



THE EFFECT OF TUINA MASSAGE USING VCO APPLICATION ON INCREASING THE APPETITE OF STUNTED TODDLERS

Authors:

Indah Benita Tiwery^{1*}, Maria Magdalena Goha²

*^{1,2}Lecturer, Nursing Science Study Program, Faculty of Health, Universitas Kristen Indonesia Maluku, Jl. OT. Pattimaipauw, Tanah Lapang Kecil, Ambon City 97115
Corresponding Email: *tiweryindah@gmail.com*

About the Author

1. 1st Author : Ns. Indah Benita Tiwery, S.Kep., M.Kep., Sp.Kep.A
Affiliation : Nursing Science Program, Faculty of Health, UKIM
Mailing address : Skip Atas, Kecamatan Sirimau, Ambon – Indonesia 97125
Email of author : tiweryindah@gmail.com
Orcid ID : <https://orcid.org/0000-0002-6981-256X>
Google Scholar URL : https://scholar.google.com/citations?hl=id&user=VK_2fQ0AAAAJ
Phone number : 0813-4090-0715
2. 2nd Author : Ns. Maria Magdalena Goha, S.Kep., M.Kep
Affiliation : Nursing Science Program, Faculty of Health, UKIM
Mailing address : Kudamati RT 004/RW 06, Kecamatan Nusaniwe, Ambon-Indonesia
Email of author : mariagoha@gmail.com
Orcid ID : -
Google Scholar URL : -
Phone number : 0823-9969-1942

ABSTRACT

Introduction: Stunting is a chronic nutritional condition that describes the inhibition of growth and development due to long-term malnutrition. Lack of appetite is a trigger for chronic nutritional problems if left unchecked. The treatment option of non-pharmacological therapy tui na massage with virgin coconut oil is part of nursing care. Objective: This study was conducted to analyze the effect of tui na massage with virgin coconut oil application on increasing the appetite of stunted toddlers. Materials and Methods: This study used a quasi-experimental method with two group pre-post test on 30 stunted toddlers. The sample was taken with total sampling technique. Appetite of toddlers was measured using an appetite questionnaire. Data analysis using univariate, Wilcoxon test to analyze the effect of tui na massage with virgin coconut oil application on increasing the appetite of stunted toddlers. Results: Tui na massage with virgin coconut oil application has a significant effect on increasing the appetite of stunted toddlers with a value of $p = 0.000$. Conclusion: There is an effect of tui na massage intervention with virgin coconut oil application on increasing the appetite of stunted toddlers.

Keywords: Toddler, appetite, tuina massage, virgin coconut oil, stunting.

INTRODUCTION

Stunting is a chronic nutritional condition that describes the inhibition of growth and development due to long-term malnutrition. According to the WHO (2018), if the z-score is (<-2) to (<-3) SD, it is said to be stunted. Stunting has short-term adverse effects, namely disruption of the brain, intelligence, physical growth disorders, and metabolic disorders in the body. In the long term, it can lead to decreased cognitive ability and learning achievement, decreased immunity so that it is easily sick, and uncompetitive work quality which results in low economic productivity. The United Nations (UN) set development goals known as The Sustainable Development Goals (SDGs), one of which is zero hunger or zero poverty. This is the 2030 international target for reducing stunting in children under five worldwide. Indonesia ranks fifth with the highest prevalence of stunting in the world. In Indonesia, it is 38.6% (Izwardy, 2019; Lestari et al., 2018). In Indonesia, in 2013 it reached 37.2% and in 2018 it was 30.8% (Kemenkes RI, 2018). In Maluku Province in 2019 it was (30.8%), in 2021 it was 28.7% and in 2022 it was 26.1%. Ambon City, in 2018 amounted to (31.26%) and in 2021 it decreased to 21.8% but is still above the maximum threshold set by WHO, namely 20%. To accelerate the reduction, the government appointed a special location (locus) of stunting centered on areas with a high prevalence of stunting. One of the stunting loci in Ambon City is Passo Village.

