

Integration Model of Nutritional Education, Tuina Massage and Psychomotoric Training (Gina Latrik) in Efforts for Food Security and Decreasing of Stunting in Toddler at UPT Puskesmas Klungkung I

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Article History: Received: 29 November 23, Final Revision: 29 December 23, Accepted: 05 January 24, Online Publication: 31 January 2024

ABSTRACT

Stunting is still a health problem faced by Indonesian children. The incidence of stunting according to Indonesian Nutrition Status Survey (SSGI) in 2021 was 24.4% and in 2022 it's decrease to 21.6%. There were exceeds from WHO recommended requirement < 20%. Holistic efforts from the government and society were needed to accelerate stunting reduction. This research aims to produce an integrated approach model such as nutrition education, tuina massage and psychomotor training (*Gina Latrik*) in accelerating to decrease of stunting rates. This type of research is true experimental. Subjects were divided into two groups, ie; "*Gina Latrik B*" treatment group (balanced nutrition education, massage *Tuina* therapy with a frequency of 3–5 times/week and psychomotor training) and control group "*Gina Latrik A*" (balanced nutrition education, massage therapy *Tuina* with a frequency of 1–2 times/week and psychomotor training). The average knowledge level of toddler mothers after given the intervention was $83.66 \pm 4.04\%$ in the control group and $87.98 \pm 5.88\%$ in treatment group and significant difference with $p=0.040$ ($p<0.05$). The results of research on macronutrient intake (energy, protein) in two groups showed significant differences ($p<0.05$) and nutrient intake in Gina Latrik B was better than Gina Latrik A. Nutritional status results with height/age shows that the Z score = 2.17 ± 0.379 (Gina latrik A) dan 2.73 ± 0.452 for Gina Latrik B) with $p=0.003$ ($p<0.05$), there was a significant difference on t-independent analysis. That means the Gina Latrik B was better than Gina Latrik A. Psychomotor development shows an increase in both groups, in Gina Latrik A there is an increase in psychomotor ability in the "appropriate" category of 33,30% to 60%. Meanwhile, in the Gina Latrik B group there was a sharp increase from 39.39% to 90.91%. Based on analysist independent showed a significant difference $p = 0.003$ ($p<0.005$). Based on the results it can be prove that Gina Latrik B intervention was better for decreasing of stunting compared to Gina Latrik A.

Keywords: Food Security stunting, nutrition education, tuina massage, phsycomotoric training.

INTRODUCTION

Currently, stunting is the one focus on nutritional problems in Indonesia. Stunting causes physical abnormalities and impaired cognitive development in children which is caused by a lack of nutritional intake for a long time and poor parenting patterns. The incidence of stunting according to Indonesian Nutrition Status Survey (SSGI) in 2021 was 24.4% and in 2022 it's decrease to 21.6%. This prevalence is still in the high category because the tolerance limit according to WHO is a maximum of 20% [1]. The results of monitoring nutritional status data in Bali Province in 2017 showed that the prevalence of stunting was 19.1% [2], year in 2021 it will be 14% and in 2022 it will reach 8%, which is the lowest in Indonesia. Nutritional problems in Bali constitute the totality of nutritional problems that occur in all districts/cities, including Klungkung Regency. Based on health data for toddlers in the UPT area. Klungkung I Community Health Center in 2019 found that there were 1,796 children under five and 83 people suffered from stunting or 4.62% and 60 people suffering from malnutrition (3.34%). In 2021, stunting cases at UPT Puskesmas Klungkung I reached 93 people (4.77%). The problems of stunting and malnutrition need attention to find solutions to accelerate the achievement of good nutrition. Stunting can affect for late a lifetime and even it has shocking effect on next generation [4]. The most common cause of stunting is a lack of nutritional intake, which is influenced by the mother's parenting style. Causative factors that are associated with poor health and nutrition of children are low socioeconomic status, huge family size, lack of knowledge [5]. Among the risk factors for stunting, parenting style plays an important role in the occurrence of growth disorders in children. In parenting there are 4 important components, namely food provision, psychosocial stimulation, environmental hygiene and sanitation and health, where these 4 components play an important role in optimal child growth. Insufficient nutritional intake, both macro and micro nutrient intake, has

