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# Increasing weight in children aged 1-2 years with complementary foods for breast milk moringa cassava fish meatballs and green bean biscuit in Bukti Village

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## ABSTRACT

***Background:*** *The prevalence of stunting in Indonesian children has been high for the past decade at 37%. Bukti Village that there are nutritional problems in children aged 1-2 years out of 80 children, there are 54 children (66.25%) and the incidence of stunting is 8 children (10%). Bukti Village has the advantage of food sources in the form of fish, cassava, moringa and mung beans. Intervention to prevent stunting by increasing children's weight through moringa cassava fish balls and mung bean biscuits.*
***Objectives:*** *Increase weight in children aged 1-2 years with moringa cassava fish balls and mung bean biscuits.*
***Methods:*** *The design used in this study is a mix method where in this study quantitative data is found and described qualitatively. The quantitative research design used is a pretest-posttest design. This study used a sample of 54 children aged 1-2 years in Bukti Village, the sampling technique used purposive sampling with the inclusion criteria of children who were malnourished and the exclusion criteria of children with diarrhea and worms. Bivariate analysis using Kruskal Wallis, while qualitative data used descriptive analysis on phenomenology with semistructure interview techniques until the sample was saturated.*
***Results:*** *The results of the study showed that ini 3 intervention groups and 1 control groups there was weight gain after being given Moringa Cassava Fish Balls and mung bean biscuits. Intervention group 1 (giving meatballs) value of p= 0.001, intervention group 2 (giving biscuits) value of p= 0.003 and intervention group 3 (giving meatballs and biscuits) value of p= 0.000. The control group of this study was given additional food in the form of biscuits from the Kubutambahan 1 Health Center value of p= 0.658.*
***Conclusions:*** *There was an increase in weight in children aged 1-2 years after being given cassava fish meatballs, moringa and mung bean biscuits*.

**KEYWORD:** *weight; children aged 1-2 years; complementary foods for breast milk; moringa cassava fish meatballs; mung bean biscuits*

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## INTRODUCTION

Reducing stunting in children is the first of six goals in the global nutrition target for 2025 (1). The prevalence of stunting globally in 2022 in children aged < 5 years is around 22.3% (2). The use of the Maternal and Child Health book by mothers is one of the government programs to reduce the Maternal and Child Mortality Rate and reduce the incidence of stunting, because it is a tool to monitor children's growth and development, increase maternal knowledge so that it can detect maternal and child health early (3). Knowledge about stunting is very necessary for a mother, besides that environmental factors also affect the process of knowledge entry (4). Another factor is the visit of mothers who have children to the posyandu, because the posyandu is an effort to maintain the health of nutritional status in growth and development (5).

The critical period in stunting control begins from the fetus in the womb to the age of 2 years old, known as the golden period (the first 1000 days of life). This is because at the age of 1-2 years, the improvement of stunting conditions can be faster than the age above (2). Children up to 2 years old are vulnerable to malnutrition due to their high energy and micronutrient needs to support rapid growth and development (6). The quality of complementary foods, breast-feeding, baby care practices, food security and health are the main determinants of nutritional status at this age (7). Optimal feeding practices for children in accordance with World Health Organization guidelines, have been recommended as the number one strategy to combat stunting and stunting (8). These recommendations include: breast-feeding within 1 hour after birth or commonly called early breastfeeding initiation, exclusive breastfeeding for babies for the first 6 months and breastfeeding until the age of 2 years (9).

Several types of good foods are given to children to prevent stunting, such as fish, cassava, mung beans and moringa leaves. Fish has a high protein in every 100 grams containing 19 grams of macronutrients including nine essential amino acids, high in omega-3 fatty acids, high in vitamin B-12 and vitamin D (6). The benefits of cassava for children are to improve digestion, help gain weight, optimize brain development, protect blood cells and improve visual function. Green beans (Phaseolus Radiatus) have nutritional content including carbohydrates and contain 20-25% protein and have a digestibility of around 77%.

