

## EFFECTIVENESS OF ACUPRESSURE Ki3, SP 6, ST 36, ST 25 ON FOOD APPETITE AND MOTOR DEVELOPMENT IN STUNTING CHILDREN UNDER TWO

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### ABSTRAK EFEKTIVITAS AKUPRESSURE Ki3, SP 6, ST 36, ST 25 TERHADAP NAFSU MAKANAN DAN PERKEMBANGAN MOTORIK PADA ANAK BALITA STUNTING

Latar Belakang: Stunting adalah masalah yang masih berlanjut di sektor gizi. Konsekuensi dari stunting sangat serius. Banyak upaya yang telah dilakukan untuk mengatasi stunting, namun belum mencapai standar WHO yaitu <20%, salah satu upaya pendamping yang dapat diberikan adalah akupresur.

Tujuan: Tujuan dari penelitian ini adalah untuk mengetahui efektivitas akupresur terhadap status perkembangan dan nafsu makan anak dengan stunting

Metode: Jenis penelitian yang digunakan adalah true experimental. Kuesioner Pra Skrining Perkembangan dan Kuesioner Nafsu Makan digunakan sebagai instrumen. Uji Mac Nemar digunakan untuk analisis data.

Hasil: Hasil penelitian menunjukkan bahwa akupresur efektif dalam meningkatkan nafsu makan dan perubahan perkembangan motorik halus dengan nilai p value <0,05, sedangkan tidak ada perubahan perkembangan motorik kasar setelah akupresur diberikan.

Kesimpulan: Akupresur efektif diberikan pada anak stunting di bawah dua tahun dengan masalah nafsu makan dan masalah perkembangan motorik halus, akupresur berdasarkan hasil penelitian tidak menunjukkan perubahan untuk motorik kasar.

Saran: agar secara rutin memberikan akupresur untuk mengoptimalkan tumbuh kembang anak

Kata Kunci : Akupresur, Nafsu Makan, Perkembangan Motorik, Stunting, Anak di bawah dua tahun

### ABSTRACT

Background: Stunting is a persistent problem in the nutritional sector. The consequences of stunting are very serious. Many efforts have been made to treat stunting, but have not reached the WHO standard of <20%, one accompanying effort that can be given is acupressure

Purpose: The purpose of this study was to determine the effectiveness of acupressure on the developmental status and appetite of children with stunting

Methods: The type of research used is true experimental. The Developmental Pre Screening Questionnaire and the Appetite Questionnaire were used as instruments. The Mac Nemar test was used for data analysis

Results: The results showed that acupressure was effective in increasing appetite and changes in fine motor development with a p value <0.05, while there was no change in gross motor development after acupressure was given.

Conclusion: Acupressure is effective to be given to stunted children under two with appetite problems and fine motor development problems, acupressure based on the results of the study did not show changes for gross motor

Suggestions; to be regularly to give acupressure to optimize child growth and development.

Keywords: : Acupressure, Appetite, Motor development, Stunting, Children Under two

### INTRODUCTION

Stunting, which is defined as stunted growth for age, is an important nutrition issue at national and global level (Rufaindah & Patemah, 2016). Based on international data from the World Health

Organization (WHO) in 2018, Indonesia has the third highest stunting prevalence among Southeast Asian countries at 30.8% (Kusumawati et al., 2020). Results from Indonesia's Basic Health Survey (Riskesdas) in the same year showed a prevalence