the impact of hampering the growth and development of toddlers. The low consumption of energy and other nutrients in toddlers, especially malnourished toddlers and stunting, is likely caused by several factors such as the frequency and amount of food given and the occurrence of feeding difficulties in children. [6]. Various efforts can be made to accelerate the reduction in stunting rates through a holistic approach model including: balanced nutrition education, complementary massage therapy *Tuina* to overcome eating difficulties, as well as providing psychomotor training to stimulate children's psychosocial aspects towards optimal development. All aspects of a holistic approach from nutritional aspects, massage stimulation *Tuina* and psychomotor training is abbreviated as model "Gina Latrik". The purpose of implementing the model Gina Latrik including increasing nutritional knowledge of toddler mothers under five years, overcoming feeding difficulties, increasing food consumption, increasing body weight, height correction and increasing psychomotor development to accelerate the reduction of stunted children under five years in UPT Puskesmas Klungkung I.

Stunting is a condition caused by an imbalance in nutritional intake during the golden period, not caused by growth hormone disorders or the result of certain diseases [6, 7]. Basic Health Research results show that the prevalence of stunting in children under five has increased from 35.6% (2010) to 37.2% (2013) or an increase of 1.6% [8]. The results of Riskesdas (2018) show that the prevalence of stunting in Indonesia has decreased by 30.86%. SSGI results, 2022 showed that the prevalence of stunting reached 21.6%. The results of the study show that there is a relationship between the level of energy and protein adequacy and the incidence of stunting in children aged 6 months to 12 years [9]. Poor parenting has the potential to increase the incidence of stunting by up to 2,827 times [10]. Parenting patterns are related to fulfilling nutrition and feeding patterns as well

as providing psychomotor stimulation to stunted toddlers holistically to support their growth and development. Providing nutritional education to mothers of toddlers about balanced nutrition and feeding practices is an important effort to apply directly to toddlers. Feeding patterns can influence the quality of food consumption. so that it can affect the nutritional status of toddlers. One of the aspects of child growth and development that must receive serious attention, not only from the aspect of adequate nutrition but also stimulation and early intervention to increase child growth and development, is the 1-5 year age period, including rapid brain cell growth, taking place over a short period of time. short, sensitive and sensitive to

stimuli and experiences, flexible in taking over the function of surrounding cells by forming synapses and greatly influencing the next period of growth and development. One stimulus that can be used in a child's learning process is psychomotor exercises through simulation games. The learning process through psychomotor training will be more active and enjoyable if combined with interesting games using several media such as picture card games, colors and *puzzle* so that the message conveyed will influence its development [[11]. Holistic treatment in handling and accelerating the reduction of stunting by integrating nutritional education, Tuina massage and psychomotor training in a collaboration called "Gina Latrik".

MATERIALS AND METHODS

This study was an experimental, using one group pre-test and post-test design (Pocock, 2008). The research sought to increase the variables of nutritional knowledge, nutritional intake, correction of body weight and height as well as psychomotor development through model interventions *Gina Latrik* in an effort to accelerate the reduction of stunting in children under five. The population of this study was all stunted toddlers in Klungkung Regency. Meanwhile, the sample is part of the population with inclusion criteria, namely stunted children aged 1-5 years, male and female, residing in the Klungkung I Community Health Center area. The sample was divided into

two groups, namely the Control group with the provision of nutritional education, tuina massage and psychomotor training with frequency. 1-2 times/week for 12 weeks, while the Treatment group provided nutritional education, tuina massage and psychomotor training with a frequency of 3-5 times/week for 12 weeks. Data obtained since preparation and implementation were processed using a computer software program with univariate and bivariate statistical analysis. Bivariate analysis using *t-independent test* to assess differences between model administration *Gina Latrik A* and *Gina Latrik B* on indicators of accelerated reduction in stunting on variables.

RESULTS AND DISCUSSION --- (TNR 12 pt, 1,5 Space, Bold)

Subject Characteristics

The research subjects were all stunted toddlers in UPTD Puskesmas Klungkung I. The sample was part of the population with inclusion criteria, ie.; stunted toddlers aged 1–5 years, male and female, domiciled in UPTD Puskesmas Klungkung I. The total number of research subjects was 63 people from 9 (nine) selected village locations in Klungkung Regency, ie; the villages of Tojan, Kamasan, Gelgel, Kampung Gelgel,

Tangkas, Jumpai, Semarapura Kelod, Semarapura Kelod Kangin and Semarapura Kauh. Subjects were divided into 2 (two) groups ; the control group (*Gina Latrik A*) were 30 samples and the treatment group (*Gina Latrik B*) were 33 samples. Subject grouping is done through *matching* data based on research variables such as gender, age and nutritional status. The results of data collection on the characteristics of research subjects can be seen in the following table.