Fresh moringa leaves contain vitamin A, vitamin C, vitamin B6, calcium, postasium, iron and protein. 3-5 moringa leaves have a vitamin A content of 6.8 mg/100 grams, calcium content of 440 mg/100 grams, potassium content of 259 mg/100 grams, protein content is quite high, which is 6.7 grams/100 grams, and vitamin C content of 220 mg/100 grams, (8). As many as 100 grams of dried moringa leaves contain twice as much protein as yogurt, seven times more vitamin A than carrots, three times more potassium than bananas, four times more

calcium than milk and seven times more vitamin C than oranges (10). Education and the right food selection are needed to meet the nutritional needs of children during this period to prevent malnutrition that can lead to stunting.

Bukti Village is located in Kubu Additional District, Buleleng Regency, Bali Province, there are nutritional problems in children aged 1-2 years, from the monitoring data of the KIA book shows that out of 80 children there are 53 children (66.25%) with a weight below the green line or below the normal limit. The cause of the incident is because children with the Shut Up Movement (GTM) prefer instant food such as noodles, fried chicken, sausages, nuggets, meatballs and other junk food. Meanwhile, the incidence of stunting in Evidence Village is 8 children (10%). Bukti Village has the advantage of food sources in the form of fish, cassava, moringa and mung beans. Interventions that can be carried out to prevent stunting increase the weight of children aged 1-2 years with complementary foods, breast milk, meatballs, fishballs, moringa, and mung bean biscuits.

Fish balls have a protein content of 44.95% (11). One type of fish meat that can be used for making meatballs is snapper meat (12). In the manufacture of fish balls, it is done by mixing fish meat that has been mashed and then ground (50% fish content), then cassava is added as a substitute for tapioca flour then moringa and spices are added to add flavor. Biscuits are one type of snack that is very popular with children because they have an interesting taste and shape, the shape and taste of biscuits are very diverse depending on the ingredients added to the manufacture (13) There are a variety of biscuits, one of which is mung bean biscuits. Green beans have benefits in daily life as a food source that contains high protein and iron (14). The manufacture of biscuits with the addition of green beans affects the nutritional value and organoleptic properties of biscuits, it is expected to be accepted and liked by children aged 1-2 years.

Based on the description above, the author is interested in researching Increasing Weight in Children Aged 1-2 Years with Complementary Food for Mother's Milk, Moringa Cassava Fish Meatballs and Green Bean Biscuits in Evidence Village.

## MATERIALS AND METHODS

This study is a mix method research where in this study quantitative data is found and explained qualitatively. The design of this study is Pre Experiment using the Pre Test and Post Test Group Design method. The research was carried out in June-August 2024 in Bukti Village, KubuAdditional District, Buleleng Regency. The target population is mothers who have children, the affordable population is mothers who have children aged 1-2 years in Bukti Village. The inclusion criteria are children aged 1-2 years with malnutrition and the exclusion criteria are children children with diarrhea and worms. The sample was taken using the total

sampling technique, the population in this study was 54 children aged 1-2 years with malnutrition. The sample used to obtain qualitative data is taken purposively and finds data until the sample is saturated. The dependent variable in this study was an increase in appetite, while the independent variable was Complementary Food for Breast Milk, Cassava Fish Balls, Moringa and mung bean biscuits.

The research instrument uses a validated questionnaire with structured questions. Conducting interviews with questionnaires related to quantitative data and then conducting in-depth interviews with several respondents to obtain qualitative data until 5 saturated samples were found. Univariate analysis to determine the proportion and distribution of each variable. Bivariate analysis was carried out to see the influence between independent variables and bound variables.

A normality test was carried out, data was obtained that was not normally distributed, then the Kruskal Wallis test was carried out. After that, a comparability test was carried out to find out from the three interventions given, including the first group was given an intervention for Mother's Milk Complementary Food for Moringa Cassava Fish Meatballs, the second group was given an intervention for mung bean biscuits and the third group was given an intervention for Mother's Milk Complementary Food for Moringa Cassava Fish Meatballs and mung bean biscuits. The comparability test carried out was with the kruskal wallis test to find out which intervention carried out for 3 months effective in increasing the weight of children aged 1-2 years in Bukti Village. Qualitative analysis using descriptive data analysis on denomenology and developing all with in-depth interview techniques.

The stages of the data analysis process use 9 steps in the Colaoizzi (1978) method. To analyze two types of quantitative and qualitative data, a sequential explanatory research design is used, quantitative data analysis is used as the first method while qualitative data analysis explains more about quantitative data. To control confounding factors, The researcher used direct monitoring of respondents in the provision of supplementary food assisted by using a weight gain observation sheet.