of 30.8%, this figure shows a decrease compared to the previous Riskeudas of 37.2%. Despite the decrease, this figure is not significant enough when compared to the WHO target of reducing stunting to less than 20% (Kemenkes RI et al., 2018). East Nusa Tenggara is one of the provinces in Indonesia with the highest stunting rate, at 42.7% (Badan Pusat Statistik, 2020). Data from the last three years since 2017 show that the stunting rate in NTT has not changed significantly. It was 22.30% in 2017, 26.7% in 2018 and 17.2% in 2019 (Teja, 2019). Stunting is a health problem related to problems in meeting children's nutritional needs over a long period of time, resulting in children who experience growth problems, namely being shorter than the height they should be for their age (Kemenkes RI, 2018), (Lestari & Dwihestie, 2020). The impact of stunting on children will affect their lives in the short and long term. These effects include disruption of children's physical and brain development, metabolism, brain development in relation to intelligence, and the potential for non-communicable diseases in old age (Anggryni et al., 2021), (Ernawati, 2020), (Sharif et al., 2020). If these effects are experienced by large numbers of children, it will affect the productivity of human resources in the future (Anggryni et al., 2021). International strategies to prevent and manage the impact of stunting on children are being integrated into the national policies of the Indonesian government. The second goal of the Sustainable Development Goals (SDGs) is to achieve food security and end all forms of hunger and all forms of malnutrition by 2030. The Indonesian government's national target for stunting reduction is to reduce stunting by 16% in 2023 and 14% in 2024 (Komalasari et al., 2020). Various efforts have been made to achieve this goal, including the production, distribution, processing and consumption of foods that provide good nutrition for expectant mothers, pregnant women and infants and young children, promoting the success of exclusive breastfeeding and complementary feeding (Kemenkes, 2021), (Kemenkes RI et al., 2018). Several studies have shown that parenting practices that focus on increasing appetite through holistic care, including infant massage/acupressure, can help meet infant and young child nutritional needs. Acupressure works by activating the circulation of vital energy by stimulating the flow of energy in the meridians using pressure, massage, rotation, pinching, pulling, tapping or sequencing techniques with the thumb or index finger of the hand on parts and/or specific points of the body (Tresiana Effendi et al., 2020), (Ninla Elmawati Falabiba, 2019). Benefits of

increasing appetite in infants with emphasis on points such as Ki3 (Tai Xi), SP 6 (San Yin Jio), ST 36 (Zusanli), ST 25 (Tianshu). These points, when stimulated by acupressure, cause smooth blood circulation in the lymphatic and gastrointestinal systems, which is directly influenced by the system in the hypothalamus through the production of the hormone ghrelin, which regulates hunger and appetite (suci rahmat, 2017). The functions of these points, including ST 36 and SP 6, are to regulate work, gastric motility and stimulate growth hormone (Barelli et al., 2018). The ST 25 point has been shown in previous research to have an effect on changes in baby weight (Latifah, 2020). While the Ki3 point is related to the production of the hormone calcitriol in the kidneys, which plays a role in the production of active vitamin D and calcium, which plays a role in the growth and development of infants and motor development both gross and fine (J. Li et al., 2019), (C. R. Li et al., 2011), (Rakhman et al., 2015). The area in NTT that is one of the loci for dealing with stunting is Manggarai Regency with Ruteng District being one of the areas with the highest number of cases. Nao village is one of the areas in Ruteng sub-district in the working area of Puskesmas Langke Majok with the highest number of stunting cases from January to August 2021, namely 194 under-five children with 47 stunted infants. On the basis of preliminary studies that have already been carried out in the village of Nao, it is shown that the programmes that have been carried out in the context of the prevention and treatment of stunted infants are supplementary feeding (PMT), balanced nutrition education and fulfilling the nutrition of pregnant women. Therefore, the author is interested in conducting research on the use of acupressure and its relationship with increasing appetite and motor development.

## RESEARCH METHODOLOGY

The research design was true experimental with a pre-post control group. The intervention group was a group of children under two who received acupressure and the control group received standard care, namely the provision of PMT and vitamin A biscuits. The population of this study was all stunted children under two in Nao village, working area of Langke Majok Community Health Centre. The study was conducted in Nao Village, Langke Majok Health Centre Working Area from 16 January to 24 February 2022 with as many as 30 respondents using simple random sampling. Acupressure in the intervention group was given with the technique of pressing each point four times with the duration of each point being one minute.

The intervention was given for one month, with the frequency of acupressure being three times a week. Appetite variables were assessed using a questionnaire, while motor development variables

were assessed using the KPSP. The test used in this analysis is the Mc Nemar test with an  $\alpha$  value of 0.05.

## RESEARCH RESULT

Table 1  
The Differences in the quality of the appetite before and after acupressure

Variable		Pre		Post		p value <sup>a</sup>
		Poor	Good	Poor	Good	
Appetite	Intervention	9 (60%)	6 (40%)	0 (0%)	15 (100%)	0,004*
	Control	12 (80%)	3 (20%)	9 (60%)	6 (40%)	0.2*

<sup>i</sup> Mc Nemar

<sup>el</sup> of significance  $\alpha < 0.05$

Table 1 shows the difference in appetite quality before and after acupressure in the control and intervention groups. The results in the intervention group of appetite quality before

intervention were as many as 9 people (60%) with poor appetite quality, increasing to completely good in the post-test, namely 15 people (100%).

