

The Effect of Complementary Tu Ina Massage Therapy on Increasing Appetite in Toddlers at Posyandu Kampung Sukamulya II Ciseureuh Village as an Effort to Prevent Stunting

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KEYWORDS	ABSTRACT
Tu Ina Massage, Complementary Therapy, Appetite, Toddlers.	Low appetite in toddlers is a common problem that can hinder growth and development. Complementary therapy from traditional Chinese medicine, particularly <i>Tuina</i> massage, is increasingly used and is believed to stimulate gastrointestinal function and improve appetite. This study aimed to determine the effect of <i>Tuina</i> massage on increasing toddlers' appetite at <i>Posyandu</i> Kampung Sukamulya II, Ciseureuh Village. A quasi-experimental pretest–posttest two-group design was applied with total sampling (n=40): 20 toddlers in the intervention group and 20 in the control group. Caregiver-reported appetite was measured using a standardized scale; data were analyzed with paired and between-group tests at $\alpha = 0.05$. In the intervention group, mean appetite scores improved from 2.90 at pre-test to 1.15 at post-test ($p = 0.000$), indicating better appetite (lower scores reflect improvement). The control group showed no change (pre-test 2.90; post-test 2.90; $p = 1.000$). The between-group comparison after the intervention was significant ($p = 0.007$), confirming the effect of <i>Tuina</i> massage on appetite. In conclusion, <i>Tuina</i> massage effectively improves toddlers' appetite and can be considered a simple, safe, and low-cost adjunct within community nutrition programs. Implementation at the <i>posyandu</i> level should be accompanied by training for cadres and parents and integrated with feeding counseling; future controlled studies with larger samples and longer follow-up are recommended to strengthen generalizability.

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INTRODUCTION

Stunting is a form of malnutrition that arises due to prolonged lack of nutritional intake, typically becoming evident when children reach the age of two. Stunting can hinder physical growth, brain development, and increase vulnerability to diseases. In 2023, the prevalence of stunting in Indonesia was recorded at 21.5%, with the highest prevalence in Papua Tengah at 39.2% and in West Java at 21.7%. In Purwakarta, the stunting prevalence increased to 24% in 2024, although in the Munjuljaya Health Center's working area, it was relatively low (0%). The government continues to make efforts to reduce stunting, aiming for a reduction to 14% by 2024.

One of the challenges in preventing stunting is low appetite in toddlers, as inadequate nutritional intake can worsen the child's nutritional status. Therefore, intervention strategies are needed that not only focus on providing nutritious food but also on increasing the child's appetite. Complementary therapies such as *Tuina* massage have been shown to be effective in stimulating appetite and improving a child's growth. *Tuina* massage, a traditional therapy from

China, stimulates blood circulation and the digestive system, and enhances nutrient absorption, contributing to increased weight and height in infants.

Previous studies have demonstrated the effectiveness of *Tuina* massage in improving nutritional status and appetite in children. Research by Asih & Mugiati (2018) showed that *Tuina* massage was effective in overcoming feeding difficulties in toddlers, with a significant improvement in eating patterns after massage intervention. Similarly, a study by Ceria & Arintasari (2019) found that *Tuina* massage contributed to increased body weight in toddlers, indicating its potential in supporting growth optimization. More recent research by Hidayanti (2022) confirmed the effectiveness of *Tuina* massage in increasing body weight in 12-month-old infants, highlighting its role in addressing nutritional problems from an early age.

Another study by Windyarti et al. (2023) compared the effectiveness of healthy baby massage and *Tuina* massage on the eating behavior of malnourished toddlers aged 1–3 years. The results indicated that both massage techniques improved eating behavior, but *Tuina* massage showed more significant results in increasing appetite and food intake. Additionally, research by Hasyim et al. (2025) demonstrated that a combination of *Tuina* acupressure and date palm juice significantly improved the nutritional status of stunted toddlers in Pringsewu Regency, further supporting the use of complementary therapies in managing stunting.