**Table 1. Characteristics of mothers who have children age 1-2 years**

| Characteristic | Frequency | % |
|---|---|---|
| **Child Age** | | |
| 12 months | 1 | 1.9 |
| 13 months | 4 | 7.4 |
| 14 months | 2 | 3.7 |
| 15 months | 5 | 9.3 |
| 16 months | 1 | 1.9 |
| 17 months | 8 | 14.8 |
| 18 months | 5 | 9.3 |
| 19 months | 10 | 18.5 |
| 20 months | 9 | 16.7 |
| 21 months | 9 | 16.7 |
| **Total** | 54 | 100 |
| **Child Gender** | | |
| Man | 26 | 48.1 |
| Woman | 28 | 51.9 |
| **Total** | 54 | 100 |

## RESULTS AND DISCUSSION

### RESULTS

The results **Table 1** of the study were obtained from 54 children aged 1-2 years, most of whom were 19 months old, as many as 10 children (18.5%), most of whom were female, as many as 28 children (51.9%).

Based on **Table 2**, the weight of children aged 1-2 years before and after being given Complementary Food for Mother's Milk, Cassava Fish Meatballs, Moringa, the average weight of children aged 1-2 years before being given Complementary Food for Mother's Milk, Meatballs, Cassava Fish Balls, Moringa was 9.506 kilograms with a standard deviation of 0.7604 with a minimum weight of 8 kilograms and a maximum body weight of 10.8 kilograms. Meanwhile, the average weight of children aged 1-2 years after being given Complementary Food for Mother's Milk, Meatballs, Fish Balls, Cassava Moringa is 10,289 kilograms with a standard deviation of 0.794 with a minimum weight of 8,7 kilograms and a maximum body weight of 11,7 kilograms. The results of the Kruskal Wallis test found that the p value = 0.001, because the p value < α = 0.05, there was a significant difference between body weight before and after being given Moringa Cassava Fish Meatball Mother's Milk Complementary Food or it can be said that Moringa Cassava Fish Meatball Mother's Milk Complementary Food is effective in increasing the weight of children aged 1-2 years.

Based on **Table 3**, the weight of children aged 1-2 years before and after being given the Green Bean Biscuit Supplementary Feeding was obtained as a result of the average weight of children aged 1-2 years before being given the Green Bean Biscuit Supplementary Feeding was 9.478

**Table 2. Weight of children aged 1-2 years before and after being given complementary food breast milk meatballs fish cassava moringa**

| Variable | Mean | SD | Min | Max | p *value* |
|---|---|---|---|---|---|
| Before being given Complementary Food for Mother's Milk, Moringa Cassava Fish Meatballs | 9.506 | 0.7604 | 8 | 10.8 | 0.001 |
| After being given Complementary Food for Mother's Milk, Moringa Cassava Fish Meatballs | 10.289 | 0.794 | 8.7 | 11.7 | |

**Table 3. Weight of children 1-2 years old before and after supplementary feeding of green bean biscuits**

| Variable | Mean | SD | Min | Max | p *value* |
|---|---|---|---|---|---|
| Before Giving Green Bean Biscuit Supplementary Feeding | 9.478 | 0.6603 | 7.9 | 10.5 | 0.003 |
| After being given Green Bean Biscuit Supplementary Feeding | 9.95 | 0.675 | 8.4 | 11 | |

kilograms with a standard deviation of 0.6603 with a minimum weight of 7.9 grams and a maximum body weight of 10.5 grams. Meanwhile, the average weight of children aged 1-2 years after being given the Green Bean Biscuit Supplementary Feeding was 9,950 kilograms with a standard deviation of 0.6750 with a minimum weight of 8,4 kilograms and a maximum body weight of 11 kilograms.

The results of the Kruskal Wallis test found that the p value = 0.003, because the p value < α = 0.05, there was a significant difference between weight before and after being given mung bean biscuit supplementary feeding or it can be said that mung bean biscuit supplementary feeding is effective in increasing the weight of children aged 1-2 years.