Table 2  
The Differences in Gross Motor Development Before and After Acupressure

Variable		Pre		Post		p value <sup>a</sup>
		S	M	S	M	
Gross motor	Intervention	13 (86,7%)	2 (13,3%)	14 (93,3%)	1 (6,7%)	1,0*
	Control	14 (93,3%)	1 (6,7%)	14 (93,3%)	1 (6,7%)	1,0*

<sup>Jji</sup> Mc Nemar

<sup>vel</sup> of significance  $\alpha < 0,05$

Tabel 3  
The Differences In Fine Motor Development Before and After Acupressure

Variable		Pre		Post		p value <sup>a</sup>
		S	M	S	M	
Fine motor	Intervention	6 (40%)	9 (60%)	12 (80%)	3 (20%)	0,03*
	Control	13 (86,7%)	2 (13,3%)	14 (93,3%)	1 (6,7%)	1,0*

Table 2 and Table 3 show the results of differences in fine and gross motor development in stunted infants before and after acupressure. S is a description of appropriate fine and gross motor development according to M for the category of doubtful development. Table 2 in both the intervention and control groups shows the results that as many as 14 children had appropriate development in the post-test category. The results in Table 3 in relation to fine motor development in the intervention group show the results that previously in the pre-test as many as 9 children (60%) showed doubtful development and in the

post-test intervention results the doubtful category was only in 3 (20%) children.

## DISCUSSION

In the intervention group, there were 9 people (60%) in the poor appetite category and only 6 people (40%) in the good appetite category. After receiving acupressure in the intervention group, 100% or all respondents were in the good appetite category (15 people). The p value of 0.004 < 0.05 means that there is a difference in the appetite of the group of under-fives who received acupressure compared to the control group of under-fives. The results of this study are in line with previous

research which shows that there is an effect of acupressure at point BL 20, BL 31 and point ST 36 given 6 times to two people (case study) on increasing appetite (Primasari et al., 2020). The difference with this study is that acupressure was applied on points SP6, ST 25, ST 36 and Ki3 12 times. Acupressure at point ST 36 also stimulates the release of hormones that stimulate the smooth muscle motility of the stomach or small intestine mucosa. The hormone is gastrin, which accelerates the emptying of the stomach, so that Baduta quickly feels hungry again and stimulates the appetite. Pressing on ST 25 (tianshu) stimulates the ghrelin hormone in the small intestine, increasing blood flow and energy in the intestine (Primasari et al., 2020), (Latifah, 2020), (Safrina, 2020). A good intestinal mechanism is proportional to the higher production of ghrelin hormone and stimulates the baduta to feel hungry and to satisfy the need for food again, and the child's appetite will increase. Based on the results of  $p$  value analysis, the value obtained is more than 0.05 in each group, which means that there is no significant difference in fine and gross motor development of stunted baduta before and after acupressure. The results of this study are different from previous research conducted by Lailatul (Rizki, 2017), namely with massage techniques, whereas in this study acupressure was used, which has been shown to have a good effect on children's motor development. Ki3 point functions in the formation of vitamin D and calcium in bone growth and height gain. SP 6 if stimulated with acupressure has an impact on the release of growth hormone IGF-1 (Insulin like growth factor-1) which produces the hormone insulin which plays a role in fat and protein metabolism. This increase in hormones that help growth and absorption of nutrients is expected to help maximise the growth of cells, bones, muscle tissue which helps in optimising the child's motor development. Acupressure points ST 25 and ST 26 play a role in nutrient absorption (Safrina, 2020), (Latifah, 2020), (Kemenkes RI, 2017). Evaluation of gross motor and fine motor development should be carried out over a longer period of time with an assessment time span of 3 months and a longer and more consistent range of acupressure administration so that changes in stunted baduta will be more visible.

## CONCLUSION

There is an effect of acupressure Ki3, SP 6, ST 36, ST 25 on changes in appetite of stunted infants, but there is no significant change in fine motor development and gross motor development

of stunted infants in Nao Village, Langke Majok Health Centre working area.

## SUGGESTION

It is expected that routine acupressure is given to children from an early age to optimize the growth and development of toddlers and become one of the mandatory empowerment programs for parents of toddlers.  
suggestion

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