

EFFECTS OF TUI NA MASSAGE ON STUNTED TODDLERS AGED 3-4 YEARS

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ABSTRAK : DAMPAK PEMIJATAN TUI NA PADA BALITA 3-4 TAHUN YANG GANJIL

Latar Belakang: Stunting merupakan salah satu bentuk kekurangan gizi kronis akibat asupan zat gizi yang tidak memadai dalam jangka waktu lama, sering kali disebabkan oleh pemberian makanan yang tidak mencukupi sehingga tidak memenuhi kebutuhan gizi. Prevalensi stunting pada anak di bawah usia lima tahun di Indonesia pada tahun 2015 sebesar 36,4%. Namun, penelitian profil kesehatan tahun 2023 di Provinsi Lampung melaporkan prevalensi sebesar 4,0%, dan di wilayah kerja Puskesmas Purwosari, kejadian stunting sebesar 5,7%. Berdasarkan survei pendahuluan yang dilakukan peneliti, di wilayah kerja Puskesmas Purwosari ditemukan 14 balita stunting. Tujuan: Penelitian ini bertujuan untuk mengetahui pengaruh pijat Tui Na terhadap balita stunting usia 3-4 tahun di wilayah kerja Puskesmas Purwosari Metro Utara.

Metode: Penelitian ini menggunakan penelitian kuantitatif dengan metode quasi eksperimen dengan pendekatan one group pretest-posttest design. Populasi sasaran adalah 14 balita stunting usia 3-4 tahun di wilayah kerja Puskesmas Purwosari Kota Metro. Sampel juga berjumlah 14 responden, dengan teknik pengambilan sampel menggunakan total sampling. Metode pengumpulan data menggunakan kuesioner, timbangan, dan alat ukur tinggi badan. Analisis data menggunakan analisis univariat dengan nilai mean dan analisis bivariat dengan uji paired sample t-test. Hasil: Penelitian ini melibatkan 14 partisipan yang diukur sebelum dan sesudah dilakukan pemijatan Tui Na. Sebelum pemijatan, rerata berat badan 12,99 kg dan rerata tinggi badan 88,07 cm. Setelah pemijatan, rerata berat badan meningkat menjadi 13,36 kg dan rerata tinggi badan meningkat menjadi 89,07 cm. Rerata kenaikan berat badan sebesar 0,37 kg (370 gram) dan tinggi badan 1,00 cm. Uji paired samples test menghasilkan nilai p sebesar 0,000 ($p < 0,05$) yang menunjukkan adanya perbedaan yang signifikan secara statistik.

Kesimpulan: Pijat Tui Na berpengaruh terhadap peningkatan berat badan dan tinggi badan pada balita usia 3-4 tahun di Wilayah Kerja Puskesmas Purwosari.

Saran bagi tenaga kesehatan agar memberikan Pijat Tui Na sebagai terapi alternatif untuk mendukung pertumbuhan balita stunting dan mencegah terjadinya stunting pada anak.

Kata Kunci : Balita, Stunting, Pijat Tui Na

ABSTRACT

Background: Stunting is a form of chronic malnutrition resulting from inadequate nutrient intake over a prolonged period, often due to insufficient feeding that fails to meet nutritional requirements. The prevalence of stunting among children under the age of five in Indonesia was 36.4% in 2015. However, the 2023 health profile research in Lampung Province reported a prevalence of 4.0%, and in the working area of the Purwosari Health Center, the incidence of stunting was 5.7%. A preliminary survey conducted by researchers found 14 stunted toddlers in the Purwosari Health Center working area.

Aim: This study aimed to investigate the effect of Tui Na Massage on stunted toddlers aged 3-4 years in Purwosari North Metro Health Center's working area.

Methods: This study utilized quantitative research with a quasi-experimental method and a one-group pretest-posttest design approach. The target population was 14 stunted toddlers aged 3-4 years within the Purwosari Health Center's working area in Metro City. The sample also included 14 respondents, with the sampling technique using total sampling. Data collection methods comprised questionnaires, scales, and stature meters. Data analysis involved univariate analysis using mean values and bivariate analysis using paired sample t-tests.