Based on **Table 4**, the weight of children aged 1-2 years before and after being given Moringa Cassava Fish Meatballs and Green Bean Biscuit Supplementary Feeding was obtained as a result of the average weight of children aged 1-2 years before being given Moringa Cassava Fish Meatballs and Green Bean Biscuit Supplementary Feeding was 9.294 kilograms with a standard deviation of 0.5846 with a minimum body weight of 7.9 kilograms and a maximum body weight of 10.3 kilograms. Meanwhile, the average weight of children aged 1-2 years after being given Complementary Food for Breast Milk, Fish Meatballs, Cassava Moringa and Supplementary Feeding of Green Bean Biscuits is 11,450 kilograms with a standard deviation of 0.5597 with a minimum weight of 10.1 kilograms and a maximum weight of 12.3 kilograms.

The results of the Kruskal Wallis test found that the p value = 0.000, because the p value < α = 0.05, there was a significant difference between weight before and after being given Complementary Food for Mother's Milk, Moringa Cassava Fish Meatballs and Supplementary Feeding of Green Bean Biscuits or it can be said that Complementary Food for Mother's Milk, Cassava Fish Meatballs, Moringa and

**Table 4. Weight of children aged 1-2 years before and after complementary food breast milk meatballs fish balls moringa and supplementary feeding of green bean biscuits**

| Variable | Mean | SD | Min | Max | p *value* |
|---|---|---|---|---|---|
| Before being given complementary foods for breast milk, meatballs, fish, cassava, moringa and supplementary feeding, mung bean biscuits | 9.294 | 0.584 | 7.9 | 10.3 | |
| After being given Complementary Food for Mother's Milk, Moringa Cassava Fish Meatballs and Supplementary Feeding of Green Bean Biscuits | 11.45 | 0.5597 | 10.1 | 12.3 | 0,000 |

Supplementary Feeding of Green Bean Biscuits are effective in increasing the weight of children aged 1-2 years.

Based on the results of interviews that have been conducted with 5 respondents, it contains 8 questions including:

***When eating, does the child do a grease to cover the mouth Movement? If so, how can mothers overcome this?***

Mothers find it difficult to feed their children, many of the children choose the food to eat, children prefer instant foods such as sausages, nuggets, meatballs, fried chicken, instant noodles and others, children do not want to eat healthy foods such as fish, vegetables, tempeh, tofu, fruits and others, if children do not like the food children often do the movement of closing their mouths. "My son has a very difficult time eating, every time he is given food such as fish, vegetables and other healthy foods, my son always keeps his mouth shut and runs away. My son prefers if I feed him instant noodles, sausages and nuggets. And in the end, instead of my son not wanting to eat, it is better for me to just give him what he wants". (P1)

"I feel very confused when my child doesn't want to eat, yes my child does a shut-mouth movement, he doesn't want to eat healthy rice and side dishes. I have tried to make food creations such as unique and funny food forms so that my child wants to eat, when I feed him my child wants to open his mouth but if he eats vegetables he immediately vomits". (P2)

***How many times does the child eat in 1 day and what foods are usually consumed by the child?***

Mothers feed their children 1-3 times a day, there are several participants who give various types of food such as rice, vegetables, tempeh, tofu, eggs, fish, shrimp, squid and so on. There are also mothers who come from underprivileged families who only provide rice and potluck side dishes. "If I don't work, my son doesn't eat, ma'am, to buy rice, sometimes I can afford it, sometimes I am given by neighbors who feel sorry for us. If there is no rice, my child only eats 1 time a day, but if there is rice, my child can eat 3 times a day. For my side dishes, we can only eat rice with salt or use leftover oil, often we also eat only rice." (P3)

"My son eats 3 meals a day, the food that I usually give is the family food that we usually eat, for example rice, fish, eggs, tempeh, tofu, shrimp, squid, vegetables and fruits". (P4)

***How many times do mothers give snacks to their children in 1 day and what snacks are usually consumed by children?***

Mothers give snacks to their children 1-2 times a day and the snacks that are usually given include biscuits, fruits and ciki-ciki such as chocolate wafers, ice cream, chips, candies and so on. "I give snacks 2 times a day to my child, at 10 am I give him fruits such as bananas, apples, oranges, grapes, savoy and so on and at 3 pm I give him snacks such as biscuits, ice cream and chocolate wafers

alternately every day". (P5)

"I can't afford to buy fruit for my child, biscuits and cakes are also I can't afford because the price is too expensive, I can only buy my child ciki-ciki which costs 500 to 1000 rupiah for example, candies, cholotaos and other cheap snacks only once a day". (P3)