The causes of stunting are caused by multifactors (Yuana et al., 2021), one of which is child factors, namely lack of nutritious or balanced nutritional intake in toddlers (Anggryni et al., 2021; Mediani, 2020; Palupi et al., 2021; Tiwery et al., 2023; Widayati et al., 2021; Zai et al., 2022). Lack of nutritional intake can be caused by inadequate availability of nutrients or a toddler's lack of appetite. Toddlers in Passo Village have a poor appetite and there is no appropriate solution to solve the problem. Tui na massage is a specific massage to overcome eating difficulties in toddlers by improving blood circulation in the spleen and digestion, through a modification of acupuncture without needles, this technique uses emphasis on the body's meridian points or energy flow lines so that it is relatively easier to do than acupuncture which can be collaborated with virgin coconut oil (VCO). Previous studies have not collaborated tui na massage with VCO. This intervention is a non-pharmacological intervention that can be used as a solution to overcome the problem of lack of appetite in toddlers so that chronic nutrition problems (stunting) can be prevented. Therefore, this research is important to do. This study aims to see the effect of tui na massage with virgin coconut oil application on toddlers' appetite as a strengthening and prevention of stunting.

METHOD

Participant characteristics and research design

This research is a quantitative study, using a quasi-experimental method with two group pre-post test on 30 stunted toddlers in Passo Village. The independent variable in this study is tui na massage using VCO and the dependent variable is an increase in appetite. Before and after tui na massage with virgin coconut oil, a test was conducted using a questionnaire.

Sampling procedures

The sampling technique used was total sampling. All stunted toddlers were included in the study.

Sample size, power, and precision

Respondents were divided into two groups, namely the intervention group of 15 toddlers. The intervention group received tui na massage with virgin coconut oil application. The control group amounted to 15 toddlers and was not given any therapy.

The instrument used to measure toddlers' appetite is an appetite questionnaire that has been tested for validity and reliability (Judarwanto, 2011; Novitasari, 2020).

The intervention group was given tui na massage with virgin coconut oil application. After giving an explanation the, respondent signed an informed consent. Respondents were measured for weight and height and checked for stunting status. Then, the respondents measured their appetite on the first day. After that, tui na massage with virgin coconut oil application was given for 6 consecutive days based on the tui na massage protocol. On the seventh day, respondents' appetite was measured again and souvenirs were given.

The control group followed their usual routine. After giving an explanation the, respondent signed an informed consent. Respondents were measured for weight and height and checked for stunting status. Then, the respondents measured their appetite on the first day and on the seventh day and were given souvenirs.

Data analysis

Data were analyzed statistically with several stages including data analyzed using univariate to see central tendencies, then data were tested for normality as a basis for selecting the bivariate analysis used. Then the data was tested bivariate using the Wilcoxon and Mann Whitney tests to determine the differences before and after the intervention in the two groups and their effects.

RESULTS AND DISCUSSION

The results showed, based on table 1, it can be explained that the distribution of respondents based on age was dominated by respondents aged 3 years (33%) and male gender (53%).

Demographic Data

Table 1. Frequency Distribution of Respondents by Age and Gender

Age (Years)	N	%
2	8	27
3	10	33
4	9	30
5	3	10
Total	30	100
Gender	N	%
Male	16	53
Female	14	47
Total	30	100

Based on table 2, it can be explained that before being given tui na massage with virgin coconut oil application, all respondents in the intervention and control groups were in the decreased appetite category, namely each group of 15 respondents (100%). After being given tui na massage with virgin coconut oil application, the intervention group was in the category of increased appetite, namely 14 respondents (93%), while in the control group, most were in the category of decreased appetite, namely 15 respondents (100%).

Table 2. Distribution of Respondents' Appetite Before and after being given Tui Na Massage with Virgin Coconut Oil Application in the Intervention and Control Groups

Appetite	Intervention		Control	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Declining	15	100	15	100
Increased	0	0	0	0
Total	15	100	15	100
Appetite	Intervention		Control	
	Frequency	Percentage (%)	Frequency	Percentage (%)

Declining	1	7	15	100
Increased	14	93	0	0
Total	15	100	15	100

Wilcoxon Test Results

Based on table 3, the Wilcoxon test obtained a p-value of 0.000. So it can be concluded that there is a significant difference in the appetite of toddlers before and after being given tuina massage with virgin coconut oil application in the intervention group. While in the control group, the Wilcoxon test obtained a p-value of 1.000. So, it can be concluded that there is no significant difference in toddler appetite.