Results: The research involved 14 participants who were measured before and after the Tui Na massage. Before the massage, the average body weight was 12.99 kg, and the average height was 88.07 cm. After the massage, the average body weight increased to 13.36 kg, and the average height increased to 89.07 cm. The average increase in body weight was 0.37 kg (370 grams), and height was 1.00 cm. The paired samples test yielded a p-value of 0.000 ($p < 0.05$), indicating a statistically significant difference.

Conclusion: Tui Na massage has an effect on increasing body weight and height in toddlers aged 3-4 years in Purwosari Health Center's Working Area.

Suggestions for healthcare workers include providing Tui Na Massage as an alternative therapy to support the growth of stunted toddlers and to prevent stunting in children.

Keywords : Toddlers, Stunting, Tui Na Massage

INTRODUCTION

Indonesia faces a serious nutritional issue, with widespread cases of undernutrition in children under five years old and school-age boys and girls. Malnutrition during school years can lead to low levels of education and high dropout rates. The first 1,000 days of a child's life are crucial for their development, but unfortunately, many children aged 0-59 months are experiencing nutritional problems. In 2015, the prevalence of stunting among Indonesian children under the age of five was 36.4%, indicating that more than a third, or around 8.8 million toddlers, are experiencing nutritional issues leading to their height being below the standard for their age. This rate surpasses the WHO threshold of 20%. Indonesia has the second highest prevalence of stunting among toddlers in the Southeast Asian region, trailing only behind Laos, which reached 43.8%. However, the 2017 Nutrition Status Monitor (PSG) recorded a decrease in stunted toddlers to 26.6%, with 9.8% classified as very short and 19.8% as short.

Based on research conducted by Triana Indiriyani, Risza Chairunnisa, and Vanessa Rizky Ramadhani on "Prevention of Stunting through Education and Tui Na Massage Training," it is suggested that Tui Na massage can increase the weight of toddlers. This aligns with the findings of Pratami et al. (2020), which demonstrate a correlation between Tui Na massage and toddler weight gain. Regular Tui Na massage can enhance the activity of the vagus nerve and stimulate digestive hormones, such as insulin and gastrin. Insulin plays a crucial role in carbohydrate metabolism, glycogen storage, fatty acid synthesis, amino acids, and protein synthesis. These hormones aid in stimulating digestion, leading to improved absorption of food nutrients (Carolin et al., 2020).

In 2023, the results of a health profile research revealed that nationally, the prevalence of underweight and stunting in children under five in Lampung Province is 4.0% (Ministry of Home Affairs, 2023). According to the nutrition monitoring data from the Metro City Health Office, the Purwosari Health Center's working area has a stunting incidence rate of 5.7% among toddlers (Andrianti et al., 2022). A pre-survey conducted by researchers identified 14

toddlers experiencing stunting in the Purwosari North Metro Health Center working area.

RESEARCH METHODS

The research involves quantitative analysis with a quasi-experimental research design utilizing a one group pre-test post-test model. The study begins with administering a pretest using an observation sheet before applying Tui Na massage. Following the pretest, the researcher performs the Tui Na massage and then administers a posttest. The targeted population consists of 14 stunted toddlers aged 3-4 years in the Purwosari Health Center Working Area of Metro City. The sample for the study is drawn from the same population. The research employed a sampling technique that included all 14 toddlers. The instruments used in the study include scales and stature meters to measure the weight gain and height of the toddlers. The study involves performing Tui Na Massage once a day for 14 days, with each session lasting 10-15 minutes and being facilitated by the toddler's mother, who has been briefed on Tui Na massage according to standard operating procedures. After 14 days of regular Tui Na Massage, the toddlers' body weight and height will be re-measured. Data analysis will encompass univariate and bivariate analyses.

RESEARCH RESULTS

Respondent Characteristics

There were 7 male toddlers (50.0%) and 7 female toddlers (50.0%). Among the toddlers, 6 were aged between 36-42 months (42.9%), and 8 were aged between 42-48 months (57.1%). The mothers of 7 toddlers were between 20-25 years old (50.0%), while the mothers of the other 7 toddlers were between 26-30 years old (50.0%). All 14 mothers had completed high school education (85.7%).