***Did you previously know about the Complementary Food for Breast Milk Moringa Cassava Fish Balls?***

I didn't know about MP-ASI moringa cassava fish meatballs, I only knew that the meatballs were only made from beef or chicken. "I didn't know that the meatballs could be made from fish, especially with a mixture of cassava and moringa leaves, which I knew was the meatballs that I usually buy and eat made from beef or chicken." (P1)

"I just found out that meatballs can be made from cassava and moringa fish". (P2)

***Did you know about the Green Bean Biscuit Supplement before?***

I don't know about Supplementary Feeding of mung bean biscuits, I previously only knew that the processed mung bean products are only in the form of mung bean porridge and biscuits usually only have chocolate, vanilla, strawberry, shredded and coconut flavors. "My son has never given me biscuits, ma'am, I can only afford cheap snacks. I also don't know about mung bean biscuits". (P3)

"I just found out that there are mung bean biscuits, usually the biscuits that I give to the child are biscuits sold in the store, for example, coconut roma biscuits, malkist shreds, chocolate biscuits, vanilla and strawberries only. And as far as I know, mung beans are usually only made into mung bean porridge". (P4)

***Do you know the benefits of Moringa Cassava Fish Meatballs?***

Mom does not know the benefits of Mother's Milk Complementary Food Moringa cassava fish meatballs "I didn't know the benefits of moringa cassava fish balls and only found out about it from my mother when I was at the posyandu for toddlers at that time, it turned out to be very good, ma'am, the benefits, I just knew that the need for protein for children 1-2 years old is very important and all of it is in fish, I also just learned that cassava can improve digestion and the benefits of moringa are very numerous". (P5)

"I don't know the benefits of these meatballs, don't buy fish meatballs, ma'am, my son eats meatballs very rarely, just eating rice is grateful, ma'am". (P3)

***Do you know the benefits of Supplementary Feeding of mung bean biscuits?***

Mom does not know the benefits of Supplemental Feeding of mung bean biscuits. "I don't know how to benefit from mung bean biscuits and I only found out when my mother explained at the posyandu, it turned out that the benefits are good for children". (P1)

“I don't know the benefits of mung bean biscuits". (P2)

***Do you want to give the Complementary Food for Breast Milk and Supplementary Feeding and give the reason?***

Mothers want to give Complementary Foods for Breast Milk and Supplementary Feeding because there are so many benefits obtained. "After participating in the socialization at the posyandu which contained the introduction of Complementary Food for Mother's Milk, Sangkong Moringa Fish Balls and Supplementary Feeding of mung bean biscuits, I want to give Complementary Food for Breast Milk and Supplementary Feeding to my child, the reason is because of the many nutritional contents contained in the food". (P4)

"I want to give the Complementary Food for Breast Milk and Supplementary Feeding because I participated in the socialization that my mother held when the posyandu for toddlers in the village, it turned out that there are many benefits, yes, from the high nutritional content in the food so that it helps the growth of children". (P5)

**DISCUSSION**

The results **Table 1** of the study were obtained from 54 children aged 1-2 years, most of whom were 19 months old, as many as 10 children (18.5%), most of whom were female, as many as 28 children (51.9%). Sex differences affect the amount of nutritional needs in children because of differences in body composition between men and women (1). Women have more fat tissue and less muscle tissue than men. Metabolically, muscles are more active when compared to fat, so proportionally muscles will require more energy than fat (2). There is a difference in satiety between boys and girls where girls get full faster compared to boys(3). This affects children's nutritional intake which can cause boys to be more at risk of obesity (overnutrition) compared to girls (4). Thus, men and women of the same height, weight and age have different body compositions, so their energy and nutritional needs will also be different(5).