Table 3. Differences in Appetite of Respondents Before and After in the Intervention Group and Control Group

Intervention Group					
Appetite	N	Mean	Min-Max	SD	<i>p-value</i>
Pre Test	15	1.00	1-1	.000	.000
Post Test	15	1.93	1-2	.258	
Control Group					
Appetite	N	Mean	Min-Max	SD	<i>p-value</i>
Pre Test	15	1.00	1-1	.000	1.000
Post Test	15	1.00	1-1	.000	

Mann Whitney Test Results

Based on Table 4, the Mann-Whitney test obtained a p-value of 0.000. So it can be concluded that there is an effect of tuina massage with virgin coconut oil on increasing toddler appetite. From the above results, the effect of tuina massage with virgin coconut oil has a positive effect on toddlers in increasing appetite.

Table 4. Effect of Tui Na Massage with Virgin Coconut Oil Application on Increasing Respondents

Appetite	N	Mean	Min-Max	SD	<i>p-value</i>
	30	1.47	1-2	.507	.000

The results of the study found that tui na massage with virgin coconut oil application has an effect on toddler appetite with a p -value <0.000 . The appetite of toddlers who were given tui na massage increased compared to toddlers who were not given tui na massage. Toddlers who were not given tui na massage experienced a decrease in appetite. This if allowed to continue will have an impact on the growth of toddlers resulting in stunting. Difficulty eating in toddlers is mostly due to boredom with the food served. This requires parents to learn to be able to serve food with shapes and flavors that toddlers like. On the other hand, many toddlers experience delays in the level of eating skills, where at the age of toddlers are still mostly fed by parents when eating. Eating difficulties are characterized by the behavior of regurgitating food in the child's mouth, eating for a long time, not wanting to put food in the mouth, throwing food and dismissing bribes and some parents state that the child does not want to be given food. This is in accordance with the theory that eating difficulties are often experienced by children, especially the age range of 1-3 years, which is also called the age of food jag, where children only eat preferred foods or even find it difficult to eat (Anggraeni et al., 2022; Ika & Afiani, 2003; Munjidah, 2018). Often this is considered normal but prolonged eating difficulties will cause problems in the growth and development of toddlers, one of which is the problem of growth, namely toddlers experiencing stunting.

Toddler age is an age that has a high curiosity and is interested in fulfilling many things with its curiosity, so it is busy exploring the environment around it. According to Wardlaw and Hampl (2007), being busy exploring their environment sometimes distracts toddlers from their food. In

addition, the most common cause of feeding difficulties in toddlers is due to impaired spleen and digestive function. So that food that enters the stomach is not immediately digested, which results in food stagnation in the gastrointestinal tract, complaints submitted by parents on this issue are children often vomiting, nausea if fed, and the stomach feels full so as to reduce appetite or even no appetite at all. Massage affects the increase of appetite and body weight, which can be theoretically explained as follows:

1. Massage will stimulate the vagus nerve which will affect the digestive system, namely 1) stimulating the stomach to release gastrin; 2) increasing gastric and intestinal motility. Gastric motility will facilitate gastric receptive relaxation, which causes the stomach to increase its volume without increasing pressure, and intestinal motility will facilitate food mixture so that nutrient absorption will be better. A smooth digestive process causes the stomach to empty quickly. This will stimulate hunger and thirst.
2. Massage encourages growth hormone to release somatomedins, which are growth factors secreted mostly by the liver. One of the main somatomedins found in the blood is IGF-1, which is a growth hormone that affects the growth of various body tissues (Ganong, 2008).
3. Massage affects the lymphatic flow, which can improve immunity. Lymph nodes can be stimulated by massage so that their formation will increase, in other words, lymph flow becomes smooth and the number of lymphocytes will increase the immune system.