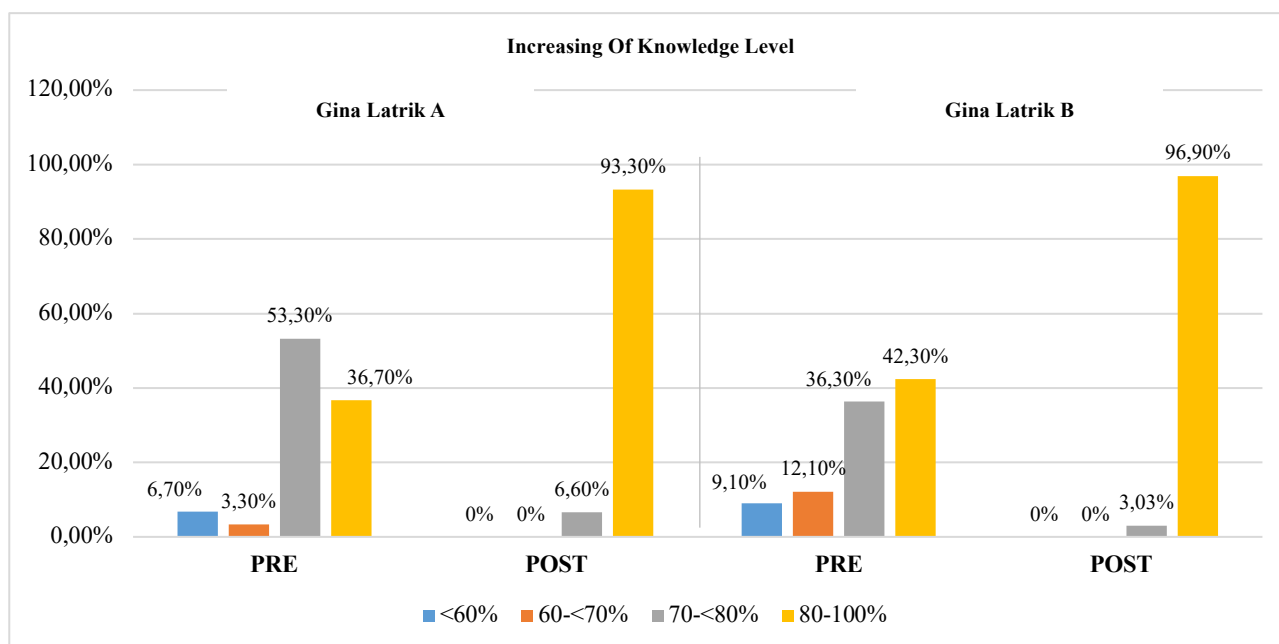
Table 1. Subject Characteristics

Variable	Group				Total	
	Gina Latrik A (Control)		Gina Latrik B (Intervention)		n	%
	n	%	n	%		
Gender						
Male	18	60,0	18	54,5	36	57,15
Female	12	40,0	15	45,5	27	42,85
Total	30	100	33	100	63	100
Age						
1-15 Month	1	3,3	3	9,1	4	6,35
16-30 Month	12	40,0	5	15,2	17	26,98
31-45 Month	12	40,0	12	36,4	24	38,10
46-60 Month	5	16,7	12	39,4	17	26,98
Total	30	100	33	100	63	100
Villages						
Tojan	3	10,0	9	27,3	12	19,05
Kamasan	5	16,7	4	12,1	9	14,29
Gelgel	2	6,7	2	6,1	4	6,35
Kampung Gelgel	3	10,0	8	24,2	11	17,46
Tangkas	3	10,0	3	9,1	6	9,52
Jumpai	6	20,0	1	3,0	7	11,11
Semarapura Kelod	1	3,3	3	9,1	4	6,35
Semarapura Kelod Kangin	6	20,0	3	9,1	9	14,29
Semarapura Kauh	1	3,3	0	0	1	1,59
Total	30	100	33	100	63	100

Knowledge Level of Toddler Mothers

Based on the implementation of Gina Latrik in the control and treatment groups, it resulted in an increase in knowledge among mothers of toddlers. The results of increasing knowledge

about balanced nutrition and feeding patterns for children under five can be seen in the following figure.



The analysis of knowledge level of toddler mothers about balanced nutrition among two group can be seen in table below.