The results **Table 2** of the study found that the weight of children aged 1-2 years before and after being given Complementary Food for Mother's Milk, Cassava Fish Meatballs, Moringa, the average weight of children aged 1-2 years before being given Complementary Food for Mother's Milk, Moringa Cassava Fish Meatballs was 9.506 kilograms with a standard deviation of 0.7604 with a minimum weight of 8 kilograms and a maximum body weight of 8,7 kilograms. Meanwhile, the average weight of children aged 1-2 years after being given Complementary Food for Mother's Milk, Meatballs, Fish Balls, Cassava Moringa is 10,289 kilograms with a standard deviation of 0.7940 with a minimum weight of 8,7 kilograms and a maximum body weight of 11,7 kilograms. The results of the Kruskal Wallis test found that the p value = 0.001, because the p value < α = 0.05, there was a

significant difference between body weight before and after being given Moringa Cassava Fish Meatball Mother's Milk Complementary Food or it can be said that Moringa Cassava Fish Meatball Mother's Milk Complementary Food is effective in increasing the weight of children aged 1-2 years. This is in line with Herianto (2023) research showing that before being given complementary foods for breast milk, all toddlers were malnourished and after receiving complementary foods for breast milk, as many as 9 toddlers (74.3%) experienced an increase in nutritional status to good nutrition, the results of the Kruskal Wallis test found that the p value = 0.000, because the p value < α = 0.05, there was a significant difference between body weight before and after being given complementary foods for breast milk. According to Muliyati (2021), a good complementary food for breast milk is given at least 3 times a day, contains 4 healthy 5 perfect, uses regional recipes or modifications, and is prepared, cooked to meet hygiene and health requirements. Based on the results of the study, it was found that the average weight of children aged 1-2 years before being given complementary foods for breast milk was 9,478 kilograms, while the average weight of children 1-2 years after being given complementary foods for breast milk, cassava fish balls, moringa was 10,289 kilograms, there was an increase in weight before and after the intervention of 0,783 kilograms. According to the Ministry of Health of the Kemenkes RI (2020) the standard for weight gain for children aged 1-2 years according to the growth chart from undernourished to normal weight is 1.4-2.3 kilograms. It can be concluded that the results of the research conducted showed a better weight gain compared to the standard of child weight gain according to the growth chart.

The results **Table 3** weight of children aged 1-2 years before and after being given the Green Bean Biscuit Supplementary Feeding was obtained as a result of the average weight of children aged 1-2 years before being given the Green Bean Biscuit Supplementary Feeding was 9.478 kilograms with a standard deviation of 0.6603 with a minimum weight of 7.9 kilograms and a maximum body weight of 10.5 kilograms. Meanwhile, the average weight of children aged 1-2 years after being given the Green Bean Biscuit Supplementary Feeding was 9,950 kilograms with a standard deviation of 0.6750 with a minimum weight of 8,4 kilograms and a maximum body weight of 11 kilograms. The results of the Kruskal Wallis test found that the p value = 0.003, because the p value < α = 0.05, there was a significant difference between weight before and after being given mung bean biscuit supplementary feeding or it can be said that mung bean biscuit supplementary feeding is effective in increasing the weight of children aged 1-2 years. This is in line with the research of Sinaga et al (2023) that supplemental feeding for 90 days can increase the weight of children aged 1-2

years by an average of 1 kilogram from 7,9 kilograms to 8,4 kilograms, the results of statistical tests show that there is a significant difference in weight ($p<0.05$) between before and after supplemental feeding for 90 days.

The results **Table 4** weight of children aged 1-2 years before and after being given Moringa Cassava Fish Meatballs and Green Bean Biscuit Supplementary Feeding was obtained as a result of the average weight of children aged 1-2 years before being given Moringa Cassava Fish Meatballs and Green Bean Biscuit Supplementary Feeding was 9.294 kilograms with a standard deviation of 0.5846 with a minimum body weight of 7.9 kilograms and a maximum body weight of 10.3 kilograms. Meanwhile, the average weight of children aged 1-2 years after being given Complementary Food for Breast Milk, Fish Meatballs, Cassava Moringa and Supplementary Feeding of Green Bean Biscuits is 11,450 kilograms with a standard deviation of 0.5597 with a minimum weight of 10.1 kilograms and a maximum weight of 12.3 kilograms. The results of the Kruskal Wallis test found that the p value = 0.000, because the p value < α = 0.05, there was a significant difference between weight before and after being given Complementary Food for Breast Milk, Meatballs, Cassava Fish, Moringa and Supplementary Feeding of Green Bean Biscuits or it can be said that Complementary Food for Breast Milk, Meatballs, Cassava Fish, Moringa and Supplementary Feeding of Green Bean Biscuits are effective for increasing the weight of children aged 1-2 years. This is in line with Sugianti (2023) research stating that the average weight of children before being given complementary foods for breast milk and supplementary feeding is 7.58 kilograms and after the intervention there is an increase in weight with an average of 11.58 kilograms. Weight is one of the parameters in stable measurement, in a healthy and balanced state between what is consumed and the need for guaranteed nutrients, weight will develop according to the growth of the child's age, on the other hand, if it is in an unhealthy or abnormal state, then there are two possibilities in the development of weight, namely it can develop quickly or actually slow down from the normal state (11). Weight in toddlers must always be monitored in order to verify information that allows intervention. Weight should also always be evaluated, which includes lifestyle and the last weight status (12).