Tui na massage is one of the acupressure massages that will specifically improve blood circulation to the spleen and digestion. According to Saidah (2020) Tui na massage is not just an ordinary reflexology massage, this massage is part of traditional Chinese medicine which not only works on muscles and joints but also reaches the point of human life energy (chi energy). Through this massage, the circulation of chi energy in the body can run smoothly so as to create balance and become a cure for various diseases caused by chi imbalance. Research conducted by Zhen Huan Liu and Li ting Cen (2018) found that tui na massage had a positive effect on neural and circulatory development in infants. Tui na massage is performed by gliding (effleurage or tui), massaging (petrissage or nie), tapping (tapotement or da), friction, pulling, twisting, shaking, and vibrating certain points so that it will affect the body's energy flow by holding and pressing the body on certain body parts. Tui na massage is a more specific massage technique to overcome eating difficulties in toddlers by improving blood circulation in the spleen and digestion, through a modification of acupuncture without needles, this technique uses pressure on the body's meridian points or energy flow lines so that it is relatively easier to do than acupuncture (Puspita et al., 2021). According to Fifit (2023) tui na massage can stimulate growth and development through improving the smooth circulation of lymph blood and the digestive system to increase the absorption of nutrient intake so as to increase appetite, thus increasing body weight. Tui na massage is limited to the meridian points of the hands, feet, abdomen and back. The provisions of tui na massage are 1 set of therapy equal to 1x therapy protocol per day, for 6 consecutive days, if you need to repeat the therapy, give a break of 1-2 days and massage one side of the hand only, no need for both sides, do not force toddlers to eat because it will cause psychological trauma. Provide healthy, nutritious and varied food intake (Tiwi & Reza, 2013). Regular tui na massage can increase the effectiveness of the circulation of catecholamine hormones, epinephrine and norepinephrine which can stimulate the growth of children and toddlers by increasing appetite, eating frequency, stimulating the development of body structure and motor function (Novadela & Sari, 2020).

The results of this study are in line with previous research related to tui na massage conducted by Asih (2018) using a quasi-experimental design on 100 toddlers (50 toddlers get tui na massage, 50 others get multivitamins). The results showed that there was a significant difference in the average eating difficulties between toddlers who were given tuina massage and toddlers who were given

multivitamins with a value of $\rho < 0.000$. Another study conducted by Noflidaputri, Meilinda and Hidayati (2020) using a quasi-experimental design on 10 toddlers found that there was an effectiveness of tui na massage in increasing the appetite of toddlers with a value of $\rho < 0.002$. Similar research was also conducted by Wulaningsih, Sari and Wijayanti (2022) using a quasi-experiment design with a one group pre-test-post approach, finding that there was an effect of tui na massage on increasing the appetite of toddlers after and before tuina massage with a value of $\rho < 0.000$. Another study conducted by Tiwery & Anggryni (2023) using the literature review method, found that tui na massage has a significant effect on increasing appetite, overcoming eating difficulties and increasing toddler weight. Another study conducted by Meinawati (2021) using a quasi-experimental design on 50 toddlers (25 toddlers received tui na massage, 25 others received multivitamins) also found that there was an effect of tui na massage on increasing appetite in toddlers aged 1-5 years. Research also conducted by Anisya et al., (2022) also showed that regular tui na massage can be a stimulation that has an impact on increasing appetite in children under five so that body weight will increase. Previous research related to VCO conducted by Kartika, et al (2018) using a randomised controlled trial design on 60 babies showed that there was a difference in the average increase in body weight of babies massaged with VCO compared to those massaged with mineral oil of 166.7 grams with a value of $\rho < 0.001$. Similar research was also conducted by Kartika and Tajudin (2022) using an experimental pre-test and post-test group design on 20 infants found that there was an effect of increasing body weight between infant massage using VCO compared to rosemary oil as evidenced by the value of $\rho < 0.05$ with a difference in body weight of 166.67 grams. The increase in body weight indicates an increase in appetite after being given a massage with VCO. With the increase in appetite, the toddler's body weight will also increase. This can prevent stunting nutritional problems.

VCO is an oil derived from fresh or mature coconut seeds that are treated mechanically or naturally with or without heating without changing the oil properties. The main component of VCO is about 92% saturated fatty acids, including lauric acid (48.74%), myristic acid (16.31%), caprylic acid (10.91%), capric acid (8.10%) and caproic acid (1.25%). The high content of saturated fatty acids makes VCO not easily rancid (Fitria et al., 2022). VCO is also classified as an oil that is easily absorbed by the body. So it can be used for massage. The use of virgin coconut oil or VCO (Virgin Coconut Oil) for massage is one of the stimulations that help fulfill nutritional intake for toddlers. VCO contains medium-chain fatty acids (MCFA) that are easily absorbed by the skin. The high vitamin E content is good for nourishing baby's skin. A research study conducted states that the use of virgin coconut oil (VCO) in infant massage can increase body weight more significantly than massage using mineral oil (Tuminah, 2009).