Table 2. The Analysis of Knowledge Level Among Two Group with t-independent test

	Knowledge Level (%)	p
	After Intervention	
Gina Latrik A	83.67 ± 4.04	0,040
Gina Latrik B	87.98 ± 5.88	

The average knowledge level of toddler mothers after given the intervention was $83.66 \pm 4.04\%$ in the control group and $87.98 \pm 5.88\%$ in treatment group. Based on the analysis of differences in the level of knowledge between the

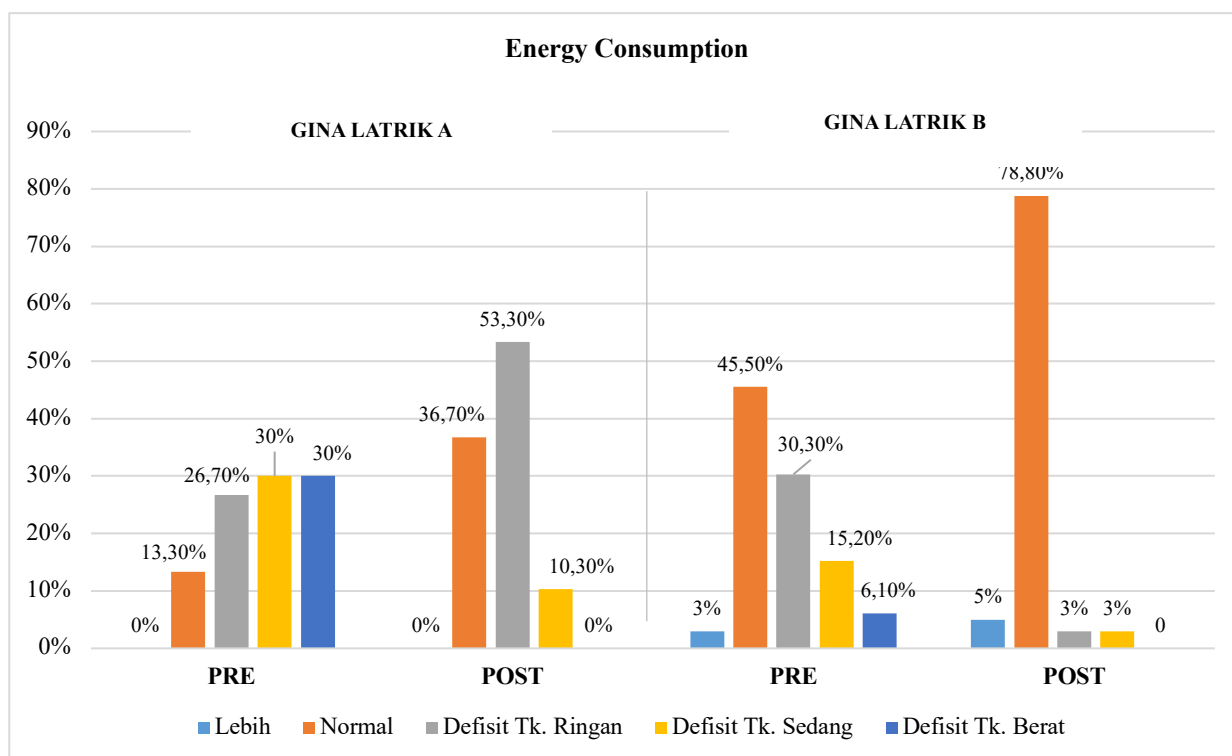
two groups, the value of $p=0.040$ ($p<0.05$). The *t-independent* analysis showed that there was a significant difference in the level of knowledge among two groups.

Nutrient Consumption

Energy Consumption

The results of assessing energy consumption levels using the SQ-FFQ method before and after implementing the Gina Latrik program. The levels

of energy consumption in the two groups are as shown in the following figure.