Child growth begins from the fetus to the age of 24 months, or what is often called the golden period. Growth and development to achieve optimal maturity are largely determined by nutrient intake at that age (13). Giving complementary foods of breast milk in sufficient quantities and good quality will affect the nutritional status of the baby. The results of the study showed that the nutritional status of children aged 12-24 months experienced growth retardation due to low breastfeeding and poor breastfeeding (14).

The daily food provided by the mother is to meet the needs of children aged 1-2 years

who can provide carbohydrates, fats, and proteins (15). Weight gain in babies leads to increased energy (16). The energy needed is used to gain weight, regulate the temperature in the body, metabolize food, as well as material for the healing process from illness. Therefore, it is necessary to give children aged 1-2 years additional food as a companion to breast milk that can meet their needs. This is proof that complementary foods for breast milk are needed in order to meet the lack of nutrients in breast milk (17). Weight is a highly volatile anthropometric parameter (18).Under normal circumstances, good health and a balance between consumption and the integrity of nutrients are guaranteed, then weight will increase with age (12). On the other hand, in abnormal circumstances, there are two possibilities of weight development, namely that it can develop faster or faster than normal (19). Given the unstable characteristics of weight, the use of the Weight/Age index better describes a person's current nutritional status (13). Weight gain is caused by the intake of food consumed by children. The results of the study concluded that daily diet was significantly associated with infant weight gain (20).

## CONCLUSION AND RECOMMENDATION

There was an increase in weight for children aged 1-2 years after being given complementary foods for breast milk, fish balls, cassava, moringa, and supplementary feeding of mung bean biscuits. Based on the results of interviews conducted by 5 respondents, it was found that Moringa cassava fish balls and mung bean biscuits are an innovation of complementary foods for breast milk and children want to eat them and like the food.

## REFERENCES


1. Yuningsih Y, Perbawati D. Hubungan Jenis Kelamin terhadap Berat Badan Anak. J MID-Z (Midwivery Zigot) Jurnal Ilmu Kebidanan. 2022;5(1):48–53.
2. Sundari S, Yunita LH. Faktor-Faktor Yang Mempengaruhi Berat Badan Anak Stunting Di Desa Canden, Jetis, Yogyakarta. Jurnal Ilmu Kebidanan. 2021;7(1):17–28. doi : http://dx.doi.org/10.48092/jik.v7i1.115
3. Ariati LIP.Faktor-Faktor Resiko Penyebab Terjadinya *Stunting* Pada Balita Usia 23-59 Bulan. OKSITOSIN Jurnal Ilmu Kebidanan. 2019;6(1):28–37. doi : https://doi.org/10.35316/oksitosin.v6i1.341
4. Mely O:, Saputri N, Kadarisman Y, Si M. Faktor-Faktor Penyebab Stunting Dan Pencegahannya Di Kelurahan Selatpanjang Kota Kecamatan Tebing Tinggi Kabupaten Kepulauan Meranti. Jurnal Online Mahasiswa. 2021;9:1–15.
5. Wulandari A, Kurniawati HF. Faktor-Faktor yang Mempengaruhi Stunting. Ilmu Kebidanan dan Keperawatan. 2023; 2(01):51–8. doi : https://doi.org/10.56741/bikk.v2i01.180
6. Herianto PN. Efektivitas Makanan