According to the assumptions of the researchers after the tui na massage with VCO on toddlers, the toddler's appetite increased. This is because VCO is easily absorbed and there is an emphasis on the body's meridian points or energy flow lines so that it can facilitate blood circulation in the spleen and digestion (Fifit & Luvu Dian Afriyani, 2023). Increased appetite will lead to weight gain in toddlers. This makes toddlers avoid nutritional problems and even stunting. If tui na massage with VCO is done more regularly, for example every week, the weight gain in toddlers will be more significant.

Tui na massage and VCO each have significant benefits in improving toddlers' appetite and weight. These two treatments, if collaborated, have a great impact on the appetite of toddlers. Thus, if the lack of appetite can be resolved, the nutritional needs of toddlers will be fulfilled. Toddlers do not experience chronic nutritional problems that result in stunting. This can prevent and be a step to strengthen stunting. Through this research, it is hoped that tui na massage with VCO can be used as a non-pharmacological therapy that is easier and more economical and can be done in the community. The community can be provided with education, handbooks (Sarliana et al., 2023) and training related to tuina massage with virgin coconut oil application.

LIMITATION OF THE STUDY

This study has limitations, namely, respondents who are toddlers are less cooperative at the time of intervention. This is a challenge for researchers.

CONCLUSIONS AND SUGGESTIONS

Based on the results of the study, it can be concluded that tui na massage with virgin coconut oil application has an effect on toddler appetite as a prevention and strengthening of stunting. It is recommended that tui na massage with virgin coconut oil can be used as a non-pharmacological therapy that is easier and more economical and can be done in the community to overcome the appetite of toddlers in order to suppress and prevent stunting.

Acknowledgment

This research is a Research Grant from the Ministry of Research and Technology DRTPM NO. 0557/E5.5/AL.04/2023, with Main Contract No.: 188/E5/PG.02.00.PL/2023 and Derivative Contract No. 328/LL12/PG/2023; 57/UKIM.H6/N/KP.PD/2023. The researcher would like to thank the Ministry of Research and Technology, DRTPM, Higher Education Service Institution Region XII Ambon, Research Institute of Universitas Kristen Indonesia Maluku and Passo Village and Passo Health Center.

ETHICAL CONSIDERATIONS

This study has been ethically reviewed by the health research ethics committee of the Faculty of Public Health, Universitas Airlangga and declared ethically feasible with decision letter NO.181/EA/KEPK/2023.

Funding Statement

This research is a Research Grant from the Ministry of Research and Technology DRTPM NO. 0557/E5.5/AL.04/2023 with Main Contract No.: 188/E5/PG.02.00.PL/2023 and Derivative Contract No. 328/LL12/PG/2023; 57/UKIM.H6/N/KP.PD/2023.

Conflict of Interest Statement

The researcher declares no conflict of interest.

REFERENCES

- Anggraeni, R., Bin Sansuwito, T., Nambiar, N., & Wati, N. L. (2022). the Effect of Tui Na Massage on Increasing Appetite in Toddlers At Ami Medika Clinic, Sukabumi District. *Web of Conferences*, 407–412.
- Anggryni, M., Mardiah, W., Hermayanti, Y., Rakhmawati, W., Ramdhanie, G. G., & Mediani, H. S. (2021). Faktor Pemberian Nutrisi Masa Golden Age dengan Kejadian Stunting pada Balita di Negara Berkembang. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 5(2), 1764–1776. <https://doi.org/10.31004/obsesi.v5i2.967>
- Anisya, S. M. K., & Farida, S. (2022). The Effectiveness of Tui Na Massage to Increase the Application Of Toddlers. *Proceedings of the International Conference on Nursing and Health Sciences*, 3(1), 201–206. <https://doi.org/10.37287/picnhs.v3i1.1148>
- Asih, Y., & Mugiati, M. (2018). Pijat Tuna Efektif dalam Mengatasi Kesulitan Makan pada Anak Balita. *Jurnal Ilmiah Keperawatan Sai Betik*, 14(1), 98. <https://doi.org/10.26630/jkep.v14i1.1015>