Based on preliminary observations at *Posyandu* Kampung Sukamulya II, it was found that around 15–20% of toddlers in the area experienced mild to moderate eating issues. If not properly addressed, these conditions may increase the risk of stunting. This study aims to build upon previous research by specifically analyzing the effect of complementary *Tuina* massage therapy on increasing appetite in toddlers at *Posyandu* Kampung Sukamulya II, Ciseureuh Village, which is expected to be an effective strategy in preventing stunting. This research uses an experimental design with an intervention group receiving *Tuina* massage and a control group not receiving the intervention. Measurements were taken by comparing toddlers' appetite before and after the *Tuina* massage therapy.

Through this research, it is expected to provide empirical evidence of the benefits of *Tuina* massage therapy in increasing appetite in toddlers. The results of this study are expected to serve as a reference for educational institutions, independent midwifery practices, and to provide further knowledge to the public on the importance of complementary therapies in supporting stunting prevention. Additionally, this research will offer insights to researchers for further study on the effects of complementary therapies on children's health.

To achieve these goals, this study will analyze the average increase in appetite between the intervention and control groups, as well as compare the appetite of toddlers before and after receiving *Tuina* massage therapy. The results of this study are expected to contribute to reducing the prevalence of stunting through a non-pharmacological approach that is easy to apply and safe for toddlers.

Overall, this research aims to provide practical solutions for preventing stunting through a more natural and accessible approach. It is hoped that by implementing *Tuina* massage therapy, toddlers can develop better appetite, increase their nutritional intake, and prevent the long-term impacts of stunting on growth and development.

METHOD

This study employs a quasi-experimental design with a pre-test and post-test two-group approach, conducted at *Posyandu* Kampung Sukamulya II, Ciseureuh Village, during the period from September to December 2024. The study subjects are divided into two groups: an intervention group receiving *Tuina* massage therapy and a control group receiving only education on how to improve toddlers' appetite. Before the intervention, both groups were given a pre-test to measure the toddlers' appetite levels. The intervention group then received *Tuina* massage therapy, while the control group was provided with educational treatment. After six days of monitoring, a post-test was administered to both groups to assess the impact of the intervention (Roesli, 2012; Wulandari et al., 2024).

The population of this study consists of all mothers of toddlers at *Posyandu* Kampung Sukamulya II from September to December 2024, totaling 40 individuals. The sample refers to selected subjects representing the population (Notoatmodjo, 2018), which in this study are mothers of toddlers at *Posyandu* Kampung Sukamulya II. The sampling technique used is total sampling, where the entire population is included as the sample (Sugiyono, 2018), resulting in 40 respondents divided into two groups: 20 in the intervention group and 20 in the control group.

Data collection utilizes instruments including consent forms, respondent identity forms, and observation sheets, with primary data obtained from appetite questionnaires and secondary data from the postpartum registry at Maracang Community Health Center, Purwakarta City. The research procedure begins with institutional permits, respondent selection, and group division, followed by *Tuina* massage intervention for six days for the experimental group and education for the control group. Subsequently, a post-test is conducted, and data processing is carried out through the stages of editing, entry, processing with SPSS, and cleaning (Amaliyah, 2017; Ceria & Arintasari, 2023; Gorontalo, 2020; Marwang et al., 2022; Mirayanti et al., 2022; Mutingah et al., 2021).

Data analysis employs a univariate approach to describe the characteristics of each research variable presented in frequency distribution tables, and a bivariate analysis to identify relationships between two variables and test the hypothesis regarding the effect of *Tuina* massage on improving toddlers' appetite using the Chi-square test, where a $p\text{-value} < 0.05$ indicates a significant intervention effect. For comparing pre- and post-intervention data, a paired t-test is used if the data are normally distributed, or the Wilcoxon test is used for non-normal data. To compare the intervention and control groups, unpaired tests such as the Mann-Whitney test are used if the data are not normally distributed, with statistical significance determined at $p < 0.05$. Thus, this study aims to assess the effectiveness of *Tuina* massage in improving toddlers' appetite as a contribution to stunting prevention efforts, through analytical results that determine the statistical significance of the intervention's impact on appetite improvement.

