014

Fatkuriyah, L., & Sukowati, U. (2023). Factors contributing to undernutrition among children under five years old. *Pediomaternal Nursing Journal*, *9*(2), 45–53. https://doi.org/10.20473/pmnj.v9i2.41743

Fatmawati, N., Zulfiana, Y., & Pratiwi, Y. S. (2021). The Effect of Baby Massage on Improvement Baby Weight. *Journal for Quality in Public Health*, *4*(2), 227–232. https://doi.org/10.30994/jqph.v4i2.212

Fauziah, N. A., & Febriyanti, H. (2023a). Affecting factors the incidence of chronic energy deficiency (CED) in pregnant women. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, *8*(S1), 263–268. https://doi.org/10.30604/jika.v8is1.1711

Fauziah, N. A., & Febriyanti, H. (2023b). Affecting factors the incidence of chronic energy deficiency (CED) in pregnant women. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, *8*(S1), 263–268. https://doi.org/10.30604/jika.v8is1.1711

Hartanti, A. T., Salimo, H., & Widyaningsih, V. (2019). Hartanti et al./ Effectiveness of Infant Massage on Strengthening Bonding and Effectiveness of Infant Massage on Strengthening Bonding and Improving Sleep Quality. *Indonesian Journal of Medicine*, *2*. https://doi.org/10.26911/theijmed.2019.04.02.10

Hatem, G., Zeidan, J., Goossens, M., & Moreira, C. (2022). Normality Testing Methods And The Importance Of Skewness And Kurtosis In Statistical Analysis. *BAU Journal - Science and Technology*, *3*(2). https://doi.org/10.54729/ktpe9512

Herlyawati, A., & Damayanti, N. A. (2020, August). *A Systematic Review of Strategies to Overcome*. EurAsian Journal of BioSciences. https://www.proquest.com/docview/2451867508?sourcetype=Scholarly%20Journals

Herman, A. K., & Puteri, S. K. S. (2021). Effect of Baby Massage on Weight Changes at The Age of 0-3 Months in Mangarabombang District Takalar Regency. *Jurnal Ilmiah Keperawatan*, *7*(2). https://doi.org/https://doi.org/10.33023/jikep.v7i2.792

Lestari, K. P., Nurbadlina, F. R., & Jauhar, M. (2021). The effectiveness of baby massage in increasing infant's body weight. In *Journal of Public Health Research* (Vol. 10, Issue s1). https://doi.org/10.4081/jphr.2021.2332

Maidelwita, Y. (2019). Risk Factors for Malnutrition of Children Under FIve Year Old On The Area of Nanggalo Public Health Padang West Sumatera. *Malaysian Journal of Medical Research*. https://doi.org/10.31674/mjmr.2019.v03i01.003

Msiska, O. V, Manani, T. A., Lowore, T., & Makwinja, R. (2023). Diets of Fish-Based Recipes for the Under-Five Children, First 1000 Days of Life, and Adolescents in

Malawi. *J Hum Nutr Food Sci*, *11*(1), 1155. https://doi.org/10.47739/2333-6706/1155

Nagel, E. M., Howland, M. A., Pando, C., Stang, J., Mason, S. M., Fields, D. A., & Demerath, E. W. (2022). Maternal Psychological Distress and Lactation and Breastfeeding Outcomes: a Narrative Review. In *Clinical Therapeutics* (Vol. 44, Issue 2, pp. 215–227). Elsevier Inc. https://doi.org/10.1016/j.clinthera.2021.11.007

Nopri, P., Nudesti, & Setiyowati, H. (2020). Hubungan Pijat Bayi dengan Kenaikan Berat Badan Pada Bayi Usia 1-6 Bulan di Riu Mom Kids and Baby Spa di Sukoharjo Pati. *Jurnal Ilmiah Ilmu Kebidanan Dan Kesehatan*, *2*.