Table 1
Distribution of Respondent Characteristics

Variable	n	%
Sex		
Male	7	50,0
Female	7	50,0

Toddler Age		
36-42 months	6	42,9
42-48 months	8	57,1
Mother Age		
20-25 Years	7	50,0
26-30 Years	7	50,0
Mother Education		
Middle High School	2	14,3
Upper High School	12	85,7

In Table 2, it is indicated that the average body weight of toddlers who experience stunting before Tui Na massage is 12.99 kg, with a standard deviation of 0.675. The lowest recorded weight is 12.05 kg, and the highest is 14.20 kg. The average height of stunted toddlers before Tui Na massage is 88.07 cm, with a standard deviation of 2.369. The lowest recorded height is 85 cm, and the highest is 91 cm.

Univariate Analysis

Knowing the Average Weight and Height of Stunted Toddlers before Tui Na Massage in The Purwosari North Metro Health Center Working Area

Table 2
Average Weight and Height of Stunted Toddlers before Tui Na Massage in The Purwosari North Metro Health Center Working Area

Pretest	Mean	SD	Min	Max
Body Weight	12,99	0,675	12,05	14,20
Body Height	88,07	2,369	85	91

Knowing the Average Weight and Height of Stunted Toddlers after Tui Na Massage in The Purwosari North Metro Health Center Working Area

According to Table 3, the average body weight of toddlers who are stunted after Tui Na massage is 13.36 kg, with a standard deviation of

0.719 kg. The weight range is from 12.15 kg to 14.60 kg. The average height of stunted toddlers after Tui Na massage is 89.07 cm, with a standard deviation of 2.269 cm. The height range is from 86 cm to 92 cm.

Table 3
Average Weight and Height of Stunted Toddlers after Tui Na Massage in The Purwosari North Metro Health Center Working Area

Posttest	Mean	SD	Min	Max
Body Weight	13,36	0,719	12,15	14,60
Body Height	89,07	2,269	86	92

Bivariate Analysis

Normality Test

Based on Table 4, the results of the normality test showed that the p-values for body weight before massage, height before massage, weight after

massage, and height after massage were 0.505, 0.055, 0.960, and 0.091, respectively. Since all p-values are greater than 0.05, the data is considered to be normally distributed. Therefore, the data analysis test will use a paired sample test.

Table 4
Data Normality Test

Tui Na Massage	Shapiro-Wilk		
	Statistic	df	Sig.
Body Weight Before Massage	0,946	14	0,505
Body Height Before Massage	0,878	14	0,055
Body Weight After Massage	0,942	14	0,960
Body Height After Massage	0,897	14	0,091

Table 5
The Effect of Tui Na Massage on Stunted Toddlers Aged 3-4 Years in the Purwosari North Metro Health Center Working Area

Tui Na Massage	N	Mean	Mean Diff.	Std. Dev	P value
Body Weight					
Before	14	12,99	0,37	0,675	0,000
After	14	13,36		0,719	
Body Height					
Before	14	88,07	1,00	2,369	0,000
After	14	89,07		2,269	

According to table 5, the average body weight before Tui Na massage is 12.99. After the massage, the average body weight increases to 13.36, resulting in a mean difference of 0.37 (370 grams). The paired samples test yields a p-value of 0.000. Similarly, the average body height before Tui Na massage is 88.07, which increases to 89.07 after the massage, resulting in a mean difference of 1.00 cm. The paired samples test also yields a p-value of 0.000. These results indicate that Tui Na massage has a significant effect on increasing body weight and height in toddlers aged 3-4 years in the Purwosari North Metro Health Center Working Area.

DISCUSSIONS

Stunting is a form of malnutrition that is linked to long-term nutritional deficiencies, and it is considered to be part of chronic nutritional issues. Stunting is assessed by taking into account the height or length, age, and gender of children under five. In communities where the height or length of toddlers is not routinely measured, it can be challenging to determine the prevalence of stunting. Consequently, addressing stunting has been a key focus of global nutrition improvement goals up to 2025.