- Fifit, K. I. S., & Luvi Dian Afriyani. (2023). Pengaruh Metode Pijat Tui Na Terhadap Penambahan Berat Badan pada Balita Usia 1-5 Tahun dengan Masalah Berat Badan dan Picky Eater. *Journal of Holistics and Health Science*, 5(1), 135–143. <https://doi.org/10.35473/jhhs.v5i1.255>
- Fitria, Kasmudin, K., & Junaidi. (2022). Pelatihan Pembuatan Minyak Virgin Coconut Oil (VCO) Di Kelurahan Belimbing Kota Bontang. *Jurnal Pengabdian Ahmad Yani*, 2(2), 51–56.
- Ganong, F. W. (2008). *Buku ajar fisiologi kedokteran (review of medical physiology)*. EGC.
- Ika, & Afiani. (2003). *Ramuan Jamu Cekok Sebagai Penyembuhan Kurang Nafsu Makan Pada Anak* (Vol 7). UGM.
- Izwardy, D. (2019). *Kebijakan dan Strategi Penanggulangan Stunting di Indonesia*.
- Judarwanto, W. (2011). *Perilaku Makan Anak Sekolah*. Direktorat Bina Gizi Kementerian Kesehatan Republik Indonesia.
- Kartika, Nurdiati, & Tajudin. (2018). Perbandingan Efektifitas Penggunaan Minyak Kelapa Murni (Virgin Coconut Oil) dan Minyak Mineral pada Pijat Bayi Untuk Meningkatkan Berat Badan Bayi: Randomized Controlled Trial Effect of Virgin Coconut Oil (VCO) and Mineral Oils for Babies. *Jurnal Kesehatan*, 6(1), 9–15. https://scholar.google.com/scholar?hl=id&as_sdt=0%2C5&q=Perbandingan+Efektifitas+Penggunaan+Minyak+Kelapa+Murni+%28Virgin+Coconut+Oil%29+dan+Minyak+Mineral+pada+Pijat+Bayi+Untuk+Meningkatkan+Berat+Badan+Bayi%3A+Randomized+Controlled+Trial&btnG=
- Kartika, R., & Tajudin. (2022). *PENGARUH PENGGUNAAN MINYAK KELAPA MURNI (VIRGIN COCONUT OIL) DIBANDINGKAN MINYAK MINERAL PADA PIJAT BAYI TERHADAP PENINGKATAN BERAT BADAN BAYI: RANDOMIZED CONTROLLED TRIAL Tesis Untuk memenuhi sebagian persyaratan Mencapai derajat Sarjana S-2 Program S*. 374066.
- Kemenkes RI. (2018). Hasil Riset Kesehatan Dasar Tahun 2018. *Kementrian Kesehatan RI*, 53(9), 1689–1699.
- Lestari, W., Kristiana, L., & Paramita, A. (2018). Stunting: Studi Konstruksi Sosial Masyarakat Perdesaan dan Perkotaan Terkait Gizi dan Pola Pengasuhan Balita di Kabupaten Jember. *Jurnal Masalah-Masalah Sosial*. *Jurnal Masalah-Masalah Sosial*, 9. <https://doi.org/10.22212>
- Liu, Z.-H., & Cen, L.-T. (2018). Effect Of Tuina On Neurodevelopment In Premature Infants With Brain Injury. *Journal Of Acupuncture And Tuina Science*.
- Mediani, H. S. (2020). Predictors of Stunting Among Children Under Five Year of Age in Indonesia: A Scoping Review. *Global Journal of Health Science*, 12(8), 83. <https://doi.org/10.5539/gjhs.v12n8p83>
- Meinawati, L. (2021). *PENGARUH TUI NA MASSAGE TERHADAP PICKY EATER PADA BALITA USIA 1 s.d 5 TAHUN DI BPM LILIS SURYAWATI JOMBANG*. *Jurnal Insan Cendekia*, 8.
- Munjidah, A. (2018). Efektifitas Pijat Tui Na Dalam Mengatasi Kesulitan Makan Pada Balita Di Rw 02 Kelurahan Wonokromo Surabaya. *Journal of Health Sciences*, 8(2), 193–199. <https://doi.org/10.33086/jhs.v8i2.204>
- Noflidaputri, R., Meilinda, V., & Hidayati, Y. (2020). Efektifitas Pijat Tui Na dalam Meningkatkan Berat Badan terhadap Balita di Wilayah Kerja Puskesmas Lintau Buo. *Maternal Child Health Care Journal*, 2(1), 1–5.
- Novadela, N. I. T., & Sari, A. G. (2020). Comparison of tuina massage therapy and citronella aromatherapy oil in toddler appetite enhancement. *International Journal of Innovation, Creativity and Change*, 13(2), 41–54.
- Novitasari, N. (2020). Pengaruh Hypnoparenting Terhadap Peningkatan Nafsu Makan Anak Toddler Yang Mengalami Picky Eater Di Desa Wonorejo Kecamatan Pringapus Kabupaten Semarang. *Ngudi Waluyo University Ungaran*, 5(3), 248–253. <http://www.nber.org/papers/w16019>
- Palupi, R., Kusuma, A., & Puspitarini, Z. (2021). Karakteristik Ibu dan Anak Sebagai Prediktor