Nurseha, & Lintang, S. S. (2022). Effectiveness Of Baby Massage Against Weight Gain And Quality Of Baby Sleep At Kramatwatu Health Center. *Journal of Midwifery*, *1*. https://doi.org/10.37676/jm.v10i1.2314

Putra, W. (2022). Cognitive Development in the Golden Ages. *Journal of Educational Analytics*, *1*(3), 215–224. https://doi.org/10.55927/jeda.v1i3.1695

Renzaho, A. M. N., Chen, W., Rijal, S., Dahal, P., Chikazaza, I. R., Dhakal, T., & Chitekwe, S. (2019). The impact of unconditional child cash grant on child malnutrition and its immediate and underlying causes in five districts of the Karnali Zone, Nepal - A trend analysis. *Archives of Public Health*, *77*(1). https://doi.org/10.1186/s13690-019-0352-2

Rifani, A. A., & Sofiyanti, S. (2022). Evidence-Based Case Report (EBCR) Pijat Bayi Untuk Bayi Usia 3-6 Bulan. *Jurnal Kesehatan Siliwangi*, *2*(3), 948–958. https://doi.org/10.34011/jks.v2i3.893

Rusmilawaty, Tunggal, T., Yuniarti, Sofia, N., Prihatanti, N. R., Kristiana, E., Hapisah, Mariana, E. R., & Mallongi, A. (2024). Prediction Model for Underweight among Age Under-five Children in Community Health Center of Banjar. *Universal Journal of Public Health*, *12*(6), 1174–1181. https://doi.org/10.13189/ujph.2024.120614

Silitonga, I. R., & Rahayu, S. S. (2023). Health Education on Mother's Baby Massage Skill. *Jurnal Ilmiah Kesehatan (JIKA)*, *5*(1), 32–39. https://doi.org/10.36590/jika.v5i1.320

Suntin, Halimah, N., & Botutihe, F. (2020). The Effect of Baby Massage On The Increase In Babys Body Weight. *Jurnal Media Keperawatan*, *11*(2).

Taqwin, T., Linda, L., Kusika, S. Y., Ramadhan, K., Radhiah, S., & Bohari, B. (2022). The Effectiveness of Baby Massage in Stunting Prevention: Study Based on Body Length Gain in Infants aged 0–3 Months. *Open Access Macedonian Journal of Medical Sciences*, *10*(E), 1184–1189. https://doi.org/10.3889/oamjms.2022.8906

Tasnim, T. (2018). Determinants of malnutrition in children under five years in developing countries: A systematic review. In *Indian Journal of Public Health Research and Development* (Vol. 9, Issue 6, pp. 333–338). Institute of Medico-Legal Publications. https://doi.org/10.5958/0976-5506.2018.00574.0

Untung, S. H., Pramono, I. A., Khasanah, L., Awwaluddin, A., Kholis, N., Muddin, M. I., Asnawi, A. R., & Maulana, A. R. M. (2023). The Gold Age of Childhood: Maximizing Education Efforts for Optimal Development. *Proceedings of ICIGR*, *750*, 261–269. https://doi.org/10.2991/978-2-38476-052-7_30

Windhorst, D. A., Klein Velderman, M., van der Pal, S., & de Weerth, C. (2023). The effects and process of the intervention "Individual Shantala Infant Massage" in preventive child healthcare to improve parent–child interaction: study protocol for a quasi-experimental study. *BMC Complementary Medicine and Therapies*, *23*(1). https://doi.org/10.1186/s12906-023-04039-z

Yue, T., Zhang, Q., Li, G., & Qin, H. (2022). Global Burden of Nutritional Deficiencies among Children under 5 Years of Age from 2010 to 2019. *Nutrients*, *14*(13). https://doi.org/10.3390/nu14132685

Yuniati, I. (2021). Kearifan Lokal Pijat Bayi bagiPeningkatan Berat Badan Bayi. *Jurnal Widyaiswara Indonesia*, *2*. https://doi.org/https://doi.org/10.56259/jwi.v2i2.86