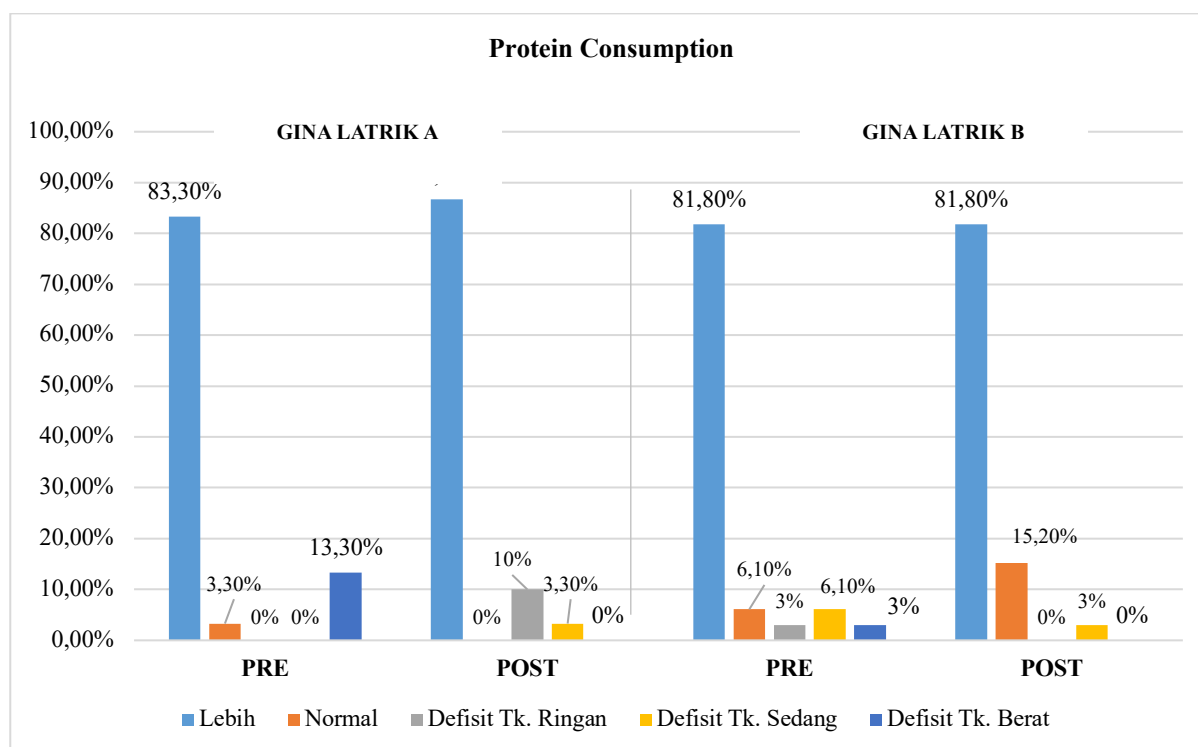


The average level of energy consumption in the control group was 88.83+ 9.43% and 106.01+ 19.86% in treatment group. The results of the t-

independent analysis showed a significant difference at a value of $p = 0.034$ ($p < 0.05$).

Protein Consumption

The protein consumption level in the control and treatment groups can be seen in the following figure.