RESULTS AND DISCUSSIONS

1. Univariate Analysis

Univariate analysis is conducted based on each research variable. The results of the study for each variable are presented with a frequency distribution of the variable.

a. Research Characteristics

The total number of respondents in this study was 40, all of whom met the inclusion criteria, which included mothers of toddlers aged 12-59 months, mothers who volunteered to participate, mothers with educational backgrounds ranging from none to higher education, and mothers willing to perform Tuina massage on their toddlers voluntarily. The general distribution of frequencies for age, occupation, and education is shown in the table below:

Age Distribution of Mothers of Toddlers

Among the 40 respondents from Posyandu Kampung Sukamulya II, Ciseureuh Village, the respondents were divided into two groups: the intervention group and the control group. In the intervention group, mothers aged <20 years consisted of 2 respondents (10.0%), while in the control group, there were also 2 respondents (10.0%). In the 20-35 years age group, the intervention group had 13 respondents (65.0%), and the control group had 14 respondents (70.0%). In the >35 years age group, there were 5 respondents (25.0%) in the intervention group, and 4 respondents (20.0%) in the control group.

Occupation Distribution of Mothers of Toddlers

Regarding occupation, among the 40 respondents from Posyandu Kampung Sukamulya II, Ciseureuh Village, the mothers were divided into two groups: the intervention group and the control group. In the intervention group, 13 respondents (65.0%) were housewives (IRT), 2 respondents (10.0%) were civil servants (PNS), and 5 respondents (25.0%) were employed in other sectors. In the control group, 12 respondents (60.0%) were housewives, 7 respondents (35.0%) were civil servants, and 1 respondent (5.0%) worked in other sectors.

b. Education Distribution of Intervention and Control Groups for Mothers of Toddlers

In terms of education, among the 40 respondents from Posyandu Kampung Sukamulya II, Ciseureuh Village, the distribution was as follows:

In the intervention group: 0% had completed elementary school (SD), 6 respondents (30.0%) had completed junior high school (SMP), 9 respondents (45.0%) had completed senior high school (SMA/SMK), and 5 respondents (25.0%) had completed college (D3/S1).

In the control group: 1 respondent (5.0%) had completed elementary school, 6 respondents (30.0%) had completed junior high school, 8 respondents (40.0%) had completed senior high school, and 5 respondents (25.0%) had completed college.

c. Frequency Distribution of the Intervention Group Before Tuina Massage

Before the Tuina massage intervention, among the 20 respondents in the intervention group, 2 respondents (10.0%) had good appetite, and 18 respondents (90.0%) had poor appetite.

d. Frequency Distribution of the Intervention Group After Tuina Massage

After the Tuina massage intervention, among the 20 respondents in the intervention group, 17 respondents (85.0%) had good appetite, and 3 respondents (15.0%) had poor appetite.

e. Frequency Distribution of the Control Group Before Tuina Massage

Before the Tuina massage intervention, among the 20 respondents in the control group, 2 respondents (10.0%) had good appetite, and 18 respondents (90.0%) had poor appetite.

f. Frequency Distribution of the Control Group After Tuina Massage

After the Tuina massage intervention, the control group did not receive the Tuina massage treatment. Therefore, the frequency distribution remains the same, with 2 respondents (10.0%) having good appetite, and 18 respondents (90.0%) having poor appetite.

Bivariate Analysis**Normality Test**

Table 1. Normality Test of the Effect of Complementary Therapy Tu Ina Massage on Increasing Appetite in Toddlers at Posyandu Kampung Sukamulya II Ciseureuh Village

Tu Ina Massage	Shapiro-Wilk	
	Mean±SD	P-Value
Pre-test Intervention	2,90 ± 0,308	0,000
Posttest Intervention	1,15 ± 0,366	0,000
Pre-test Control	2,90 ± 0,38	0,000
Posttest Control	2,90 ± 0,308	0,000

*Normality Test *Shapiro-Wilk*

Source: Primary data of the study, 2024

The results of the Normality Test using Shapiro-Wilk explained that the results of appetite enhancement before and after the massage was carried out on the increase in appetite obtained by the results of the average score of the pretest intervention group of 2.90 and posttest 1.15 there was a decrease in anxiety. Meanwhile, the control group had an average pretest score of 2.90 and posttest of 2.90 with no increase in appetite. The overall results of the intervention group and the control group were ($p=0.000$) which was <0.05 , so it can be concluded that the residual value is not normally distributed and can be done by non-parametric test.