- Stunting. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 6, 225–230. <https://doi.org/10.30604/jika.v6is1.791>
- Puspita, Y., Esmianti, F., & Andini, I. F. (2021). Efektifitas Pijat Tuina Dalam Meningkatkan Nafsu Makan Pada Balitastunting Kabupaten Rejang Lebong The Effectiveness Of Tui Na Massage In Increasing The Application Of Tuning Totality In Rejang Lebong. *Kebidanan Basurek*, 6(1), 17–24.
- Saidah, H., & K.Dewi. (2020). *Keajaiban Pijat Tui Na dan Aromaterapi Minyak Sereh*. Samudera Biru.
- Sarliana, S., Tondong, H. I., Kaparang, M. J., & Usman, H. (2023). The Giving of Stunting Pocketbooks as a Health Education Tool for Women of Childbearing Age in an Effort to Prevent Stunting. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 8(1), 119–124. <https://doi.org/10.30604/jika.v8i1.1532>
- Tiwery, I. B., & Anggryni, M. (2023). Tui na massage terhadap appetite : literature review. *Journal Nightingale*, 33–40.
- Tiwery, I. B., Mediani, H. S., & Nurhidayah, I. (2023). Faktor Proksimal dengan Kejadian Stunting Balita di Negara Berkembang : Systematic Review. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 7(6), 7424–7444. <https://doi.org/10.31004/obsesi.v7i6.5585>
- Tiwi, & Reza. (2013). *Langkah Pijat Tui Na*. <https://www.youtube.com/Watch?%0AV=Odctwlqgmzc>
- Tuminah, S. (2009). Efek Asam Lemak Jenuh dan Asam Lemak Tak Jenuh “Trans” Terhadap Kesehatan. In *Media Penelit. dan Pengembang. Kesehat.: Vol. XIX* (Issue Suplemen II). <https://doi.org/10.1007/s13398-014-0173-7.2>
- Wardlaw, M. G., & Hampl, J. S. (2007). *Perspective in Nutrition Seventh Edition*. Perspective in Nutrition Seventh Edition.
- WHO. (2018). Global Health Observatory. *World Health Organisation*. <https://www.who.int/data/gho>
- Widayati, K., Putra, I. kadek A. D., & Dewi, N. L. M. A. (2021). Determinant Factor for Stunting in Toddler. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 6(1), 9–16. <https://doi.org/10.30604/jika.v6i1.381>
- Wulaningsih, I., Sari, N., & Wijayanti, H. (2022). Pengaruh Pijat Tuina Terhadap Tingkat Nafsu Makan Balita Gizi Kurang. *JURNAL EDUNursing*, 6(1), 33–38. <http://journal.unipdu.ac.id>
- Yuana, N., Larasati, T., & Berawi, K. N. (2021). Analisis Multilevel Faktor Resiko Stunting di Indonesia: Sebuah Tinjauan Literatur. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 6(2), 213–217. <https://doi.org/10.30604/jika.v6i2.510>
- Zai, T., Girsang, E., Nasution, S. L. R., & Ginting, C. N. (2022). Prevalence and Determinants of Stunting Incidence in Toddlers. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 7(2), 527–534. <https://doi.org/10.30604/jika.v7i2.917>