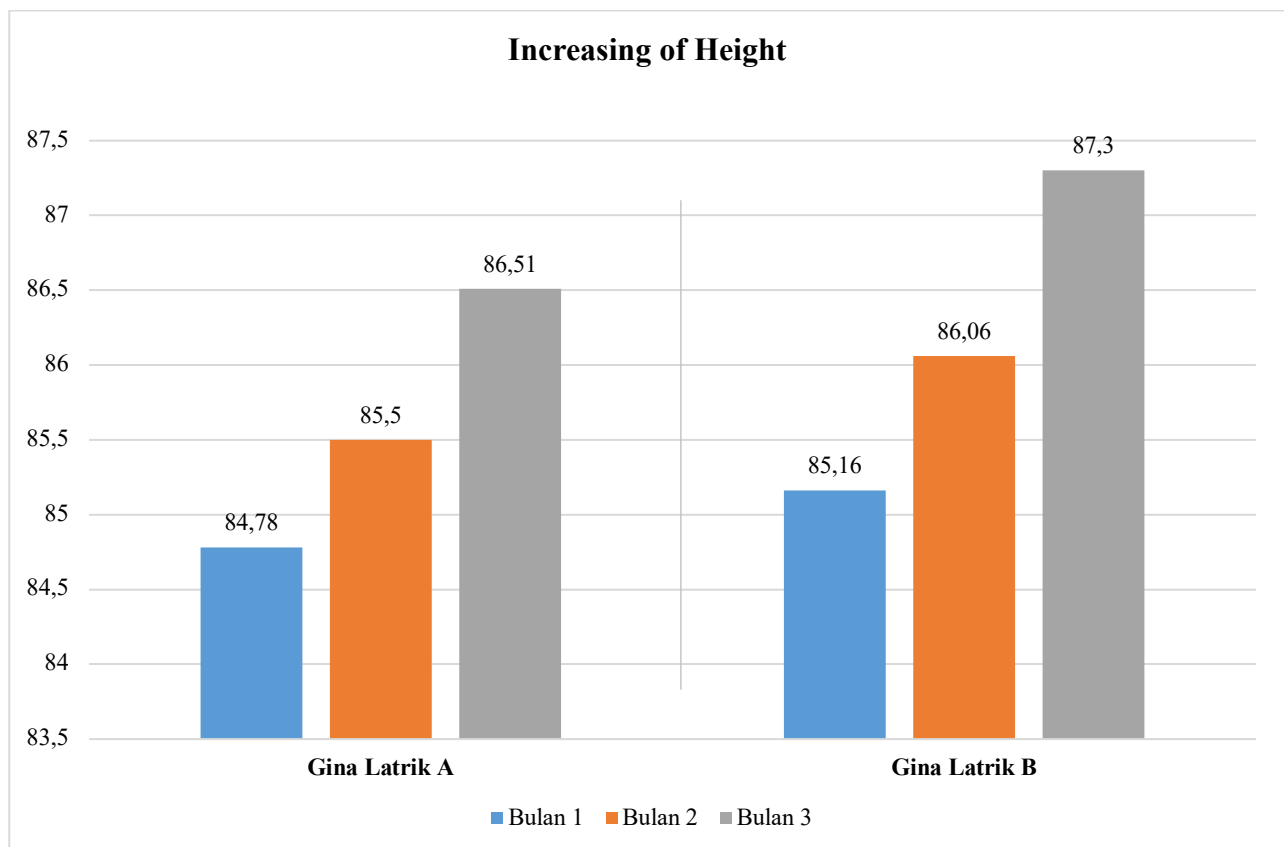
The average level of protein consumption in the control group was $115,786 \pm 34.65\%$ and $117.115 \pm 79.301\%$ in the treatment group. Based on the analysis of differences in levels of protein

consumption in the two groups with p value = 0.002 ($p < 0.05$). Test result *t-independent* showed that there was a significant difference in the level of protein consumption between the two groups.

Nutritional Status with height/aged indicator

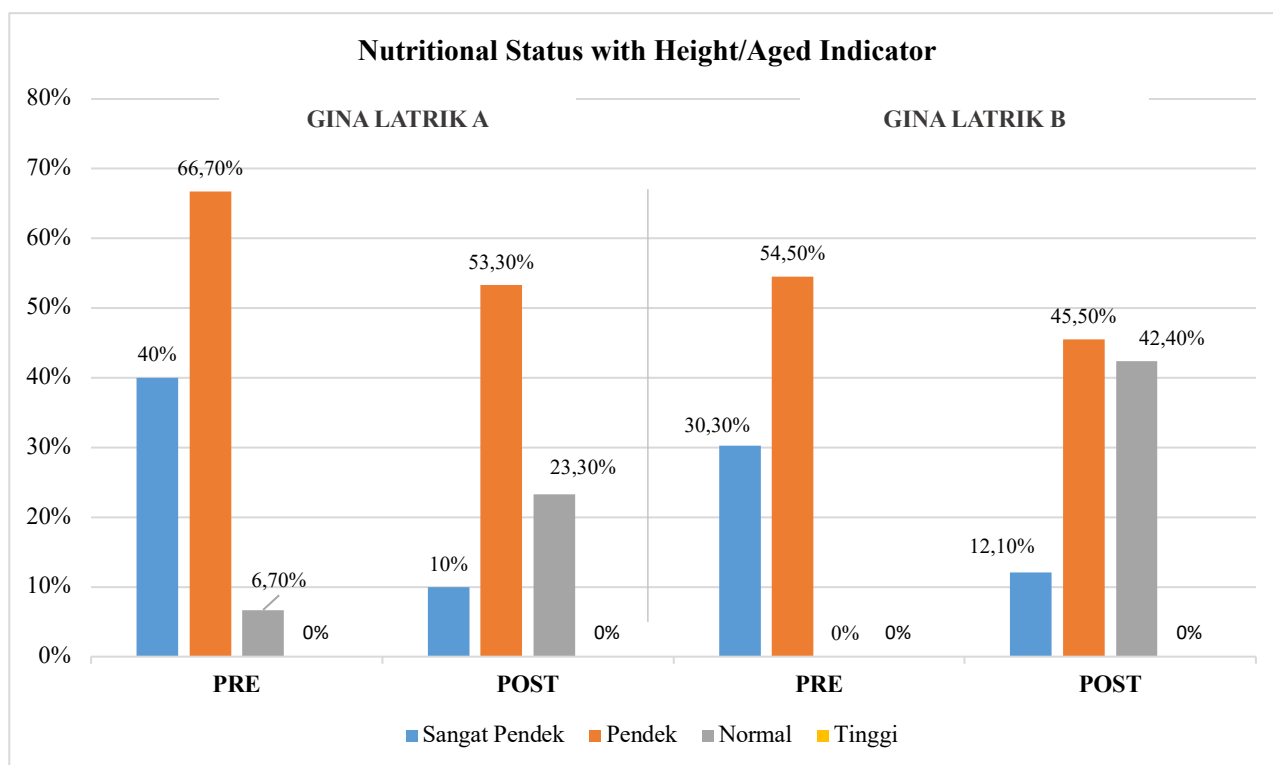
Nutritional status data was obtained by anthropometric measurements such as height/aged and weight/aged. The distribution of data on