Stunting has significant impacts on children's academic and educational abilities. It also affects the quality of a country's human resources, potentially leading to economic losses. Stunting is associated with a decrease in adult height, which has been linked to a 1.4% decrease in economic productivity. Additionally, it leads to a 2-3% annual decrease in productivity (Achadi et al., 2020).

According to Roesli (2016), massaging toddlers can increase their appetite and improve their digestive system function, especially in the absorption of food juices, leading to expected weight gain. Massaging toddlers is particularly meaningful and beneficial when done by the mother or father along with the expression of affection towards the toddler. Additionally, it can increase the adrenaline hormone, which, in addition to being influenced by the 10th brain nerve, can reduce stress, making the toddler calmer, and improving their hunger and

appetite.

Tui Na Massage is a technique that promotes digestion and blood circulation in the lymph. This technique modifies acupuncture without using needles and focuses on the meridian points or lines of energy flow in the body. It is relatively easier to perform than acupuncture. Tui Na massage involves massaging (petrissage or Nie), tapping (Tapotement or Da), gliding (Effleurage or Tui), friction, rotating, and vibrating certain points to affect the body's energy (Wijayanti & Sulistiani, 2019).

Furthermore, Tui Na massage can also improve sleep quality due to the influence of the endorphin hormone. Research suggests that by doing Tui Na massage, stunted toddlers can become calmer, release endorphin hormones, and become more relaxed, leading to smooth blood flow and improved nutritional intake (Setiawandari, 2019).

The results of this study align with Pratimi's research (2020) at PMB "R" Cipacing, Sumedang Regency, West Java, which examined the impact of Tui Na massage on toddler weight gain. The study found that there was a significant increase in the average body weight of toddlers, from 11.62 to 11.81 kilograms (kg), resulting in a difference of 0.18 kilograms (or 180 grams). Himawati's study (2023) in Selojari Village also supported these findings, showing that toddlers who received Tui Na massage had an average weight gain of 0.60 kg, reaching around 11.80 kg.

The researcher suggests that infant massage can stimulate the nervus vagus nerve, also known as the pneumogastric nerve, which innervates the stomach and lungs and enhances the sensory and motor functions of the stomach. This stimulation can lead to faster gastric emptying and increased hunger in babies, potentially resulting in higher consumption of breast milk and better absorption of nutrients, thereby increasing body weight. Interestingly, the study revealed that two toddlers did not experience weight gain or height increase following Tui Na massage. This was attributed to the lower education level of their mothers, who had completed only junior high school. The mother's education level can influence the health and nutritional status of the

family, as well as parenting practices, highlighting the significant role of mothers in enhancing the nutritional status of family members (Noviyanti, 2020).

Low maternal education can make it challenging for mothers to understand health and nutrition. For instance, mothers may not consistently wash their hands with soap and running water before eating or preparing children's food, may overlook the importance of using footwear, and may not prioritize preparing nutritious meals for their children (Achadi et al., 2020).

The prevalence of stunting in young children is higher among mothers with low levels of education. This is partly due to the perception within the community that education is not essential, and the lack of family support for pursuing higher education. Consequently, a mother's level of education indirectly impacts her ability and knowledge regarding healthcare, particularly in understanding nutrition. This also contributes to the mother's limited ability to select affordable foods that provide balanced nutritional value and quality. It's important to note that good nutrition does not always have to be expensive; many affordable foods offer excellent nutritional value and quality that is essential for the body (Subarkah, 2017).

Researchers suggest that Tui Na massage is highly effective in preventing stunting by enhancing toddlers' appetites. This form of massage involves applying pressure on specific body locations using fingers, hands, elbows, knees, or feet. Tui Na massage can support a child's overall development—mentally, physically, and socially—by providing positive stimulation and promoting relaxation of the nerves.

CONCLUSION

There is an effect of Tui Na Massage on increasing the weight and height of stunted toddlers aged 3-4 years in the Purwosari North Metro Health Center Working Area.

SUGGESTIONS

For healthcare workers include providing Tui Na Massage as an alternative therapy to support the growth of stunted toddlers and to prevent stunting in children.

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