Hypothesis Test

Table 2. Pair-Difference Test Data of Intervention Group and Control Group on the Effect of Tu Ina Massage Complementary Therapy on Increasing Appetite in Toddlers at Posyandu Kampung Sukamulya II, Ciseureuh Village

The Effect of Tu Ina Massage		Mean±SD	P-Value
Intervention	Pre-test	2,90 ± 0,308	0,000
	Posttest	1,15 ± 0,366	
Control	Pre-test	2,90 ± 0,308	1,000
	Posttest	2,90 ± 0,308	

**Wilcoxon Test*

Source: Primary data of the study, 2024

Based on the results of table 2, the Wilcoxon test in the Intervention group showed a decrease in anxiety with an average pre-test value of 2.90 and a post-test average value of 1.15 with a residual final value ($p=0.000$) <0.05 which means that there is an effect of tu ina massage to increase appetite. Meanwhile, the control group did not show an increase in appetite with an average pre-test value of 2.90 and a post-test average value of 2.90 with a residual final value ($p=1,000$), which means that there was no effect of tu ina massage on the increase in appetite in toddlers.

Mann Whitney Test

Table 3. Unpaired Difference Test Data of Intervention Group and Control Group on the Effect of Complementary Therapy of Tu Ina Massage on Increasing Appetite in Toddlers at Posyandu Kampung Sukamulya II Ciseureuh Village

The Effect of Murottal Al-Qur'an		Mean±SD	P-Value
Pre-test	Intervention	2,90 ± 0,304	1,000
	Control	2,90 ± 0,304	
Posttest	Intervention	2,03 ± 0,947	0,000
	Control	2,03 ± 0,947	

*Uji *Mann-Whitney*

Source: Primary data of the study, 2024

Based on the results of table 3, the Mann-Whitney test showed that the Pre-test in the intervention group and the control group with an average value of 2.90 with a residual final value ($p=1,000$) >0.05 which means that there is no difference in massage to increase appetite. Meanwhile, the posttest was in the intervention group and the control group with an average value of 2.03 with a residual final value ($p=0.000$) <0.05 which means that there is an effect of massage on the diet to increase appetite.

A. Univariate Analysis

Variable Frequency Distribution of Appetite Before and After Giving Tu Ina Massage in the Intervention Group and Control Group at Posyandu Kampung Sukamulya II

Based on the characteristics of the level of anxiety before the tuina massage to increase appetite in the appetite intervention group with the good category there were 2 respondents and the appetite with the bad category there were 18 respondents. Meanwhile, the control group with the good category had 2 respondents and 18 respondents with the bad category.

Based on the characteristics of respondents regarding the increase in appetite after the massage was carried out, the intervention group experienced an increase in the results of appetite both there were 17 respondents and appetite was less than 3 respondents. Meanwhile, the control group did not increase appetite because they were only given education about increasing appetite and were not given massage with the results of appetite being good for 2 people and appetite for less than 18 respondents.

Decreased appetite in children, if not handled properly, can have a serious impact. To overcome the problem of difficulty eating or decreased appetite, it can be done through pharmacological and non-pharmacological approaches. The pharmacological approach usually involves administering multivitamins and micronutrients. Meanwhile, non-pharmacological methods can include the use of natural drinks such as herbal medicine, as well as therapies such as massage and acupuncture. Eating problems or lack of appetite are challenges in fulfilling children's nutritional intake, which is often found in children's age groups and is a global health issue. Generally, decreased appetite in toddlers is related to developmental disorders, while in older children it is often related to growth stunts. Therefore, the formation of a healthy diet and a good appetite needs to be started from an early age to prevent eating disorders later in life.