increasing of height can be seen in the following figure.



The increasing of height during 12 weeks intervention showed that control group reach until 86,51 cm and in treatment group reach until 87,3

cm. The distribution of nutritional status data for height/aged indicator can be seen in the following figure.



Based on the analysis of differences in nutritional status based on height/aged indicator in the two groups with p value = 0.044 ($p < 0.05$). The *t-independent* analysis showed that there was a

significant difference in nutritional status based on height/aged among the two groups after the intervention.

The Gina Latrik integration approach provides results on the level of macronutrient consumption (energy and protein), increasing nutritional status (Height/Aged) and motor development for stunted children. The level of consumption of macronutrients in the Gina Latrik B group was better than Gina Latrik A due to repeated education and stimulation (tuina massage and psychomotor training) with greater frequency to encourage children's motivation to consume food according to their needed. The research results show that nutrition education has an effect on increasing the knowledge of toddler mothers and children's food intake. Providing nutritional education influences changes in energy, protein intake in children [12].

Tuina massage provides stimulation at the meridian points of the spleen, stomach, liver and heart which can facilitate blood flow to the digestive system, thereby increasing appetite and increasing nutritional intake [13]. The level of

knowledge about nutrition influences the family's ability to provide adequate nutrition for toddlers. Gina Latrik B level of knowledge was better than Gina Latrik A, this is due to repeated administration and greater frequency 3-5 per weeks resulting in understanding of the knowledge being remembered for longer [14]. The implications of massage stimulation and psychomotor training in children have an impact on growth, development and healthy emotional conditions. Children who are given tuina massage stimulation 3 – 5 times/weeks will increase in enzyme levels so that food absorption increases by the valvulus nerve so that the child's appetite increases which can directly increase the child's height and weight [15]. Tuina massage which is carried out regularly 3 -5 times per weeks can increase the effectiveness of the circulation of the hormones epinephrine and norepinephrine which can stimulate the growth of children and toddlers by increasing the frequency of eating, stimulating the development of body structure and motor function [14]. Massage

stimulation and psychomotor training with a frequency of 3 – 5 times/weeks have a positive effect on increasing body weight and height, better

sleep patterns, increased neuromotor development, better emotional bonds, reduced levels of nosocomial infections [17].

CONCLUSION

The level of knowledge about nutrition and child feeding patterns in Gina Latrik A and Gina Latrik B showed an increase in pos test. Gina Latrik B intervention showed a better increase in knowledge levels compared to Gina Latrik A. The Gina Latrik A and Gina Latrik B model interventions can have implications for increasing the level of macronutrient consumption (energy and protein). However, Gina Latrik B intervention had a better impact based on the average level of

consumption compared to the nutritional needs of children under five years. The results of Gina Latrik B intervention on the nutritional status indicators height/aged showed the better results than Gina Latrik A, this can be seen from the increasing of normal nutritional status category and the accelerated reduction in decreasing of stunting.

ACKNOWLEDGEMENTS

This research was funded by Polytechnic of Health Denpasar Ministry of Health. The authors would like to thank to the head of Puskesmas Klungkung I and all of the samples for their immense

cooperation during this study. The author expresses sincere gratitude to the lecture of Nutrition Department Polytechnic of Health Denpasar for supporting this research.

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