Pendamping ASI terhadap kenaikan berat badan balita gizi kurang di wilayah Puskesmas Tlogomulyo Kabupaten Temanggung. Jurnal Kesehatan Dan Sains. 2023;6.
7. Muliyati H. Pengaruh MP-ASI terhadap Peningkatan Berat Badan Balita Gizi Kurang. Jurnal Ners Widya Nusantara Palu. 2021;2(1):2017.
8. Kemenkes RI. Peraturan Menteri Kesehatan Republik Indonesia Nomor 2 Tahun 2020 tentang Standar Antro pometri Anak. 2020;2507(February):1–9.
9. Sinaga ES, Rasyid IA, Mubarok MR, Sudharma NI, Nolia H. Pemantauan Konsumsi Pemberian Makanan Tambahan (PMT) Dalam Meningkatkan Berat Badan Balita Dengan Masalah Gizi. Abdi Moestopo Jurnal Pengabdian Pada Masyarakat. 2023;6(1):1–8. doi : https://doi.org/10.32509/abdimoestopo.v5i2.2236
10. Sugianti E. Program of Supplementary Feeding Recovery (PMT-P) for Malnourished Toddlers in Tuban District. Journal of Research and Development on Public Policy. 2023;11(2):217–24.
11. Nelista Y, Fembi PN. Pengaruh Pemberian Makanan Tambahan Pemulihan Berbahan Dasar Lokal Terhadap Perubahan Berat Badan Balita Gizi Kurang. Prepotif Jurnal Kesehatan Masyarakat. 2021;5(2):1228–34. doi : http://dx.doi.org/10.31004/prepotif.v5i2.2426
12. Saputri N. Pengaruh Pemberian Makanan Tambahan Berupa Berat Badan Balita Wasting the Effect of Additional Food in the Form of Habbatus sauda. Jurnal 'Aisyiyah Medika. 2024;13(2):224–9.
13. Masri E, Sari WK, Yensasnidar Y. Efektifitas Pemberian Makanan Tambahan dan Konseling Gizi dalam Perbaikan Status Gizi Balita. Jurnal Kesehatan PERINTIS (Perintis's Heal Journal). 2021;7(2):28–35. doi : https://doi.org/10.33653/jkp.v7i2.516
14. Komalasari K, Fara YD, Utami IT, Mayasari AT, Komalasari V, Al Tadom N. Efektivitas Pemberian Makanan Tambahan Pemulihan (PMT-P) Terhadap Kenaikan Berat Badan Balita Stunting. Journal of Current Health Sciences. 2021;1(1):17–20. doi : https://doi.org/10.47679/jchs.v1i1.4
15. Setiawan E, Machmud R, Masrul M. Faktor-Faktor yang Berhubungan dengan Kejadian Stunting pada Anak Usia 24-59 Bulan di Wilayah Kerja Puskesmas Andalas Kecamatan Padang Timur Kota Padang Tahun 2018. Jurnal KesehatanAndalas Andalas. 2018;7(2):275. doi : http://dx.doi.org/10.25077/jka.v7i2.813
16. Rini I, Pangestuti DR, Rahfiludin MZ. Pengaruh Pemberian Makanan Tambahan Pemulihan terhadap Perubahan Status Gizi Balita Gizi Buruk Tahun 2017 (Studi di Rumah Gizi Kota Semarang). Jurnal Kesehatan Masyarakat. 2022;5(4):698–705. doi :

https://doi.org/10.14710/jkm.v5i4.18753
17. Permanasari Y, Saptarini I, Amalia N, Aditianti A, Safitri A, Nurhidayati N, et al. Faktor Determinan Balita Stunting Pada Desa Lokus Dan Non Lokus Di 13 Kabupaten Lokus Stunting Di Indonesia Tahun 2019. Peneliti Gizi dan Makanan (The Journal Nutrition Food . 2021;44(2): 79–92.
18. Sebtalesy CY, Mulyati SB. Upaya Peningkatan Berat Badan Balita Kurang Dengan Pemberian Makanan Tambahan Di Desa Kedungpanji Magetan. SWARNA Jurnal Pengabdian Kepada Masyarakat. 2023;2(1):122–30.
19. Nindyna Puspasari, Merryana Andriani. Hubungan Pengetahuan Ibu tentang Gizi dan Asupan Makan Balita dengan Status Gizi Balita (BB/U) Usia 12-24 Bulan. Amerta Nutrisi. 2017;1(4): 369–78.
20. Fitriah RR, Anggraini Y, Erpidawati. Kenaikan Berat Badan Balita Usia 12-24 Bulan Setelah Pemberian Makanan Tambahan Berbasis Kearifan Lokal di Jorong Pahambatan Kenagarian Balingka Kabupaten Agam Tahun 2023. Innovative Journal of Social Science Research. 2023;3(6):8421–35.