Tui Na massage is an acupressure massage technique that uses hands and applies pressure to the meridian point to relieve symptoms, treat illness, or help restore the patient's health. Tui

Na acupressure is a treatment technique that is purely hand-washed, so it does not require sedation or anesthesia. Tui Na acupressure exerts strong pressure on the patient's body by using squeezing and pressing techniques on the skin. The acupressure point will be pressured with greater energy to release the blockage and smooth blood flow, this process is repeated until the procedure is completed

Bivariate Analysis

The Effect of Complementary Therapy of Tu Ina Massage on Increasing Appetite in Toddlers at Posyandu Kampung Sukamulya II Ciseureuh Village

a. Wilcoxon Test

Based on the results of table 5.9, the Wilcoxon test in the Intervention group showed a decrease in anxiety with a pre-test average score of 2.90 and a posttest average score of 1.15 with a residual final value ($p=0.000$) <0.05 which means that there is an effect of tu ina massage to increase appetite. Meanwhile, the control group did not show a decrease in anxiety with an average pre-test score of 2.90 and a post-test average score of 2.90 with a residual final value ($p=1,000$), which means that there is no effect of tu ina massage to increase appetite.

The results of this study showed that after being given Tuina massage therapy routinely for several sessions, there was an increase in appetite in most of the children who were respondents. This can be seen from the increasing frequency of meals, the increase in the portion of food consumed, and the increase in children's interest in foods that were previously less in demand. These findings are in line with previous research that stated that stimulation of acupressure points through Tuina massage can affect a child's digestive system and metabolism.

The increase in appetite in toddlers is caused by the Tuina Massage. This is because the administration of Tuina Massage helps to improve blood circulation and can maximize organ function, one of the organs that can be maximized is the digestive organs. Where with massage intestinal motility will increase and will improve the absorption of nutrients by the body and increase appetite. Tuina massage is performed in the area around the joints to open up the body's defenses and get energy moving in both meridians, which then makes the muscles stimulate the flow of chi and blood to bring healing (Direktorat Jenderal, 2019; Kemenkes RI, 2018; Kementerian Kesehatan RI, 2018).

Another study by Azizah et al. (2023) at Posyandu Dahlia, Lumajang Regency also found similar results. After Tuina massage for 6 consecutive days, 86.7% of toddlers experienced an increase in appetite. A statistical test using the Wilcoxon test yielded a p-value of 0.001, which showed a significant effect of Tuina massage on increasing appetite in toddlers

b. Mann Whitney Test

Based on the results of table 5.10, the Mann-Whitney test showed that the Pre-test in the intervention group and the control group with an average value of 2.90 with a residual final value ($p=1,000$) >0.05 which means that there is no difference in the mu total of the Qur'an to reduce anxiety. Meanwhile, the posttest was in the intervention group and the control group with an average value of 2.03 with a final residual value ($p=0.000$) >0.05 which means that there is an effect of tu ina massage to increase appetite.

Massage is effective in reducing picky eaters. After the massage is done, the toddler becomes relaxed and can rest. Effectively, so that when toddlers wake up will bring enough energy to do activities, by doing a lot of activities toddlers become hungry quickly, so that their appetite increases (Kursani dkk, 2020).

CONCLUSION

There was an increase in appetite in toddlers after *Tuina* massage in the intervention group, with 17 respondents (85%) showing good appetite and 3 respondents (15%) showing poor appetite. In contrast, in the control group, 2 respondents (10%) showed good appetite and 18 respondents (90%) showed poor appetite. The intervention group showed an improvement in appetite, with an average pre-test score of 2.90 and an average post-test score of 1.15, with a residual value ($p = 0.000$) < 0.05 , indicating a significant effect of complementary *Tuina* massage therapy on increasing appetite in toddlers. Meanwhile, the control group, which did not receive *Tuina* massage, showed no improvement in appetite, with both pre-test and post-test average scores of 2.90 and a residual value ($p = 1.000$).

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